



SRA-8901-R User Guide

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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
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3. We will not ship crap.
4. We will be great to work with.
5. We will do something extra for our customers, as an apology, when something big goes wrong and it's our fault.
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7. We will treat the competition with respect.
8. We will cooperate with and help other friendly companies.
9. We will go above and beyond in times of crisis. *If there's no one to authorize the required action in times of company or customer crisis - do what you know in your heart is right. (You may rent helicopters if necessary.)*

SRA-8901-R · User Guide

- Ross Part Number: **8901DR-104-01**
- Revision: 2
- Release Date: April 22, 2025.
- Software Version: 1.0

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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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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.*

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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 à 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 in 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.

Security and Privacy

If you would like more information on how Ross Video security and privacy practices have been applied to the SRA-8901-R, what you should know about maintaining security of this product, and how we can partner with you to ensure security throughout this product's life-cycle, contact techsupport@rossvideo.com.

Ross Video has implemented reasonable administrative, technical, and physical safeguards to help protect against security incidents and privacy breaches involving a Ross Video product provided those products are used in accordance with Ross Video instructions for use. However, as systems and threats evolve, no system can be protected against all vulnerabilities and we consider our customers the most important partner in maintaining security and privacy safeguards. If you have any concerns, we ask that you bring them to our attention, and we will investigate. Where appropriate, we will address the issue with product changes, technical bulletins and/or responsible disclosures to customers and regulators. Ross Video continuously strives to improve security and privacy throughout the product life-cycle using practices such as:

- Privacy and Security by Design
- Product and Supplier Risk Assessment
- Vulnerability and Patch Management
- Secure Coding Practices and Analysis
- Vulnerability Scanning
- Access Controls appropriate to Customer Data
- Incident Response
- Clear paths for two-way communication between customers and Ross Video

If you would like to report a potential product related privacy or security issue (incident, breach, or vulnerability), contact techsupport@rossvideo.com.

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Introduction

This guide covers the installation, configuration, and use of the SRA-8901-R. The following chapters are included:

- **“Introduction”** summarizes the guide and provides important terms, and conventions.
- **“Before You Begin”** provides general information to keep in mind before installing and configuring your card.
- **“Hardware Overview”** provides a basic introduction to the hardware features including the cabling and monitoring features of the rear module.
- **“Physical Installation”** provides instructions for the physical installation of the card and its rear module into an openGear frame.
- **“Cabling”** provides information on connecting to your facility network, and connecting to external equipment.
- **“Getting Started”** provides a general overview of the user controls available on the SRA-8901-R.
- **“Bypass Relay Setup”** outlines how to configure the bypass relay feature, and define the card behavior during a loss of the input signal.
- **“Configuring the Reclocker”** outlines how to select a data rate for the SRA-8901-R reclocker.
- **“Configuring the Outputs”** outlines how to mute unused outputs, and monitor the outputs for an invalid signal.
- **“Using RossTalk”** how to configure the SRA-8901-R to be controlled from a remote editor or computer via RossTalk commands.
- **“Operation”** briefly summarizes the operation modes when the bypass feature is active.
- **“Updating the Network Settings”** outlines how to update the network settings assigned to the SRA-8901-R.
- **“Upgrading the Software”** provides instructions for upgrading the software for your SRA-8901-R using DashBoard.
- **“DashBoard Menus”** summarizes the SRA-8901-R menus, items, and parameters in DashBoard.
- **“Technical Specifications”** provides technical specification details on the SRA-8901-R.
- **“Software Licenses”** provides third-party software license information for your card.
- **“Service Information”** provides information on the warranty and repair policy for your card.
- **“Glossary”** provides a list of terms used throughout this guide.

Related Publications

It is recommended to consult the following Ross documentation before installing and configuring your SRA-8901-R card:

- ***DashBoard User Guide***, Ross Part Number: 8351DR-004
- ***MFC-OG3-N and MFC-8322-S User Guide***, Ross Part Number: 8322DR-004
- ***OG3-FR Series User Guide***, Ross Part Number: 8322DR-005
- ***OGX-FR Series User Guide***, Ross Part Number: 8322DR-204

Documentation Conventions

Special text formats are used in this guide to identify parts of the user interface, text that a user must enter, or a sequence of menus and sub-menus that must be followed to reach a particular command.

Interface Elements

Bold text is used to identify a user interface element such as a dialog box, menu item, or button. For example:

In the **Network** tab, click **Apply**.

User Entered Text

Courier text is used to identify text that a user must enter. For example:

In the **Language** box, enter **English**.

Referenced Guides

Text set in bold and italic represent the titles of referenced guides, manuals, or documents. For example:

For more information, refer to the ***OGX-FR Series User Guide***.

Menu Sequences

Menu arrows are used in procedures to identify a sequence of menu items that you must follow. For example, if a step reads "**File** > **Save As**," you would click the **File** menu and then click **Save As**.

Important Instructions

Star icons are used to identify important instructions or features. For example:

- ★ Contact your IT department before connecting to your facility network to ensure that there are no conflicts. They will provide you with an appropriate value for the IP Address, Subnet Mask, and Gateway for your device.

Contacting Technical Support

At Ross Video, we take pride in the quality of our products, but if problems occur, help is as close as the nearest telephone.

Our 24-hour Hot Line service ensures you have access to technical expertise around the clock. After-sales service and technical support is provided directly by Ross Video personnel. During business hours (Eastern Time), technical support personnel are available by telephone. After hours and on weekends, a direct emergency technical support phone line is available. If the technical support person who is on call does not answer this line immediately, a voice message can be left and the call will be returned shortly. This team of highly trained staff is available to react to any problem and to do whatever is necessary to ensure customer satisfaction.

- **Technical Support:** (+1) 844-652-0645
- **After Hours Emergency:** (+1) 613-349-0006
- **E-mail:** techsupport@rossvideo.com
- **Website:** <http://www.rossvideo.com>

Before You Begin

If you have questions pertaining to the operation of your card, contact us at the numbers listed in **“Contacting Technical Support”**. Our technical staff is always available for consultation, training, or service.

Overview

The SRA-8901-R offers a UHD bypass solution for the OGX-FR frame. Each SRA-8901-R is capable of acting as a failsafe device to provide guaranteed on-air service in the case of a power failure.

The SRA-8901-R provides four active SDI outputs. This adds cable reach, signal conditioning and re-timing to SD-SDI, HD-SDI, 3G-SDI, 6G-SDI, and 12G-SDI signals.

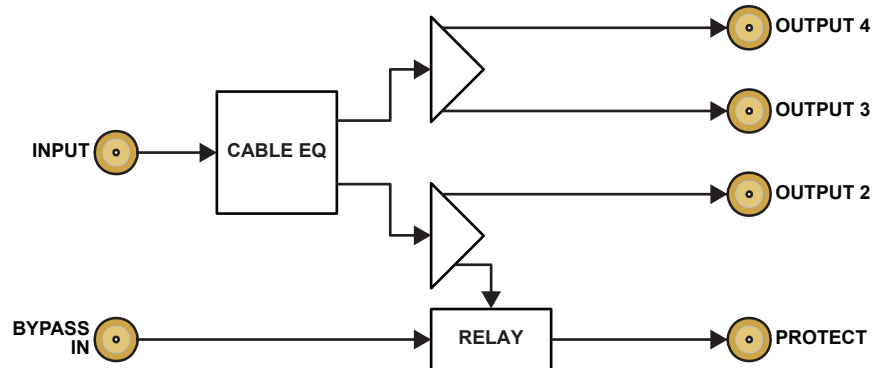


Figure 1 SRA-8901-R — Simplified Block Diagram

Features

The following features are standard for the SRA-8901-R:

- High-density conversion solution 20 channel per openGear frame¹
- Supports SDI data rates 270Mbps to 11.88Gbps
- Support for MADI audio transport
- Relay bypass using the MANUAL BYPASS switch on the card-edge
- Relay bypass using the RossTalk protocol
- Relay bypass to protect against:
 - › Loss of power
 - › Loss of signal on primary (as detected by the serial reclocker loss of input)
 - › Reclocker lock error
- Manual trigger bypass relay using DashBoard
- On-air failsafe operation in the event of power failure or primary input signal loss and signal lock error
- Hot swap capabilities
- Reports status and configuration remotely via the DashBoard Control System
- 5-year transferable warranty

1. Ensure the frame includes a Network Controller Card (MFC-OG3-N). The MFC-8322-S does not support the SRA-8901-R.

User Interfaces

The SRA-8901-R includes the following interface 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 Control System software and manual are available for download from our website.

For More Information on...

