

GATOR-SYNC User Guide

Thank You for Choosing Ross

You've made a great choice. We expect you will be very happy with your purchase of Ross Technology.

Our mission is to:

1. Provide a Superior Customer Experience
 - offer the best product quality and support
2. Make Cool Practical Technology
 - develop great products that customers love

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
dross@rossvideo.com

Ross Video Code of Ethics

Any company is the sum total of the people that make things happen. At Ross, our employees are a special group. Our employees truly care about doing a great job and delivering a high quality customer experience every day. This code of ethics hangs on the wall of all Ross Video locations to guide our behavior:

1. We will always act in our customers' best interest.
2. We will do our best to understand our customers' requirements.
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.
6. We will keep our promises.
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.)*

GATOR-SYNC · User Guide

- Ross Part Number: **8922DR-004-03**
- Revision: 2
- Release Date: October 7, 2025.
- Software Version: 1.2

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

Copyright

©2025 Ross Video Limited, Ross®, and any related marks are trademarks or registered trademarks of Ross Video Limited. All other trademarks are the property of their respective companies. PATENTS ISSUED and PENDING. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, mechanical, photocopying, recording or otherwise, without the prior written permission of Ross Video. While every precaution has been taken in the preparation of this document, Ross Video assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained herein.

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.

Notices

The material in this manual is furnished for informational use only. It is subject to change without notice and should not be construed as commitment by Ross Video Limited. Ross Video Limited assumes no responsibility or liability for errors or inaccuracies that may appear in this manual.

Note: As required by the GNU General Public License, and the Lesser GNU Public License (LGPL), source code can be obtained from Ross Video for at least 3 years. Contact Ross Video Technical Support for more information. If you have any questions or comments regarding this License Agreement, please contact:

Ross Video Limited
8 John Street
P.O. Box 220
Iroquois, ON
Canada K0E 1K0
techsupport@rossvideo.com

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) Class A Equipment (Industrial Broadcasting & Communication Equipment)	이 기기는 업무용(A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다. 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.

Company Address



Ross Video Limited

8 John Street
Iroquois, Ontario
Canada, K0E 1K0

Ross Video Incorporated

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

General Business Office: (+1) 613 • 652 • 4886

Fax: (+1) 613 • 652 • 4425

Technical Support: (+1) 613 • 652 • 4886

After Hours Emergency: (+1) 613 • 349 • 0006

E-mail (Technical Support): techsupport@rossvideo.com

E-mail (General Information): solutions@rossvideo.com

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

Contents

Introduction	9
Related Publications	9
Documentation Conventions	9
Interface Elements	9
User Entered Text	10
Referenced Guides	10
Menu Sequences	10
Important Instructions	10
Contacting Technical Support	10
Before You Begin	11
Video Overview	11
Audio Overview	11
Features	11
Functional Block Diagram	12
Hardware Overview	13
Overview	13
Main PCB Overview	13
Back Components	13
GATOR-SYNC Rear Module Overview	14
8322AR-317B or 8322AR-317D Rear Module	14
8323AR-325 or 8323AR-325A Rear Module	15
Physical Installation	17
Before You Begin	17
Removing the Blank Plates from the Rear Panel	17
Installing the Rear Module into the openGear Frame	18
Installing the GATOR-SYNC Card into an openGear Frame	19
Cabling	21
Cabling the Ethernet Port on the openGear Frame	21
Before You Begin	21
Cabling for the Reference Input for an GATOR-SYNC	21
Video Signal Cabling	23
SDI Inputs	23
SDI Outputs	24
Getting Started	25
Before You Begin	25
Launching DashBoard	25
Configuring the Initial Network Settings	25
Accessing the GATOR-SYNC Interfaces in DashBoard	26
Configuring the Remote Logging Feature	27
Reference Setup	29
Frame Rate Compatibility	29
Specifying a Global Analog Reference Source	31
Monitoring the Reference Signal via DashBoard	32

Frame Sync Setup	33
Specifying the Reference for a Frame Sync	33
Specifying the Output During a Loss of Input	33
Configuring the Delay for a Frame Sync Output	34
Adding a Delay	34
ANC Processing	35
Enabling Audio Processing	36
Enabling Sample Rate Conversion	37
Adjusting the Audio	37
Muting an Audio Channel	39
Shuffling the Audio Channels	39
Embedding PCM and Non-PCM Signals	40
Embedding PCM Signal	40
Embedding Non-PCM Signals	40
Resetting the Audio Proc Amp Settings	40
Upgrading the Software	43
DashBoard Interface Overview	45
Global Interface	45
Signal Tab	45
Product Tab	46
Hardware Tab	47
Setup Tab	48
Network Tab	48
Global Alarm Enables Tab	49
Security Tab	50
Logging Tab	51
GATOR-SYNC Interfaces	51
GATOR-SYNC Status Tab	51
Config Tab	53
Input Status Tab	54
Audio Tabs	54
Alarm Enables Tab	56
Technical Specifications	59
Supported Video Formats	59
SDI Inputs Specifications	60
SDI Outputs Specifications	60
Environment	61
Power	61
Service Information	63
Reloading the Software on the Card	63
Warranty and Repair Policy	63
Software Licenses	65
Glossary	71

Introduction

This guide covers the installation, configuration, and use of the GATOR-SYNC Multi-format Frame Synchronizer. 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 GATOR-SYNC.
- “**Hardware Overview**” provides a basic introduction to the GATOR-SYNC hardware features including the cabling and monitoring features of the rear module.
- “**Physical Installation**” provides instructions for the physical installation of the GATOR-SYNC card and its rear module into an openGear frame.
- “**Cabling**” provides an overview of connecting input and output devices to the rear module of the GATOR-SYNC.
- “**Getting Started**” provides instructions for configuring the GATOR-SYNC network settings and outlines how to display the GATOR-SYNC interfaces in DashBoard.
- “**Reference Setup**” provides instructions for specifying the reference source for the GATOR-SYNC.
- “**Frame Sync Setup**” provides instructions for configuring the video settings of each frame sync.
- “**Upgrading the Software**” outlines how to upgrade the GATOR-SYNC via DashBoard.
- “**DashBoard Interface Overview**” summarizes the menus and parameters of the GATOR-SYNC tabs in DashBoard.
- “**Technical Specifications**” provides the specifications for the GATOR-SYNC.
- “**Service Information**” provides information on the warranty and repair policy for your GATOR-SYNC.
- “**Software Licenses**” provides third-party software license information for your GATOR-SYNC.
- “**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 GATOR-SYNC:

- ***DashBoard User Guide***, Ross Part Number: 8351DR-004
- ***MFC-OG3-N 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 ***DashBoard 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.

- **Toll Free Technical Support (North America):** 1-844-652-0645
- **Toll Free Technical Support (International):** +800 1005 0100
- **Technical Support:** (+1) 613-652-4886
- **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 GATOR-SYNC, contact us at the numbers listed in “**Contacting Technical Support**”. Our technical staff is always available for consultation, training, or service.

Video Overview

Each card provides a valid video output frame with formatted TRS codes. In certain conditions, however, the video output of the card will have to be re-synchronized and while doing so, the card will not be able to maintain a valid output. The following conditions will force a re-sync of the video output of the card:

- **Reference loss and reference re-acquired** — To provide a stable output, the card must have a stable reference.
- **Changes in the vertical (V) or horizontal (H) delay parameters** — A parameter change will force the GATOR-SYNC output to reset and restart the video output with the specified V/H offset. Note that changing the number of frames (F) of delay will not reset the output as long as the V/H parameters are constant.
- **Video input format change** — Depending on how the Loss of Input Format setting is configured, the card will auto-detect the video input format and apply the last valid input format (Last Input Format setting) or a specified format, it will set its output to match it. While doing so, the output will be reset to the format and re-started.

It is important to understand that when the card is using the digital reference extracted from the SDI video input, the SDI video input signal must be stable at all times. Any glitches on this signal will likely cause the card video output to stop and restart, basically re-syncing the video output to the digital reference. Therefore, in practical applications, it will not be possible to switch the SDI video input from an upstream router without re-syncing the card video output. For this reason, it is strongly recommended not to use the SDI input as the reference, and to select instead one of the analog references. If the SDI video input signal happens to be locked to the selected analog reference, the card will be effectively operating in frame delay mode, as no frames drop/repeat will be occurring.

Audio Overview

The audio timing for embedded audio of the GATOR-SYNC is within 1 frame of the video timing on the output (approximately 16ms in SD formats), as measured with an asynchronous video input and with no additional audio delay being added through card user controls. If the input video is locked to the same reference as the card, and is not asynchronous, the audio delay will match the video delay.

Features

Some features of the GATOR-SYNC include:

- Supports SMPTE 259M (270Mbps), SMPTE 292M (1.485Gbps), SMPTE 424M (2.987Gbps), SMPTE ST 2082 (11.88Gbps)
- Supports embedding of non-PCM data such as Dolby® Digital and Dolby® E
- Each frame sync is completely rate agile, accept different input formats all at once
- Can synchronize multiple formats at once assuming the same frame rate
- Support for multiple frames of video delay

- Support for different reference format locking (frame rates must match)
- Programmable video output on SDI input loss
- Automatic input video format detection
- Ability to strip VANC data from a video output
- Audio embedding for all popular formats: 720p, 1080i, 1080p (Level A), and 2160p
- Full control over channel assignments
- Audio controls such as gain, invert, delay, and sum on embedded outputs
- Internally generated test tones
- Automatic audio delay to match video delay in addition to up to 1 second of user adjusted audio delay
- Reports status and configuration remotely via the DashBoard Control System
- SNMP support available
- Fully compliant with openGear specifications
- 5-year transferable warranty

Functional Block Diagram

Figure 1 provides a general overview of the GATOR-SYNC functions.

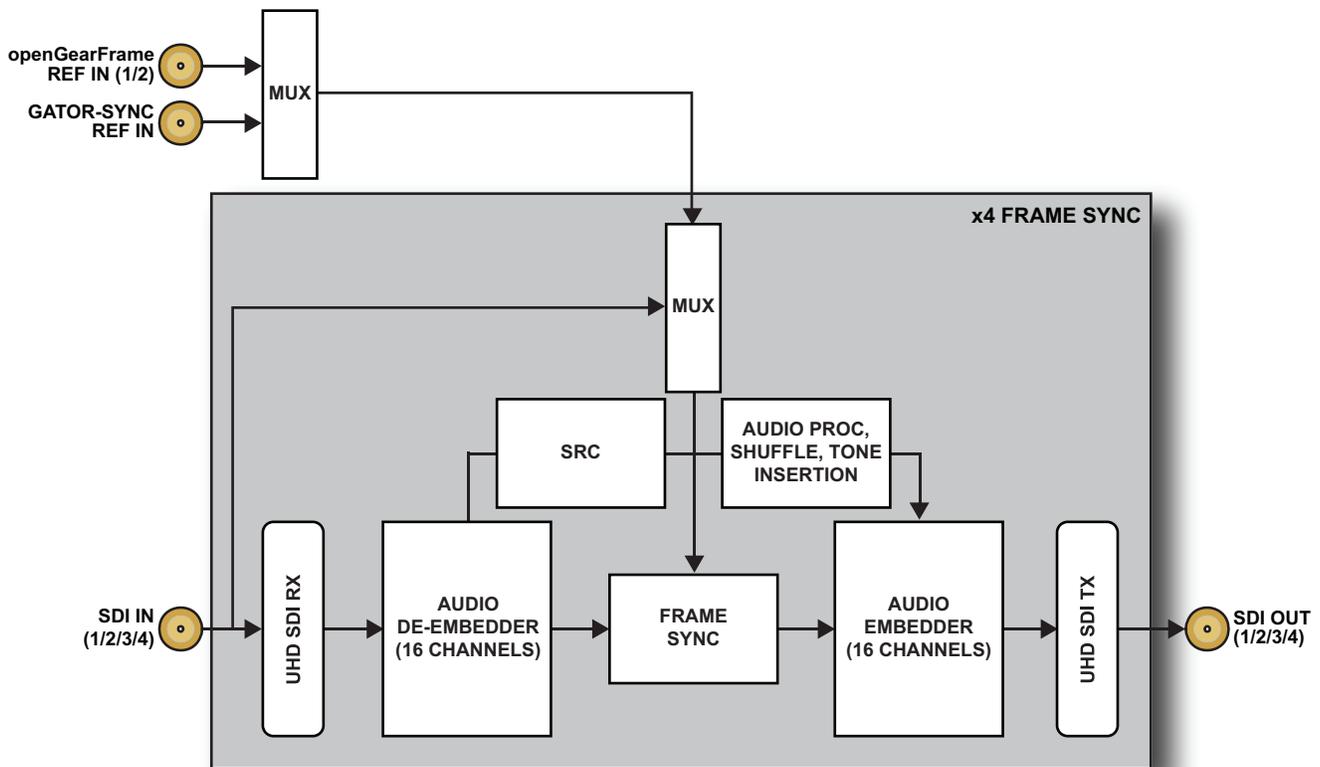


Figure 1 Functional Block Diagram

Hardware Overview

This chapter presents information on the GATOR-SYNC card-edge controls and features.

Overview

The GATOR-SYNC is an openGear modular system composed of two sub-systems.

- a main board which connects to a rear module and the openGear frame midplane
- a rear module that provides physical connectors

Main PCB Overview

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.

