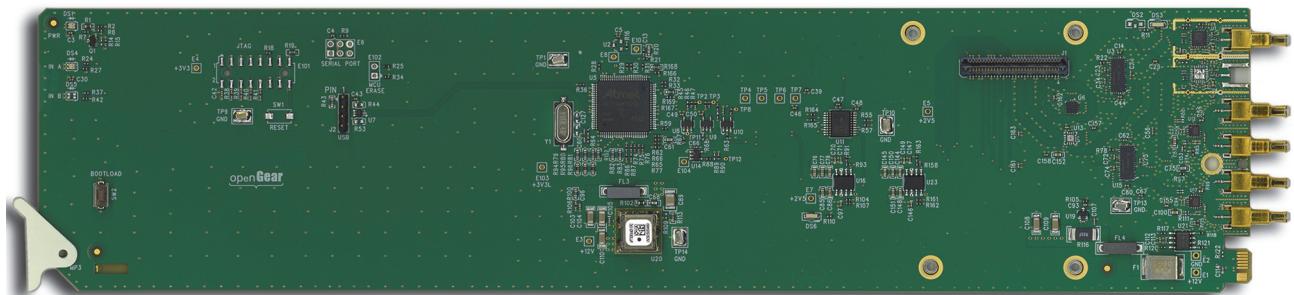


SRA-8901 Series

Single 12G/6G/3G/HD/SD SDI Reclocking Distribution Amplifiers User Manual



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

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



David Ross
CEO, Ross Video
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Ross Video Code of Ethics

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9. We will go above and beyond in times of crisis. *If there's no one to authorize the required action in times of company or customer crisis - do what you know in your heart is right. (You may rent helicopters if necessary.)*

SRA-8901 · User Manual

- Ross Part Number: 8901DR-004-02
- Release Date: January 26, 2018.

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Patents

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

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Safety Notices

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

Statement of Compliance

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

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

EMC Notices

US FCC Part 15

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

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a Commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio

communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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

Canada

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

Cet appareil numérique de la classe “A” est conforme a la norme NMB-003 du Canada.

European Union

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



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

Australia/New Zealand

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

Korea

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

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

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

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

International

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

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

Maintenance/User Serviceable Parts

Routine maintenance to this openGear product is not required. This product contains no user serviceable parts. If the module does not appear to be working properly, please contact Technical Support using the numbers listed under the “**Contact Us**” section of this manual. All openGear products are covered by a generous 5-year warranty

and will be repaired without charge for materials or labor within this period. See the “**Warranty and Repair Policy**” section in this manual for details.

Environmental Information

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

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

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



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

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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 SRA-8901 12G/6G/3G/HD/SD SDI Reclocking Distribution Amplifier. 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 SRA-8901, 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

Each SRA-8901 is a 12G/6G/3G/HD/SD SDI Reclocking Distribution Amplifier, capable of equalizing and reclocking all common serial digital signals. The outputs are non-inverting making it an excellent ASI distribution amplifier. An LED indicator at the front of the card identifies the presence of incoming video, simplifying system troubleshooting.

The SRA-8901 series includes two products: the SRA-8901-4 and the SRA-8901-10. **Table 1.1** summarizes the number of inputs and outputs for each product.

Table 1.1 SRA-8901 Series Products

Product	Number of Inputs	Number of Outputs
SRA-8901-4	1	4
SRA-8901-10	1	10

Features

The SRA-8901 includes the following features:

- Equalizes and reclocks SDI signals of 270Mbps, 1.485Gbps, 2.97Gbps, 5.94Gbps, and 11.88Gbps
- Supports DVB-ASI (EN 50083-9), and MADI (AES10) signals
- Configure and monitor via DashBoard
- Automatic detection of incoming data rate
- Automatically mutes the channel output when a loss of input occurs
- LED indicator for signal presence
- Excellent input and output return loss
- Fits the OG3-FR series frames
- Fully compliant with openGear specifications
- 5 year transferable warranty

Functional Block Diagrams

Figure 1.1 describes the signal flow of the SRA-8901-4.

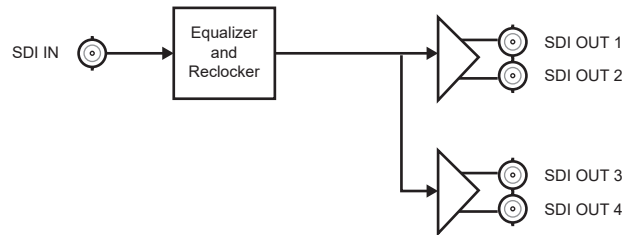


Figure 1.1 Simplified Diagram — SRA-8901-4

Figure 1.2 describes the signal flow of the SRA-8901-10.