- the SRA-8901-R menus in DashBoard, refer to “**DashBoard Menus**”.
- using DashBoard, refer to the ***DashBoard User Manual*** available from our website.

Hardware Overview

This chapter presents information on the SRA-8901-R hardware components and features.



Notice — Installing the SRA-8901-R in a frame other than the OG3-FR or OGX-FR could damage the card, the rear module, or both. Ensure the frame includes a Network Controller Card (MFC-OG3-N). The MFC-8322-S does not support the SRA-8901-R.

Card-edge Features

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

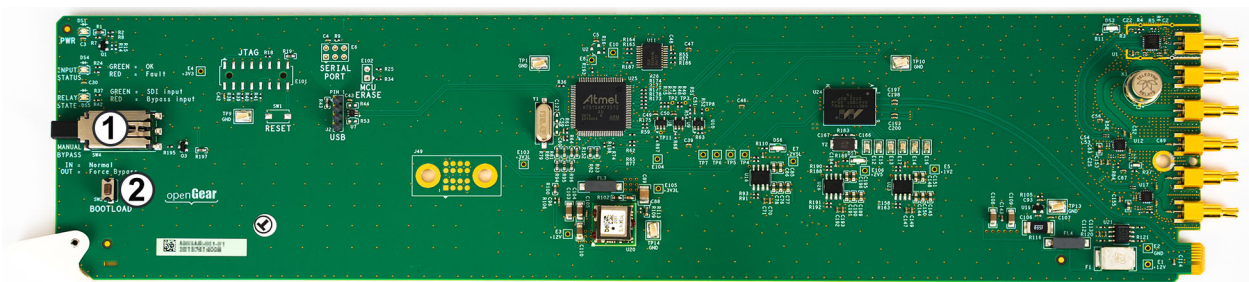


Figure 2 SRA-8901-R — Base Card Components

1. MANUAL BYPASS Switch and Status LED

This switch is used to manually set the card into bypass mode as follows:

- › If the button is **OUT**, the card is in bypass mode, the LED on the switch is lit red, and the RELAY STATE LED is lit red¹.
- › If the button is latched **IN**, the card operates in normal mode, the LED on the switch and the RELAY STATE LED reflect the relay state.

★ The Setup > Bypass Status field in DashBoard also reports the bypass mode. Refer to **Table 8**.

2. 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 Video Technical Support.

1. Requires the Setup > Card Edge setting be enabled (set to Yes) in DashBoard.

Monitoring via the Card-edge

The front-edge of the main PCB has LED indicators for indicating alarms, and communication activity. (**Figure 3**)

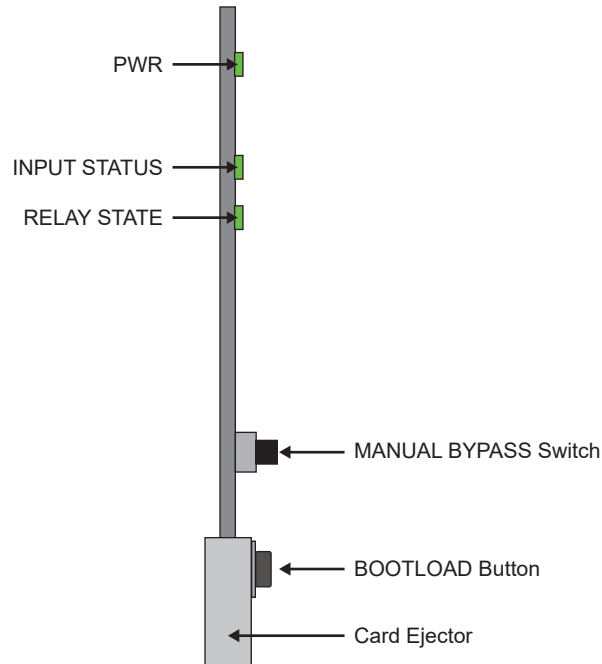


Figure 3 Card-edge Features

Table 1 provides information on the LED displays.

Table 1 SRA-8901-R LED Descriptions

LED	Color	Description
PWR	Green	The card is powered on and is operating correctly
	Red	When lit red, this LED indicates: <ul style="list-style-type: none">• the card is booting, or• a major alarm condition is occurring on the card
	Off	The card is not powered on
INPUT STATUS	Green	A valid signal is detected on the INPUT port
	Red	The signal connected to the INPUT port is not valid
	Off	The INPUT port is not in use
RELAY STATE	Green	The SDI input is selected
	Red	The Bypass Input is selected

Supported Rear Module

This section provides an overview of the connections and cabling designations for the SRA-8901-R.

8322AR-337

The 8322AR-337 rear module occupies two slots in the openGear frame and accommodates two SRA-8901-R cards. **Figure 4** indicates the implemented cabling designations.

When using the 8322AR-337, each card includes the following connections:

- one SDI input
- one dedicated SDI input for bypass mode (BYPASS IN BNC)
- one dedicated SDI output for bypass mode (PROTECT BNC)
- three SDI outputs

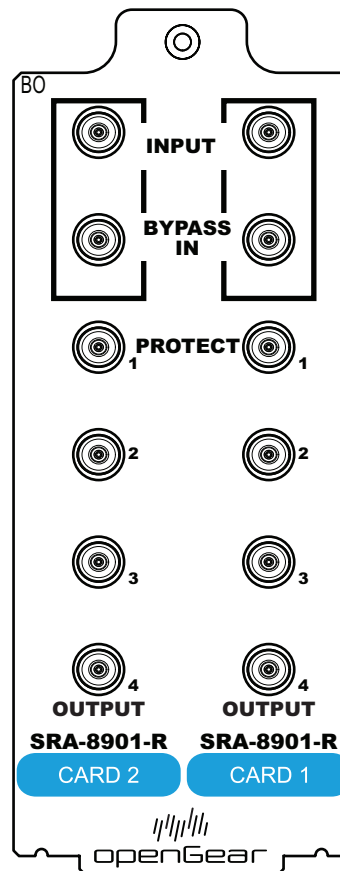


Figure 4 Cabling Designations

Physical Installation

Installing an SRA-8901-R card into the openGear frame requires you to remove the blank plates in the designation frame slots, install the required rear module into the frame rear panel, and then install the SRA-8901-R card into the required frame slot.

If you have questions pertaining to the installation of your card, contact us at the numbers listed in **“Contacting Technical Support”**. Our technical staff is always available for consultation, training, or service.

Before You Begin

These installation guidelines assume the following:

- Ensure the openGear frame is properly installed. Refer to the **User Guide** for your frame.
- A valid IP address is available for the SRA-8901-R.
- If the 8322AR-337 rear module is already installed in the openGear frame, proceed to **“Installing the SRA-8901-R Card into an openGear Frame”**.

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.

Removing the Blank Plates from the Rear Panel

When a frame slot is not populated with an openGear card, a blank plate must be installed to ensure proper frame cooling and ventilation.



Notice — Installing the SRA-8901-R in a frame other than the OG3-FR or OGX-FR could damage the card, the rear module, or both. Ensure the frame includes a Network Controller Card (MFC-OG3-N). The MFC-8322-S does not support the SRA-8901-R.

To remove a blank plate from the openGear frame

1. Locate the slots in the openGear frame you wish to install the SRA-8901-R into. It is recommended to use the following slot combinations:
 - Slots 1, 2 • Slots 7, 8 • Slots 13, 14 • Slots 19, 20
 - Slots 3, 4 • Slots 9, 10 • Slots 15, 16
 - Slots 5, 6 • Slots 11, 12 • Slots 17, 18
2. Use a Phillips screwdriver to unfasten each blank plate from the openGear frame backplane.
3. Remove each blank plate from the chassis and set aside.

Installing the Rear Module into the openGear Frame

If the 8322AR-337 rear module is already installed in the frame, proceed to “**Installing the SRA-8901-R Card into an openGear Frame**”.

To install a rear module into the openGear frame

1. For each retaining screw on the rear module, push the o-ring to the end of the screw (but not off the screw). This will help to align the rear module to the frame backplane in step 3.
 2. Seat the bottom of the rear module in the seating slots at the base of the openGear frame's backplane.
 3. Align the top holes of the rear module with the screw holes on the top-edge of the frame backplane.
 4. Using a Phillips screwdriver and the provided screw, fasten the rear module to the backplane.
- ★ Do not fully tighten the screws until after installing the card and you verified that each card aligns with the rear module.

Installing the SRA-8901-R Card into an openGear Frame

The slot that the SRA-8901-R installs into depends on the slot combination you installed the rear module in. This allows adequate spacing to avoid damaging the card, the cards installed in the neighboring slots, or both.

★ The rear module occupies two slots in the frame and accommodates two SRA-8901-R cards.