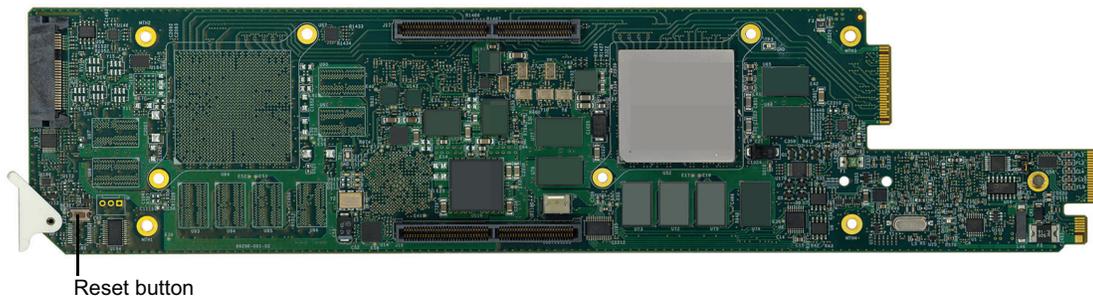


Figure 2 GATOR-SYNC — Base Card Components

Reset Button

Pressing this button resets the microprocessor and re-initializes the card. This is a hard reset of the card. This action should only be before as advised by Ross Video Technical Support.

Back Components

The main PCB also includes a Micro SD card slot. This slot is located on the backside of the main PCB and just above the ejector. (Figure 3)

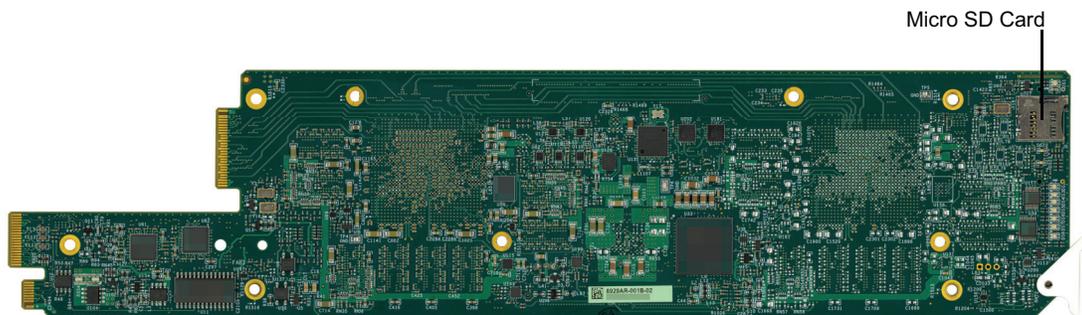


Figure 3 GATOR-SYNC — SD Card Location

- ★ It is recommended to ensure the SD card is properly seated in its slot on the PCB before installing the GATOR-SYNC in the frame.

GATOR-SYNC Rear Module Overview

This section provides an overview of the connections and cabling designations for the GATOR-SYNC.



Notice — Installing the GATOR-SYNC in a frame other than the OG3-FR or OGX-FR could damage the card, the rear module, or both.

8322AR-317B or 8322AR-317D Rear Module

The GATOR-SYNC supports the 8322AR-317B or 8322AR-317D rear module. The following connections are available:

- 4 SDI inputs on HD-BNCs
- 4 SDI outputs on HD-BNCs
- 1 independent reference input signal (tri-level sync)

Each rear module occupies four slots in the openGear frame and accommodates one GATOR-SYNC card. **Figure 4** and **Figure 5** indicate the implemented cabling designations.

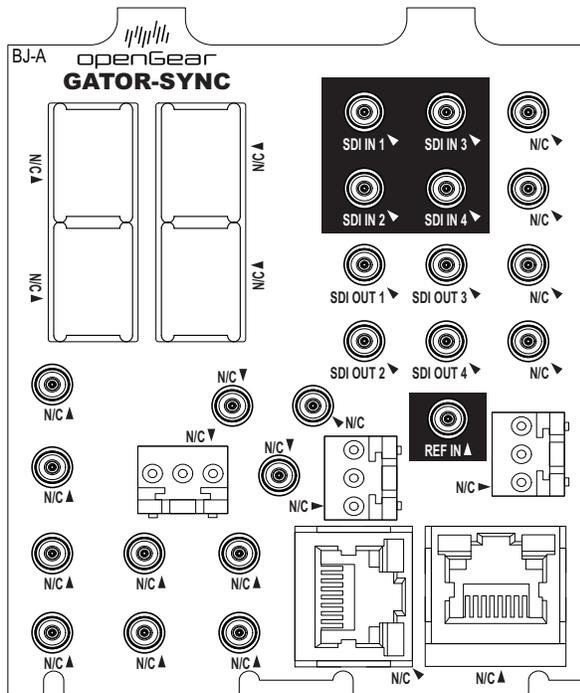


Figure 4 Cabling — 8322AR-317B

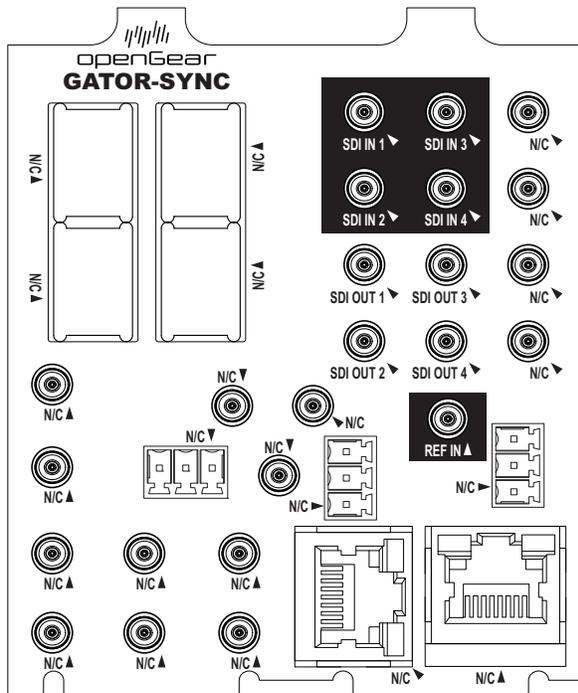


Figure 5 Cabling — 8322AR-317D

8323AR-325 or 8323AR-325A Rear Module



Notice — Installing the 8323AR-325 in a frame other than the OGX-FR could damage the card, the rear module, or both.

The following connections are available when the GATOR-SYNC is installed with the 8323AR-325 or 8323AR-325A rear module:

- 4 SDI inputs on HD-BNCs
- 4 SDI outputs on HD-BNCs
- 1 independent reference input signal

Each rear module occupies two slots in the openGear frame and accommodates one GATOR-SYNC card. **Figure 6** and **Figure 7** indicate the implemented cabling designations.

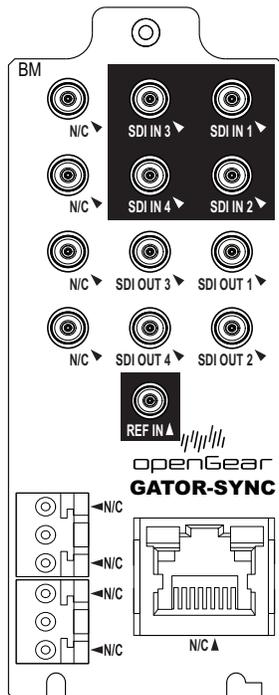


Figure 6 Cabling — 8323AR-325

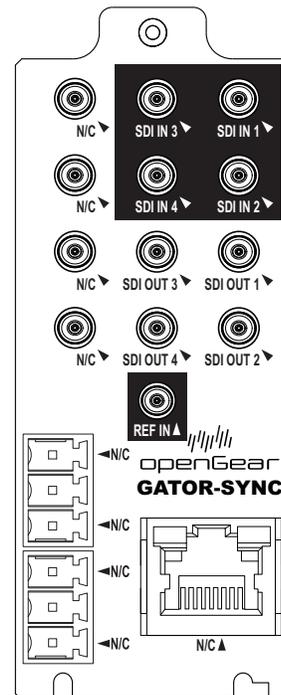


Figure 7 Cabling — 8323AR-325A

For More Information on...

- installing the rear module, refer to **"Installing the Rear Module into the openGear Frame"**.
- cabling the inputs and outputs, refer to **"Cabling"**.

Physical Installation

Installing an GATOR-SYNC 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 GATOR-SYNC card into the required frame slot.

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

For More Information on...

- the technical specifications for the GATOR-SYNC, refer to “**Technical Specifications**”.

Before You Begin

These installation guidelines assume the following:

- Ensure the openGear frame is properly installed. Refer to the **OG3-FR User Guide** or **OGX-FR User Guide**.
- A valid IP address is available for the GATOR-SYNC.
- If the rear module is already installed in the openGear frame, proceed to “**Installing the GATOR-SYNC 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 8323AR-325 in a frame other than the OGX-FR could damage the card, the rear module, or both.*

To remove a blank plate from the openGear frame

1. Locate the slots in the openGear frame you wish to install the GATOR-SYNC into.
2. If you are using an 8322AR-317, it is recommended to use the following slot combinations:
 - Slots 1, 2, 3, 4
 - Slots 5, 6, 7, 8
 - Slots 9, 10, 11, 12
 - Slots 13, 14, 15, 16
 - Slots 17, 18, 19, 20

3. If you are using the 8323AR-325, it is recommended to use the following slot combinations:
 - Slots 1, 2, 3, 4
 - Slots 3, 4
 - Slots 5, 6
 - Slots 7, 8
 - Slots 9, 10
 - Slots 11, 12
 - Slots 13, 14
 - Slots 15, 16
 - Slots 17, 18
 - Slots 19, 20
4. Use a Phillips screwdriver to unfasten each blank plate from the openGear backplane.
5. Remove each blank plate from the chassis and set aside.

Installing the Rear Module into the openGear Frame

If the rear module is already installed in the openGear frame, proceed to “**Installing the GATOR-SYNC 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.

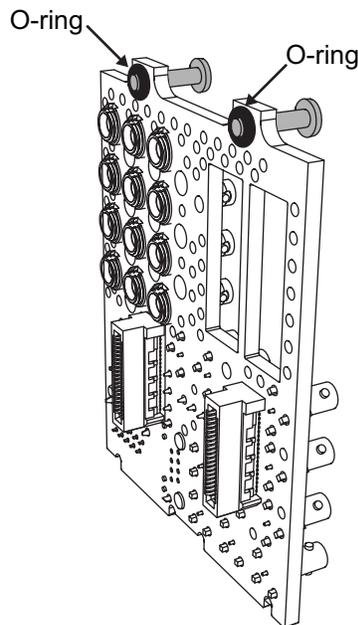


Figure 8 Location of the O-ring on the Rear Module

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 have verified that the GATOR-SYNC card aligns with the rear module.

Installing the GATOR-SYNC Card into an openGear Frame

The slot the GATOR-SYNC 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.

Refer to **Table 1** for valid slot combinations when using the 8322AR-317 rear module.

Table 1 Card Slot Combinations — 8322AR-317

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

Refer to **Table 2** for valid slot combinations when using the 8323AR-325 rear module.

Table 2 Card Slot Combinations — 8323AR-325

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

To install the GATOR-SYNC into the openGear frame

1. Locate the slot the GATOR-SYNC card will slide into as follows:
2. Verify that the GATOR-SYNC 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.

Cabling

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

For More Information on...

- the specifications for the GATOR-SYNC, refer to “**Technical Specifications**”.

Cabling the Ethernet Port on the openGear Frame

The GATOR-SYNC is connected to your network via the MFC-OG3-N in the openGear frame. This enables the GATOR-SYNC 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 GATOR-SYNC.

- ★ The GATOR-SYNC requires the MFC-OG3-N Network Controller card to be installed in the openGear frame. The MFC-8322-S does not support the GATOR-SYNC.
- ★ You must provide an ethernet connection to the openGear frame. Refer to the **OG3-FR User Guide** or the **OGX-FR User Guide**.

Before You Begin

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 GATOR-SYNC.

For More Information on...

- downloading and installing DashBoard, refer to the **DashBoard User Guide**.
- configuring the Ethernet port on the openGear frame refer to the **OG3-FR User Guide** or the **OGX-FR User Guide**.
- ★ Contact your network administrator if problems are experienced when connecting to a network hub.

Cabling for the Reference Input for an GATOR-SYNC

The openGear frame provides two reference input connections that the GATOR-SYNC can use as a reference source. Refer to the **OG3-FR User Guide** or **OGX-FR User Guide** to learn more about cabling these ports.

The GATOR-SYNC rear module also includes a **REF IN** HD-BNC that can assigned as a local reference input.

For More Information on...

- specifying the analog reference source for your card, refer to “**Reference Setup**”.

To connect a reference source to the GATOR-SYNC rear module

1. Connect one end of a Belden cable to the **REF IN** HD-BNC on the GATOR-SYNC rear module. Refer to **Figure 9** or **Figure 10**.
2. Connect the other end of the same Belden cable to the applicable output port on the external reference source device.