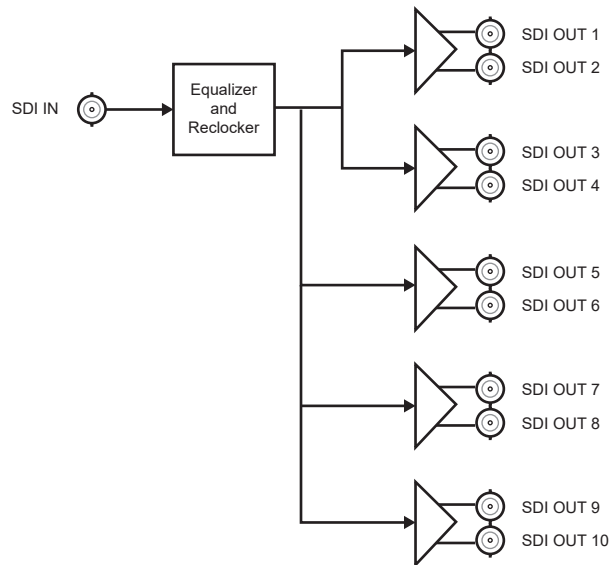


Figure 1.2 Simplified Diagram — SRA-8901-10

User Interfaces

The following interfaces are available for control and monitoring of your SRA-8901.

DashBoard Control System

DashBoard 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.

For More Information on...

- the menus in DashBoard, refer to the chapter “**DashBoard Menus**” on page 4-1.
- installing and using DashBoard, refer to the *DashBoard User Manual*.

Card-edge Monitoring

The card-edges provide LEDs for monitoring the status of the input signal.

For More Information on...

- the card-edge LEDs, refer to the section “**Monitoring Features**” on page 3-3.

SNMP Monitoring and Control

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

For More Information on...

- SNMP controls on your card, refer to your SRA-8901 Management Information Base (MIB) file.
- SNMP Monitoring and Control for the openGear frame, refer to your *MFC-OG3 Series User Manual*.

Documentation Terms and Conventions

The following terms and conventions are used throughout this manual.

Terms

The following terms are used:

- “**Board**” and “**Card**” both refer to the card, including all components and switches.
- “**DashBoard**” refers to the DashBoard Control System.
- “**Network Controller Card**” refers to the MFC-8322-N, and MFC-OG3-N Series Network Controller Cards unless otherwise indicated.
- “**OG3-FR series**” refers to the OG3-FR series frames and all available options unless otherwise indicated.
- “**openGear frame**” refers to the OG3-FR series frames and all available options unless otherwise indicated.
- “**Operator**” and “**User**” both refer to the person who uses the SRA-8901.
- “**SRA-8901**” refers to both the SRA-8901-4 and SRA-8901-10.
- “**SRA-8901-4**” refers to the SRA-8901 with one input and four outputs.
- “**SRA-8901-10**” refers to the SRA-8901 with one input and ten outputs.
- “**System**” and “**Video system**” both refer to the mix of interconnected production and terminal equipment in which the card operates.

Conventions

The following conventions are used:

- The “**Operating Tips**” and “**Note**” boxes are used to provide additional user information.

Installation

In This Chapter

This chapter provides instructions for installing the rear module for your SRA-8901, installing the card in the frame, cabling details, and how to upgrade the software on your card(s).

The following topics are discussed:

- Before You Begin
- Installing the SRA-8901
- Cabling
- 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 its 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 card 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 SRA-8901

The SRA-8901 can be installed in the OG3-FR series frames using one of the supported rear modules. The procedure for installing the rear module and card in your OG3-FR series frame is the same regardless of the card model.

Supported Rear Modules



Notice — *Ensure that you install the SRA-8901 in an OG3-FR series frame. Installing the SRA-8901 in a frame other than the OG3-FR series frame can damage the card, the rear module, or both.*

The Rear Module depends on the configuration you wish to use:

- **SRA-8901-4** — The **8322AR-311** Rear Module is required.
- **SRA-8901-10** — The **8322AR-312** Rear Module is required.

Installing a Card

You must first install the rear module in the frame and then install the card in the appropriate slot within an OG3-FR series frame. This section outlines how to perform both tasks.

To install the rear module in the openGear frame

1. Ensure that the OG3-FR series frame is properly installed.
2. On the rear of the frame, locate the card frame slot.
3. Remove the Blank Plate from the rear of the slot you have chosen for card installation.
4. As shown in **Figure 2.1**, seat the bottom of the rear module in the seating slot at the base of the frame's back plane.