To install the SRA-8901-R into the openGear frame

1. Locate the slot the SRA-8901-R card will slide into. Refer to **Table 2** for valid slot combinations.

Table 2 Card Slot Combinations

Rear Module Slots	Card 2 Installs into Slot	Card 1 Installs into Slot
Slots 1, 2	1	2
Slots 3, 4	3	4
Slots 5, 6	5	6
Slots 7, 8	7	8
Slots 9, 10	9	10
Slots 11, 12	11	12
Slots 13, 14	13	14
Slots 15, 16	15	16
Slots 17, 18	17	18
Slots 19, 20	19	20

2. Verify that the SRA-8901-R card aligns with the rear module.
 3. Using a Phillips screwdriver fasten the rear module to the backplane using the provided screws.
- ★ Do not over tighten the screws.
4. Hold the card by the edges and carefully align the card edges with the slot rails in the frame.
 5. Fully insert the card into the frame until the card is properly seated in the rear module.
 6. For a second card, repeat steps 1 to 5.

Cabling

If you have questions pertaining to the cabling of your openGear frame or card, contact us at the numbers listed in “**Contacting Technical Support**”. Our technical staff is always available for consultation, training, or service.

Cabling the Ethernet Port on the openGear Frame

You must provide an Ethernet connection to the openGear frame that houses the SRA-8901-R.

The SRA-8901-R is connected to your network via the MFC-OG3-N in the openGear frame. This enables the SRA-8901-R to interface with other cards in the frame, and the computer running the DashBoard client. After a physical connection is established, DashBoard is used to configure the network settings for the SRA-8901-R.

Contact your IT department before connecting to your facility network to ensure that there are no conflicts. They will provide you with an appropriate value for the IP Address, Subnet Mask, and Gateway for your SRA-8901-R.

★ Contact your network administrator if problems are experienced when connecting to a network hub.

For More Information on...

- cabling the Ethernet port on the openGear frame, refer to the user guide for your frame.
- configuring the Ethernet port on the openGear frame, refer to the user guide for your frame.

SDI Input Cabling

Connect the main SDI source to the INPUT port. This signal is equalized for cable effects and buffered to the PROTECT, and OUT 2-4 ports. If a valid input source is successfully detected, the SDI IN LED, on the card-edge, will light solid green.

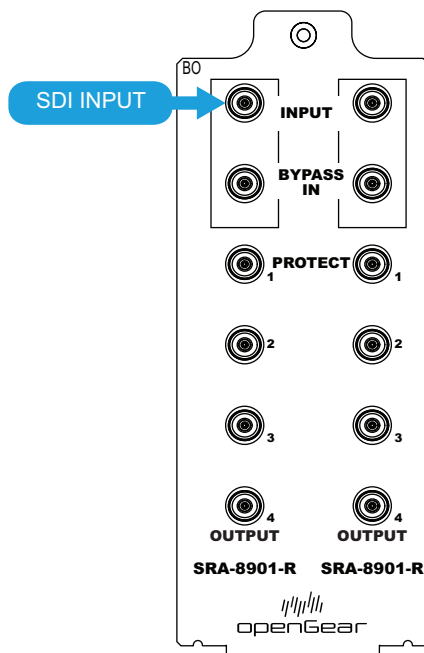


Figure 5 SDI Input Cabling — Card 2

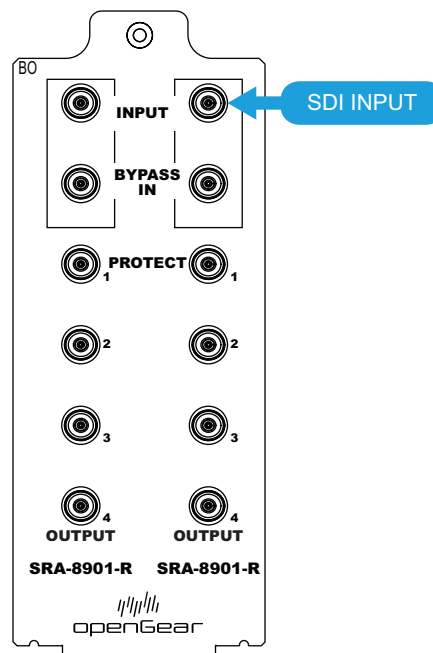


Figure 6 SDI Input Cabling — Card 1

Bypass Input Cabling

There is a power fail relay from the BYPASS IN port to the PROTECT port. The purpose of this relay is as follows:

- If the SRA-8901-R loses power, the video still passes through.
- When the SRA-8901-R boots, the relay will be left in Bypass mode until the SRA-8901-R can generate a valid output. Once the SRA-8901-R is up and functional, the relay is disabled.

Connect the bypass SDI source to the BYPASS IN port. This signal is passively linked to the PROTECT port when in the alarm state.

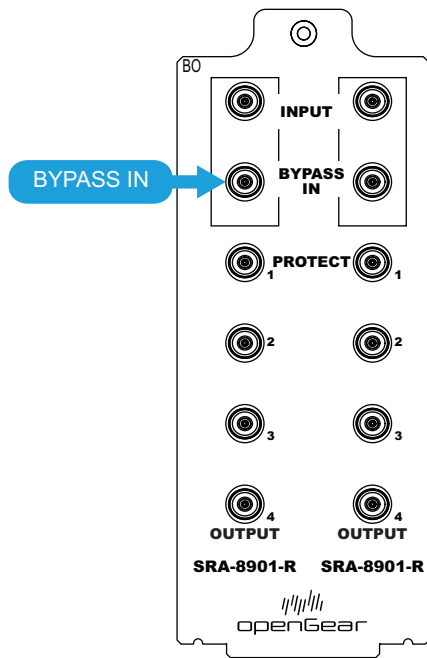


Figure 7 Bypass Input Cabling — Card 2

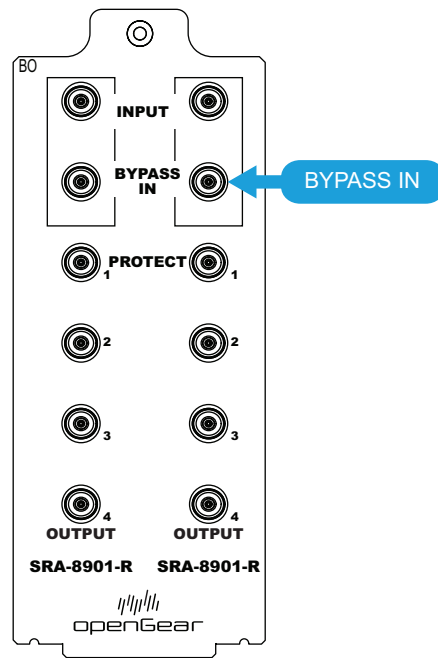


Figure 8 Bypass Input Cabling — Card 1

★ You may want to provide a valid input of the desired output format on BYPASS IN.

PROTECT Output Cabling

Connect the main SDI output destination to the PROTECT port. Normally an active equalized and buffered version of the SDI IN signal. In an alarm state, this is connected to the BYPASS IN signal.

★ The protected output is only actively reclocked when fed by the primary input. When the card is in bypass, the protected output is passively fed from the bypass input. Upstream cable length and attenuation through the card will affect the attainable downstream cable length when in bypass mode, and should be taken into consideration when cabling the protected output.

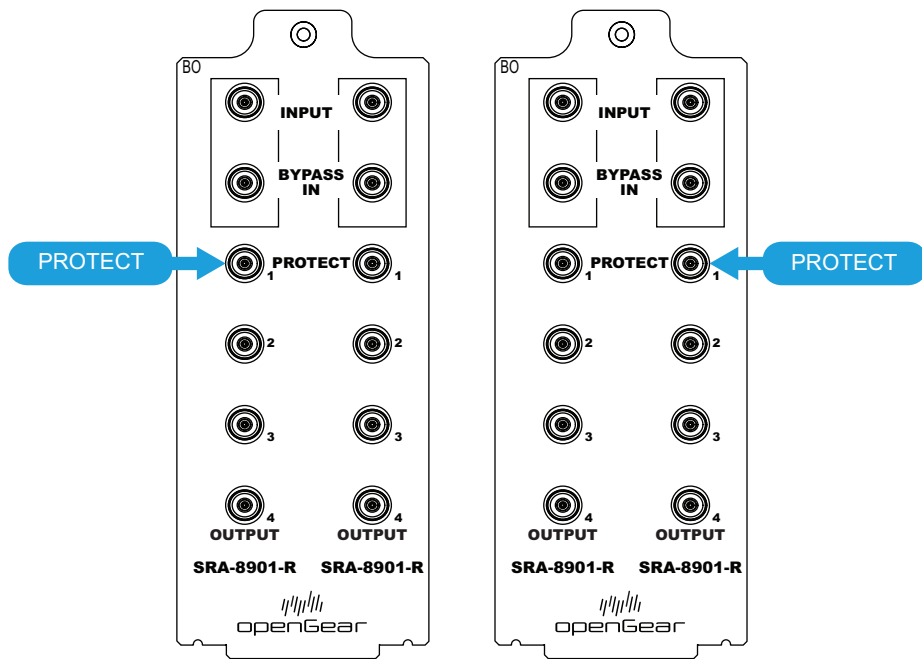


Figure 9 PROTECT Output Cabling — Card 2 Figure 10 PROTECT Output Cabling — Card 1

SDI Output 2-4 Cabling

The SDI OUTPUTS 2, 3, and 4 are the active equalized and buffered version of the INPUT signal.

