



OG-3-FR Series

openGear® High Density Multi-Definition Frames

User Manual



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openGear

Based on the OG-3-FR Series User Manual

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Patents

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Introduction

In This Chapter

This chapter contains the following sections:

- Overview
- Features
- Documentation Terms and Conventions

A Word of Thanks

Congratulations on choosing an openGear OG-3-FR series frame. Your frame is part of a full line of Digital Products within the openGear Terminal Equipment family of products, backed by Ross Video's experience in engineering and design expertise since 1974.

You will be pleased at how easily your new OG-3-FR series frame fits into your overall working environment. Equally pleasing is the product quality, reliability and functionality. Thank you for joining the group of worldwide satisfied customers!

Should you have a question pertaining to the installation or operation of your openGear frame, please contact us at the numbers listed on the back cover of this manual. Our technical support staff is always available for consultation, training, or service.

Overview

Your OG-3-FR series frame is a 2RU modular frame, designed to accommodate openGear cards. A complete list of available openGear cards is available on our website.

Modular Frame Architecture

The OG-3-FR series frame supports module-dependent rear modules. Rear modules can be ordered with cards, and are easy and quick to install.

The OG-3-FR series frames offers the flexibility of independent rear modules for connectivity to a wide array of interfaces such as BNC, twisted-pair audio, and fiber. Each frame offers a full rear module that offers 10 BNCs per module, or a high density split rear module that offers 5 BNCs per module. Using the split rear module allows for up to 20 independent openGear solutions to be installed.

Note that cards and rear modules designed for the DFR-8321 series frames are also supported by the OG-3-FR series frames. However, some cards and rear modules may be designed specifically for the OG-3-FR series frames only. Refer to the documentation for your openGear card for details on the frames you can use.

Robust Power Supplies

The OG-3-FR series frame can accommodate two front-loaded power supplies. However, each frame comes standard with one power supply. Although a single power supply can fully power a loaded frame, the addition of a second (optional) power supply gives the frame full power redundancy. Each power supply is fed by a separate power cord, which is held in position to guard against accidental power loss.

Cooling

The OG-3-FR series frame has been designed with an advanced cooling architecture to increase ventilation. An intelligent fan controller adjusts fan speed with changes in frame power loading. Particular attention has been paid to frame acoustics in order to keep fan noise to a minimum.

The OG-3-FR series frames were designed with front-door mounted fans to provide forced air cooling for all cards, and additional cooling for the power supplies.

Additional Frame Accessories

To help reduce mechanical stress due to cable weight, the FSB-OG3 rear support bracket is available for the OG-3-FR series frame.

Features

The following standard features make our openGear frames the best solution for standard and high definition terminal equipment:

- Two independent looping reference inputs feed all card slots
- Can house any mix of analog, digital, video and audio cards in the same frame
- Available with individual card specific modules for connector flexibility
- Optional redundant power supply is hot-swappable for 24/7 operation
- Power switch is accessible from front of the rack frame
- Power supplies are replaceable from the front of the frame without requiring rear-frame access
- Separate power cords to each supply for power feed redundancy
- PowerLock cord retainer mechanism guards against accidental power loss
- Durable powder-coat paint finish
- Removable hinged front door for easy card insertion and removal, and flexibility in servicing the cooling fans
- Optional Ethernet based Frame Controller for remote setup, monitoring, and control
- Aluminum and steel construction to reduce weight and increase strength
- 2RU Frame houses up to 20 cards, dissipating up to 15W per slot
- Robust 375W power supply with two integral cooling fans per power supply
- Comes standard with the Cooling Fan Module for increased ventilation and enhanced reliability
- Supports Gigabit Ethernet connectivity to each openGear card in the frame (*requires the optional MFC-OG3-N Network Controller Card*)
- Supports all existing rear modules designed for the DFR-8320 and DFR-8321 series frames
- Provides a system alarm LED on the frame front door
- Provides an LCD Diagnostic Panel on frame front that reports the frame name, and IP address; provides the ability to scroll through these reported error/status conditions
- Removable door with durable powder-coat paint finish
- 5-year transferable warranty

Documentation Terms and Conventions

The following terms and conventions are used throughout this manual.

Terms

The following terms are used:

- “**Board**”, and “**Card**” refer to openGear terminal devices within openGear frames, including all components and switches.
- “**Network Controller Card**” refers to the MFC-8322-S, MFC-OG3-N, and MFC-OG3-NS unless otherwise indicated.
- “**openGear frame**” refers to an openGear® High Density Multi-Definition Frame.
- “**Operator**” and “**User**” refer to the person who uses the OG-3-FR series frame.
- “**PSU1**” refers to Power Supply Unit 1 (primary) of the frame.
- “**PSU2**” refers to Power Supply Unit 2 (secondary) of the frame.
- “**System**” and “**Video system**” refer to the mix of interconnected production and terminal equipment in your environment.

Conventions

The following conventions are used:

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

Installation

In This Chapter

This chapter provides basic instructions for installing the openGear frames.

The following topics are discussed:

- Before You Begin
- Installing a Frame
- Installing the Rear Support Bars and Brackets
- Front Panel Overview
- Rear Panel Overview
- Power Supply and Power Cables
- Ethernet Connections
- Monitoring
- Ventilation and Cooling
- Installing a Rear Module
- Installing an openGear Card

Before You Begin

Before proceeding with the instructions in this chapter, ensure that you read the following sections.

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 wearing synthetic fiber clothing. Always exercise proper grounding precautions when working on circuit boards and related equipment.*

Unpacking

Unpack each frame you received from the shipping container and ensure that all items are included. If any items are missing or damaged, contact your sales representative or the product manufacturer.

Installing a Frame

The OG-3-FR series frame mounts in the rack frame by means of four rack screws fastened through the front mounting ears. This should normally be sufficient to carry the load, including the weight of accompanying cables. However, in certain applications such as mobile truck installations, it may be desirable to also support the rear of the frame. The optional Rear Support Bars and Brackets are specifically engineered to compensate for extra load stress. Refer to the section “**Installing Rear Support Bars and Brackets**” for bracket installation instructions.

Installation Requirements

Keep the following in mind when installing your frame:

- Install the frame for maximum stability during operating and in such a way as to allow adequate ventilation.
- The frame cannot be sealed in a closed container and must be installed in free air space where the ambient temperature is monitored and controlled to not exceed 40°C (104°F) at the frame front door airflow intake.
- Ensure that adequate space exists in front and behind the frame and on both sides of the frame for airflow exhaust.
- The location of the frame should be accessible, dry, and dust-free.

Frame Dimensions

Note that each openGear frame installs in a standard 19” rack.

Table 2.1 Frame Dimensions

Frame	Rack Units	Height	Depth	Width
OG3-FR	2 RU	3.5” (8.89cm)	17.7” (45cm)	19” (48.26cm)

Mounting Requirements

Under some conditions, the ambient air temperature inside rack-mount cabinets can be greater than the ambient temperature within a room. For safe long term reliability, ensure the ambient air temperatures at the OG-3-FR series frame front intake area are within the product’s specified operating temperature range. Adequate ventilation within a rack frame must also be maintained. Ensure to adhere to the following clearance recommendations:

- Minimum 2” (5.08cm) clearance both right and left-hand side of the chassis sides with unrestricted vertical airflow.
- Minimum 5” (12.7cm) clearance at the chassis rear with unrestricted vertical airflow..

Installing the Rear Support Bars and Brackets

Under normal conditions, mounting the frame to the front of the rack with four rack screws should be sufficient to carry the load, including the weight of accompanying cables. The optional **Rear Support Bars and Brackets** are specifically engineered to compensate for extra load stress associated with certain applications, such as mobile truck installations, to also support the rear of the frame.

NOTE: The FSB-0G3 can be ordered directly from Ross Video.

Installing the FSB-0G3

This section describes how to attach the FSB-0G3 rear support bars to a OG-3-FR series frame. Note that the FSB-0G3 cannot be installed on the DFR-8321 or DFR-8310 series frames.