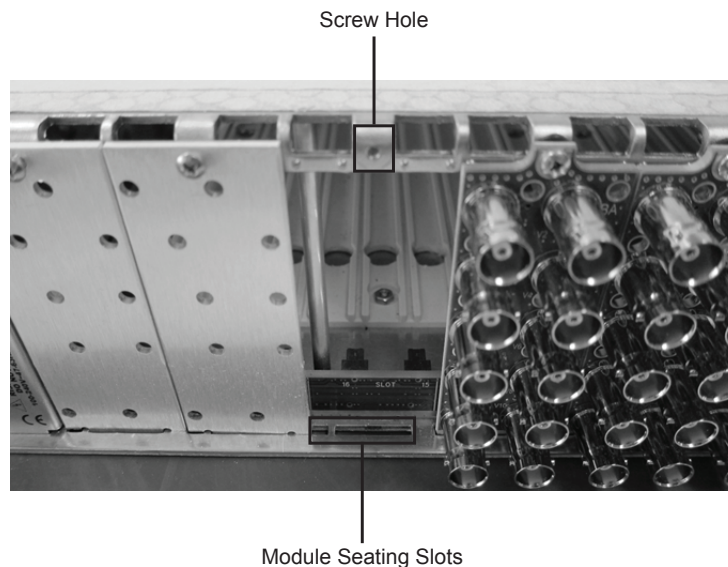


Figure 2.1 *Rear Module Installation in an OG3-FR Series Frame (Cards not shown)*

5. Align the top hole of the rear module with the screw hole on the top edge of the frame back plane.

- Using a Phillips screwdriver and the supplied screw, fasten the rear module to the back plane. Do not over-tighten.
- Ensure proper frame cooling and ventilation by having all rear frame slots covered with rear modules or blank metal plates.

To install the card in the openGear frame

- Locate the Rear Module you installed in the procedure “To install the rear module in the openGear frame” on page 2-3.



Notice — Ensure all the bullet connectors on the card-edge are aligned correctly to the edge of the main card before inserting the card into a frame slot. Inserting misaligned bullet connectors into the rear module backplane can damage the connectors, the rear module or both.

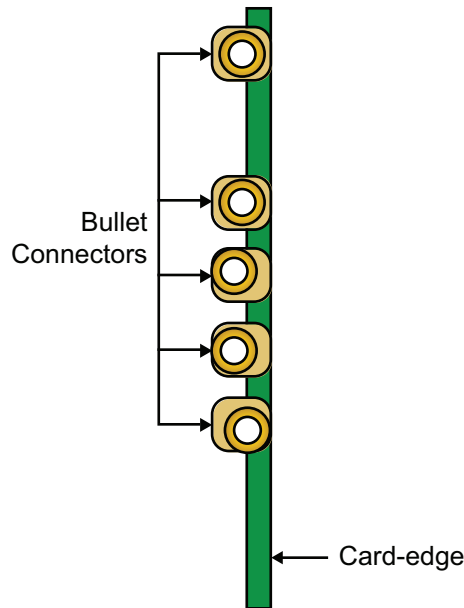


Figure 2.2 Example — Mis-alignment of Bottom Three Connectors

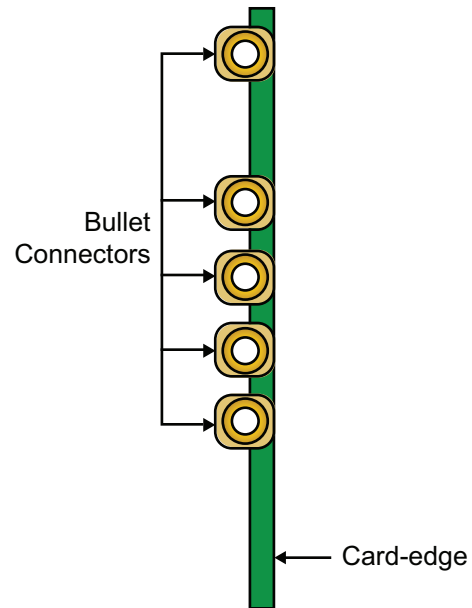


Figure 2.3 Bullet Connectors — Example of Correct Alignment

- Hold the card by the edges and carefully align the main card edges with the slots in the frame.
- Fully insert the card into the frame until you feel the bullet connectors on the card-edge come into contact with the rear module.
- Continue to slide the card until the bullet connectors are fully seated into the HD-BNCs of the rear module. You will feel a click when the bullet connectors fully mate into the rear module.