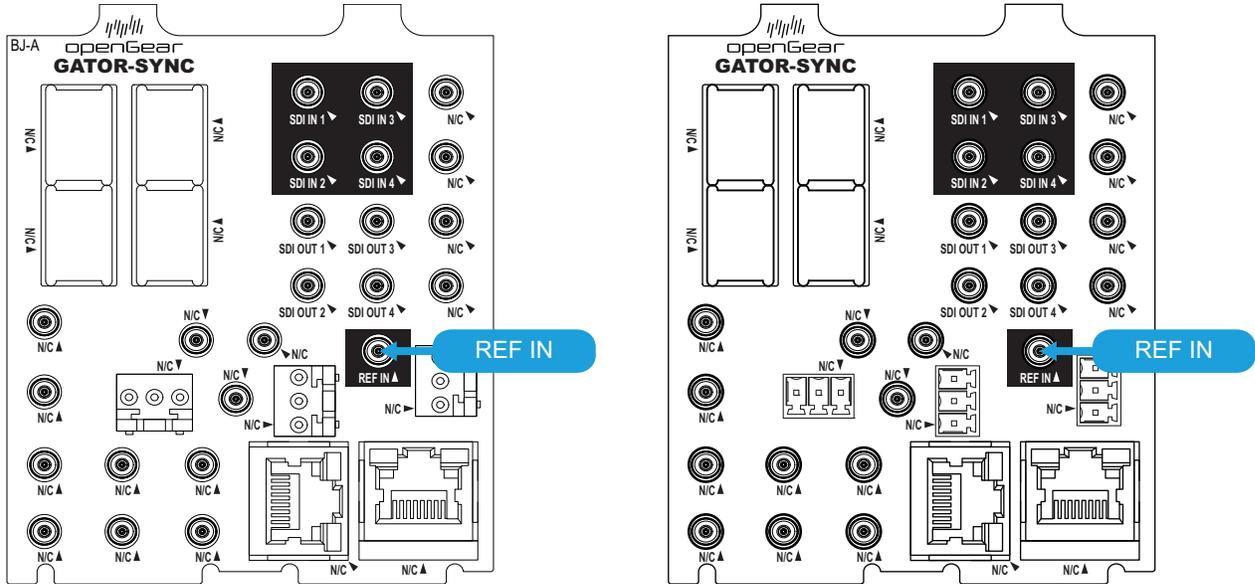


Figure 9 8322AR-317 — REF IN

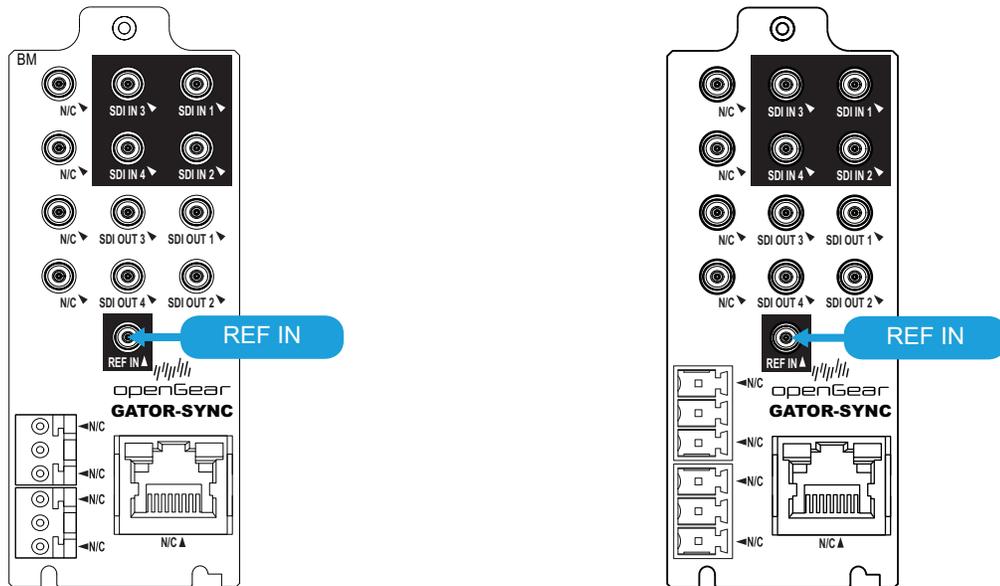


Figure 10 8323AR-325 — REF IN

Video Signal Cabling

Each rear module provides connections for up to four SDI inputs and four SDI outputs.

SDI Inputs

Connect your input video signals to the SDI IN HD-BNCs on the rear module as required. There are four HD-BNC SDI inputs available on each rear module. (**Figure 11** or **Figure 12**)

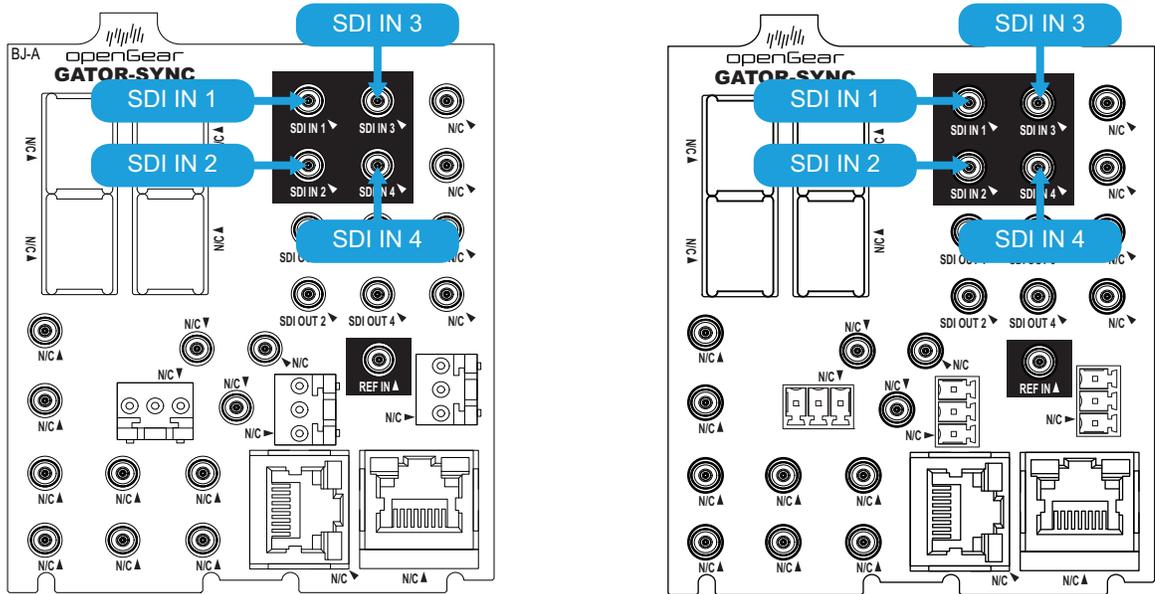


Figure 11 8322AR-317 — SDI Inputs

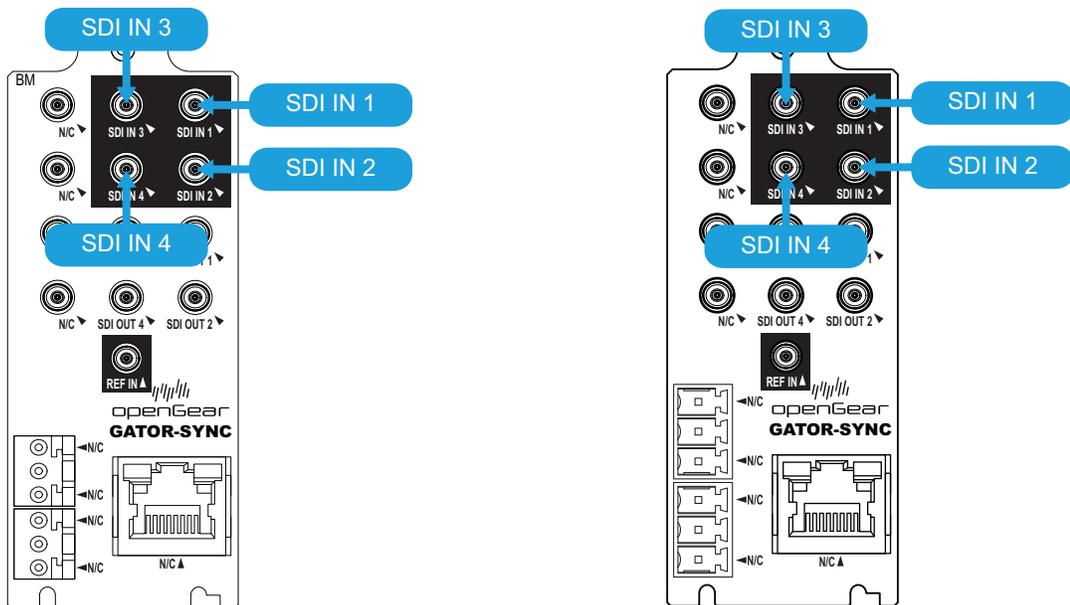


Figure 12 8323AR-325 — SDI Inputs

SDI Outputs

Connect your destination devices to the SDI OUT HD-BNCs on the rear module as required. There are four HD-BNC SDI outputs available on each rear module. (**Figure 13** or **Figure 14**)

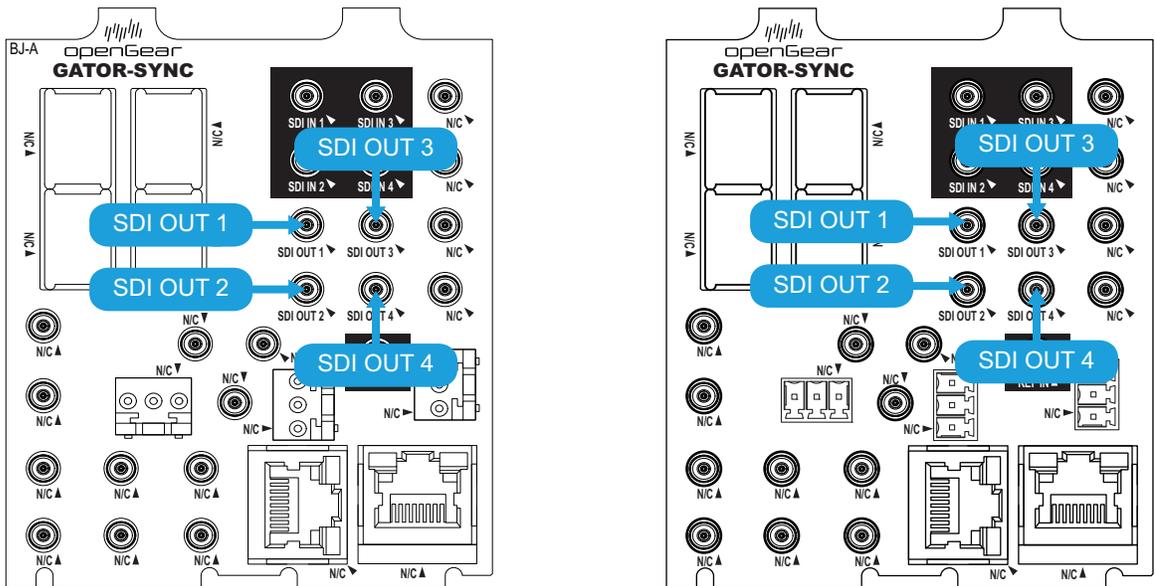


Figure 13 8322AR-317 — SDI Outputs

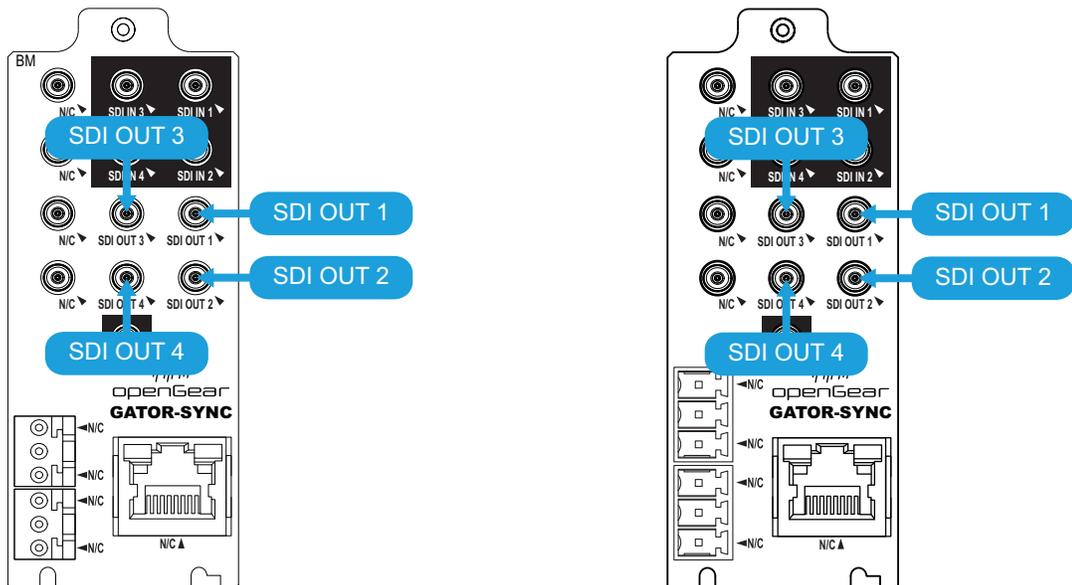


Figure 14 8323AR-325 — SDI Outputs

Getting Started

This chapter provides instructions for launching DashBoard, assigning an initial IP address to the GATOR-SYNC, and accessing the GATOR-SYNC interfaces in DashBoard.

If you have questions pertaining to the operation of GATOR-SYNC, 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:

- An MFC-OG3-N or an MFC-8322-N Network Controller Card installed in your openGear frame.
- The openGear frame that houses the GATOR-SYNC displays in the Basic Tree View of DashBoard.
- The GATOR-SYNC displays as a sub-node in the openGear frame tree.
- Your facility IT Department provided the required network settings to be assigned to the GATOR-SYNC.