To install the FSB-0G3

1. Attach the Rack Mount Arms of the FSB-0G3 to the OG-3-FR series frame.

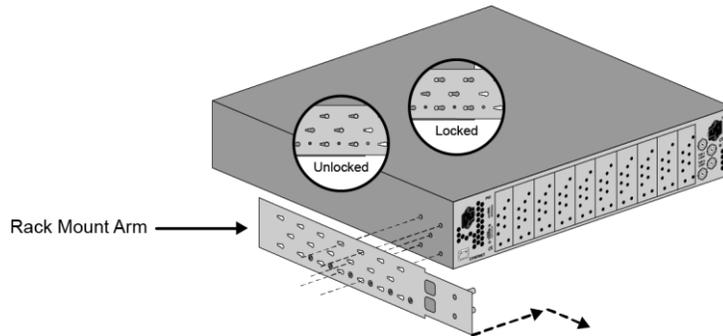


Figure 2.1 Installing a Rack Mount Arm

2. Install the Rail Guides for each Rack Mount Arm.

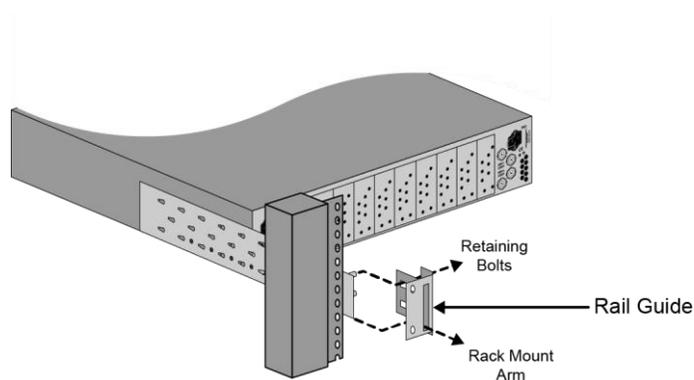


Figure 2.2 Installing a Rail Guide

3. Secure the Rail Guides and Rack Mount Arms to the rack.

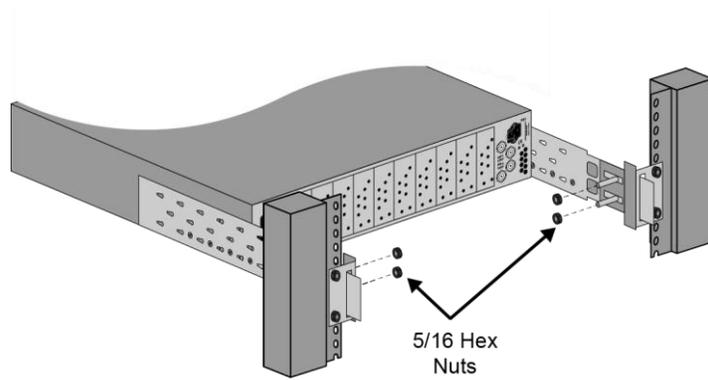


Figure 2.3 Installing the Hex Nuts

4. Use the provided Threaded Rubber Bumpers to lock the Rack Mount Arms in place.

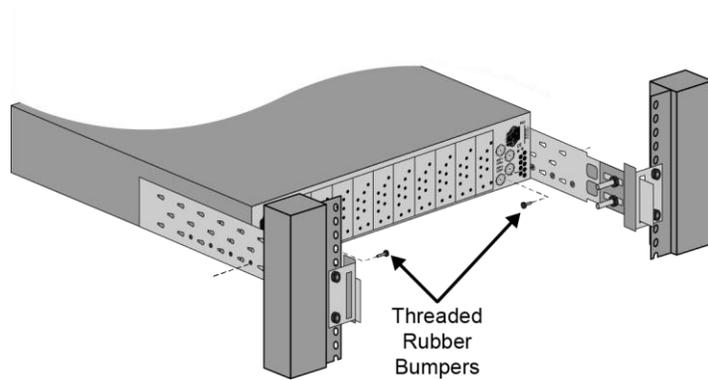


Figure 2.4 Installing the Rubber Bumpers

Front Panel Overview

The openGear frames provide monitoring features on the front door. This section briefly summarizes the controls available on each frame model.



Figure 2.5 OG-3-FR Series Frames — Front Panel

1. Diagnostic Panel	2. STATUS LED	3. Door Tabs
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1. Diagnostic Panel

This area is only available on the OG-3-FR series frames. This area includes a two-line LCD Diagnostic Panel, and a toggle button. The diagnostic panel displays the following information in a scrolling format:

- The top line in the display cycles through the name assigned to the frame in DashBoard and the current IP address of the frame (or 0.0.0.0 if none available). The IP address is configured on the MFC-8322-N Network Controller Card.
- The second line reports errors or alarm conditions from any source. This includes fan failure alarms, power supply warnings, or errors reported by the cards installed in the frame. Messages are listed starting with the most recent.

The toggle button is used to cycle through the messages on the diagnostic panel when multiple errors are occurring. It also mutes the audio alarm..

2. STATUS LED

Refer to the section “OG-3-FR Monitoring Features” for details on this LED.

3. Door Tabs

These tabs enable you to open the frame door and gain access to the interior of the frame. An alarm is raised when the frame door is opened longer than 5 minutes.

For More Information on...

- LCD Diagnostic Panel, refer to the section “Using the LCD Diagnostic Panel”.

Rear Panel Overview

The rear panel provides the power, communication, and reference connectors for the OG-3-FR series frame.

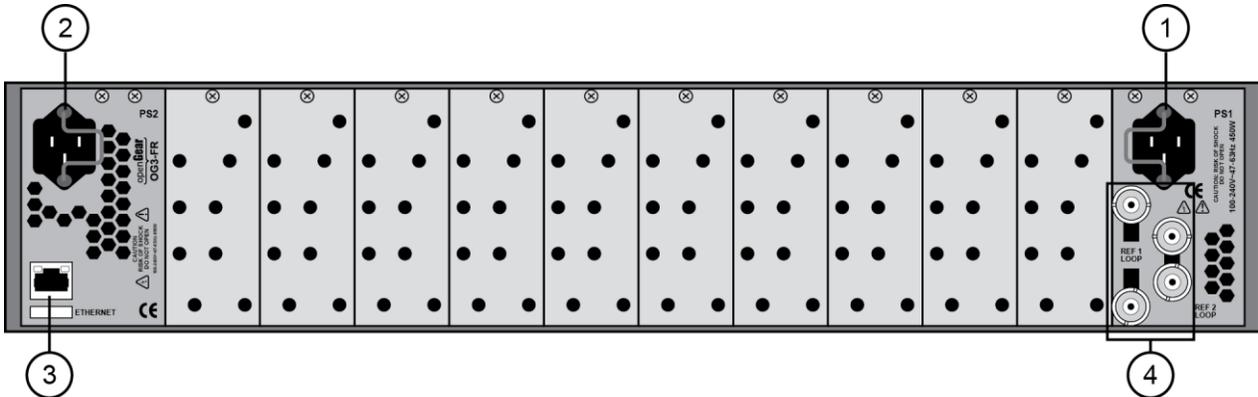


Figure 2.6 OG-3-FR Series Frames — Rear Panel

1. PSU1 Power Supply Connector	3. Ethernet Communication Port
2. PSU2 Power Supply Connector	4. Reference Connectors

1. PSU1 Power Supply Connector

This connector is the AC Connector for the main power supply.

2. Power Supply Connector

This connector is the AC Connector for the redundant power supply.

3. Ethernet Communication Port

This Ethernet port is an RJ45 connector is used to connect the optional MFC-8300 Series Network Controller card to an external Ethernet network. This Network Controller Card is required to bridge the external Ethernet network to the local communication bus for monitoring and control of cards installed in the frames. Only cards having the Communication bus interface will be able to be monitored and controlled this way.

4. Reference Connectors

Two sets of looping BNC inputs are provided to accept two independent reference signals supporting the following reference signal types:

- Analog black
- Tri-level sync
- AES/DARS reference

This feature distributes one or two reference signals to all cards in the frame. Cards which need an external reference use this master reference signal in place of taking the signal from one of the card BNCs. This provides for ease of installation and reduction in reference cabling requirements. If this signal is required, it will be mentioned in the user documentation for your openGear card.

If only one reference type is required for the frame, connect it to the **REF 1** BNC. If the reference is not being looped to another frame or device, ensure that the **Loop Ref** BNC is terminated with a 75ohm terminator.

For More Information on...

- installing and configuring a Network Controller Card, refer to its user manual.
- Ethernet connections for your frame, refer to the section “**Ethernet Connections**”.

Power Supplies and Power Cable

The OG-3-FR series frame comes standard with one power supply, with a second optional power supply available for redundancy. For redundancy, and in applications where the equipment is used in a critical signal path, we recommend that two power supplies be used in the openGear frame. One A/C power cable has been provided with each power supply ordered.

For further redundancy, each power cord should be connected to a separate power source for protection against failure of the A/C power circuit. In the event of one power supply failure, the frame load is seamlessly transferred to the other redundant power supply. Although the power supply is “hot-swappable” turning the power supply off before inserting or removing it from the frame will increase the life span of the connectors.

Required Power Supplies

Refer to **Table 2.2** to verify which power supply is supported by your OG-3-FR series frame.

Table 2.2 Supported Power Supplies

Frame	PS-8300	PS-OG3
OG3-FR		√

Power Supply Connectors (PSU1, PSU2)

There are two power supply connectors located on the back of the openGear frame:

- **PSU1** — This connector is designated as the AC Connector for the main power supply.
- **PSU2** — This connector is designated as the AC Connector for the redundant power supply.

Where the connectors are located is dependent on the frame you are using.

For More Information on...

- power supply locations in your frame, refer to the section “**Rear Panel Overview**”.