Removing a Card or Rear Module

Removing a rear module without removing the associated cards/assemblies is very difficult and could result in damage to the connectors

Cabling

This section provides Belden 1694A cabling details based on the card model.



Note — *It is recommended to terminate unused outputs. You can also mute an unused output via the Mute Outputs options available in the Setup tab of DashBoard.*

SRA-8901-4 Cabling

The 8322AR-311 Split Rear Module is required for the SRA-8901-4. Each rear module occupies two slots and accommodates two cards. This rear module provides an SDI input, and four SDI outputs per card. (Figure 2.4)

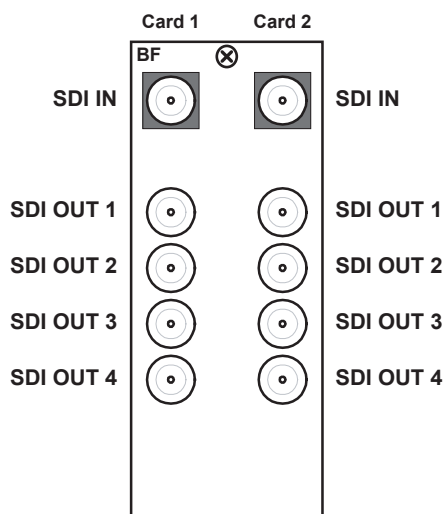


Figure 2.4 Cable Connections for the SRA-8901-4

SRA-8901-10 Cabling

The 8322AR-312 Full Rear Module is required for the SRA-8901-10. Each rear module occupies two slots, and accommodates one card. This rear module provides one SDI input, and ten SDI outputs. (Figure 2.5)

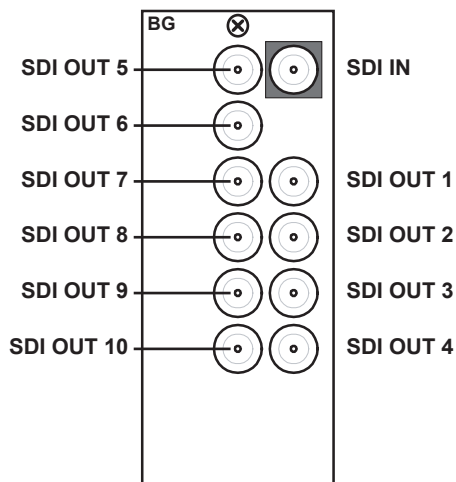


Figure 2.5 Cable Connections for the SRA-8901-10

Software Upgrades

The SRA-8901 can be upgraded in the field via DashBoard. Note that DashBoard version 8.0 or higher is required.

To upgrade the software on a card

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

Configuration

In This Chapter

This chapter provides a general overview of the user controls available on your SRA-8901.

The following topics are discussed:

- Card Overview
- Monitoring Features
- Using DashBoard
- Configuring the SRA-8901

Card Overview

This section describes major components of the card hardware. There are no card-edge controls as all configuration and setup is done using the menus in DashBoard. Refer to the section “**Monitoring Features**” on page 3-3 for details on the card-edge LEDs.

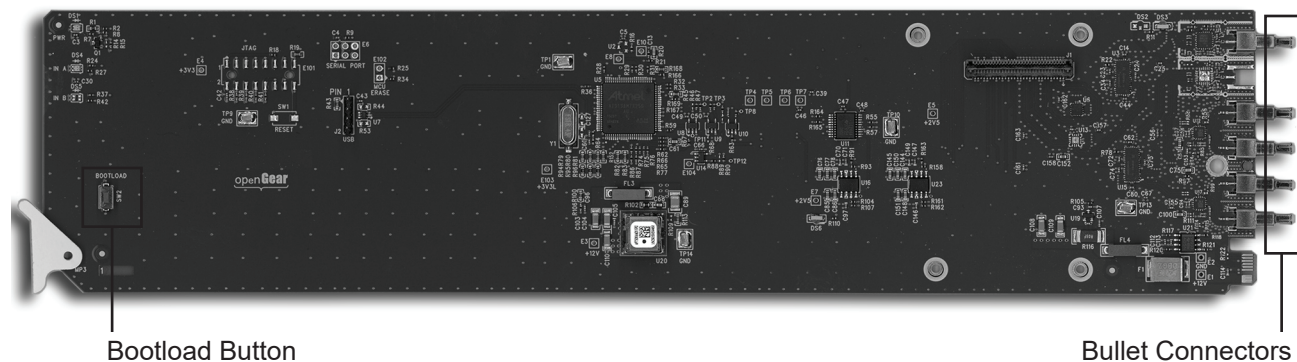


Figure 3.1 Card Components — Example of a SRA-8901-4

Bootload Button

This button is used for factory service in the unlikely event of a complete card failure. Do not use this button unless advised by Ross Technical Support.