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 Guide*.
- the GATOR-SYNC interfaces in DashBoard, refer to “**DashBoard Interface Overview**”.

To launch DashBoard

1. Ensure that you are running DashBoard software version 9.2.0 or higher.
2. Launch DashBoard by double-clicking its icon on your computer desktop.

Configuring the Initial Network Settings

Once the GATOR-SYNC is physically installed and cabled to your facility network, 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 GATOR-SYNC and update the Basic Tree View with the GATOR-SYNC sub-node.

★ This procedure requires a reboot of the card.

To assign the initial network settings for the GATOR-SYNC

1. Launch DashBoard.
2. Expand the openGear frame node to display a list of cards installed in that frame.
3. Double-click the **GATOR-SYNC** node under the frame node.
The **Network** interface displays in DashBoard.
4. Select the **Network** tab.
5. Use the **Mode** menu to select **Static**.
6. Use the **Static IP Address** field to assign a unique IP address to the GATOR-SYNC 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. Verify the new network settings as follows:
 - a. Close the **Network** interface.
 - b. Refresh the Basic Tree View.
 - c. Expand the openGear frame node to display a list of sub-nodes.
 - d. Verify that the GATOR-SYNC displays as seen in the example below.



Accessing the GATOR-SYNC Interfaces in DashBoard

The interfaces are accessed by double-clicking the GATOR-SYNC node in the DashBoard Tree View.

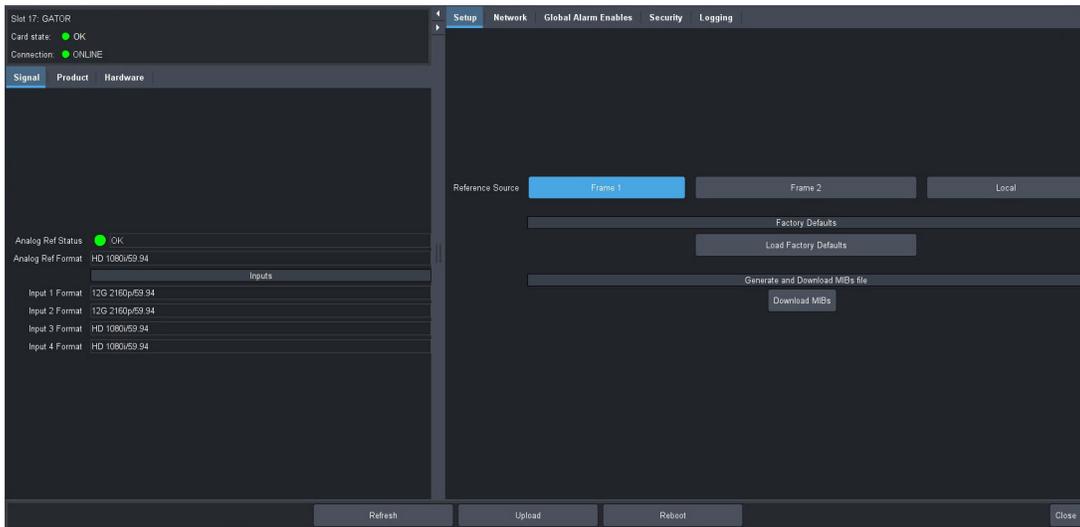
To access the GATOR-SYNC interfaces in DashBoard

1. Launch DashBoard.
2. In the Basic Tree View of DashBoard, locate the openGear frame the GATOR-SYNC is installed in.
3. Expand the openGear frame node to display a list of sub-nodes.
4. Locate the GATOR-SYNC node in the frame tree.
5. Expand the GATOR-SYNC node to display a list of sub-nodes for the card.

The first sub-node provides access to the global settings for the card while each subsequent sub-node represents a Frame Sync.

6. Double-click a sub-node to display the GATOR-SYNC interface in the right pane of the DashBoard window.

In the example below, the **Global** sub-node was selected.



7. Select a tab to display its options in the Dashboard window.
In the example above, the Signal and Setup tabs are selected.

Configuring the Remote Logging Feature

The GATOR-SYNC enables you to implement a streaming log that captures status information of the system. This feature is useful for troubleshooting.

- ★ A centralized Syslog server must be installed in your system. Refer to the documentation that accompanied your centralized Syslog server for installation and setup information.

To configure the remote logging feature

1. In the Tree View of Dashboard, expand the GATOR-SYNC node.
 2. Double-click the **Global** sub-node to display the Global interface in the right-half of the Dashboard window.
 3. Select the **Logging** tab.
 4. Use the **Remote Logging** field to specify the IP Address of the device that will capture and store the status information of the GATOR-SYNC.
- ★ You must press **Enter** after typing the IP Address into the **Remote Logging** field.
5. Reboot the GATOR-SYNC card as follows:
 - a. Click **Reboot**. This button is located on the bottom of the tab.
 - b. Monitor the reboot progress.

Reference Setup

The openGear frame supports a distributed frame reference, allowing incoming reference signals to feed timing information to all openGear cards in that frame. Thus, a single signal can be used for multiple cards.

- ★ The procedures in this chapter assume that you have launched DashBoard and the GATOR-SYNC interface displays in the right-pane of the DashBoard window.

Frame Rate Compatibility

The GATOR-SYNC video output frame rate must match the frame rate of the selected (analog or digital) reference frame rate. **Table 3** provides an outlines the GATOR-SYNC frame rate compatibility.

The card allows you to use any interlaced video format to operate the card in any format of the same frequency; however, the use of 480i or 576i (Composite Sync) reference signals for High Definition (720p, 1080i, or 1080p) video modes is not recommended.

- ★ It is recommended to use an interlaced analog or digital reference when using an interlaced video output format, with both running at the same frame rate.
- ★ When using a progressive format reference signal to lock an interlaced format video signal, the lock will be Frame Locked but Field indeterminate.

Table 3 Output/Reference Compatibility

Card Format	Required Reference
HD Formats	
720p 50Hz	576i 50Hz
	720p 50Hz
	1080i 50Hz
	1080p 25Hz
720p 59.94Hz	480i 59.94Hz
	720p 59.94Hz
	1080i 59.94Hz
720p 59.94Hz	1080p 29.97Hz
720p 60Hz	720p 60Hz
	1080i 60Hz
	1080p 30Hz
1080i 50Hz	576i 50Hz
	720p 50Hz
	1080i 50Hz
	1080p 25Hz

Table 3 Output/Reference Compatibility (Continued)

Card Format	Required Reference
1080i 59.94Hz	480i 59.94Hz
	720p 59.94Hz
	1080i 59.94Hz
	1080p 29.97Hz
1080i 60Hz	720p 60Hz
	1080i 60Hz
	1080p 30Hz
1080pSF 23.98Hz	1080pSF 23.98Hz
1080pSF 24Hz	1080pSF 24Hz
1080p 23.98Hz	1080p 23.98Hz
1080p 24Hz	1080p 24Hz
1080p 25Hz	576i 50Hz
	720p 50Hz
	1080i 50Hz
	1080p 25Hz
1080p 29.97Hz	480i 59.94Hz
	720p 59.94Hz
	1080i 59.94Hz
	1080p 29.97Hz
1080p 30Hz	720p 60Hz
	1080i 60Hz
	1080p 30Hz
1080p 50Hz Level A	576i 50Hz
1080p 50Hz Level A	720p 50Hz
	1080i 50Hz
	1080p 25Hz
1080p 59.94Hz Level A	480i 59.94Hz
	720p 59.94Hz
	1080i 59.94Hz
	1080p 29.97Hz
1080p 60Hz Level A	720p 60Hz
	1080i 60Hz
	1080p 30Hz
UHD Formats^a	
2160p 23.98Hz	1080p 23.98Hz
2160p 24Hz	1080p 24Hz

Table 3 Output/Reference Compatibility (Continued)

Card Format	Required Reference
2160p 25Hz	576i 50Hz
	720p 50Hz
	1080i 50Hz
	1080p 25Hz
2160p 29.97Hz	480i 59.94Hz
	720p 59.94Hz
	1080i 59.94Hz
	1080p 29.97Hz
2160p 30Hz	720p 60Hz
	1080i 60Hz
	1080p 30Hz
2160p 50Hz	576i 50Hz
	720p 50Hz
	1080i 50Hz
	1080p 25Hz
2160p 59.94Hz	480i 59.94Hz
	720p 59.94Hz
	1080i 59.94Hz
	1080p 29.97Hz
2160p 60Hz	720p 60Hz
	1080i 60Hz
	1080p 30Hz

a. Requires the GATOR-SYNC-UHD-LICENSE.

★ To lock properly, the reference frame rate and the video output frame rate should be in a ratio of 1:1 or 1:2. An example of the 1:1 ratio would be a 29.97Hz reference frame rate (e.g. 480i 59.94Hz, 1080i 59.94Hz), and a 29.97Hz video output frame rate (like 480i 59.94Hz, 1080i 59.94Hz, 1080p 29Hz, 2160p 29Hz). An example of the 1:2 ratio would be a 29.97Hz reference frame rate (e.g. 480i 59.94Hz, 1080i 59.94Hz), and a 59.94Hz video output frame rate (e.g. 720p 59.94Hz, 1080p 59.94Hz, 2160p 59.94Hz).

Specifying a Global Analog Reference Source

If the reference signal is valid, and if the frame timing settings is greater than or equal to 1, the card is automatically set to Frame Sync mode. If a valid reference is selected, and then removed, the card will remain in Frame Sync mode but will flywheel. This means that the card will be dropping or repeating the display of some video input frames as necessary to keep the input to output delay within the specified range of F to F+1 frames delay. The frame drop/repeat occurs whenever the video input frame start point crosses over the video output frame start point.

The card has built-in hysteresis to avoid visible artifacts if the input and output timing alignment oscillates around the drop/repeat cross-over point.

To specify a global analog reference source for the GATOR-SYNC

1. Display the **Global** interface as outlined in “**To access the GATOR-SYNC interfaces in Dashboard**”.
 2. Select the **Setup** tab.
 3. Use the **Reference Source** menu to specify the source for the reference input signal.
Once set, this Analog Reference Source can be assigned as the reference source for any of the Frame Sync.
- ★ If you select **Frame 1** or **Frame 2**, the Frame Sync input video frame rate must match this reference frame rate.

For More Information on...

- specifying a reference source, refer to “**Specifying the Reference for a Frame Sync**”.

Monitoring the Reference Signal via Dashboard

The status of the GATOR-SYNC may be monitored via its fields in the Dashboard client software or the LEDs located on the front panel of the chassis.

To configure the reference alarm for the GATOR-SYNC

1. Display the **Global** interface as outlined in “**To access the GATOR-SYNC interfaces in Dashboard**”.
2. Select the **Global Alarm Enables** tab.
3. Select the **Reference Format** box to enable the Card state status field, located in the top left corner of the Global interface, to report when the analog reference signal is not detected.

Frame Sync Setup

Each Frame Sync is represented as a separate GATOR-SYNC sub-node in the Basic Tree View. This enables you to configure each Frame Sync independently. Double-click a Frame Sync node to display its settings in DashBoard.

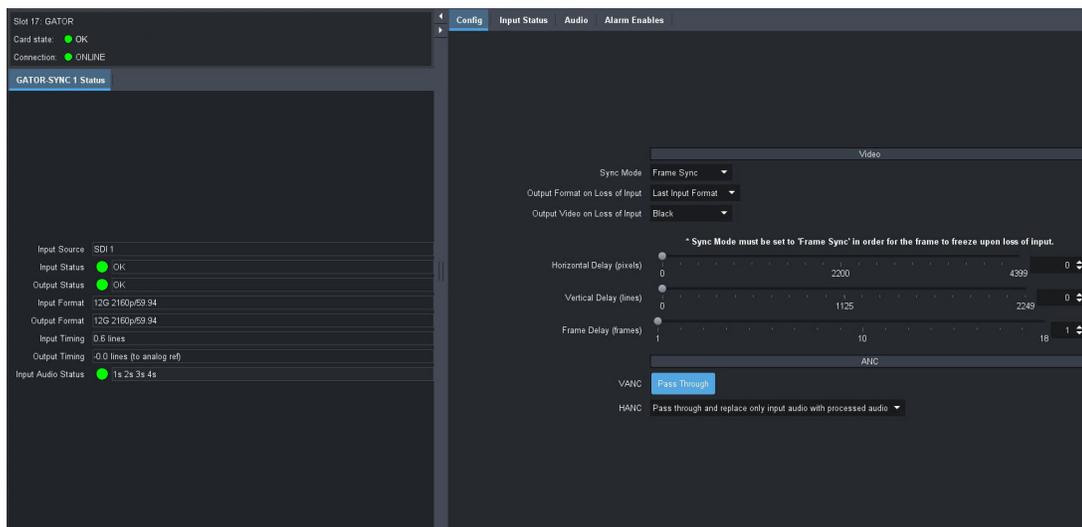
Specifying the Reference for a Frame Sync

Each Frame Sync can be independently configured to use either the card-wide reference signal, as defined by the Analog Reference setting in the Global > Setup tab, or the input signal on the corresponding SDI input.

To configure the reference for a Frame Sync on the GATOR-SYNC

1. Display the GATOR-SYNC interface as outlined in “**To access the GATOR-SYNC interfaces in DashBoard**”.
2. Double-click the **GATOR-SYNC** sub-node for the Frame Sync you want to configure.