Installing the Frame Power Supply

The PS-OG3 are power factor corrected supplies, capable of working with all world AC standards (100-240V). Each supply has an indicator LED on the front, and an error detection circuit that will indicate the conditions described in **Table 2.6**.

The PS-OG3 power supplies install on the right and left sides of the OG-3-FR series chassis.

To install the power supply

1. Carefully unpack the power supply from its box, and retain all packing material for future use, if required.
2. Align the power supply into an unused power slot on the right side of the frame.
3. Push the power supply in firmly to ensure a tight connection at the rear of the frame.

Power Cable Connection

This section includes information for connecting the power cables for the openGear frames.



Warning Hazardous Voltages — *The safe operation of this product requires that a protective earth connection be provided. This protective earth is provided by the grounding conductor in the equipment's supply cord. To reduce the risk of electrical shock to operator and service personnel, this ground conductor must be connected to an earthed ground.*



Warning — *In some countries, it may be necessary to supply the correct mains supply cord. Use only an approved IEC 320 C-13 type A/C line cord rated for a minimum 10A at 250V and certified for the country of use.*

To connect the power cables for an openGear frame

1. Connect the cable's female IEC connector to the frame socket marked **PSU 1**.
2. If the **Redundant Power Supply** option is installed, plug the second IEC connector into **PSU 2**.
3. Each AC connector includes a PowerLock, which is designed to retain the power cable connector. Clip the PowerLock over the shoulder of the inserted AC cable end.
4. Connect the supplied power cable's three-prong male connector to an AC outlet.

Ethernet Connections

You can monitor and control openGear cards in your openGear frame via the DashBoard client software. This requires a Network Controller card is installed and configured in your openGear frame. The exact steps for connecting to your facility via an ethernet network depends on the network requirements of your facility. Contact your IT Department before connecting to your facility network to ensure that there are no conflicts.

Note — DashBoard uses the open SLP protocol to locate openGear frames on the network. In larger installations, it is recommended to use an SLP Directory Agent (DA). Contact your IT Department for more information on whether your facility uses an SLP DA.

For More Information on...

- configuring the Network Controller card, refer to its user manual.
- installing and using DashBoard, refer to the *DashBoard Control System User Manual*.

Ethernet Port

The **Ethernet** port is a standard 10/100/1000 RJ45 Ethernet connector and is used to exchange information with an external monitoring, or control, system over an ethernet network. You must have the MFC-8322-N installed in the frame to take advantage of the Gigabit ethernet connectivity available for cards in the OG-3-FR series frame. **Table 2.3** provides the wiring information based on the type of Network Controller card installed in the frame.

Use up to 100m of CAT6 cable or better for Gigabit Ethernet network or use up to 100m of CAT5 cable or better for 10/100Mbit Ethernet networks. The Ethernet port has its RJ45 connector wired as a Network Interface Card (NIC). The Ethernet port does not provide Power-over-Ethernet (PoE).

Table 2.3 Ethernet Port Pinouts

Pin Number	MFC-8322-S (10/100 Ethernet)	MFC-OG3-N (10/100/1000 Ethernet)
	Signal	Signal
1	Tx+	TD1+
2	Tx-	TD1-
3	Rx+	TD2+
4	*	TD2-
5	*	TD3+
6	Rx-	TD3-
7	*	TD4+
8	*	TD4-

* Shorted, 75ohm to Ground

Monitoring

This section briefly summarizes the LEDs located on the frame doors that provide monitoring features.

OG-3-FR Monitoring Features

Table 2.5 outlines the LED located on the frame door below the LCD Diagnostic Panel.

Table 2.5 Status LED Descriptions

LED	Location	Color	Description
	Frame Door	Green	When lit green, this LED indicates correct operation, and no errors or alarms are occurring.
		Red	When lit red, this LED indicates than alarm condition is present. This can be caused by a fan failure, power supply problem, or a missing GFC-8322 card. In some cases, certain cards can trigger the door alarm under specific conditions.
		Off	When off, this LED indicates that no power is going to the door.

Ventilation and Cooling

Your OG-3-FR series frame was specially engineered to minimize internal heat buildup and thus improve card reliability. For information on the power dissipation of openGear cards, refer to the user manual for your card.

For More Information on...

- the power dissipation of individual openGear cards, refer to the user manual for your card.
- replacing the cooling fan module, refer to the section “**Replacing the Cooling Fan Module**”.

Ventilation

For applications using less than 40W in a non-ventilated OG-3-FR series frame, but where the individual card power consumption is greater than 8W, the cards should be evenly distributed in the frame. This will prevent the creation of concentrated heat, or unbalanced heat-rise areas, in the frame.

Notice — *For reliable performance, it is recommended that the frame door not be opened for longer than 5 minutes on frames loaded with more than 40W.*

Cooling Fan Module

The OG-3-FR series frames come standard with a Cooling Fan Module installed in the frame door. The frame and PS-OG3 can supply up to a maximum of 300W of card power, with 15W per card. Under these ventilated conditions, there is no requirement for extra vertical spacing between the frames. The OG-3-FR series frames can be stacked one on top of the other, a feature that is highly desirable in densely crowded rack frame environments.



Warning — *Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.*

Installing a Rear Module

If you received a rear module for your openGear card, you will need to install the module in your OG-3-FR series frame before you can install the card and connect any cables. The card mates in the rear module.

To install a rear module in an OG-3-FR series frame

1. Power down the openGear frame.
2. Ensure that the frame is properly installed.
3. Locate the card frame slot on the rear of the frame you wish to install the openGear card in.



Caution — Attempting to install a OG-3-FR rear module into a DFR-8321, DFR-8320, or DFR-8310 series frame can damage the rear module.

- Refer to the section “**Rear Modules for the OG-3-FR Series Frames**” for details.
 - Refer to the manual that accompanied your openGear card to determine if the card requires installation in a specific slot and which rear modules are supported by your card. Note that the part numbers of the rear modules are found in two locations on the module surface: as silk-screened text on the module surface and on a green label that also displays the serial number for your module.
 - Determine the type of rear module you have. When installing a split rear module, remember that this module still requires two slots even though it accommodates two cards..
4. Seat the bottom of the Rear Module in the seating slot at the base of the frame back plane. (Figure 2.12). Refer to the section “**Rear Modules for the OG-3-FR Series Frames**” for details.

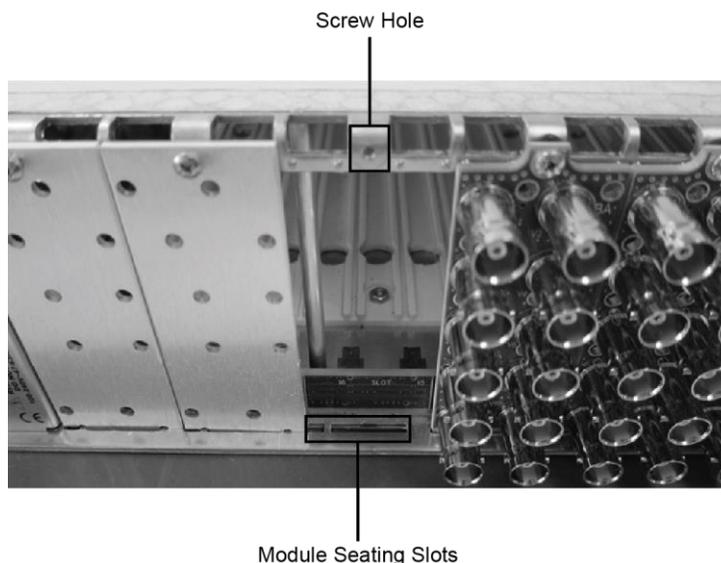


Figure 2.12 Rear Module Installation — OG-3-FR Frame

5. Align the top screw of the Rear Module with the screw hole on the top edge of the frame back plane. (Figure 2.12)

6. Ensure the module aligns with the desired card slot before tightening the screws.

Note — *Verify that the card aligns with the rear module and plugs into the connector on the rear module before tightening the slot screws.*

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

For More Information on...

- installing your frame, refer to the section “**Installing a Frame**”.
- the rear module cabling required by your openGear card, refer to the card *User Manual*.

Installing an openGear Card

The slot number is dependent on the slot combinations you installed the rear module in. This allows adequate spacing to avoid damaging the card, the cards installed in the neighboring slots, or both.

To install an openGear card

1. Locate the rear module you installed as outlined in the section “**Installing a Rear Module**”.
2. Refer to the user manual that came with your openGear card for information on which slot(s) to install your card into.
3. Open the openGear frame door as follows:
 - Gently pull the side door tabs towards the center of the door, releasing the door from the frame.
 - Using both hands, pull the door towards you. The door extender arms prevent the door from falling.
4. Hold the card by the edges and carefully align the card edges with the rails inside the frame. The slots are numbered starting from the left-most slot when facing the frame front.
5. Fully insert the card into the frame until the card is properly seated in the rear module.
6. Close the frame door as follows:
 - Slide the door into the frame.
 - Pull and release the door tabs to ensure the frame door is securely locked to the frame.
7. Verify whether your rear module label is self-adhesive by checking the back of the label for a thin wax sheet. Remove the wax sheet before applying the label.
8. Affix the supplied rear module label to the rear module face.
9. Connect the cables as outlined in the user manual for your openGear card.