Bullet Connectors

The bullet connectors on the card-edge insert into the backplane of the rear module, to connect the card to the rear module. It is strongly recommended to verify that the bullet connectors are aligned correctly before inserting into the rear module.

Daughter Card

A daughter card may be installed on the SRA-8901 main PCB. This daughter card provides additional output connections for the rear module.



Note — Only the SRA-8901-10 is installed with a daughter card to supply the additional outputs.

For More Information on...

- the cabling designations for your card, refer to the section “**Cabling**” on page 2-5.
- the Bootload process, refer to the section “**Bootload Button**” on page 6-2.

Monitoring Features

The following sections describe the card-edge LEDs. Refer to **Figure 3.2** for LED locations.

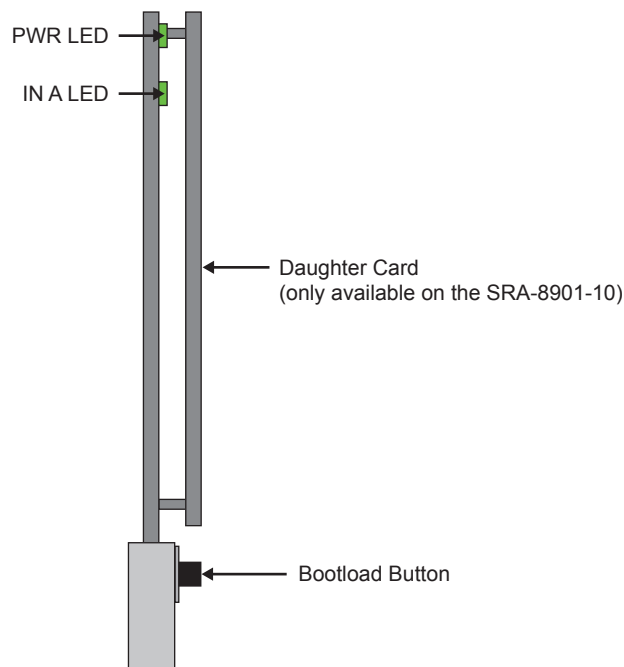


Figure 3.2 LED Locations

Status LEDs

Table 3.1 provides basic LED displays and descriptions.

Table 3.1 Status LEDs

LED	Color	Display and Description
PWR	Green	When lit green, this LED indicates that the card is functioning normally and that no anomalies have been detected.
	Flashing Green	When flashing green, this LED indicates that the Bootload button was pressed, and the card is receiving a new software load from the frame.
	Flashing Green and Orange	When lit green with flashing orange, this LED indicates a signal or configuration problem. Verify the signal status and settings.
	Amber	When lit amber, this LED indicates the card is running internal diagnostics while powering up.
	Red	When lit red or flashing red, this LED indicates the card is not operational. Re-seat card in frame, check the rear module type and connections, or call Ross Video Technical Support.
	Off	When off, this LED indicates there is no power to the card.
IN A	Green	When lit green, this LED indicates that a valid SDI input signal is present on the SDI IN connector.
	Red	When lit red, this LED indicates that the SDI input signal is missing or invalid on the SDI IN connector.

Using DashBoard

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

For More Information on...

- installing DashBoard, refer to the *DashBoard User Manual*.