The **GATOR-SYNC** interface opens in the right-half of the DashBoard window with the Config tab automatically selected.



3. Use the **Sync Mode** menu to specify the reference input signal for the specified Frame Sync. Choose from the following:
 - **Frame Sync** — the Frame Sync uses the analog reference signal that is specified in the Global > Setup > Analog Reference Source menu. Select this mode if the **Output Video on Loss of Input** is set to **Freeze**.
 - **Frame Delay** — the Frame Sync uses the digital reference signal extracted from the corresponding SDI IN BNC of the rear module. For example, **Frame Sync 1** uses the input signal detected on the **SDI IN 1** BNC.

Specifying the Output During a Loss of Input

The GATOR-SYNC enables you to specify the output during a loss of input signal, or during a change of input format. The embedded audio will also go silent if passing from input to output (when another audio is not enabled).

To specify the output if the video input signal is lost

1. Display the GATOR-SYNC interface as outlined in “To access the GATOR-SYNC interfaces in DashBoard”.
2. Double-click the **GATOR-SYNC** sub-node for the Frame Sync you want to configure.
The **GATOR-SYNC** interface opens in the right-half of the DashBoard window with the Config tab automatically selected.
3. Use the **Output Format on Loss of Input** menu to specify the output video format when the card experiences a loss of input signal.
4. Use the **Output Video on Loss of Input** menu to specify what to output when the card experiences a loss of input. Choose from the following:
 - **Black** — the Frame Sync will output black in the event of a loss of video input signal.
 - **Freeze** — displays the last captured frame of video from the input signal. Ensure that the:
 - › **Output Format on Loss of Input** menu is set to the same format as the input video signal or to the last known input format. If not, the card will not output a Freeze Frame, but a full Field Black image in the format selected in the **Output Format on Loss of Input** menu.
 - › The **Sync Mode** is set to **Frame Sync**.

Configuring the Delay for a Frame Sync Output

The GATOR-SYNC is suited to solve system timing problems where the difference in delay is constant between two paths. An example of this would be a situation where a downstream switcher needs to have clean switches between the output of a production switcher and some of the same input sources fed to the production switcher. The GATOR-SYNC cannot completely correct badly missed switches, signal drops, or similar issues unless the user has chosen to add at least 1 frame of delay.

★ The **Input Timing** field of the **GATOR-SYNC > Status** tab reports the input video timing with respect to the selected analog reference signal.

Adding a Delay

The delay values can be adjusted from 0 to a maximum limit that depends on the video format. Refer to **Table 4** for the range of available delay values.

Table 4 Delay Range

Format	Range of Values		
	Horizontal Delay (pixels)	Vertical Delay (lines)	Frame Delay (frames)
1080p 59.94	0-2199	0-1124	0-79
1080p 50	0-2639	0-1124	0-64
1080p 29.97	0-2199	0-1124	0-79
2160p 59.94	0-4399	0-2249	0-18
2160p 50	0-5179	0-2249	0-14
1080i 59.94	0-2199	0-1124	0-79

Table 4 Delay Range (Continued)

Format	Range of Values		
	Horizontal Delay (pixels)	Vertical Delay (lines)	Frame Delay (frames)
1080i 50	0-2639	0-1124	0-64
1080pSF 24	0-2749	0-1124	0-62
1080pSF 23.98	0-2749	0-1124	0-62
720p 59.94	0-1649	0-749	0-153
720p 50	0-1979	0-749	0-125

To add a delay to the Frame Sync video output

1. In the Tree View of DashBoard, expand the GATOR-SYNC node.
2. Double-click the **GATOR-SYNC** sub-node for the Frame Sync you want to configure.
The interface opens in the right-half of the DashBoard window with the **Config** tab automatically selected.
3. Use the **Horizontal Delay** field to specify the horizontal delay, relative to the selected reference. Adjustments are made in pixel increments.
4. Use the **Vertical Delay** field to specify the vertical delay, relative to the selected reference. Adjustments are made in line increments.
5. Use the **Frame Delay** field to specify the delay in number of frames. Frame delay adjustments are made in full frame increments.

ANC Processing

Ancillary Data (ANC) is the non-video data that can be embedded within the SDI signal, such as audio, audio metadata, timecode, closed caption data, AFD, and payload identification. This section briefly summarizes the ANC processing features of the GATOR-SYNC.

The ANC Pass Through settings only apply when the output and the input have the same format. If the input is not synchronous to the output, entire frames of data are duplicated or dropped as part of the Frame Sync behavior. This feature will pass the entire HANC and/or VANC region without modification except for very limited error corrections to keep the video stream within specifications (values of 0x000 or 0x3FF will be clipped if not part of a packet header, and EDH is re-generated).

- ★ If the ANC Pass Through features are enabled, and the input format changes, there will be a discontinuity that can cause errors such as the audio to click, audio CRC errors, or closed captioning errors.

To pass through VANC data on a Frame Sync output

1. In the Tree View of DashBoard, expand the GATOR-SYNC node.
 2. Double-click the **GATOR-SYNC** sub-node for the channel you want to configure.
The interface opens in the right-half of the DashBoard window with the **Config** tab automatically selected.
 3. Click the **VANC Pass Through** button in the **ANC** area of the tab.
The button label changes to **Enabled** and the button is now lit.
- ★ If the VANC Pass Through features are enabled, and the input signal is invalid, an AFD packet is inserted.

To pass through HANC data on a Frame Sync output

1. In the Tree View of Dashboard, expand the GATOR-SYNC node.
2. Double-click the **GATOR-SYNC** sub-node for the channel you want to configure.
The interface opens in the right-half of the Dashboard window with the **Config** tab automatically selected.
3. Use the **HANC** menu to specify how to process the HANC data. Choose from the following:
 - **Pass Through** — the data in the HANC passes through to the output without changes.
 - **Delete all HANC data and leave blank** — all data in the HANC is deleted; no data is passed through.
 - **Pass through and replace only input audio with process audio** — all HANC data, except the input audio data, is passed through unchanged. The input audio data in the HANC is replaced with the embedded audio configured by the card.
 - **Delete all HANC data and insert processed audio** — all HANC data is deleted. The embedded audio configured by the card is added to the HANC.

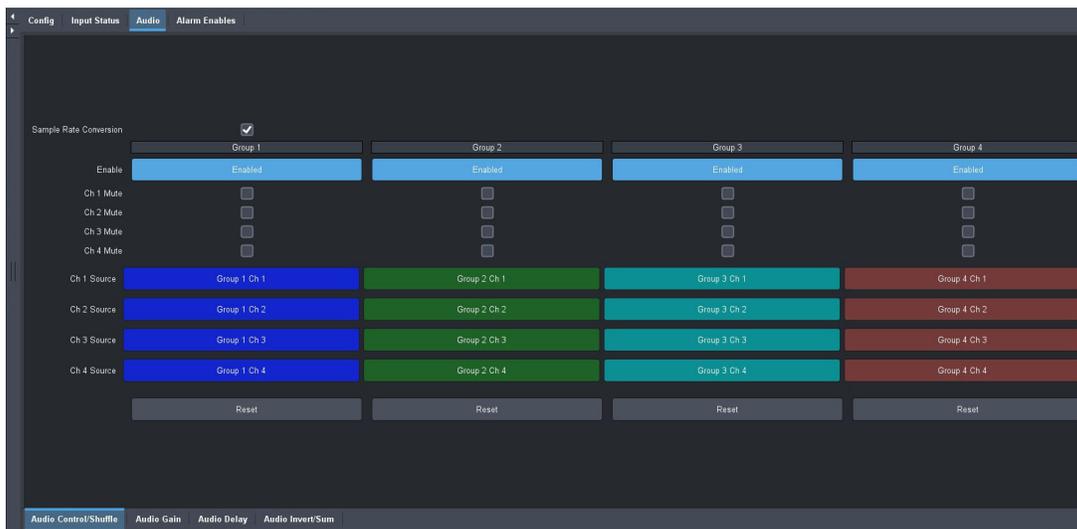
Enabling Audio Processing

The Audio Processing box must be selected in order for Proc Amp adjustments to take effect on the output.

To enable processing on the audio output of a Frame Sync

1. In the Tree View of Dashboard, expand the GATOR-SYNC node.
2. Double-click the **GATOR-SYNC** sub-node for the channel you want to configure.
3. Select the **Audio** tab.

The **Audio Control/Shuffle** sub-tab is automatically selected.



4. Select the **Enable** button for each required audio group(s).
The button label displays **“Enabled”**.

Enabling Sample Rate Conversion

Sample Rate Conversion (SRC) should only be used with Pulse Code Modulation (PCM) digital audio and not any form of compressed signal, such as Dolby®. The SRC for each Frame Sync is enabled independently.

To enable SRC on the output of a Frame Sync

1. In the Tree View of DashBoard, expand the GATOR-SYNC node.
2. Double-click the **GATOR-SYNC** sub-node for the channel you want to configure.
3. Select the **Audio** tab.
 - The **Audio Control/Shuffle** sub-tab is automatically selected.
4. Select the **Sample Rate Conversion** box.

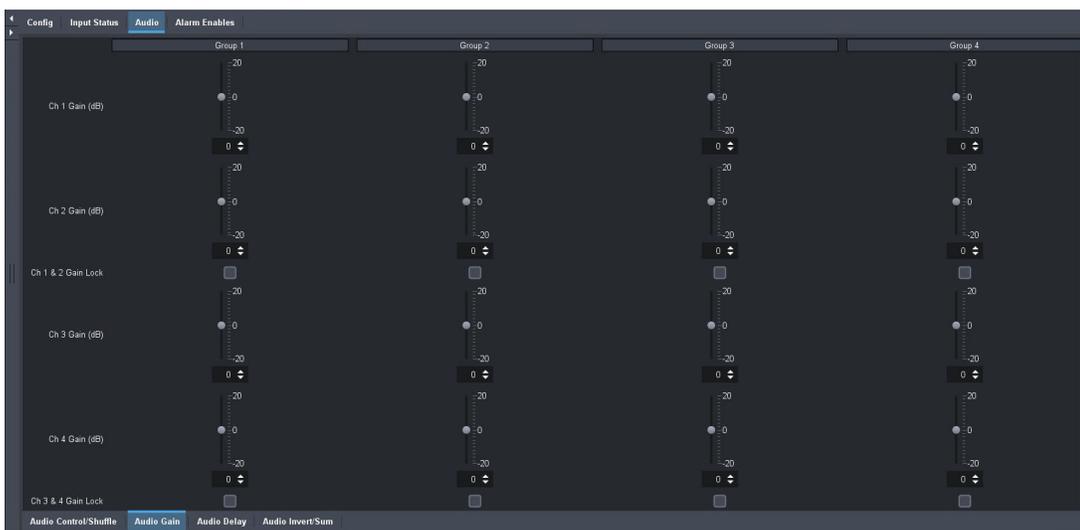
Adjusting the Audio

The embedded audio output Proc Amp adjustments are applied in the following order:

- **Delay** — This option enables you to adjust the delay of the audio channel. If you have enabled the Delay Lock feature, changing the delay value for one channel automatically changes the value for the other channel.
- **Gain** — This option provides a +/- 20dB gain range in 1dB increments. If you have enabled the Gain Lock feature, changing the gain value for one channel automatically changes the value for the other channel.
- **Invert** — This option enables you to invert the polarity of the audio signal for the selected channel.
- **Sum** — This option enables both channels to carry the average of the two selected input channels ((A+B)/2).

To adjust the gain on the audio output of a Frame Sync

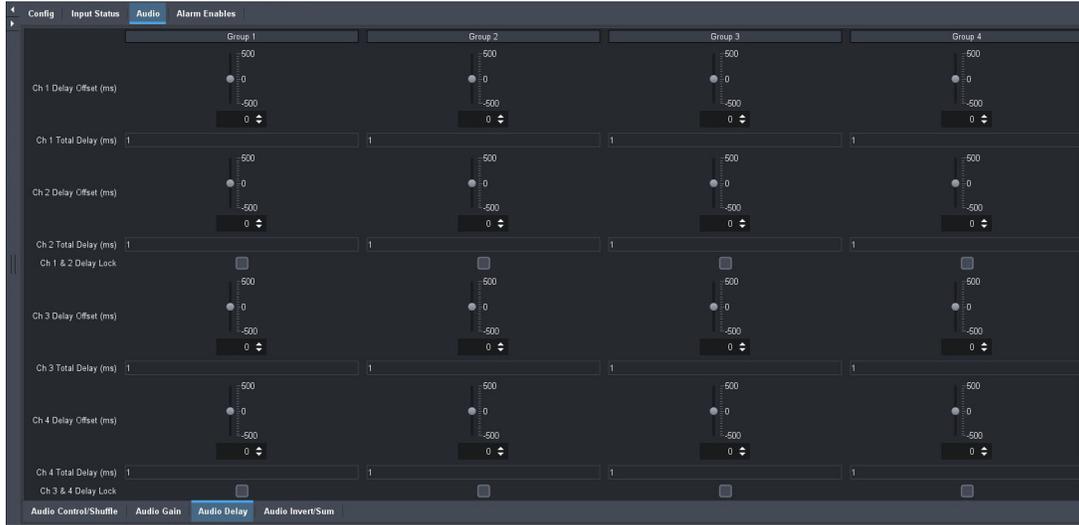
1. In the Tree View of DashBoard, expand the GATOR-SYNC node.
2. Double-click the **GATOR-SYNC** sub-node for the channel you want to configure.
3. Select **Audio > Audio Gain**.