Operation

In This Chapter

This chapter provides information on setting up and using the OG-3-FR series frame. The OG-3-FR series frame is a 2RU modular frame, designed to accommodate up to 20 openGear cards.

The following topics are discussed:

- Workflow
- GFC-8322 and Reference Overview
- Using the LCD Diagnostic Panel
- Rear Modules for the OG-3-FR Series Frames
- Fan Filter Maintenance
- Replacing the Cooling Fan Module

Workflow

The OG-3-FR series frames come standard with Ethernet connectivity for basic configuration and monitoring of openGear® cards through the DashBoard control system. An optional advanced networking card, the MFC-OG3-N, adds an on-board Gigabit Ethernet switch, with GigE access to each of the 20 processing card slots. Note that Gigabit Ethernet is only available with the Advanced Network Control option.

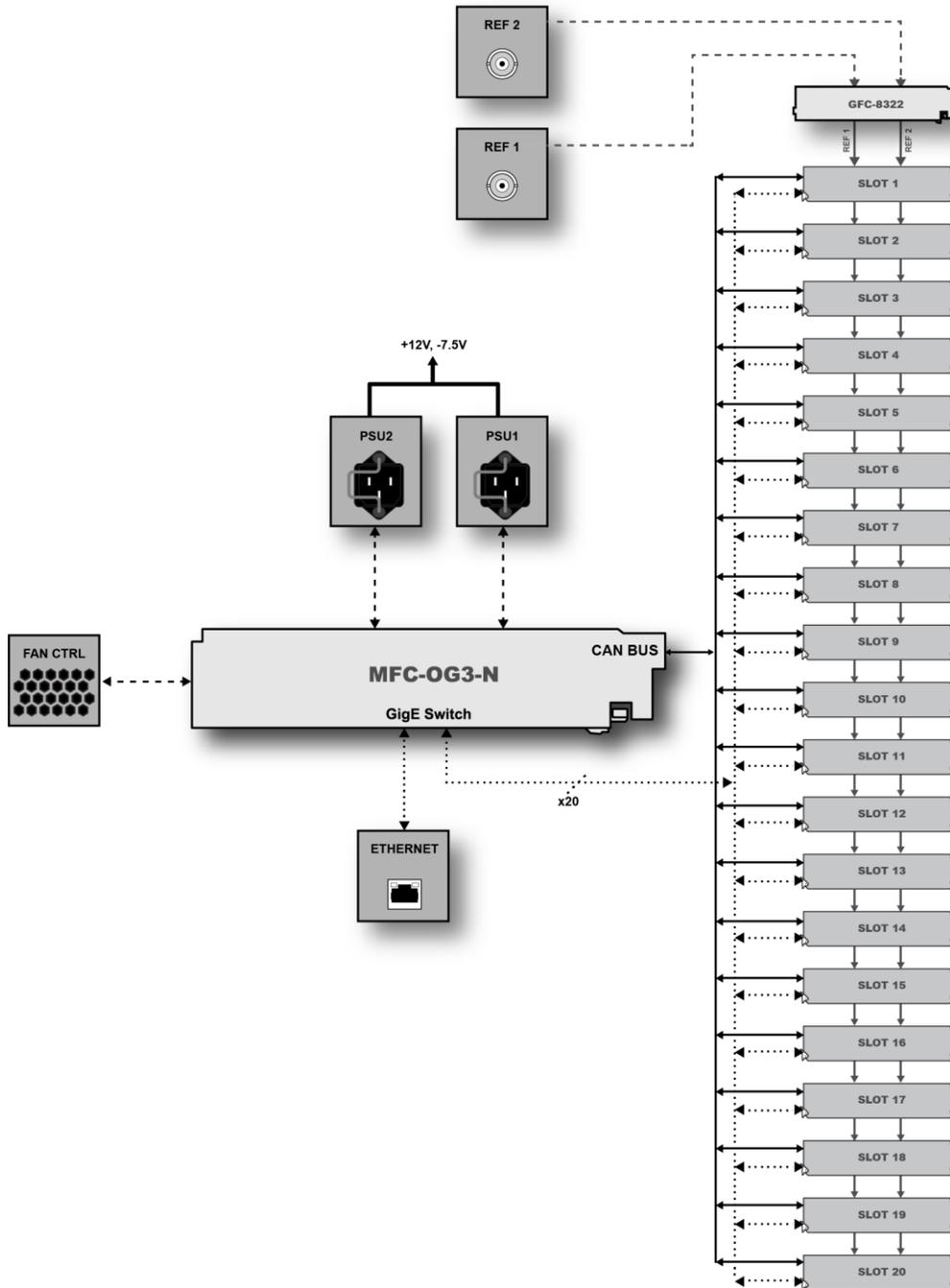


Figure 3.1 Example of OG-3-FR Workflow with an MFC-OG3-N

GFC-8322 and Reference Overview

The GFC-8322 comes standard with every OG-3-FR series frame. Its primary function is to distribute the reference signals to openGear cards installed in the frame. This section provides a general overview of the GFC-8322.



Figure 3.2 GFC-8322

Location in Frame

When facing the frame door, the GFC-8322 is located on the left side of the OG-3-FR series frame. This card comes pre-installed in the designated slot immediately to the right of **PS1**, and is secured with a metal retaining latch.

Reference Distribution

The GFC-8322 receives the analog reference signals driven to the **REF 1** and **REF 2** BNCs located on the rear panel of OG-3-FR series frame. The GFC-8322 then distributes both reference signals to each of the 20 slots in the frame.

Parameter Storage

Frame settings such as the frame IP address, frame name, and the frame serial number are stored on the GFC-8322 via its Serial EEPROM.

Troubleshooting

During normal operation, the GFC-8322 must never be removed from the OG-3-FR series frame. To ensure this, the metal retaining latch located on the front of the GFC-8322 must be engaged (pushed down) to prevent accidental removal of the GFC-8322 from its slot.

Verify that the GFC-8322 is properly seated in its slot and the retaining latch is engaged when troubleshooting any of the following conditions:

- reference signals are unavailable to the cards installed in the frame
- loss of network connection or the network settings for the frame were reset to the default values

Using the LCD Diagnostic Panel

The LCD Diagnostic panel is located on the frame front panel and enables you to quickly monitor the frame. Information is presented in two separate lines of text. The top line alternates displaying the IP address the frame is currently using and the frame name. **(Figure 3.3)** The bottom line displays any alarm messages, such as fan failure, power supply issues, and error conditions that an installed card is currently reporting. **(Figure 3.4)** The bottom line reflects the error conditions reported in DashBoard for the frame, and individual openGear cards installed in that frame.



Figure 3.3 LCD Display — IP Address of Frame



Figure 3.4 LCD Display — Frame Name

For More Information on...

- the types of error conditions that your openGear card reports, refer to the user manual that came with your card.
- setting the IP address and frame name in DashBoard, refer to the *MFC-8300 Series User Manual*.

Using the Toggle Button

The toggle button is located directly to the left of the LCD Diagnostic Panel and enables you to:

- mute the audio alarm
- quickly scroll through the error messages reported on the second line of the diagnostic panel

To clear the audio alarm

1. Press the toggle button once to mute the audio alarm.

To scroll through the messages on the LCD Diagnostic Panel

1. Press the toggle button multiple times to scroll through the messages. The LCD Diagnostic Panel organizes the messages starting with the most recent at the top of the list.
2. If you are scrolling through the list and a new error condition is reported, the list is automatically updated and returns you to the beginning of the list.

Rear Modules for the OG-3-FR Series Frames

If your OG-3-FR series frame was ordered with cards requiring full rear modules or split rear modules, the appropriate modules are installed at the factory or included with the cards. This section provides an overview of the rear module types for your OG-3-FR series frame.

Overview

The OG-3-FR series frame supports all existing rear modules designed for the DFR-8321 series frames. However, rear modules designed for use in the OG-3-FR series frame are not compatible in the DFR-8321 series frames.

There are two ways to identify a OG-3-FR series frame rear module (**Figure 3.5** and **Figure 3.6**):

1. the notched top of the module, and
2. a small notch on the bottom left corner of the module that fits into a second seating slot on the midplane of the OG-3-FR series frames. Note that this small notch is not present on other frame rear module types.



Caution — Attempting to install an OG-3-FR rear module into a DFR-8321, DFR-8320, or DFR-8310 series frame can damage the rear module.