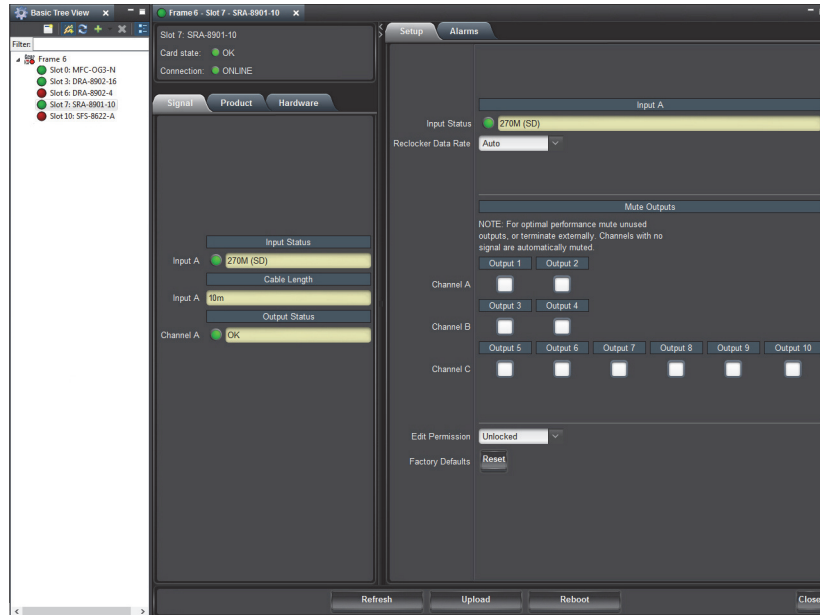
To launch DashBoard

1. Ensure that you are running DashBoard software version 8.0 or higher.
2. Launch DashBoard by double-clicking its icon on your desktop.
3. Ensure that the openGear frame with your SRA-8901 card(s) is displayed in the Tree View located on the left-side of the DashBoard window.

It may take 30 seconds or more to update the Tree View. Consult the *MFC-OG3 Series User Manual* and *DashBoard User Manual* should the Tree View not display the card.

To access a card in DashBoard

1. From the **Tree View**, expand the node for the openGear frame your cards are installed in. A list of cards installed in the frame is now displayed. In the example below, the node for Frame 6 is expanded to show a list of cards including the SRA-8901-10.
2. Double-click the node for a card to display its menus in the **Device View** of DashBoard (right-side of the DashBoard window).



Example of a SRA-8901-10 in DashBoard

Configuring the SRA-8901

This section briefly outlines how to configure the SRA-8901 using the options available in DashBoard.

Configuring the Reclocker

This section summarizes how to select a data rate for the reclocker. This enables the card to reclock to a specific data rate or automatically detect and reclock the data rate. It also sets the input signal rate type that the SRA-8901 will process.

To set the reclocker data rate

1. From the **Device View**, select the **Setup** tab.
2. Use the **Reclocker Data Rate** menu to choose a data rate. Choose from the following:
 - **Auto** — The SRA-8901 reclocks at the detected rate automatically.
 - **125M (MADI)** — The SRA-8901 is set to reclock at MADI rate of 125Mbps only. This is the required setting when using MADI signals.
 - **270M (SD)** — The SRA-8901 is set to reclock at 270Mbps only.
 - **1.5G (HD)** — The SRA-8901 is set to reclock at 1.485Gbps only.
 - **3G** — The SRA-8901 is set to reclock at 2.97Gbps only.
 - **6G** — The SRA-8901 is set to reclock at 5.94Gbps only.
 - **12G** — The SRA-8901 is set to reclock at 11.88Gbps only.

Muting an Output

If you have an unused output, it is recommended to either terminate the output or mute the output via the Mute Outputs options available in DashBoard.

To mute an unused output

1. From the **Device View**, select the **Setup** tab.
2. Locate the **Mute Outputs** area located near the bottom of the **Setup** tab. You may need to scroll down the tab.
3. Select the **Output** box for the output you wish to mute.

The box displays a check-mark.

Configuring the Invalid Signal Alarms

When enabled, this feature will indicate an alarm condition (red) in the corresponding **Status** field of the **Signal** tab. This occurs if the SRA-8901 does not detect a valid input signal for that channel. To verify which BNC to troubleshoot, refer to the rear module labeling.

To enable the alarm for an invalid input signal

1. From the **Device View**, select the **Alarms** tab.
2. To raise an alarm when an invalid input signal is detected, select the **Invalid Signal** check box in the **Input A** area of the tab.

The **Input Status** fields in the **Signal** tab and the **Status** tab report when an invalid input signal is detected.

To enable the alarm for an invalid output signal

1. From the **Device View**, select the **Alarms** tab.
2. To raise an alarm when an invalid output signal is detected, select the **Invalid Signal** check box in the **Channel** area of the tab for the output you wish to monitor.

The corresponding **Output Status** field in the **Signal** tab reports when an invalid input signal is detected.

DashBoard Menus

In This Chapter

This chapter briefly summarizes the menus, items, and parameters available from DashBoard for your card. Default parameters are noted with an asterisk (*).