- Use the **Ch Gain** slider to adjust the gain of the specified audio channel.
- ★ Use the **Gain Lock** options to lock the sliders of both channels together. If the values for the two channels are different, that difference is maintained when the channels are locked.

To adjust the audio delay

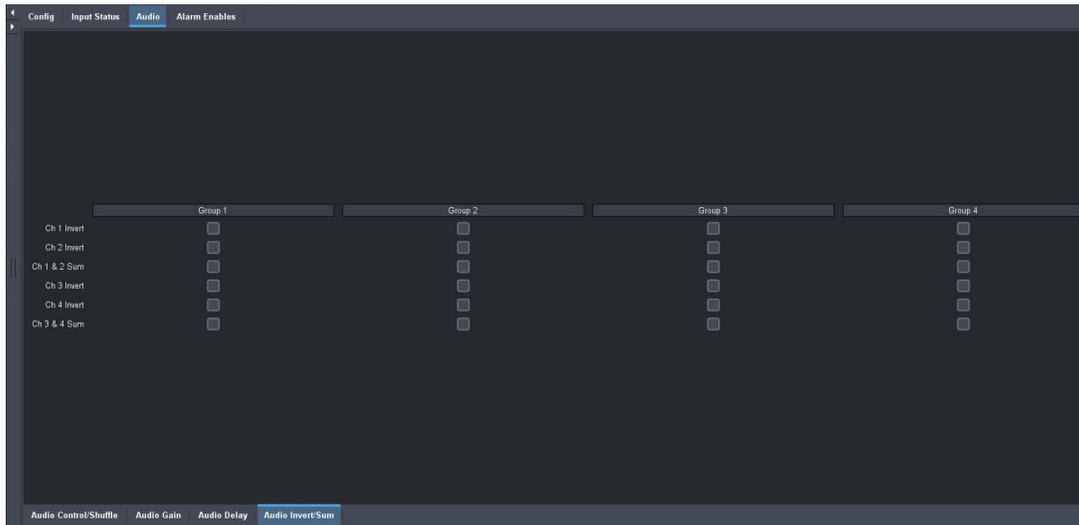
- In the Tree View of DashBoard, expand the GATOR-SYNC node.
- Double-click the **GATOR-SYNC** sub-node for the channel you want to configure.
- Select **Audio > Audio Delay**.



- Use the **Ch Delay Offset** slider to adjust the delay of the specified audio channel.
- ★ Use the **Delay Lock** boxes to lock the sliders of both channels together. If the values for the two channels are different, that difference is maintained when the channels are locked.

To invert an audio channel

- In the Tree View of DashBoard, expand the GATOR-SYNC node.
- Double-click the **GATOR-SYNC** sub-node for the channel you want to configure.
- Select **Audio > Audio Invert/Sum**.



- Select the **Ch Invert** box to invert the audio signal of the specified channel.

To sum two audio channels

★ You can sum every adjacent pair of audio groups with the first channel on the Odd Channel numbers (e.g. Channels 1 and 2, Channels 3 and 4).

1. In the Tree View of DashBoard, expand the GATOR-SYNC node.
2. Double-click the **GATOR-SYNC** sub-node for the channel you want to configure.
3. Select **Audio > Audio Invert/Sum**.
4. Select the **Ch Sum** box to enable the specified channels to carry the average of their inputs $((A+B)/2)$.

Muting an Audio Channel

The GATOR-SYNC provides the ability to individually mute each of the 4 channels in each audio group.

To mute an audio channel

1. In the Tree View of DashBoard, expand the GATOR-SYNC node.
2. Double-click the **GATOR-SYNC** sub-node for the channel you want to configure.
3. Select the **Audio** tab.
The **Audio Control/Shuffle** sub-tab is automatically selected.
4. Locate the **Group** column you want to mute the channel for.
5. Select the **Ch # Mute** box to mute a specific channel within a specific group.

Shuffling the Audio Channels

The GATOR-SYNC enables you to modify the map of embedded audio channels. You can shuffle the 16 audio channels within the embedded group (of the originating video stream) with no de-embedding required. This re-shuffle is invoked in real time.

★ If the selected source is not present on the input video, silence is embedded.

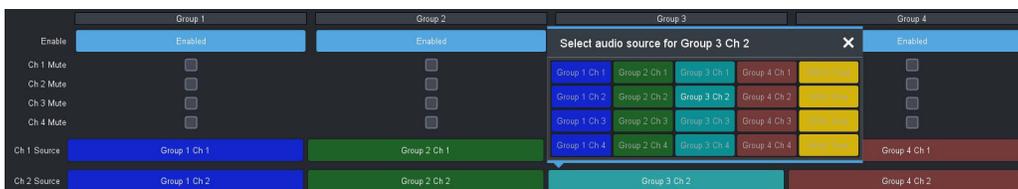
To shuffle the audio channels for an audio group

1. In the Tree View of DashBoard, expand the GATOR-SYNC node.
2. Double-click the **GATOR-SYNC** sub-node for the channel you want to configure.
3. Select the **Audio** tab.
The **Audio Control/Shuffle** sub-tab is automatically selected.
4. Locate the **Group** column you want to shuffle the channels for.
5. Click the button for the Channel you want to assign a new source for.

The Select Audio Source dialog opens.

6. Select the audio source to assign to the Channel.

In the following example, the user selected Group 3 Ch 2.



Embedding PCM and Non-PCM Signals

This section provides additional information on the Processing Amplifiers (Proc Amps) for the audio outputs on the card.

Embedding PCM Signal

Each card can embed PCM audio from the embedded audio of the source video.

Embedding Non-PCM Signals

You can configure the card to embed non-PCM signals, such as Dolby® Digital and Dolby® E, using the options available in DashBoard. However, when embedding the non-PCM signal, the A and B channels of the input signal must be embedded on Channels 1 and 2, or Channels 3 and 4 of a given group.

To embed non-PCM signals

1. In the Tree View of DashBoard, double-click the GATOR-SYNC node.
2. Double-click the **GATOR-SYNC** sub-node for the Frame Sync you want to configure.
The **GATOR-SYNC** interface opens in the right-half of the DashBoard window with the Config tab automatically selected.
3. Disable the SRC as follows:
 - a. Select the **Audio** tab.
The **Audio Control/Shuffle** sub-tab is automatically selected.
 - a. Clear the **Sample Rate Conversion** box.
4. Disable the inversion and summing of the applicable channels as follows:
 - a. Select the **Audio Invert/Sum** sub-tab.
 - b. Clear the applicable **Ch # Sum** box.
 - c. Clear the applicable **Ch # Invert** box to disable inverting on the channel.
5. Set the audio gain to 0 (zero) as follows:
 - a. Select the **Audio Gain** sub-tab.
 - b. Set the applicable **Ch # Gain** to **0**.
6. Ensure the delay for each channel match as follows:
 - a. Select the **Audio Delay** sub-tab.
 - b. Compare the **Ch # Delay** values of the channels.

Resetting the Audio Proc Amp Settings

You can reset the audio proc values for an audio channel pair using the applicable **Reset** button on the Audio Control/Shuffle tab. To reset the audio Proc Amp settings

1. In the Tree View of DashBoard, expand the GATOR-SYNC node.
2. Double-click the **GATOR-SYNC** sub-node for the channel you want to configure.
The Channel interface opens in the right-half of the DashBoard window.
3. Select the **Audio** tab.
The **Audio Control/Shuffle** sub-tab is automatically selected.

4. Click the **Reset** for the applicable audio group/channel.

The following audio settings are reset:

- Ch # Mute
- Ch # Gain
- Ch # Gain Lock
- Ch # Delay Offset
- Ch # Delay Lock
- Ch # Invert
- Ch # Sum

Upgrading the Software

The GATOR-SYNC can be upgraded in the field via DashBoard.

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. From the **Tree View**, expand the node for the GATOR-SYNC you want to access.
 4. Double-click the **Global** sub-node to display the interface in the right-half of DashBoard.
 5. Select **Upload**, located near the bottom of the interface, to display the **Select file Upload** dialog.
 6. Navigate to the ***.bin** file you want to upload.
 7. Click **Open**.
 8. If you are upgrading a single card:
 - a. Click **Finish** to start the upgrade.
 - b. Proceed to step 10.
 9. 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**.
 10. 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 Interface Overview

The DashBoard client software enables you to monitor, configure, and operate your GATOR-SYNC. The configuration, monitoring, and operating features are organized as a series of nodes and tabs in a DashBoard client window. This chapter summarizes the interfaces, and tabs available from DashBoard for the GATOR-SYNC.

Global Interface

The Global interface is accessed by double-clicking the Global sub-node in the GATOR-SYNC tree. This interface provides read-only hardware information, status, and general product setup for your GATOR-SYNC. There are two distinct panes in the Global interface: Status (in the left pane), and Configuration (in the right pane).

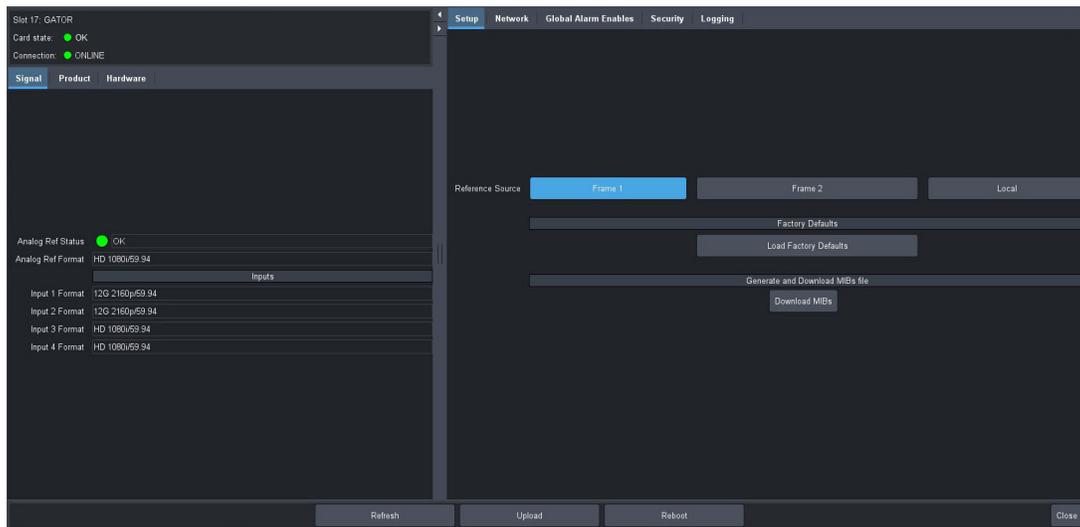


Figure 15 Example of the Global Interface

Signal Tab

Table 5 summarizes the read-only fields displayed in the **Signal** tab.

Table 5 Signal Tab

Item	Parameters	Description
Analog Ref Status	OK (Green)	A valid signal is detected from the reference source device
	Alarm suppressed (Green)	There are reference errors detected but the Global Alarm Enables > Reference Error option is disabled (box is not selected)
	Unsupported	An unsupported signal is detected from the reference source device
	Unlocked (Red)	A valid or present reference signal is not detected by the card
Analog Ref Format	#	Reports the video format detected on the input reference signal as defined by the Setup > Analog Reference Source menu.

Table 5 Signal Tab (Continued)

Item	Parameters	Description
Inputs		
Input # Format	#	A valid SDI signal is detected on the input, the format is supported, and the selected reference signal is supported and compatible
	N/A	An invalid SDI signal is detected on the input

Product Tab

Table 6 summarizes the read-only information displayed in the Product area.

Table 6 Product Tab

Item	Parameters	Description
Product	GATOR	
Supplier	Ross Video Ltd.	
Board Rev	#	Indicates the hardware version
Serial Number	#	Indicates the serial number of the card
Rear Module	#	Indicates the rear module the card is installed in
Rear Module Status	OK (Green)	A supported rear module is installed with the card
	Alarm suppressed (Green)	An unsupported rear module is installed by the Global Alarm Enables > Incompat Rear Module option is disabled (box is not selected)
	Incomp I/O Module (Red)	Card is connected to an unsupported rear module
Software Rev	v#.#-#	Indicates the software version running on the card
Firmware Rev	##	Indicates the firmware version running on the card
CPLD Rev	##	Indicates the complex programmable logic device version of the GATOR-SYNC
Daughter Card		
Type	#	Indicates the daughter card model installed on the card
Variant	#	
Issue	#	Indicates the hardware version of the daughter card

Hardware Tab

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

Table 7 Hardware Tab

Item	Parameters	Description
Hardware Status	OK (Green)	The fans are operating correctly and no errors are detected
	Alarm suppressed (Green)	There are fan errors detected but the Global Alarm Enables > Stalled Fan option is disabled (box is not selected)
	Critical Temperature (Red)	An error with the fans is occurring. Verify that the fans and airflow for the card is valid.
	Fan Off/Stalled (Red)	
Voltage (V)	#	Measured input voltage
Current (mA)	#	Current consumption in milliamperes
Power (W)	#	Power consumption in watts
Daughter Board Voltage (mV)	#	Input voltage of the audio daughter board
Daughter Board Current (mA)	#	Current consumption of the audio daughter board
Daughter Board Power (W)	#	Power consumption of the audio daughter board
FPGA Temp (C)	#C / #F	Indicates the FPGA Core temperature where: <ul style="list-style-type: none"> • A green indicator displays when the temperature is less than 95°C. • A yellow indicator displays when the temperature is greater than or equal to 95°C. • A red indicator displays when the temperature is greater than or equal to 100°C.
 If the temperature is greater than 100°C (212°F), the user must manually power down the card.		
AXI Bridge	#	The Advanced extensible interface bridge is running correctly on the GATOR-SYNC. This information is only used by Ross Technical Support.
Fan Speed	#	Reports the speed (rpm) of the specified SOC Fan
CPU Usage	x.xx / y.yy / z.zz	Displays the CPU Load average where: <ul style="list-style-type: none"> • x.xx represents in the last minute • y.yy represents the last five minutes • z.zz represents the last fifteen minutes
RAM Available	# / #.## MB	CPU Memory Used / Total CPU Memory

Setup Tab

Table 8 summarizes the options displayed in the Setup tab.