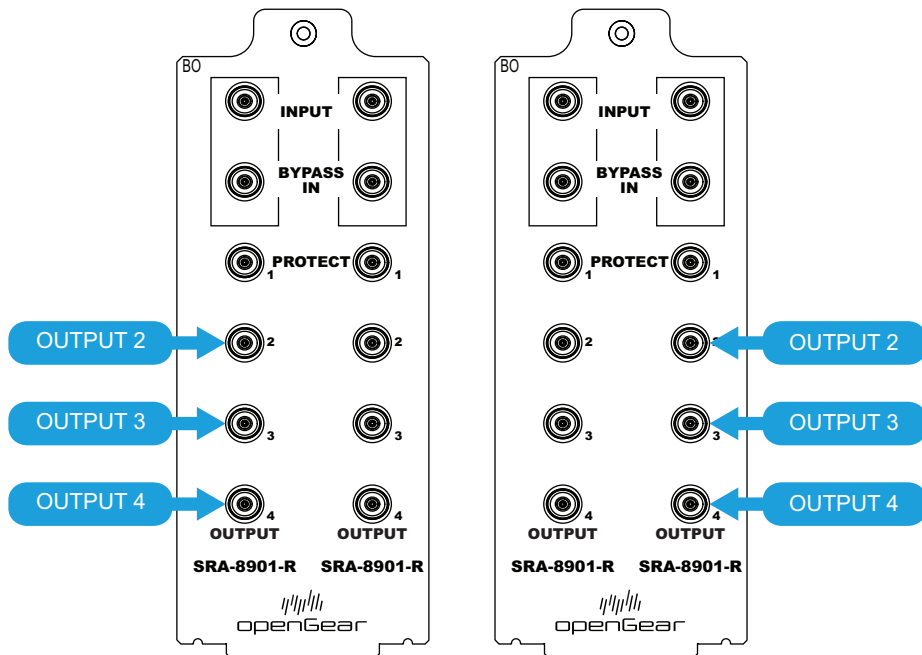


Figure 11 SDI Output Cabling — Card 2

Figure 12 SDI Output Cabling — Card 1

Getting Started

This chapter provides instructions for launching DashBoard, and accessing the SRA-8901-R interfaces in DashBoard.

If you have questions pertaining to the operation of SRA-8901-R, contact us at the numbers listed in “**Contacting Technical Support**”. Our technical staff is always available for consultation, training, or service.

Before You Begin

Ensure that:

- The openGear frame that houses the SRA-8901-R displays in the Basic Tree View of DashBoard.
- On the MFC-OG3-N Network Controller card¹, ensure that the **Force Port Speed** field (for the slot the SRA-8901-R is installed in) is set to **100mbps**. Refer to the ***MFC-OG3-N and MFC-8322-S User Guide***.
- The SRA-8901-R displays as a sub-node in the openGear frame tree.
- Your facility IT Department has provided you with the settings to be assigned to the SRA-8901-R.

Launching DashBoard

DashBoard must run on a computer that has a physical wired Ethernet connection. Wireless connections do not allow device discovery.

For More Information on...

- downloading and installing the DashBoard client software, refer to the ***DashBoard User Manual***.
- the SRA-8901-R interfaces in DashBoard, refer to “**DashBoard Menus**”.

To launch DashBoard

1. Ensure that you are running DashBoard software version 9.14 or higher.
2. Launch DashBoard by double-clicking its icon on your computer desktop.

Configuring the Initial Network Settings

Once the SRA-8901-R is physically installed, you will need to assign it an initial IP Address in order to gain full access to the card menus, options, and status fields in DashBoard. Establishing an initial IP Address enables DashBoard to communicate with the SRA-8901-R and update the Basic Tree View with the SRA-8901-R sub-node.

★ This procedure requires a reboot of the card.

To assign the initial network settings for the SRA-8901-R

1. Launch DashBoard.
2. Expand the OGX-FR frame node to display a list of cards installed in that frame.
3. Double-click the **SRA-8901-R** node under the frame node.
4. Select the **Network Settings** tab.
5. Use the **Mode** menu to select **Static**.

1. The MFC-8322-S does not support the SRA-8901-R.

6. Use the **Static IP Address** field to assign a unique IP Address to the SRA-8901-R card.
7. Use the **Subnet Mask** field to assign the subnet mask for the card.
8. Use the **Gateway** field to specify the gateway for communications outside of the local area network (LAN) the card will use.
9. Click **Apply**.

The card is temporarily taken off-line during the reboot of the card to apply the new settings.

10. Close the **Network** interface.
11. Refresh the Basic Tree View in DashBoard.
12. To verify that the SRA-8901-R node displays correctly, proceed to the next section.

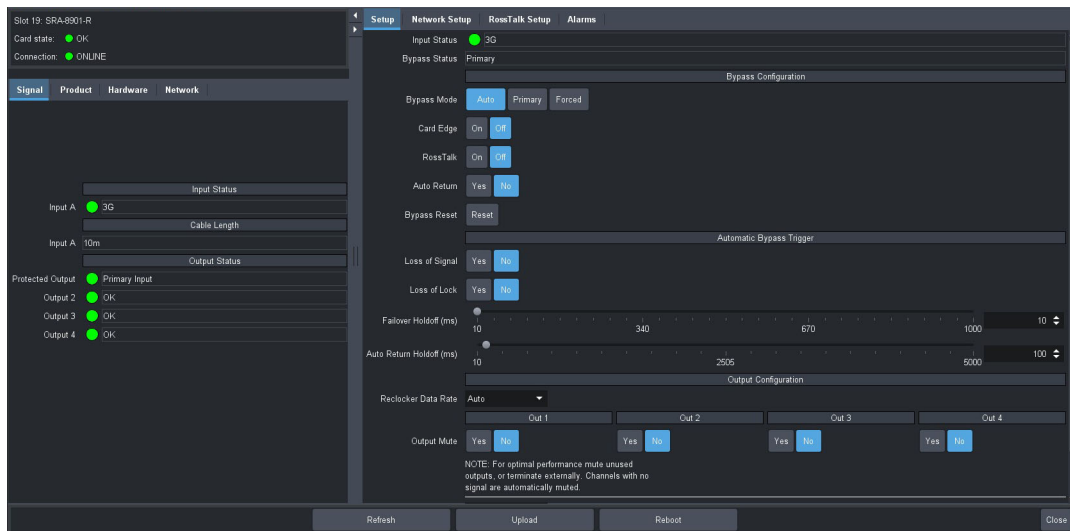
Accessing the SRA-8901-R in DashBoard

The interfaces are accessed by double-clicking the SRA-8901-R sub-node under the openGear frame tree in DashBoard. There are two distinct areas in the SRA-8901-R interface: Status (on the left), and Configuration (on the right).

To access the SRA-8901-R in DashBoard

1. Launch DashBoard.
2. In the Basic Tree View of DashBoard, locate the openGear frame the SRA-8901-R is installed in.
3. Expand the openGear frame node.
A list of sub-nodes displays. Each sub-node is an openGear card installed in a specific slot.
4. Locate the SRA-8901-R sub-node in the openGear frame tree.
5. Double-click the SRA-8901-R sub-node to display its tabs in the right pane of the DashBoard window.
6. Select a tab to access its menus and fields in the DashBoard window.

In the following example, the user selected the **Signal** tab in the left pane, and the **Setup** tab in the right pane.



Bypass Relay Setup

This chapter outlines how to configure the bypass relay feature, and define the card behavior during a loss of the input signal.

Before You Begin

Keep the following in mind when configuring and using the bypass relay feature:

- The Primary signal is the SDI signal detected on the physical INPUT port of the rear module.
- The Bypass signal is the SDI signal detected on the physical BYPASS IN port of the rear module.