Full Rear Modules

The full rear modules features a single card connector and can include a combination of BNC, WECO™, fiber optic, serial, and ethernet connectors. Each module occupies two slots in the frame and accommodates one card. Ensure the openGear card is installed in the correct slot. Up to 10 cards can be installed in the OG-3-FR series frame when using these modules.

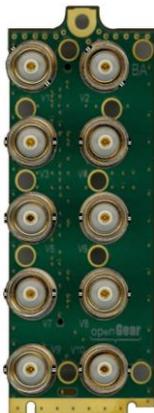


Figure 3.5 Full Rear Module — Front



Figure 3.6 Full Rear Module — Back

Split Rear Modules

Much like the modules for the DFR-8321 series frames, split modules for the OG-3-FR series frame features two card connectors and can have a combination of BNC, WECO™, fiber optic, serial, and ethernet connectors. Each card connector is routed to a column of five BNCs. A split rear module occupies two slots in the OG-3-FR series frame but provides connectors for two openGear cards, allowing you to install up to 20 cards in the frame.

Blank Rear Modules

Blank Rear Modules (R2-BLANK) are used when the slot does not have an openGear card installed. This helps to ensure proper frame cooling and ventilation.

Fan Filter Maintenance

Routine maintenance of the fan filter installed in the OG-3-FR series frame is highly recommended to ensure proper airflow through the chassis.

Cleaning the Frame Air Filter

The OG-3-FR series frame has a single air filter that is used to prevent dust and airborne particulates from contaminating the frame. This filter should be cleaned at least once a year; but may need to be cleaned more frequently in some environments.

To clean the frame air filter

1. Remove the air filter from the frame door as follows:
2. Locate the four 3/16" screws (#850-091R) on the frame door faceplate. Refer to **Figure 3.6** for screw locations.



Figure 3.6 OG-3-FR Series Frame — Faceplate Screws Location

- Using a Phillips screwdriver, remove the four screws that secure the faceplate. Set the screws aside.
 - Ensure that the side door tabs are disengaged from the door.
 - Remove the faceplate by gently pulling it towards you while avoiding the Diagnostic LED Display, the toggle buttons, and the monitoring LED.
 - Gently remove the air filter off the metal protective screen that separates the filter from the fans.
3. Brush any loose dust off of the filter.
 4. Place the filter under warm running water to remove any remaining dust. On one side of the filter is a foam filter material. When rinsing, water should flow out of this side.
 5. Remove the filter from the water and thoroughly pat dry with a towel to remove any moisture.
 6. Replace the clean, dry filter into the frame door as follows:
 - Place the clean air filter across the metal protective screen, orienting it in the same position you found it in during step 1.
 - Install the faceplate by gently fitting it back onto the frame door, ensuring the faceplate does not interfere with the Diagnostic LED Display, the toggle button, and the monitoring LED.
 - Verify that the side door tabs are seated properly in the cutouts on the frame door bracket.

- Using a Phillips screwdriver, secure the faceplate using the four screws removed during step 1.

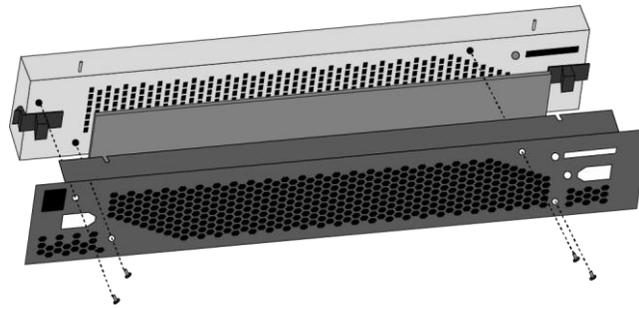


Figure 3.7 Replacing the Filter and Door

Replacing the Frame Air Filter

Should you need to replace the frame air filter in your OG-3-FR series frame, you can order the Air Filter Kit (AFK-OG3) from your openGear sales representative.

To replace the frame air filter

1. Remove the old air filter from the frame door as follows:
 - Using a Phillips screwdriver, remove the four 3/16" screws (#850-091R) screws that secure the faceplate. Refer to Figure 3.6 for screw locations. Set the screws aside.
 - Ensure that the side door tabs are disengaged from the door.
 - Remove the faceplate by gently pulling it towards you while avoiding the Diagnostic LED Display, the toggle button, and the monitoring LED.
 - Gently remove the air filter off the metal protective screen that separates the filter from the fans.
2. Install the new filter into the frame door as follows:
 - Place the new air filter across the metal protective screen, orienting it in the same position you found it in during step 1.
 - Install the faceplate by gently fitting it back onto the frame door, ensuring the faceplate does not interfere with the Diagnostic LED Display, the toggle button, and the monitoring LED on the frame door.
 - Verify that the side door tabs are seated properly in the cutouts on the frame door bracket.
 - Using a Phillips screwdriver, secure the faceplate using the four screws removed during step 1.

Replacing the Cooling Fan Module

The OG-3-FR series frames come standard with the Cooling Fan Module (CFM-OG3) pre-installed in the frame door as original equipment from the factory. However, if you need to replace the cooling fan module, the CFM-OG3 Replacement Kit is for field installation.

Replacing the CFM-OG3 Cooling Fan Module

The CFM-OG3 Replacement Kit includes the fan board and filter pre-installed in a new OG-3-FR series frame door. You will need to remove the old door from your OG-3-FR series frame and replace it with the new door.

To replace the CFM-OG3 Cooling Fan Module

1. Carefully remove the old door from the frame as follows:
2. Gently pull the side door tabs towards the center of the door, releasing the door from the frame. The door extender arms prevent the door from falling.

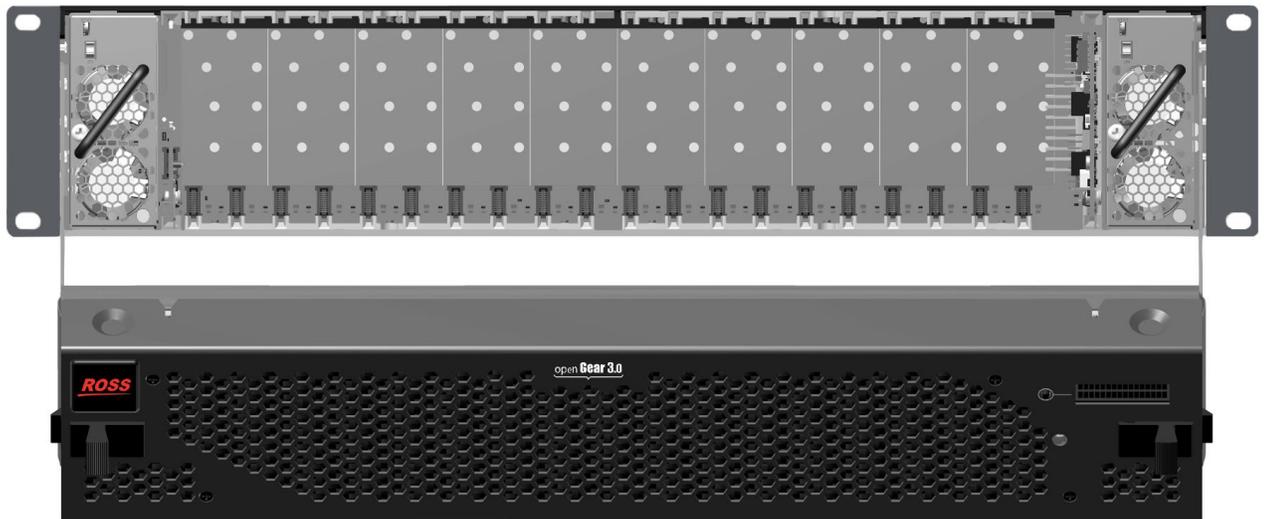


Figure 3.8 OG-3-FR Series Frame Door — Open

- Using both hands, pull the door towards you.
 - Tilt the door upward until the arms match the cutout.
 - Gently push the door extender arms in and over the retaining bolts and unhook from the frame.
 - Remove the door and place it on a clean, flat, static-free surface.
3. Install the new door in the frame as follows:
 - Using both hands, with the door tilted up, slide the new door into the frame while pushing the extender arms in and over the retaining bolts.
 - Pull and release the door tabs to ensure the frame door is securely locked to the OG-3-FR series frame and that the tabs latch into the frame.

Specifications

In This Chapter

This chapter provides the technical specifications for the OG-3-FR series frame. Note that specifications are subject to change without notice.

The following topics are discussed:

- Technical Specifications

Technical Specifications

This section includes the technical specifications table for the OG-3-FR series frame. Note that specifications are subject to change without notice.