Table 8 Setup Tab

Item	Parameters	Description
Reference Source	Frame 1	Uses the reference signal connected to the REF 1 BNC on the openGear frame
	Frame 2	Uses the reference signal connected to the REF 2 BNC on the openGear frame
	Local	Uses the reference signal connected to the REF IN port on the GATOR-SYNC rear module
Factory Defaults		
Load Factory Defaults	All editable parameters in DashBoard, except those on the Network tab, are reset to the factory default values	
Generate and Download MIBs File		
Download MIBs	Downloads the Management Information Base (MIB) file that provides the SNMP controls for your card	

Network Tab

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

Table 9 Network Tab

Item	Parameters	Description
Network Time		
Use time from Frame Network Controller	Selected	Enables the GATOR-SYNC to use the time data reported by the MFC-OG3-N or MFC-OGX-N that is installed in the same openGear frame
	Cleared	
Default Gateway		
Current (read-only)	###.###	Indicates the gateway for communications outside of the local area network (LAN)
Static Gateway	###.###	The Gateway for the GATOR-SYNC that the user manually assigned
openGear Chassis RJ-45		
Link Status (read-only)	OK (Green)	The GATOR-SYNC is communicating on the network via the Network Controller Card
	Invalid Subnet Mask (Yellow)	The Current Subnet Mask value is set incorrectly or is invalid within your network
	Apply/Cancel Changes (Yellow)	One or more setting on this tab was changed but the Apply button was not selected
	Link Down (Red)	The link for the Network Controller Card is invalid

Table 9 Network Tab (Continued)

Item	Parameters	Description
Current IP Address (read-only)	###.###	Indicates the IP Address currently assigned to the GATOR-SYNC via the Network Controller Card
Current Subnet Mask (read-only)	###.###	Indicates the subnet mask for the GATOR-SYNC
MAC Address (read-only)	#	Indicates the MAC Address currently assigned to the GATOR-SYNC
Mode	Static	The user manually supplies the network settings for the GATOR-SYNC
	DHCP*	Automates the assignment of network settings for the GATOR-SYNC
Static IP Address	#	The IP Address for the GATOR-SYNC that the user manually assigned
Subnet Mask	#	The Subnet Mask for the GATOR-SYNC that the user manually assigned

Global Alarm Enables Tab

Table 10 summarizes the options displayed in the Global Alarm Enables tab.

Table 10 Global Alarm Enables Tab

Item	Parameters	Description
Network Time		
Network time (read-only)	#	Displays the time data transmitted by the Frame Controller card in the same openGear frame. Requires that the Global > Network > Use time from Frame Controller box is selected.
Alarm Enable	Selected	The GATOR-SYNC reports the NTP time as provided by the Frame Controller card
	Cleared*	Disables this alarm
Rear Module Alarm		
Rear Module (read-only)	This field replicates the information displayed in the Product > Rear Module Status field	
Alarm Enable	Selected*	The Global > Product > Rear Module Status field reports when a rear module is not compatible with the card
	Cleared	Disables this alarm
Fan Alarm		
Fan Speed (read-only)	#	Reports the fan speed (rpm) of the fan on the board

Table 10 Global Alarm Enables Tab (Continued)

Item	Parameters	Description
Alarm Enable	Selected*	The GATOR-SYNC reports when the fan is not working correctly
	Cleared	Disables this alarm
Analog Reference Alarm		
Reference Format (read-only)	OK (Green)	Indicates the detected reference format is supported
	Alarm Suppressed (Green)	The Alarm Enable box is cleared. The status of the reference signal will not be reported.
	Unlocked (Red)	A reference signal is detected, but the card is not locked to it
	Unsupported (Red)	A reference signal is detected, but the format is not supported by the GATOR-SYNC
	Incompatible (Red)	A reference signal is detected but the format is incompatible with the current output mode of the card
Alarm Enable	Selected*	The Global > Signal > Analog Reference Status field reports when there is a loss of reference signal
	Cleared	Disables this alarm
SDI Input Alarms		
Input # Status (read-only)	Each field duplicates the information reported in the GATOR-SYNC > Input Status fields	
Alarm Enable	Selected*	GATOR-SYNC reports a loss of the specified input or if the format is incompatible for the specified input
	Cleared	Disables this alarm

Security Tab

Table 11 summarizes the options displayed in the Security tab.

Table 11 Security Tab

Item	Parameters	Description
Security Configuration		
SSH Login	Disable*	Disables the ability to log onto the GATOR-SYNC via an SSH server
	Enable	The GATOR-SYNC can be accessed via a secure channel by an SSH server

Logging Tab

Table 12 summarizes the menus and read-only fields displayed in the Logging tab.

Table 12 Logging Tab

Item	Parameters	Description
Logging Level		Filters the events the System Log captures
Remote Logging	###.###	Specifies the IP Address for the external device that is logging the communication activity for the GATOR-SYNC
System Log		Displays the events logged for the GATOR-SYNC since the last time the log was cleared

GATOR-SYNC Interfaces

Each Frame Sync is represented as a sub-node in the GATOR-SYNC tree. Double-click a sub-node to display the configuration options for that Frame Sync in the right pane of the DashBoard window.

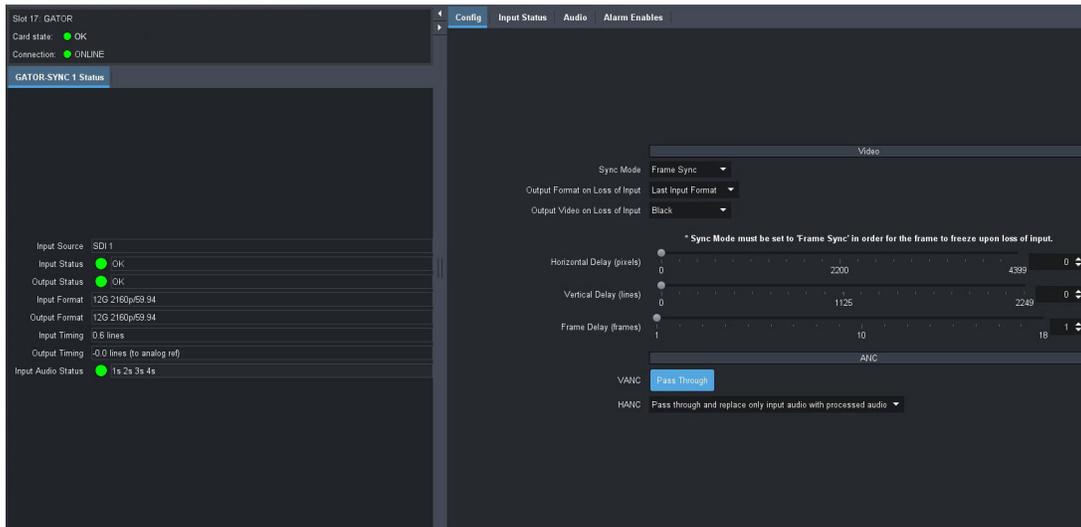


Figure 16 Example of a Frame Sync Interface in DashBoard

GATOR-SYNC Status Tab

Table 13 summarizes the read-only fields displayed in the Status tab for each Frame Sync.

Table 13 GATOR-SYNC # Interface — Status

Item	Parameters	Description
Input Source	SDI #	Indicates the status of the associated SDI IN BNC on the rear module (e.g. SDI IN 1 is monitored for Frame Sync 1)
Input Status	OK (Green)	Indicates that no errors are detected on the video signal of the corresponding SDI IN BNC
	Alarm suppressed (Green)	There is an error on the input source but the Absent alarm is disabled via the Alarm Enables tab

Table 13 GATOR-SYNC # Interface — Status

Item	Parameters	Description
Input Status	Ref unlocked (Red)	The input signal on the associated SDI IN BNC is invalid.
	Cal busy (Red)	
	Data unlocked (Red)	
	Align error (Red)	
	TRS error (Red)	
	Frame error (Red)	
	CRC error (Red)	
	Embedded audio error (Red)	The audio channel is invalid or not detected
Output Status	OK (Green)	Indicates that no errors are detected on the video signal of the corresponding SDI OUT BNC
	Cal busy (Red)	The output signal on the associated SDI OUT BNC is invalid
	PLL unlocked (Red)	
	PLL powerdown (Red)	
	Tx not ready (Red)	
Input Format	#	Indicates the input video format
	Invalid Selection	The input video format is not supported or does not match the reference format
Output Format	#	Indicates the output video format
	Invalid Selection	The input video format is not supported or does not match the reference format
Input Timing	Lines: #, Pixels: #	Indicates the timing offset between the video input signal and the reference signal. The unit of measure is lines and pixels with respect to the input video format.
Output Timing	# lines (to x)	Indicates the timing offset between the video output signal and the reference signal where x represents the reference signal specified in the Config > Sync Mode menu
Input Audio Status	#a #x #s #s	Indicates the input audio status where: <ul style="list-style-type: none"> • # represents the audio group (e.g. 1, 2) • a represents an async audio group • x represents a missing audio group • s represents a sync audio

Config Tab

Table 14 summarizes the menus displayed in the Config tab for each Frame Sync.

Table 14 GATOR-SYNC # Interface — Config Tab

Item	Parameters	Description
Video		
Sync Mode	Frame Sync	The Frame Sync uses the reference signal as defined by the Global > Setup > Analog Reference Source menu
	Frame Delay	The Frame Sync uses the corresponding SDI IN signal as the reference source (e.g. SDI IN 1 is the reference source for Frame Sync 1)
Output Format on Loss of Input	Last Input Format	During a loss of input signal, the output video format will be set to the last valid video format
	#	Specifies the output video format during a loss of input signal
Output Video on Loss of Input	Black	Specifies the video output in the event of a loss of video input
	Freeze	Displays the last captured frame of video from the input signal. Ensure that Sync Mode is set to Frame Sync. Note that a valid input signal must be captured in order that the output video is valid.
Horizontal Delay (percent of line)	#	Adjusts the horizontal delay with respect to the selected reference. Refer to Table 4 for a list of values.
Vertical Delay (lines)	#	Specifies the vertical delay with respect to the selected reference. Refer to Table 4 for a list of values.
Frame Delay (frames)	#	Specifies the number of frames of delay with respect to the selected reference. Refer to Table 4 for a list of values.
ANC		
VANC	Pass Through	The data in the VANC passes through to the output without changes; no new AFD packet is inserted when the input signal is valid.
	Delete All	All data in the VANC is deleted; no data is passed through

Table 14 GATOR-SYNC # Interface — Config Tab (Continued)

Item	Parameters	Description
HANC Pass Through	Pass Through	The data in the HANC passes through to the output without changes
	Delete all HANC data and leave blank	All data in the HANC is deleted; no data is passed through
	Pass through and replace only input audio with processed audio	All HANC data, except the input audio data, is passed through unchanged. The input audio data in the HANC is replaced with the embedded audio configured by the card.
	Delete all HANC data and insert processed audio	All HANC data is deleted. The embedded audio configured by the card is added to the HANC.

Input Status Tab

Table 15 summarizes the read-only information displayed in the Input Status tab for each Frame Sync.

Table 15 GATOR-SYNC # Interface — Input Status Tab

Item	Parameters	Description
Input Status (read-only)	OK (Green)	The input signal is valid and no errors are detected
	Incompatible Video (Yellow)	The input video format is not supported by the selected reference video
	Invalid Video (Red)	The input video format is not supported or does not match the reference format
	No signal (Red)	No signal present on the specified input
Input Format (read-only)	#	Indicates the detected video format of the specified input signal
CRC Errors	#	Displays the count of the CRC errors on the video input. This counter is reset on loss of video, or by user request. The counter is non-latching, and the count can roll over the counter
	Reset	Resets the CRC Errors field
Embedded Audio - Group #		
Ch # Status	PCM	The channel is PCM audio
	Non-PCM	The channel is non-PCM audio
	Absent	The audio channel is not detected or invalid

Audio Tabs

This section summarizes the options displayed in each Audio sub-tab for each Frame Sync.

Audio Control/Shuffle Tab

Table 16 summarizes the options displayed in the Audio Control/Shuffle tab.

Table 16 GATOR-SYNC # Interface — Audio Control/Shuffle Tab

Item	Parameters	Description
Sample Rate Conversion	Selected	Applies the SRC on the audio channels in the video input before processed by the Frame Sync
	Cleared	SRC is not applied to any of the audio channels in the SDI input Select this option when using non-PCM audio data
Group #		
Enable	Enabled	If the button displays this label, the audio group is enabled and applies settings for the selected output
	Disabled	If the button displays this label, the audio group is not included in the output
Ch # Mute	Selected	Mutes the input source for the specified channel that is inserted into the embedded group (if present)
	Cleared	The input source for the specified channel is not muted
Ch # Source	Group # Ch #	Specifies the input for the specified channel that is inserted into the embedded group (if present)
	#kHz Tone	Embeds the selected test tone
Group #	Reset	Resets all Audio Output settings for the applicable audio group to the factory default values

Audio Gain Tab

Table 17 summarizes the options displayed in the Audio Gain tab for each audio group of the Frame Sync.