The following topics are discussed:

- Status Tabs
- Setup Tab
- Alarms Tab



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

Status Tabs

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

Signal Tab

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

Table 4.1 Signal Tab Items

Tab Title	Item	Parameters	Description
Input Status	Input A	125M (MADI) (Green)	A MADI signal detected at 125Mbps is present
		270M (SD) (Green)	A valid 270Mbps input signal is present
		1.5G (HD) (Green)	A valid 1.485Gbps input signal is present
		3G (Green)	A valid 2.97Gbps input signal is present
		6G (Green)	A valid 5.94Gbps input signal is present
		12G (Green)	A valid 11.88G input signal is present
		Signal Not Locked (Green)	An input signal is present, but not locked. The Invalid Signal alarm (in the Alarms tab) is disabled.
		Signal Not Locked (Red)	An input signal is present, but not locked. The Invalid Signal alarm (in the Alarms tab) is enabled.
		No signal (Green)	A valid input signal is not detected. The Invalid Signal alarm (in the Alarms tab) is disabled.
No signal (Red)	A valid input signal is not detected. The Invalid Signal alarm (in the Alarms tab) is enabled.		
Cable Length	Input A	#	Indicates the approximate Belden 1694A cable length used for the input signal
		N/A	A valid input source was not detected on the input BNC.

Table 4.1 Signal Tab Items

Tab Title	Item	Parameters	Description
Output Status	Channel #	OK (Green)	A valid output signal is detected
		No Signal (Green)	The output signal is not present. The Invalid Signal alarm for this channel (in the Alarms tab) is disabled.
		No Signal (Red)	The output signal is not present. The Invalid Signal alarm (in the Alarms tab) for this channel is enabled.
		Signal Not Locked (Green)	An output signal is present, but not locked. The Invalid Signal alarm (in the Alarms tab) is disabled for this output channel.
		Signal Not Locked (Red)	An output signal is present, but not locked. The Invalid Signal alarm (in the Alarms tab) is enabled for this output channel.

Product Tab

Table 4.2 outlines the read-only information displayed in the **Product** tab.

Table 4.2 Product Tab Items

Tab Title	Item	Parameters	Description
	Product	SRA-8901-#	Displays the card model
	Supplier	Ross Video Ltd.	Indicates the manufacturer of your card
	Board Rev	##	Indicates the version of the PCB
	Board S/N	#####	Indicates the card serial number
	Software Rev	##.##	Indicates the software version
Daughter Boards	1	6 Output	Indicates if a Daughter Card is installed in the indicated position on the PCB and provides the specified connections
		None	

Hardware Tab

Table 4.3 outlines the read-only information displayed in the **Hardware** tab.

Table 4.3 Hardware Tab Items

Tab Title	Item	Parameters	Description
Hardware	Voltage (mV)	#	Supply voltage
	Current (mA)	#	Current consumption of card in milliamperes
	CPU Headroom	#	Processing power available
	RAM Available	#	On-board processing memory available
	Configuration Bank	#	Storage count
	Uptime (h)	#	Displays the number of hours since the last reboot of the card

Setup Tab

Table 4.4 summarizes the Setup options available in DashBoard.

Table 4.4 Setup Menu Items

Menu Title	Item	Parameters	Description
Input A	Input Status (read-only)	125M (MADI) (Green)	A MADI signal detected at 125Mbps is present
		270M (SD) (Green)	A valid 270Mbps input signal is present
		1.5G (HD) (Green)	A valid 1.485Gbps input signal is present
		3G (Green)	A valid 2.97Gbps input signal is present
		6G (Green)	A valid 5.94Gbps input signal is present
		12G (Green)	A valid 11.88Gbps input signal is present
		Signal Not Locked (Green)	An input signal is present, but not locked. The Invalid Signal alarm is disabled in the Alarms tab.
		Signal Not Locked (Red)	An input signal is present, but not locked.
		No signal (Green)	A valid input signal is not present, but the Invalid Signal alarm is disabled in the Alarms tab.
		No signal (Red)	A valid signal is not present
	Reclocker Data Rate ^a	Auto*	Card automatically detects the incoming data rate
		125M (MADI)	Reclocker is set to 125Mbps
		270M (SD)	Reclocker is set to 270Mbps
		1.5G (HD)	Reclocker is set to 1.485Gbps
3G		Reclocker is set to 2.97Gbps	
6G		Reclocker is set to 5.94Gbps	
Mute Outputs - Channel #	Output #	Selected	Mutes the specified output for the channel. It is recommended to terminate or mute unused outputs.
		Cleared*	The output is not muted.
	Edit Permission	Unlocked*	All configurable menu options are editable
		Locked	All configurable menu options, except this one, are locked and are read-only
	Factory Defaults	Reset	Resets all editable parameters to the factory default values

a. When using MADI signals, you must set the Reclocker Data Rate to 125M (MADI) and not Auto.

Alarms Tab

Table 4.5 summarizes the **Alarms** options available in DashBoard.