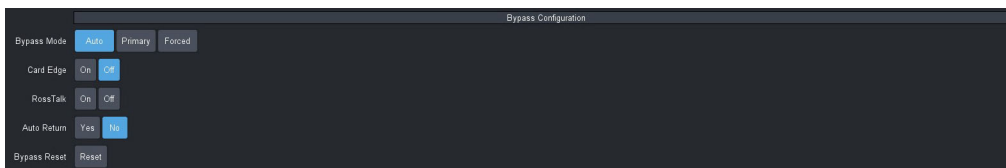
Enabling the Bypass Relay

The SRA-8901-R includes a bypass relay between BYPASS IN and PROTECT (OUT 1). This protects your on-air feed when the card is off-line and ensures critical program content is not lost. The bypass relay can be enabled or disabled via the options in DashBoard.

- ★ To preserve optimal signal integrity of the bypass signal, when the primary input is detected as invalid, the active outputs 2-4 are automatically muted.

To enable the bypass relay

1. Display the SRA-8901-R in DashBoard as outlined in **“To access the SRA-8901-R in DashBoard”**.
2. Select the **Setup** tab.
3. Locate the **Bypass Configuration** area of the tab.



4. Use the **Bypass Mode** options to specify how the bypass functions for the SRA-8901-R. Choose from the following:
 - **Auto** — When a loss of input occurs, the card automatically switches to the other input source (from INPUT port signal to BYPASS IN port signal or vice versa). Use the Loss of Signal and Loss of Lock settings to determine what triggers the bypass relay during this mode.
 - **Primary** — When a loss of input occurs, the card assigns the SDI signal from the INPUT port to the PROTECT port. If there is a loss of input, the PROTECT output is muted. The user can still switch to the INPUT port even if there is Loss of Signal or Loss of Lock condition. This setting is ignored if the MANUAL BYPASS switch is set to On or RossTalk is enabled.
 - **Forced** — Selecting this option will instantly switch to the BYPASS IN signal. This setting is not valid if RossTalk is enabled and a command was sent to switch to the INPUT port. Refer to **“Operation”** for more information.
5. Use the **Card Edge** options to enable the MANUAL BYPASS switch on the physical card. Choose from the following:
 - **On** — the MANUAL BYPASS switch setting takes precedence over the Bypass Mode setting in DashBoard.
 - **Off** — the card ignores the MANUAL BYPASS switch setting. This is the default.
6. Use the **RossTalk** options to enable/disable control via this protocol. Refer to **“Using RossTalk”** for details.

- ★ Clicking **Bypass Reset** will reset the state if the bypass relay is triggered automatically (the **Bypass Mode** is set to **Auto**) or via a received RossTalk command. Resetting the state will switch to the Primary input if no Loss of Signal or Loss of Lock condition is found.

Configuring the Auto Return Feature

The Auto Return feature enables the SRA-8901-R to automatically switch from the bypass to the primary input signal when a valid primary signal is detected again. The user is notified of the automatic switch via a message in the Signal > Input Status field.

To configure the auto return feature

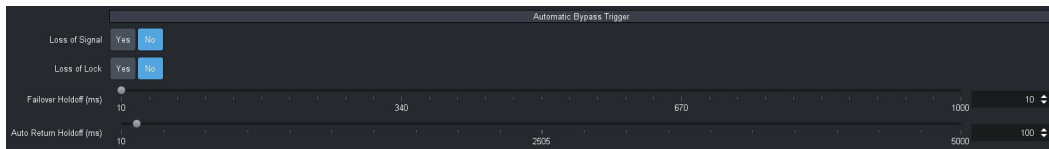
1. Display the SRA-8901-R in DashBoard as outlined in **“To access the SRA-8901-R in DashBoard”**.
2. Select the **Setup** tab.
3. Use the **Auto Return** options to configure the auto return feature. Choose from the following:
 - **Yes** — when a valid signal is detected on the primary input, the SRA-8901-R automatically switches from the bypass signal. The primary input signal is now the active input signal.
 - **No** — disables this feature. The bypass stays as the active input even if a valid primary signal is detected.

Specifying the Bypass Triggers

This section is applicable when the Bypass Mode is set to Auto and you wish to customize the instances that trigger the bypass relay.

To configure the conditions that trigger the Bypass Relay when in Auto Bypass Mode

1. Locate the **Automatic Bypass Trigger** area of the **Setup** tab.



2. Use the **Loss of Signal** options to enable the SRA-8901-R to automatically switch to Bypass mode when a loss of input signal is detected on the INPUT port.
 3. Use the **Loss of Lock** options to enable the SRA-8901-R to automatically switch to Bypass mode when:
 - the SDI reclocker loses lock; or
 - the Reclocker Data Rate is set to a different value than is currently being received.
 4. Use the **Failover Holdoff** slider to specify the number of milliseconds of consistent signal error that must occur before a timeout is triggered. This prevents multiple bypass error trigger events. Set the slider to 10 for very sensitive, or to 1000 for less sensitive.
 5. If you set **Auto Return** to **Yes**, use the **Auto Return Holdoff** slider to specify the number of milliseconds that the SRA-8901-R will wait once a valid input signal is detected before automatically switching the card to it.
- ★ The hysteresis may be varied in sensitivity to prevent bypass relay “chattering” on a signal that contains noise that makes it difficult for the reclocker to lock to.

Monitoring for Invalid Inputs

The SRA-8901-R provides options for monitoring the input signal status. You can choose to enable or disable this alarm as required.

The input signal status is displayed on the SRA-8901-R DashBoard node and well as in the Card State field on the main SRA-8901-R window in DashBoard.

When enabled, this feature will indicate an alarm condition (red) in the corresponding **Input Status** field of the **Signal** tab in DashBoard. This occurs if the SRA-8901-R does not detect a valid SDI signal on the INPUT port of the rear module. This feature is enabled by default.

If you do not wish to monitor the input signal status, you must disable the Invalid Signal alarm.

To disable the alarm for an input signal

1. Display the SRA-8901-R in DashBoard as outlined in **"To access the SRA-8901-R in DashBoard"**.
2. Select the **Alarms** tab.
3. Locate the **Input** area.
4. Clear the **Suppress Alarm** box.

The box does not display a check-mark.

Configuring the Reclocker

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

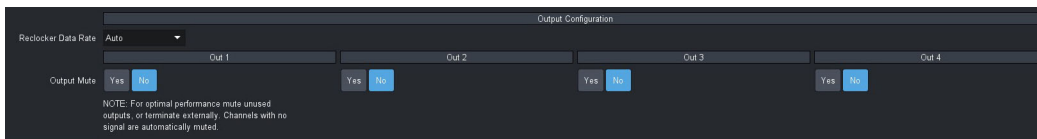
- ★ Reclocking does not convert the signal, it selects the appropriate signal slew rate only. The reclocking outputs are only active when they are not muted and the SRA-8901-R is not in bypass mode.

Configuring the Reclocker

Ensure the **Reclocker Data Rate** is set to the same value as the SDI input signal. Otherwise, an error will be reported in the Input Status fields.

To configure the reclocker

1. Display the SRA-8901-R in DashBoard as outlined in “**To access the SRA-8901-R in DashBoard**”.
2. Select the **Setup** tab.
3. Locate the **Output Configuration** area of the Setup tab.



4. Use the **Reclocker Data Rate** options to specify a data rate. Choose from the following:
 - **Auto** — The SRA-8901-R automatically reclocks at the detected rate on the SDI input.
 - **MADI** — The SRA-8901-R reclocks at MADI data rate of 125Mbps only. This is the required setting when using MADI signals.
 - **SD** — The SRA-8901-R reclocks at a data rate of 270Mbps.
 - **HD** — The SRA-8901-R reclocks at a data rate of 1.485Gbps.
 - **3G** — The SRA-8901-R reclocks at a data rate of 2.97Gbps.
 - **6G** — The SRA-8901-R reclocks at a data rate of 5.94Gbps.
 - **12G** — The SRA-8901-R reclocks at a data rate of 11.88Gbps.

Configuring the Outputs

This chapter outlines how to mute unused outputs, and monitor the outputs for an invalid signal.

Before You Begin

Keep the following in mind:

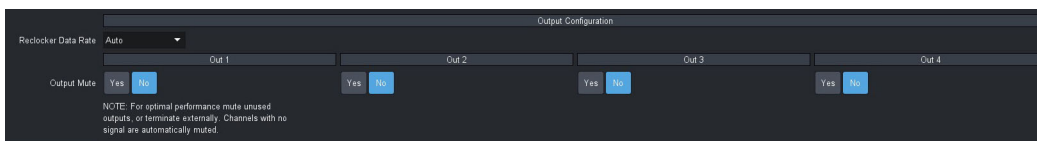
- If any input signal error (Loss of Signal or Loss of Lock) is detected, all 4 outputs are muted.