Table 4.1 OG-3-FR Series Frame Technical Specifications

Category	Parameter	Specification
PS-OG3 Power Supply	Input	100-240VAC, 47-63Hz, 500W
	Output 1	12V, 28A, 336W nominal
	Output 2	-7.5V, 5A, 37.5W nominal
	Total	Sum of both outputs not to exceed 375W maximum
Dimensions	Height	2RU 3.5" (8.89cm)
	Width	19" (48.26cm)
	Depth	17.7" (45cm)
	Weight with two PS-OG3 installed	20lb (9.07kg)
Frame Card Slots	Number of Slots	20
	Max. Power: +12V Rail	Per card occupying 4 slots: 5A, 60W
		Per card occupying 2 slots: 2.5A, 30W
		Per card occupying 1 slot: 1.25A, 15W
	Max. Power: -7.5V Rail	Per card occupying 4 slots: 0.8A, 6W
		Per card occupying 2 slots: 0.4A, 3W
		Per card occupying 1 slot: 0.2A, 1.5W
Total	300W, total power consumption not to exceed 15W maximum per card slot	
Frame Controller and Fans	Max. Power: +12V Rail	3A, 36W
	Max. Power: -7.5V Rail	0.2A (1.5W)
	Total	37.5W maximum
GFC-8322	Max. Power: +12V Rail	0.2A (2.4W)
	Max. Power: -7.5V Rail	0.2A (1.5W)
	Total	3.9W maximum
Reference Inputs	Number of Inputs	2 looping
	Level	1Vpp nominal

Category	Parameter	Specification
	Signal	Analog video sync (black burst or tri-level), or AES/EBU DARS
	Impedance	75ohm terminating
	Return Loss	>30dB to 30MHz
	Max DC on Ref Input	±1V
Environmental	Ambient temperature range	0°C to 40°C (32°F to 104°F)
	Humidity, non-condensing	<95%

Service Information

In This Chapter

This chapter contains the following sections:

- Troubleshooting Checklist
- Warranty and Repair Policy

Troubleshooting Checklist

Routine maintenance to this openGear product is not required. In the event of problems with your OG-3-FR series frame, the following basic troubleshooting checklist may help identify the source of the problem. If the frame still does not appear to be working properly after checking all possible causes, please contact your openGear products distributor, or the Technical Support department at the numbers listed under the “**Contact Us**” section at the end of this manual.

1. **Visual Review** – Performing a quick visual check may reveal many problems, such as connectors not properly seated or loose cables. Check the card, the frame, and any associated peripheral equipment for signs of trouble.
2. **Power Check** – Check the power indicator LED on the distribution frame front panel for the presence of power. If the power LED is not illuminated, verify that the power cable is connected to a power source and that power is available at the power main. Confirm that the power supplies are fully seated in their slots. If the power LED is still not illuminated, replace the power supply with one that is verified to work.
3. **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.

Safety and Compliance

Federal Communications Commission (FCC) Compliance Notices

Class A Interference Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15, Subpart B of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Canadian ICES Statement

Canadian Department of Communications Radio Interference Regulations

This digital apparatus does not exceed the Class A limits for radio-noise emissions from a digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications. This Class A digital apparatus complies with Canadian ICES-003.

Règlement sur le brouillage radioélectrique du ministère des Communications

Cet appareil numérique respecte les limites de bruits radioélectriques visant les appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique du ministère des Communications du Canada. Cet appareil numérique de la Classe A est conforme à la norme NMB-003 du Canada.

European Union and European Free Trade Association (EFTA) Regulatory Compliance

This equipment may be operated in the countries that comprise the member countries of the European Union and the European Free Trade Association. These countries, listed in the following paragraph, are referred to as The European Community throughout this document:

AUSTRIA, BELGIUM, BULGARIA, CYPRUS, CZECH REPUBLIC, DENMARK, ESTONIA, FINLAND, FRANCE, GERMANY, GREECE, HUNGARY, IRELAND, ITALY, LATVIA, LITHUANIA, LUXEMBOURG, MALTA, NETHERLANDS, POLAND, PORTUGAL, ROMANIA, SLOVAKIA, SLOVENIA, SPAIN, SWEDEN, UNITED KINGDOM, ICELAND, LICHTENSTEIN, NORWAY, SWITZERLAND

Declaration of Conformity

Marking by this symbol indicates compliance with the Essential Requirements of the EMC Directive of the European Union 2004/108/EC.



This equipment meets the following conformance standards:

Safety

EN 60065: 2002 + A1: 2006 + A11: 2008 + A2: 2010 + A12: 2011 (GS License)

IEC 60065: 2001 + A1: 2005 + A2: 2010 (CB Scheme Report/Certificate)

Additional licenses issued for specific countries available on request.

Emissions

EN 55032: 2012, CISPR 22: 2008, EN 55022: 2010, EN 61000-3-2: 2009, EN 61000-3-3:2008

Immunity

EN 55103-2: 2009, EN 61000-4-2:2009, EN 61000-4-3:2010, EN 61000-4-4:2010, EN 61000-4-5:2005, EN 61000-4-6:2009 , EN 61000-4-11:2004

Environments: E2, E3 and E4

The product is also licensed for additional country specific standards as required for the International Marketplace.

	<p>Warning! This is a Class A product. In a domestic environment, this product may cause radio interference, in which case, the user may be required to take appropriate measures.</p> <p>Achtung! Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten, in welchen Fällen der Benutzer für entsprechende Gegenmaßnahmen verantwortlich ist.</p> <p>Attention! Ceci est un produit de Classe A. Dans un environnement domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilisateur de prendre les mesures spécifiques appropriées.</p>
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Recycling Notice

	<p>This symbol on the product or its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste for recycling, please contact your local authority, or where you purchased your product.</p>
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Korean KCC Compliance Statement

<p>A급 기기 (업무용 방송통신기자재)</p> <p>Class A (Broadcasting Communication Equipment for Office Use)</p>	<p>이 기기는 업무용(A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.</p> <p>As an electromagnetic wave equipment for office use (Class A), this equipment is intended to use in other than home area. Sellers or users need to take note of this.</p>
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Taiwan Compliance Statement

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

This is a Class A product based on the standard of the Bureau of Standards, Metrology and Inspection (BSMI) CNS 13438, Class A. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Japanese Compliance Statement

1. Class A ITE

この装置は、クラスA 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。VCCI-A

This is a Class A product based on the standard of the VCCI Council (VCCI V-3/2015.04). If this equipment is used in a domestic environment, radio interference may occur, in which case, the user may be required to take corrective actions.

Translated Warning and Caution Messages

The following caution statements, warning conventions, and warning messages apply to this product and manual



Warning Symbol



Hazard Warning



Caution Symbol

Before Operation Please Read These Instructions



Warning!

Read and follow all warning notices and instructions marked on the product or included in the documentation.

Avertissement ! Lisez et conformez-vous à tous les avis et instructions d'avertissement indiqués sur le produit ou dans la documentation.

Warnung! Lesen und befolgen Sie die Warnhinweise und Anweisungen, die auf dem Produkt angebracht oder in der Dokumentation enthalten sind.

¡Advertencia! Lea y siga todas las instrucciones y advertencias marcadas en el producto o incluidas en la documentación.

Aviso! Leia e siga todos os avisos e instruções assinalados no produto ou incluídos na documentação.

Avviso! Leggere e seguire tutti gli avvisi e le istruzioni presenti sul prodotto o inclusi nella documentazione.



Warning!

Do not use this device near water and clean only with a dry cloth.

Avertissement! N'utilisez pas cet appareil près de l'eau et nettoyez-le seulement avec un tissu sec..

Warnung! Das Gerät nicht in der Nähe von Wasser verwenden und nur mit einem trockenen Tuch säubern.

¡Advertencia! No utilice este dispositivo cerca del agua y límpielo solamente con un paño seco.

Aviso! Não utilize este dispositivo perto da água e limpe-o somente com um pano seco.

Avviso! Non utilizzare questo dispositivo vicino all'acqua e pulirlo soltanto con un panno asciutto.



Warning!

Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

Avertissement ! Ne bloquez aucune ouverture de ventilation. Suivez les instructions du fabricant lors de l'installation.

Warnung! Die Lüftungsöffnungen dürfen nicht blockiert werden. Nur gemäß den Anweisungen des Herstellers installieren.

¡Advertencia! No bloquee ninguna de las aberturas de la ventilación. Instale de acuerdo con las instrucciones del fabricante.

Aviso! Não obstrua nenhuma das aberturas de ventilação. Instale de acordo com as instruções do fabricante.

Avviso! Non ostruire le aperture di ventilazione. Installare in conformità con le istruzioni del fornitore.

**Warning!**

Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

Avertissement ! N'installez pas l'appareil près d'une source de chaleur telle que des radiateurs, des bouches d'air de chauffage, des fourneaux ou d'autres appareils (amplificateurs compris) qui produisent de la chaleur.

Warnung! Nicht in der Nähe von Wärmequellen wie Heizkörpern, Heizregistern, Öfen oder anderen Wärme erzeugenden Geräten (einschließlich Verstärkern) aufstellen.