Table 17 GATOR-SYNC # Interface — Audio Gain Tab

Item	Parameters	Description
Group #		
Ch # Gain (dB)	#	Adjusts the gain of the specified channel of audio Select 0 when using non-PCM audio
Ch # & # Gain Lock	Selected	Locks the Ch Gain slider for the specified channel pair
	Cleared	Unlocks the Ch Gain slider

Audio Delay Tab

Table 18 summarizes the options displayed in the Audio Delay tab for each audio group of the Frame Sync.

Table 18 GATOR-SYNC # Interface — Audio Delay Tab

Item	Parameters	Description
Group #		
Ch # Delay Offset (ms)	#	Adjusts the delay of the specified channel in the audio group
Ch # Total Delay (ms) (read-only)	#	Reports the total delay applied to the specified channel
Ch # & # Delay Lock	Selected	Locks the Ch Delay slider for the specified channel pair
	Cleared	Unlocks the Ch Delay slider

Audio Invert/Sum Tab

Table 19 summarizes the options displayed in the Audio Invert/Sum tab for each audio group of the Frame Sync.

Table 19 Frame Sync # Interface — Audio Invert/Sum Tab

Item	Parameters	Description
Group #		
Ch # Invert	Selected	Inverts the audio signal of the specified group
	Cleared	<ul style="list-style-type: none"> • Audio signal of the specified group is not inverted • Use for non-PCM audio data
Ch # & # Sum	Selected	Both channels will carry the average of the two input channels $((A+B)/2)$
	Cleared	Disables this feature

Alarm Enables Tab

Table 20 summarizes the menus displayed in the Alarm Enables tab.

Table 20 Frame Sync # Interface — Alarm Enables Tab

Item	Parameters	Description
SDI Input		
Absent	Selected*	GATOR-SYNC # Status > Input Status fields report a loss of the specified input or if the format is incompatible for the specified input
	Cleared	Disables this alarm
Audio Input - Group #		

Table 20 Frame Sync # Interface — Alarm Enables Tab (Continued)

Item	Parameters	Description
Group Absent	Selected*	GATOR-SYNC # Status > Input Audio Status field report when the specified group audio is absent; this alarm only applies to the input
	Cleared	Disables this alarm
Group Async	Selected*	GATOR-SYNC # Status > Input Audio Status fields report when the embedded audio group for the Frame Sync is not compatible
	Cleared	Disables this alarm

Technical Specifications

This chapter provides technical information for GATOR-SYNC.

★ Specifications are subject to change without notice.

Supported Video Formats

Table 21 *Technical Specifications — Supported Video Formats*

Resolution (lines)	Frame Rate (Hz)
720p	50
	59.94
	60
1080i	50
	59.94
	60
1080p	23.98
	24
	25
	29.97
	30
	50 Level A
	59.94 Level A
	60 Level A
1080psf	23.98
	24
2160p	23.98
	24
	25
	29.97
	30
	50
	59.94
	60

SDI Inputs Specifications

Table 22 Technical Specifications — SDI Inputs

Item	Specifications
Number of Inputs	4
Standards Accommodated	270Mbps, 525/625 Component, SMPTE 259M
	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 1.485Gbps
	>10dB to 2.97Gbps
	>7dB to 5.94Gbps
	>4dB to 11.88Gbps
Equalization (Belden 1694A cable)	>300m (984ft) @ 270Mbps
	>220m (722ft) @ 1.485Gbps
	>140m (459ft) @ 2.97Gbps
	>50m (190ft) @ 11.88Gbps
Connection	HD-BNC

SDI Outputs Specifications

Table 23 Technical Specifications — SDI Outputs

Item	Specifications
Number of Outputs	4
Impedance	75ohm
Return Loss	>15dB to 1.485Gbps
	>10dB to 2.97Gbps
	>7dB to 5.94Gbps
	>4dB to 11.88Gbps
Signal Level	800mV ±10%
DC Offset	0V ±50mV
Rise and Fall Time (20-80%)	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 23 Technical Specifications — SDI Outputs (Continued)

Item	Specifications
Jitter	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
Overshoot	<10% (11.88Gbps: <15%)
Connection	HD-BNC

Environment

Table 24 Technical Specifications — Environment

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

Power

Table 25 Technical Specifications — Power

Item	Specifications
Maximum Power Consumption	40W-80W (application dependent)

Service Information

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 “**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** — Inspect the power indicator LED on the distribution frame front panel for the presence of power. If the power LED is not illuminated, verify that the power cable is connected to a power source and that power is available at the power main. Confirm that the power supplies are fully seated in their slots. If the power LED is still not illuminated, replace the power supply with one that is verified to work.
3. **Input Signal Status** — Verify that source equipment is operating correctly and that a valid signal is being supplied.
4. **Output Signal Path** — Verify that destination equipment is operating correctly and receiving a valid signal.
5. **Unit Exchange** — Exchanging a suspect unit with a unit that is known to be working correctly is an efficient method for localizing problems to individual units.

Reloading the Software on the Card

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 reload the software on the card

1. Eject the card from the frame.
2. Press and hold the **Bootload** button, while re-inserting the card into the frame.
3. Release the button.
 - The **OK/ERROR** 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 loads can be sent to the card via the connection on the rear of the frame.

Warranty and Repair Policy

The GATOR-SYNC 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 card 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 card 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 card 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 card, 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 card. 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.

Software Licenses

This chapter provides third-party software license information for your GATOR-SYNC. This product includes multiple software components which are individually licensed under one or more of the following licenses included in this chapter.

BSD

Copyright (c) 1991,1993, The Regents of the University of California. All rights reserved.

This code is derived from software contributed to Berkeley by Kenneth Almquist.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. <BSD Advertising Clause omitted per the July 22, 1999 licensing change ftp://ftp.cs.berkeley.edu/pub/4bsd/README.Impt.License.Change> California, Berkeley and its contributors.
4. Neither the name of the University nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Dual GPL

Portions of this software are copyright (C) 1996-2002 The FreeType Project (www.freetype.org). All rights reserved.

This project is also covered under the GPL v2.

GPL

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007
Copyright (C) 2007 Free Software Foundation, Inc. <<http://fsf.org/>>
Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed; section 10 makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice; keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

- a. The work must carry prominent notices stating that you modified it, and giving a relevant date.
- b. The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".
- c. You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.
- d. If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

- a. Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.
- b. Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.
- c. c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.
- d. d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.
- e. e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

- a. Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or
- b. Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or
- c. Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or
- d. Limiting the use for publicity purposes of names of licensors or authors of the material; or
- e. Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or

- f. Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on those licensors and authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17. Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

LGPL

GNU LESSER GENERAL PUBLIC LICENSE
Version 3, 29 June 2007
Copyright (C) 2007 Free Software Foundation, Inc. <<http://fsf.org/>>

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

This version of the GNU Lesser General Public License incorporates the terms and conditions of version 3 of the GNU General Public License, supplemented by the additional permissions listed below.

0. Additional Definitions.

As used herein, "this License" refers to version 3 of the GNU Lesser General Public License, and the "GNU GPL" refers to version 3 of the GNU General Public License.

"The Library" refers to a covered work governed by this License, other than an Application or a Combined Work as defined below.

An "Application" is any work that makes use of an interface provided by the Library, but which is not otherwise based on the Library. Defining a subclass of a class defined by the Library is deemed a mode of using an interface provided by the Library.

A "Combined Work" is a work produced by combining or linking an Application with the Library. The particular version of the Library with which the Combined Work was made is also called the "Linked Version".

The "Minimal Corresponding Source" for a Combined Work means the Corresponding Source for the Combined Work, excluding any source code for portions of the Combined Work that, considered in isolation, are based on the Application, and not on the Linked Version.

The "Corresponding Application Code" for a Combined Work means the object code and/or source code for the Application, including any data and utility programs needed for reproducing the Combined Work from the Application, but excluding the System Libraries of the Combined Work.

1. Exception to Section 3 of the GNU GPL.

You may convey a covered work under sections 3 and 4 of this License without being bound by section 3 of the GNU GPL.

2. Conveying Modified Versions.

If you modify a copy of the Library, and, in your modifications, a facility refers to a function or data to be supplied by an Application that uses the facility (other than as an argument passed when the facility is invoked), then you may convey a copy of the modified version:

- a. under this License, provided that you make a good faith effort to ensure that, in the event an Application does not supply the function or data, the facility still operates, and performs whatever part of its purpose remains meaningful, or
- b. under the GNU GPL, with none of the additional permissions of this License applicable to that copy.

3. Object Code Incorporating Material from Library Header Files.

The object code form of an Application may incorporate material from a header file that is part of the Library. You may convey such object code under terms of your choice, provided that, if the incorporated material is not limited to numerical parameters, data structure layouts and accessors, or small macros, inline functions and templates (ten or fewer lines in length), you do both of the following:

- a. Give prominent notice with each copy of the object code that the Library is used in it and that the Library and its use are covered by this License.
- b. Accompany the object code with a copy of the GNU GPL and this license document.

4. Combined Works.

You may convey a Combined Work under terms of your choice that, taken together, effectively do not restrict modification of the portions of the Library contained in the Combined Work and reverse engineering for debugging such modifications, if you also do each of the following:

- a. Give prominent notice with each copy of the Combined Work that the Library is used in it and that the Library and its use are covered by this License.
- b. Accompany the Combined Work with a copy of the GNU GPL and this license document.
- c. For a Combined Work that displays copyright notices during execution, include the copyright notice for the Library among these notices, as well as a reference directing the user to the copies of the GNU GPL and this license document.
- d. Do one of the following:
 - 1) Convey the Minimal Corresponding Source under the terms of this License, and the Corresponding Application Code in a form suitable for, and under terms that permit, the user to recombine or relink the Application with a modified version of the Linked Version to produce a modified Combined Work, in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.
 - 2) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (a) uses at run time a copy of the Library already present on the user's computer system, and (b) will operate properly with a modified version of the Library that is interface-compatible with the Linked Version.
- e. Provide Installation Information, but only if you would otherwise be required to provide such information under section 6 of the GNU GPL, and only to the extent that such information is necessary to install and execute a modified version of the Combined Work produced by recombining or relinking the Application with a modified version of the Linked Version. (If you use option 4d0, the Installation Information must accompany the Minimal Corresponding Source and Corresponding Application Code. If you use option 4d1, you must provide the Installation Information in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.)

5. Combined Libraries.

You may place library facilities that are a work based on the Library side by side in a single library together with other library facilities that are not Applications and are not covered by this License, and convey such a combined library under terms of your choice, if you do both of the following:

- a. Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities, conveyed under the terms of this License.
- b. Give prominent notice with the combined library that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

6. Revised Versions of the GNU Lesser General Public License.

The Free Software Foundation may publish revised and/or new versions of the GNU Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library as you received it specifies that a certain numbered version of the GNU Lesser General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that published version or of any later version published by the Free Software Foundation. If the Library as you received it does not specify a version number of the GNU Lesser General Public License, you may choose any version of the GNU Lesser General Public License ever published by the Free Software Foundation.

If the Library as you received it specifies that a proxy can decide whether future versions of the GNU Lesser General Public License shall apply, that proxy's public statement of acceptance of any version is permanent authorization for you to choose that version for the Library.

MIT

Copyright 1987, 1988 by MIT Student Information Processing Board.

Permission to use, copy, modify, and distribute this software and its documentation for any purpose is hereby granted, provided that the names of M.I.T. and the M.I.T. S.I.P.B. not be used in advertising or publicity pertaining to distribution of the software without specific, written prior permission. M.I.T. and the M.I.T. S.I.P.B. make no representations about the suitability of this software for any purpose. It is provided "as is" without express or implied warranty.

zlib

Copyright (C) 1995-1998 Jean-loup Gailly and Mark Adler

This software is provided 'as-is', without any express or implied warranty. In no event will the authors be held liable for any damages arising from the use of this software.

Permission is granted to anyone to use this software for any purpose, including commercial applications, and to alter it and redistribute it freely, subject to the following restrictions:

1. The origin of this software must not be misrepresented; you must not claim that you wrote the original software. If you use this software in a product, an acknowledgment in the product documentation would be appreciated but is not required.
2. Altered source versions must be plainly marked as such, and must not be misrepresented as being the original software.
3. This notice may not be removed or altered from any source distribution. Jean-loup Gailly Mark Adler jloup@zip.org madler@alumni.caltech.edu

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).

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 pillarbox bars.

Card — openGear terminal devices within openGear frames, including all components and switches.

CBR — constant bit rate.

CDN — content distribution network.

DashBoard — the DashBoard Control System.

DF — Differentiated Services.

DTVCC captions — CEA-708 captions.

Frame — the openGear frame that houses the GATOR-SYNC.

HLS — HTTP Live streaming.

HTTP — Direct Hypertext Transfer Protocol.

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 stated.

PCR — program clock reference.

PID — packet identifier.

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.

RTMP — Real Time Messaging Protocol.

Stream — a transport stream present at the port.

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

TCP — Transmission Control Protocol.

TOS — Type of Service.

TPG — Test Packet Generator.

TTL — Time To Live.

UDP — User Datagram Protocol.

User — the person who uses the GATOR-SYNC.