Muting an Output

If you have an unused output, it is recommended to mute that output via the Setup tab in DashBoard or to terminate the output directly on the rear module port.

To mute an output from DashBoard

1. Display the SRA-8901-R in DashBoard as outlined in **“To access the SRA-8901-R in DashBoard”**.
2. Select the **Setup** tab.
3. Locate the **Output Configuration** area of the Setup tab.



4. Use the **Output Mute** options to mute an OUTPUT port on the rear module. Choose from the following:
 - **Yes** — Disables this output. The specified OUTPUT port is not used.
 - **No** — The specified port outputs a copy of the active SDI input signal.

Monitoring for Invalid Outputs

The SRA-8901-R provides an option for monitoring the output signal status. You can choose to enable or disable the alarm as required.

The output signal status is displayed on the SRA-8901-R DashBoard node and well as in the Card State field on the main SRA-8901-R window in DashBoard.

When enabled, this feature will indicate an alarm condition (red) in the corresponding **Output Status** field of the **Signal** tab in DashBoard. This occurs if the SRA-8901-R does not detect a valid SDI signal on an OUTPUT port of the rear module. This monitoring feature is enabled by default.

To disable the alarm for all output signals

1. Display the SRA-8901-R in DashBoard as outlined in **“To access the SRA-8901-R in DashBoard”**.
2. Select the **Alarms** tab.
3. Locate the **Outputs** area.
4. Select the **Suppress Alarm** box.

The box displays a check-mark.

Using RossTalk

The SRA-8901-R can be controlled from a remote editor or computer via RossTalk commands. These commands can be sent to the SRA-8901-R over an ethernet connection.

Using an Ethernet Connection

Contact your IT Department before connecting to your facility network to ensure that there are no conflicts. They will provide you with an appropriate value for the IP address, subnet mask, and gateway for the external device communicating with the SRA-8901-R.

Cabling Requirements

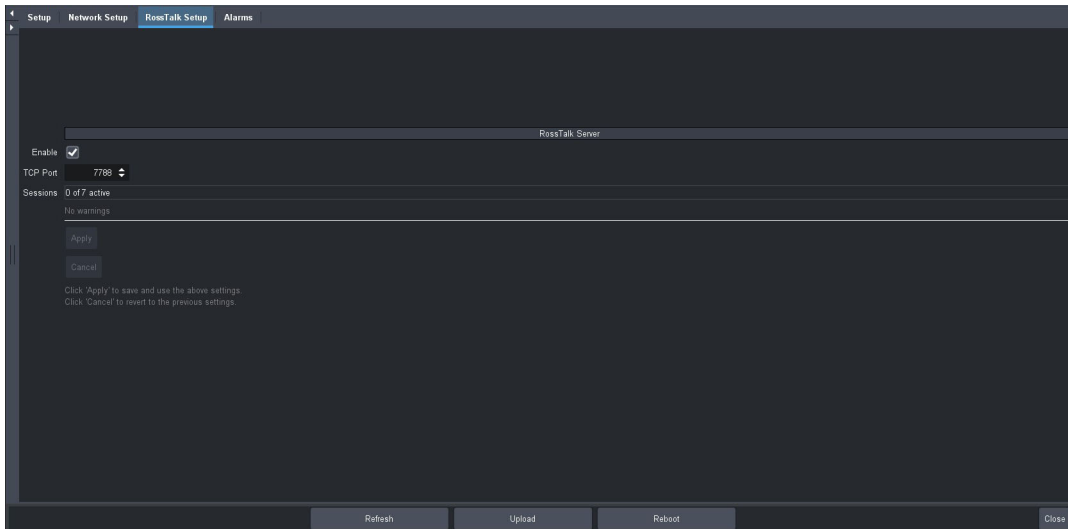
You will require a standard network CAT-5 cable to connect the SRA-8901-R to your facility network. Refer to “**Cabling the Ethernet Port on the openGear Frame**” for more information.

Configuring the SRA-8901-R for RossTalk Communications

This section outlines how to configure the SRA-8901-R to communicate with a device via RossTalk.

To enable the RossTalk protocol for Ethernet communications

1. Display the SRA-8901-R in DashBoard as outlined in “**To access the SRA-8901-R in DashBoard**”.
2. Select the **Setup** tab.
3. Select **RossTalk > On**.
4. Select the **RossTalk Setup** tab.



5. Select the **Enable** box in the **RossTalk Server** area.
The SRA-8901-R functions as a host, or socket listener, on the network. This is the default.
6. Use the **TCP Port** field to specify the Transmission Control Protocol (TCP) port the SRA-8901-R will use for RossTalk communications. The default is 7788.
7. Click **Apply**.
The new settings are applied.

Sending RossTalk Commands

RossTalk commands are generally case-sensitive, and must be terminated with carriage return and linefeed (CR+LF). When using with the SRA-8901-R, the command can be uppercase or lowercase, and the terminator can be simply linefeed.

For example,

```
MSPATH 1:0:ColorRamp.tga
```

```
MSPATH 1:0:directory/filename.png
```

To send RossTalk Commands

1. Verify that you created a network connection to the SRA-8901-R.
2. Enter the commands you want to send to the SRA-8901-R.

Supported RossTalk Commands

Table 3 lists the RossTalk commands that the SRA-8901-R supports.

Table 3 Supported RossTalk Commands

Command	Description
SRA Bypass : Level	Triggers and overrides the SRA-8901-R bypass control where: Level 0 = logically OFF Level 1 = logically ON (example SRA Bypass : 1 or GPI 1 : 1)
GPI 1 : Level	
SRA Bypass : ?	Requests the current bypass status
GPI 1 : ?	

Operation

The following table summarizes the SRA-8901-R operation modes.

Reset	Manual Bypass Switch on Card-edge				RossTalk				Bypass Mode				Auto Return		Relay Position	Previous Relay State	Bypass Status	Protected Output
	ON	OFF	ON	OFF	ON	OFF	AUTO	FORCED	PRIMARY	ON	OFF							
	Normal	Bypass			Level 1	Level 0	LOS or LOL Enabled and not occurring	LOS and LOL Enabled and not occurring										
	X						X	X						X	P	N/A	Primary	Primary Input
		X					X	X						X	B	N/A	Bypass - Card Edge Force	Bypass Input
			X		X			X						X	B	N/A	Bypass - RossTalk Force	Bypass Input
			X		X	X		X						X	P	N/A	Primary - RossTalk Force	Primary Input
X			X		X			X						X	P	N/A	Primary	Primary Input
			X		X		X	X						X	P	N/A	Primary	Primary Input
			X		X		X							X	P	N/A	Primary - Dashboard Force	Primary Input
			X		X	X	X	X						X	B	N/A	Bypass - Auto Fallover	Bypass Input
X			X		X		X	X						X	P	B	Primary	Primary Input
			X		X		X	X						X	P	B	Primary	Primary Input
			X		X		X						X	B	N/A	Bypass - User Force	Bypass Input	

Updating the Network Settings

This chapter outlines how to update the network settings assigned to the SRA-8901-R.

- ★ If difficulties or problems are experienced when assigning IP addresses, contact your network administrator.

Changing the Network Settings of the SRA-8901-R

Once you have establish connection to the card, you may want to change the IP address from the default setting to one that was provided by your IT Department.

- ★ Ross Video recommends using a static IP address.

To change the network settings for the SRA-8901-R


1. Display the SRA-8901-R in DashBoard as outlined in **“To access the SRA-8901-R in DashBoard”**.
2. Select the **Network Setup** tab.
3. If you are manually configuring the network settings for the SRA-8901-R:
 - a. Locate the **Configure Network Settings** area of the tab.
 - b. Set the **Select Addressing Mode** to **Static**.
 - c. Use the **Type IP Address** field to specify the new static IP address for the SRA-8901-R. This is the address the card will use within the openGear frame.
 - d. Use the **Type Subnet** field to specify the subnet mask for your network.
 - e. Use the **Type Default Gateway** field to specify the gateway for communications outside of the local area network (LAN) the card will use.
4. If you want the network settings to be automatically assigned from a Dynamic Host Configuration Protocol (DHCP) server, set the **Select Addressing Mode** to **DHCP**.
5. Click **Apply** to save the new settings.

Upgrading the Software

The SRA-8901-R can be upgraded in the field via DashBoard.

- ★ The bypass relay is active during upgrade. After a successful upgrade, the primary input becomes active again.