¡Advertencia! No instale cerca de fuentes de calor tales como radiadores, registros de calor, estufas u otros aparatos (incluidos amplificadores) que generan calor.

Aviso! Não instale perto de nenhuma fonte de calor tal como radiadores, saídas de calor, fogões ou outros aparelhos (incluindo amplificadores) que produzam calor.

Avviso! Non installare vicino a fonti di calore come termosifoni, diffusori di aria calda, stufe o altri apparecchi (amplificatori compresi) che emettono calore.

**Warning!**

Refer all servicing to qualified service personnel. Servicing is required when the device has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the device, the device has been exposed to rain or moisture, does not operate normally, or has been dropped.

Avertissement ! Référez-vous au personnel de service qualifié pour tout entretien. L'entretien est exigé quand l'appareil a été endommagé de quelque manière que ce soit, par exemple lorsque le cordon d'alimentation ou la prise sont endommagés, que du liquide a été versé ou des objets sont tombés dans l'appareil, que l'appareil a été exposé à la pluie ou à l'humidité, ne fonctionne pas normalement ou est tombé.

Warnung! Das Gerät sollte nur von qualifizierten Fachkräften gewartet werden. Eine Wartung ist fällig, wenn das Gerät in irgendeiner Weise beschädigt wurde, wie bei beschädigtem Netzkabel oder Netzstecker, falls Flüssigkeiten oder Objekte in das Gerät gelangen, das Gerät Regen oder Feuchtigkeit ausgesetzt wurde, nicht ordnungsgemäß funktioniert oder fallen gelassen wurde.

¡Advertencia! Consulte al personal calificado por cuestiones de reparación. El servicio de reparación se requiere cuando el dispositivo ha recibido cualquier tipo de daño, por ejemplo cable o espigas dañadas, se ha derramado líquido o se han caído objetos dentro del dispositivo, el dispositivo ha sido expuesto a la lluvia o humedad, o no funciona de modo normal, o se ha caído.

Aviso! Remeta todos os serviços de manutenção para o pessoal de assistência qualificado. A prestação de serviços de manutenção é exigida quando o dispositivo foi danificado mediante qualquer forma, como um cabo de alimentação ou ficha que se encontra danificado/a, quando foi derramado líquido ou caíram objectos sobre o dispositivo, quando o dispositivo foi exposto à chuva ou à humidade, quando não funciona normalmente ou quando foi deixado cair.

Avviso! Fare riferimento al personale qualificato per tutti gli interventi di assistenza. L'assistenza è necessaria quando il dispositivo è stato danneggiato in qualche modo, ad esempio se il cavo di alimentazione o la spina sono danneggiati, è stato rovesciato del liquido è stato rovesciato o qualche oggetto è caduto nel dispositivo, il dispositivo è stato esposto a pioggia o umidità, non funziona correttamente o è caduto.

**Warning!**

Disconnect the external AC power supply line cord(s) from the mains power before moving the unit.

Avertissement! Retirez le ou les cordons d'alimentation en CA de la source d'alimentation principale lorsque vous déplacez l'appareil.

Warnung! Trennen Sie die Wechselstrom-Versorgungskabel vom Netzstrom, bevor Sie das Gerät verschieben.

¡Advertencia! Cuando mueva la unidad desenchufe de la red eléctrica el/los cable(s) de la fuente de alimentación CA tipo brick.

Advertência! Remova os cabos CA de alimentação brick da rede elétrica ao mover a unidade.

Avvertenza! Scollegare il cavo dell'alimentatore quando si sposta l'unità.

**Warning!**

High Voltage. This situation or condition can cause injury due to electric shock.

Avertissement! Tension élevée. Cette situation ou condition peut causer des blessures dues à un choc électrique.

Warnung! Hochspannung. Diese Situation oder Bedingung kann zu Verletzungen durch Stromschlag führen.

¡Advertencia! Alto voltaje . Esta situación o condición puede causar lesiones debidas a una descarga eléctrica.

Aviso! Alta Tensão . Esta situação ou condição pode causar danos devido a choques elétricos.

Avviso! Alta tensione. Questa situazione o condizione può causare lesioni a causa di scosse elettriche.

**Warning!**

Only use attachments and accessories specified and/or sold by the manufacturer.

Avertissement! Utilisez seulement les attaches et accessoires spécifiés et/ou vendus par le fabricant.

Warnung! Verwenden Sie nur Zusatzgeräte und Zubehör angegeben und / oder verkauft wurde durch den Hersteller.

¡Advertencia! Utilice solamente los accesorios y conexiones especificados y/o vendidos por el fabricante.

Aviso! Utilize apenas equipamentos/acessórios especificados e/ou vendidos pelo fabricante.

Avviso! Utilizzare soltanto i collegamenti e gli accessori specificati e/o venduti dal produttore.

**Warning!**

Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

Avertissement! La sécurité de la prise polarisée ou de la prise de type mise à la terre ne doit en aucun cas être empêchée de fonctionner. Une prise polarisée a deux broches, l'une étant plus large que l'autre. Une prise de type mise à la terre a deux broches et une troisième broche pour la mise à la terre. La broche large ou la troisième broche sont fournies pour votre sécurité. Si la prise fournie ne s'insère pas dans votre prise femelle, consultez un électricien pour le remplacement de la prise femelle obsolète.

Warnung! Der Sicherheitszweck des gepolten bzw. Schukosteckers ist zu berücksichtigen. Ein gepolter Stecker verfügt über zwei Pole, von denen einer breiter als der andere ist. Ein Schukostecker verfügt neben den zwei Polen noch über einen dritten Pol zur Erdung. Der breite Pol bzw. der Erdungspol dienen der Sicherheit. Wenn der zur Verfügung gestellte Stecker nicht in Ihren Anschluss passt, konsultieren Sie einen Elektriker, um den veralteten Anschluss zu ersetzen.

¡Advertencia! No eche por tierra la finalidad del tipo de enchufe polarizado con conexión a tierra. Un enchufe polarizado tiene dos espigas, una más ancha que la otra. Un enchufe con conexión a tierra tiene dos espigas iguales y una tercera espiga que sirve para la conexión a tierra. La espiga ancha, o la tercera espiga, sirven para su seguridad. Si el enchufe suministrado no encaja en el tomacorriente, consulte con un electricista para reemplazar el tomacorriente obsoleto.

Aviso! Não anule a finalidade da segurança da ficha polarizada ou do tipo ligação terra. Uma ficha polarizada tem duas lâminas sendo uma mais larga do que a outra. Uma ficha do tipo de ligação à terra tem duas lâminas e um terceiro terminal de ligação à terra. A lâmina larga ou o terceiro terminal são fornecidos para sua segurança. Se a ficha fornecida não couber na sua tomada, consulte um electricista para a substituição da tomada obsoleta.

Avviso! Non compromettere la sicurezza della spina polarizzata o con messa a terra. Una spina polarizzata ha due spinotti, di cui uno più largo. Una spina con messa a terra ha due spinotti e un terzo polo per la messa a terra. Lo spinotto largo o il terzo polo sono forniti per motivi di sicurezza. Se la spina fornita non si inserisce nella presa di corrente, contattare un elettricista per la sostituzione della presa obsoleta.

**Warning!**

Since the Mains plug is used as the disconnection for the device, it must remain readily accessible and operable.

Avertissement! Puisque la prise principale est utilisée pour débrancher l'appareil, elle doit rester aisément accessible et fonctionnelle.

Warnung! Da der Netzstecker als Trennvorrichtung dient, muss er stets zugänglich und funktionsfähig sein.

¡Advertencia! Puesto que el enchufe de la red eléctrica se utiliza como dispositivo de desconexión, debe seguir siendo fácilmente accesible y operable.

Aviso! Dado que a ficha principal é utilizada como a desconexão para o dispositivo, esta deve manter-se prontamente acessível e funcional.

Avviso! Poiché il cavo di alimentazione viene usato come dispositivo di sconnessione, deve rimanere prontamente accessibile e operabile.

**Warning!**

Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the device.

Avertissement! Protégez le cordon d'alimentation pour que l'on ne marche pas dessus ou qu'on le pince, en particulier au niveau des prises mâles, des réceptacles de convenance, et à l'endroit où il sort de l'appareil.

Warnung! Vermeiden Sie, dass auf das Netzkabel getreten oder das Kabel geknickt wird, insbesondere an den Steckern, den Steckdosen und am Kabelausgang am Gerät.

¡Advertencia! Proteja el cable de energía para que no se le pise ni apriete, en especial cerca del enchufe, los receptáculos de conveniencia y el punto del que salen del equipo.

Aviso! Proteja o cabo de alimentação de ser pisado ou de ser comprimido particularmente nas fichas, em tomadas de parede de conveniência e no ponto de onde sai do dispositivo.

Avviso! Proteggere il cavo di alimentazione in modo che nessuno ci cammini sopra e che non venga schiacciato soprattutto in corrispondenza delle spine e del punto in cui esce dal dispositivo.