Table 4.5 Alarm Enables Menu Items

Menu Title	Item	Parameters	Description
Input A	Invalid Signal	Selected*	The Status field in the Signal tab reports the loss of the input as an error/alarm
		Cleared	The Status field in the Signal tab reports the loss of the input as information only (status indicator does not report an alarm condition)
Channel #	Invalid Signal	Selected*	The specified Channel field in the Output Status area of the Signal tab reports the detected invalid input as an error/alarm
		Cleared	The specified Channel field in the Output Status area of the Signal tab reports that an invalid input is detected, but as information only (status indicator does not report an alarm condition)

Specifications

In This Chapter

This chapter includes the technical specifications for the SRA-8901. Note that specifications are subject to change without notice.

The following topics are discussed:

- Technical Specifications

Technical Specifications

This section lists the technical specifications for the SRA-8901

Table 5.1 Technical Specifications

Category	Parameter		Specification
SDI Input	Number of Inputs		1
	Data Rates and SMPTE Standards Accommodated		19.39Mbps, 38.78Mbps, SMPTE 310 MADI, AES10-2008 270Mbps, 525/625 Component, SMPTE 259M 270Mbps, DVB-ASI 1.485Gbps Component, SMPTE 292M 2.97Gbps Component, SMPTE 424M 5.94Gbps Component, SMPTE 2081 11.88Gbps Component, SMPTE 2082
	Impedance		75ohm
	Equalization (Belden 1694A cable)		>380m (1640ft) @ 270Mbps >210m (650ft) @ 1.485Gbps >180m (490ft) @ 2.97Gbps >80m (260ft) @ 5.94Gbps >50m (190ft) @ 11.88Gbps
	Return Loss		>15dB to 1.485Gbps >10dB to 2.97Gbps >7dB to 5.94Gbps >4dB to 11.88Gbps
	Connector Type		HD-BNC
SDI Outputs ^{a b}	Number of Outputs	SRA-8901-4	4
		SRA-8901-10	10
	Impedance		75ohm
	Return Loss		>15dB to 1.485Gbps >10dB to 2.97Gbps >7dB to 5.94Gbps >4dB to 11.88Gbps
	Rise & Fall Times		MADI: 1.0-3.0nS, <0.5nS difference 270Mbps: 0.4-1.5nS, <0.5nS difference 1.485Gbps: <270ps, <100ps difference 2.97Gbps: <135ps, <50ps difference 5.94Gbps: <80ps, <30ps difference 11.88Gbps: <45ps, <18ps difference

Table 5.1 Technical Specifications

Category	Parameter	Specification	
SDI Outputs	Jitter	MADI: <2.0UI (<4.0nS) 270Mbps: <0.2UI, jitter measured 10Hz-1kHz 1.485Gbps: <1.0UI jitter measured 10Hz-100kHz, <0.2UI above 100kHz 2.97Gbps: <1.0UI jitter measured 10Hz-100kHz, <0.3UI above 100kHz 5.94Gbps: <2.0UI jitter measured 10Hz-100kHz, <0.3UI above 100kHz, band limit @594MHz 11.88Gbps: <2.0UI jitter measured 10Hz-100kHz, <0.3UI above 100kHz, band limit @1188MHz	
	Signal Level	800mV ±10%	
	DC Offset	0V ±50mV (MADI is 400mV +/- 10%)	
	Overshoot	<10%	
	Connector Type	HD-BNC	
Environment	Max. Ambient Temperature	40°C (104°F)	
Power	Total Power Consumption	SRA-8901-4	2.5W
		SRA-8901-10	4.6W

- a. It is recommended to terminate unused outputs. You can also mute an output via the Mute Outputs options available in the Setup tab of DashBoard.
- b. All outputs are non-inverting when using DVB-ASI and 270Mbps signals.

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 card, 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 at the end of the 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. **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. **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.

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 card.

To perform a complete software reload on the card

1. Eject the card from the openGear frame.
2. Press and hold the **Bootload** button, while re-inserting the card into the frame.
3. Release the button.
 - The **PWR** LED will flash 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.
 - Contact Ross Technical Support for the latest software load for your card.

Warranty and Repair Policy

The SRA-8901 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 SRA-8901 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 SRA-8901 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 openGear Product. Ross Video policy dictates that all repairs to the SRA-8901 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 SRA-8901, 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 SRA-8901. If required, a temporary replacement frame will be made available at a nominal charge. Any shipping costs incurred will be the responsibility of you, the customer. All products shipped to you from Ross Video Limited will be shipped collect.

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

Contact Us

Contact our friendly and professional support representatives for the following:

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

Technical Support

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