To upgrade the software on a card

1. Contact Ross Technical Support for the latest software version file.
 2. Ensure the Ethernet cable is connected to the **Ethernet** port on the openGear frame.
 3. Display the SRA-8901-R in DashBoard as outlined in “**To access the SRA-8901-R in DashBoard**”.
 4. Select **Upload**, located near the bottom of the interface, to display the **Select file Upload** dialog.
 5. Navigate to the ***.bin** file you want to upload.
 6. Click **Open**.
 7. If you are upgrading a single card:
 - a. Click **Finish** to start the upgrade.
 - b. Proceed to step 9.
 8. If you are upgrading multiple cards:
 - a. Click **Next >** to display the **Select Destination** menu. This menu provides a list of the compatible cards.
 - b. Specify the card(s) to upload the file to by selecting the check box(es) for the cards you want to upload the file to.
 - c. Verify the card(s) you want to upload the file to. The **Error/Warning** fields indicate any errors, such as incompatible software or card type mismatch.
 - d. Click **Finish**.
 9. Monitor the upgrade.
 - An **Upload Status** dialog enables you to monitor the upgrade process.
 - Notice that each card is listed in the dialog with a  button. This button is replaced with a **Reboot** button once the software file is loaded to that card.
- ★ Avoid clicking the individual Reboot buttons until all cards have successfully completed the file upload process and the OK button, located in the bottom right corner of the dialog, is enabled.
 - Click **OK** to reboot all the cards listed in the **Uploading to Selected Devices** dialog.
 - The **Reboot Confirm** dialog displays, indicating the number of cards that will reboot. Click **Yes** to continue the upgrade process. Note that clicking **Cancel** or **No** returns you to the **Uploading to Selected Devices** dialog without rebooting the card(s).
 - The card(s) are temporarily taken off-line during the reboot process. The process is complete once the status indicators for the **Card State** and **Connection** return to their previous status.

DashBoard Menus

This chapter briefly summarizes the SRA-8901-R menus, items, and parameters available in DashBoard. Parameters marked with an asterisk (*) are the factory default values.

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

Signal Tab

Table 4 summarizes the read-only fields displayed in the **Signal** tab.

Table 4 Signal Tab

Item	Parameters	Description
Input Status		
Input #	#	A valid signal is detected on the active SDI input, and the format is supported
	Signal not locked (Red)	An SDI signal is detected but the format is not supported
	No signal (Red)	Indicates one of the following issues is occurring: <ul style="list-style-type: none">• the SDI input signal is not detected• the system frame rate does not match the input frame rate
Cable Length		
Input #	#m	Indicates the length of the Belden 1694B cable (in meters) connected to the specified input port
Output Status		
Protected Output	Primary Input (Green)	Indicates that the PROTECT port is now outputting the Primary Input as defined in “Operation” .
	Muted (Green)	The output channels are muted on the PROTECT port. Verify the input status.
	Alarm Suppressed (Green)	The card is not monitoring this output port. Verify the Alarms > Outputs > Suppress Alarm option.
	Bypass Input (Yellow)	The bypass relay is active due to a mode outlined in “Operation” .
Output #	OK (Green)	A valid SDI signal is detected on the specified OUTPUT port, and the format is supported
	Muted (Green)	The output channels are muted on this output port. Verify the input status.
	Alarm Suppressed (Green)	The card is not monitoring this output port. Verify the Alarms > Outputs > Suppress Alarm option.

Product Tab

Table 5 summarizes the read-only information displayed in the Product tab.

Table 5 Product Tab

Item	Parameters		Description
Product	SRA-8901-R		
Supplier	Ross Video Ltd.		
Board Rev	#		Indicates the hardware version
Board S/N	#		Indicates the serial number of the card
Software Rev	##-##		Indicates the software version running on the card

Hardware Tab

Table 6 summarizes the read-only information displayed in the Hardware tab.

Table 6 Hardware Tab

Item	Parameters		Description
Voltage (mV)	#		Measured input millivolts
Current (mA)	#		Current consumption in milliamperes
CPU Headroom	#		Displays the CPU Load average
RAM Available	#		Indicates the total CPU memory used
Configuration Bank	#		Storage count
Uptime (h)	#		Reports the number of hours since the last reboot of the card

Network Tab

Table 7 summarizes the read-only information displayed in the Network tab.

Table 7 Network Tab

Item	Parameters		Description
Addressing Mode	#		Indicates the method that the SRA-8901-R used to obtain a valid IP address
IP Address	###.###		Indicates the IP Address currently assigned to the SRA-8901-R via the Network tab
Subnet Mask	###.###		Indicates the subnet mask for the SRA-8901-R
Default Gateway	###.###		Indicates the gateway for communications outside of the local area network (LAN)
MAC Address	#		Indicates the MAC Address currently assigned to the SRA-8901-R

Setup Tab

Table 8 summarizes the options displayed in the Setup tab.

Table 8 Setup Tab

Item	Parameters	Description
Input Status (read-only)	# (Green)	Indicates the video format of the SDI signal detected on the specified input port
	Signal not locked (Red)	An SDI signal is detected but the format is not supported
	No Signal (Red)	Indicates that a valid signal is no longer detected on the INPUT port
Bypass Status (read-only)	Primary	Indicates the detected primary SDI signal is valid
	Primary - DashBoard Force	The Primary input signal is active as per the Setup > Bypass Mode > Primary setting
	Primary - RossTalk Force	The Primary input signal is active as per the received RossTalk command. Refer to "Using RossTalk" .
	Bypass - Auto Failover	The SDI signal from the BYPASS IN port is now the card input as per the Setup > Bypass Mode > Auto setting
	Bypass - User Force	The user manually set the card into Bypass mode
	Bypass - RossTalk Force	The card is in Bypass mode as per the received RossTalk command. Refer to "Using RossTalk"
	Bypass - Card Edge Force	The card was set to Bypass mode via the card-edge switch. Refer to "MANUAL BYPASS Switch and Status LED" .
Bypass Configuration		
Bypass Mode	Auto*	The SRA-8901-R automatically switches between the Primary and Bypass inputs when the card detects a loss of input signal. <ul style="list-style-type: none"> • If the Primary Input is lost or not locked, the card automatically switches to the Bypass Input. • If Auto Return is set to Yes, the card will switch back to the Primary Input once a valid signal is detected on the INPUT port and Auto Return is set to Yes.
	Primary	Assigns the signal on the INPUT port as the Primary Input signal. If a loss of signal occurs, the user must manually switch to the Bypass Input signal.
	Forced	Forces the card to switch from the Primary Input signal to the BYPASS port as the input signal

Table 8 Setup Tab (Continued)

Item	Parameters	Description
Card Edge	On	The Bypass Mode is determined by the MANUAL BYPASS Switch on the physical card. Refer to "MANUAL BYPASS Switch and Status LED" .
	Off*	The card ignores the MANUAL BYPASS Switch setting
RossTalk	On	Enables control of the SRA-8901-R via the RossTalk protocol. Refer to "Using RossTalk" .
	Off*	Disables this feature
Auto Return	Yes	The card automatically returns to the Primary Input when the automatic bypass trigger conditions (Loss of Signal or Loss of Lock) are met
	No*	Disables this feature
Bypass Reset	Reset	Returns the card to the default Bypass Mode
Automatic Bypass Trigger		
Loss of Signal	Yes	The SRA-8901-R automatically switches to the Bypass Selection when the card detects a loss of input signal and the Bypass Mode is set to Auto
	No*	Disables this feature
Loss of Lock	Yes	If the Auto Return is set to Yes, the SRA-8901-R automatically switches to the Bypass Selection when the: <ul style="list-style-type: none"> • SDI reclocker loses lock; or • reclocker rate is fixed to a different format than is currently being received
	No*	Disables this feature
Failover Holdoff (ms)	#	Specifies the number of milliseconds the SRA-8901-R encounters errors before a failover is defined. The default is 100.
Auto Return Holdoff (ms)	#	Specifies the number of milliseconds the SRA-8901-R encounters no errors before automatically switching to a detected valid input signal. The default is 100.
Output Configuration		
Reclocker Data Rate	Auto*	The SRA-8901-R automatically sets the reclocker to the incoming data rate
	125M (MADI)	The reclocker is set to 125Mbps
	270M (SD)	The reclocker is set to 270Mbps
	1.5G (HD)	The reclocker is set to 1.485Gbps
	3G	The reclocker is set to 2.97Gbps

Table 8 Setup Tab (Continued)

Item	Parameters	Description
Reclocker Data Rate	6G	The reclocker is set to 5.94Gbps
	12G	The reclocker is set to 11.88Gbps
Output Mute - Out #	Yes	Mutes the signal for the specified output
	No*	The signal for the specified output is not muted
Edit Permission	Unlocked*	All editable parameters in DashBoard can be modified by a user
	Locked	The DashBoard interface is locked. The editable parameters in DashBoard can no longer be modified by the user. To unlock the interface, select the box again
Factory Defaults	Reset	All editable parameters in DashBoard are reset to the factory default values

Network Setup Tab

Table 9 summarizes the menus and read-only fields displayed in the Network Setup tab.

Table 9 Network Setup Tab

Item	Parameters	Description
Current Network Settings (Read-only)		
Addressing Mode	Static	The user assigned the network settings for the SRA-8901-R using the Configure Network Settings fields
	DHCP	The network settings were automatically assigned from a Dynamic Host Configuration Protocol (DHCP) server
IP Address	#	The current IP Address assigned to the SRA-8901-R
Subnet Mask	#	The current Subnet Mask assigned to the SRA-8901-R
Default Gateway	##.##.##	Indicates the gateway for communications outside of the local area network (LAN)
Configure Network Settings		
Selecting Addressing Mode	Static	The user assigns the network settings for the SRA-8901-R
	DHCP	The network settings are automatically assigned from a Dynamic Host Configuration Protocol (DHCP) server
Type IP Address	#	Enables the user to assign the IP Address for the SRA-8901-R by entering a value in this field

Table 9 Network Setup Tab (Continued)

Item	Parameters	Description
Type Subnet Mask	#	Enables the user to assign the Subnet Mask for the SRA-8901-R by entering a value in this field
Type Default Gateway	#	Specifies the gateway for communications outside of the local area network (LAN) for the SRA-8901-R
Apply	Saves the new settings.	
Cancel	Ignores any changes made to the tab parameters.	

RossTalk Setup Tab

Table 10 summarizes the menus and read-only fields displayed in the RossTalk Setup tab.

Table 10 RossTalk Setup Tab

Item	Parameters	Description
RossTalk Server		
Enable	Selected	Enables the SRA-8901-R to communicate with external devices via the RossTalk protocol
	Cleared	Disables this feature
TCP Port	#	Specifies the Transmission Control Protocol port the SRA-8901-R will listen on. The default is 7788.
Sessions	x of y active	Indicates the RossTalk sessions where: <ul style="list-style-type: none"> • x represents the specific session that is active • y represents the total number of RossTalk sessions between the SRA-8901-R and an external device. The maximum is 7.

Alarms Tab

Table 11 summarizes the options displayed in the Alarms tab.

Table 11 Alarms Tab

Item	Parameters	Description
Input #		
Suppress Alarm	Selected	Disables the monitoring of the inputs
	Cleared*	The SRA-8901-R reports a loss of the input or if the format is incompatible for the specified input
Outputs - Channel #		
Suppress Alarm	Selected	Disables the monitoring of the outputs
	Cleared*	The SRA-8901-R reports a loss of any output signal

Technical Specifications

This chapter provides technical information for SRA-8901-R.

★ Specifications are subject to change without notice.

Supported Video Formats

Table 12 *Technical Specifications — Supported Video Formats*

Video Format
SD Formats
480i
576i
HD Formats
720p 50Hz
720p 59.94Hz
1080i 50Hz
1080i 59.94Hz
1080pSF 23.98Hz
1080pSF 24Hz
1080p 23.98Hz
1080p 24Hz
1080p 25Hz
1080p 29.97Hz
1080p 30Hz
1080p 50Hz
1080p 59.94Hz
1080p 60Hz
UHD Formats
2160p 23.98Hz
2160p 24Hz
2160p 25Hz
2160p 30Hz
2160p 50Hz
2160p 59.94Hz
2160p 60Hz

SDI Inputs Specifications

Table 13 Technical Specifications — SDI Inputs

Item	Specifications	
Number of Inputs	1 SDI input 1 bypass input	
Connector Type	HD-BNC	
Standards Accommodated	1.485Gbps Component, SMPTE 292M	
	2.97Gbps Component, SMPTE 424M	
	5.94Gbps Component, SMPTE 2081	
	11.88Gbps Component, SMPTE 2082	
Impedance	75ohm	
Return Loss	>15dB to 1.5GHz	
	>10dB to 3GHz	
	>7dB to 6GHz	
	>4dB to 12GHz	
Equalization - SDI Input ^a		
1.485Gbps	>200m (656ft)	
2.97Gbps	>150m (492ft)	
5.94Gbps	>80m (262ft)	
11.88Gbps	>50m (164ft)	
Maximum Cable Length ^b - Bypass Input		
Rate	BYPASS IN	Total Bypass Input + Output
1.485Gbps	150m (492ft)	250m (820ft)
2.97Gbps	125m (410ft)	150m (492ft)
5.94Gbps	60m (197ft)	70m (230ft)
11.88Gbps	25m (82ft)	45m (148)

a. Using Belden 1694A cable.

b. The provided Belden 1694A cable lengths are approximate and may vary depending on the system setup and the end receiver.

SDI Outputs Specifications

Table 14 Technical Specifications — SDI Outputs

Item	Specifications
Number of Outputs	4 dedicated (with 1 protected)
Connector Type	HD-BNC
Impedance	75ohm
DC Offset	0V +/- 50mV

Table 14 Technical Specifications — SDI Outputs (Continued)

Item		Specifications	
Jitter	1.485Gbps:	<1.0UI 10Hz-100kHz, <0.2UI above 100kHz	
	2.97Gbps:	<1.0UI 10Hz-100kHz, <0.3UI above 100kHz	
	5.94Gbps:	<2.0UI 10Hz-100kHz, <0.3UI above 100kHz	
Jitter	11.88Gbps:	<2.0UI 10Hz-100kHz, <0.3UI above 100kHz Band limit @1188MHz	
Overshoot	10%		
Return Loss			
OUT 1 (PROTECT port)	>10dB to 1.5GHz		
	>7dB to 3GHz		
	>7dB to 6GHz		
	>2dB to 12GHz		
OUT 2-4	>15dB to 1.5GHz		
	>10dB to 3GHz		
	>7dB to 6GHz		
	>4dB to 12GHz		
Signal Level			
OUT 1 (PROTECT port)	±700mV 10% from SDI INPUT		
OUT 2-4	± 800mV 10%		
Rise and Fall Time (20-80%)			
OUT 1 (PROTECT port)	1.485Gbps:	<270ps, <100ps difference	
	2.97Gbps:	<135ps, <50ps difference	
	5.94Gbps:	<80ps, <30ps difference	
	11.88Gbps:	<55ps, <18ps difference	
OUT 2-4	1.485Gbps:	<270ps, <100ps difference	
	2.97Gbps:	<135ps, <50ps difference	
	5.94Gbps:	<80ps, <30ps difference	
	11.88Gbps:	<45ps, <18ps difference	

Environment

Table 15 Technical Specifications — Environment

Item	Specifications
Maximum Ambient Temperature	40°C (104°F)

Power

Table 16 Technical Specifications — Power

Item	Specifications
Maximum Power Consumption	5W

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lwIP

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This file is part of the lwIP TCP/IP stack.

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Version 3, 29 June 2007

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zlib

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The data format used by the zlib library is described by RFCs (Request for Comments) 1950 to 1952 in the files ftp://ds.internic.net/rfc/rfc1950.txt (zlib format), rfc1951.txt (deflate format) and rfc1952.txt (gzip format).

Service Information

Troubleshooting Checklist

Routine maintenance to this openGear product is not required. In the event of problems with your SRA-8901-R, 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 in **"Contacting Technical Support"**.

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** — Verify the power indicator LED on the 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 SRA-8901-R.

To reload the software on a SRA-8901-R

1. Eject the SRA-8901-R from the frame.
 2. Press and hold the **Bootload** button, while re-inserting the card into the frame.
 3. Release the **Bootload** button.
 - The PWR 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 re-start with its last operational software load.
- ★ Software can now be uploaded to the SRA-8901-R via DashBoard. Refer to **"Upgrading the Software"** for details.

Warranty and Repair Policy

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

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

Glossary

The following terms are used throughout this guide:

Active image — the portion of the video picture area (production aperture) that is being utilized for output content. Active image excludes letterbox bars and pillar-box bars.

Card — refers to the SRA-8901-R unless otherwise noted.

DashBoard — the DashBoard Control System.

DTVCC captions — CEA-708 captions.

Frame — the openGear frame that houses the SRA-8901-R unless otherwise noted.

MIB — management information base.

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

NTSC captions — the CEA-608-D: Line 21 Data Services captions.

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

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

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

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

UDP — User Datagram Protocol.

User — the person who uses the SRA-8901-R.