**Warning!**

Unplug this device during lightning storms or when unused for long periods of time.

Avertissement! Débranchez cet appareil pendant les orages avec éclairsou s'il est inutilisé pendant de longues périodes.

Warnung! Das Gerät ist bei Gewitterstürmen oder wenn es über lange Zeiträume ungenutzt bleibt vom Netz zu trennen.

¡Advertencia! Desenchufe este dispositivo durante tormentas eléctricas o cuando no se lo utilice por largos periodos del tiempo.

Aviso! Desconecte este dispositivo da tomada durante trovoadas ou quando não é utilizado durante longos períodos de tempo.

Avviso! Utilizzare soltanto i collegamenti e gli accessori specificati e/o venduti dal produttore, quali il treppiedi e l'esoscheletro.

**Warning!**

Do not open the chassis. There are no user-serviceable parts inside. Opening the chassis will void the warranty unless performed by an AJA service center or licensed facility.

Avertissement! Ne pas ouvrir le châssis. Aucun élément à l'intérieur du châssis ne peut être réparé par l'utilisateur. La garantie sera annulée si le châssis est ouvert par toute autre personne qu'un technicien d'un centre de service ou d'un établissement agréé AJA.

Warnung! Öffnen Sie das Gehäuse nicht. Keine der Geräteteile können vom Benutzer gewartet werden. Durch das Öffnen des Gehäuses wird die Garantie hinfällig, es sei denn, solche Wartungsarbeiten werden in einem AJA-Service-Center oder einem lizenzierten Betrieb vorgenommen.

¡Advertencia! No abra el chasis. El interior no contiene piezas reparables por el usuario. El abrir el chasis anulará la garantía a menos que se lo haga en un centro de servicio AJA o en un local autorizado.

Advertência! Não abra o chassi. Não há internamente nenhuma peça que permita manutenção pelo usuário. Abrir o chassi anula a garantia, a menos que a abertura seja realizada por uma central de serviços da AJA ou por um local autorizado.

Avvertenza! Non aprire lo chassis. All'interno non ci sono parti riparabili dall'utente. L'apertura dello chassis invaliderà la garanzia se non viene effettuata da un centro ufficiale o autorizzato AJA.

**Warning!**

To meet safety regulations for leakage current, connect the dual power supplies to separate branch circuits.

¡Advertencia! Para cumplir con las normas de seguridad para la corriente de fuga, conecte las dos fuentes de alimentación para circuitos derivados diferentes.

Attention! Pour répondre aux mesures de sécurité concernant le courant de fuite, raccorder les sources d'alimentation doubles à des circuits de dérivation distincts.

Warnung! Zur Erfüllung der Sicherheitsbestimmungen bezüglich Reststrom schließen Sie bitte die zwei Netzteile an unterschiedlichen Abzweigungen an.

Cuidado! Para atender aos regulamentos de segurança para correntes de fuga, conecte as fontes duplas a circuitos elétricos separados.

Attenzione! Per soddisfare le norme di sicurezza sulla corrente di perdita, collegare i doppi alimentatori a circuiti derivati separati.

**Warning!**

Ensure Mains Power is disconnected before installing the OG-3-FR modules into the frame, or installing and removing options. If a Mains switch is not provided, the power cord(s) of this equipment provide the means of disconnection. The socket outlet must be installed near the equipment and must be easily accessible.

Avertissement ! Avant d'installer des modules OG-3-FR dans la structure, ainsi qu'avant d'installer ou d'enlever des options, assurez-vous d'avoir déconnecté l'alimentation électrique. S'il n'y a pas d'interrupteur électrique, il faut débrancher les câbles électriques de l'équipement. La prise électrique doit être située à proximité de l'équipement et doit être aisément accessible.

Achtung! Sicherstellen, dass die Netzleitung entkoppelt ist, bevor die OG-3-FR Module in das Gestell eingebaut oder Wahlteile eingebaut bzw. ausgebaut werden. Wenn kein Netzschalter vorgesehen ist, dient das bzw. dienen die Netzkabel dieser Vorrichtung als Entkopplungsmittel. Die Steckdose muss in der Nähe der Vorrichtung installiert und leicht zugänglich sein.

Avvertenza. Accertarsi che l'alimentazione di rete sia scollegata prima di installare i moduli OG-3-FR nel frame o di installare e rimuovere componenti opzionali. Se non è presente un interruttore di accensione/spengimento, occorre scollegare il cavo (o i cavi) di alimentazione di questo apparecchio dalla presa di corrente. La presa di corrente deve essere situata presso l'apparecchio e facilmente accessibile.

Aviso! Certifique-se que a fonte principal de energia elétrica está desconectada antes de instalar os módulos OG-3-FR no bastidor ou antes de instalar e remover opções. Se o interruptor principal não existir, o cabo elétrico deste equipamento proporciona o meio de desconexão. A tomada elétrica deverá ser instalada perto do equipamento e deverá ser de fácil acesso.

¡Advertencia! Asegúrese que la red de alimentación está desconectada antes de instalar los módulos OG-3-FR en el marco, o la instalación y extracción de opciones. Si no se proporciona un conmutador de red, el cable de alimentación de este equipo proporciona los medios de desconexión. El zócalo tomacorriente debe estar instalado cerca del equipo y debe ser fácilmente accesible.

**Warning!**

Dual Power Cord Notice—please read this. To reduce the risk of electrical shock, disconnect both power cords before servicing equipment.

Avertissement ! Avis concernant la double alimentation électrique — à lire soigneusement. Pour éviter tout risque d'électrocution, débranchez les deux câbles électriques avant d'intervenir sur l'équipement.

Achtung! Hinweis auf Doppel-Netzkabel—bitte lesen. Um das Risiko eines Elektroschocks zu verringern, müssen beide Netzkabel ausgestöpselt werden, bevor die Vorrichtung gewartet wird.

Avvertenza. Avviso concernente il cavo di alimentazione doppio – leggere attentamente. Per ridurre il rischio di elettrocuzione, scollegare entrambi i cavi di alimentazione prima di eseguire la manutenzione o riparazioni di questo apparecchio.

Aviso! Aviso de Cabo Elétrico Duplo - por favor, leia isto. Para reduzir o risco de choque elétrico, desconecte ambos os cabos elétricos antes de fazer manutenção ao equipamento.

¡Advertencia! Aviso del doble cable de alimentación - leer esto por favor. Para reducir el riesgo de descarga eléctrica, desconecte ambos cables de alimentación antes de dar servicio al equipo.

**Caution!**

The OG-3-FR front fan door is heavy. Remove with Caution.

Attention ! La porte du ventilateur avant de l'OG-3-FR est lourde. Enlevez-la avec précaution.

Vorsicht! Die vordere Gebläsetür des OG-3-FR ist schwer. Vorsicht beim Entfernen.

Attenzione. Il coperchio dell'alloggiamento della ventola anteriore del modulo OG-3-FR è pesante. Rimuoverlo con cautela.

Cuidado! A porta da ventoinha dianteira do OG-3-FR é pesada. Retirar com Cuidado.

¡Precaución! La puerta del ventilador frontal OG-3-FR es pesada. Retírela con precaución.

**Warning! Hazardous Voltages!**

The safe operation of this product requires that a protective earth connection be provided. This protective earth is provided by the grounding conductor in the equipment's supply cord. To reduce the risk of electrical shock to operator and service personnel, this ground conductor must be connected to an earthed ground.

Avertissement : tensions dangereuses — Pour utiliser ce produit en toute sécurité, il faut un raccordement à la terre. Ce raccordement s'effectue par l'intermédiaire du connecteur de terre dans le cordon d'alimentation de l'équipement. Pour réduire le risque d'électrocution de l'opérateur ou du personnel de maintenance, ce cordon avec conducteur de terre doit être branché sur une prise reliée à la terre.

Achtung! Gefährliche Spannungen — Sichere Bedienung dieses Geräts erfordert, dass ein Schutzleiteranschluss vorgesehen wird. Dieser Schutzleiteranschluss wird mittels der Erdungsleitung im Netzkabel der Vorrichtung vorgesehen. Um die Gefahr eines Elektroschocks für Bedien- und Wartungspersonal zu verringern, muss diese Erdungsleitung mit einer geerdeten Masse verbunden werden.

Avvertenza – Alte tensioni – Il funzionamento in sicurezza di questo prodotto richiede una presa di terra, che viene fornita dal conduttore di messa a terra presente nel cavo di alimentazione dell'apparecchio. Per ridurre il rischio di elettrocuzione per l'operatore e il personale di manutenzione, tale conduttore deve essere collegato a un punto al potenziale di terra.

Advertencia de voltajes peligrosos — El funcionamiento seguro de este producto requiere que se proporcione una conexión terrestre protegida. Esta protección terrestre es proporcionada por el conductor de conexión en la tierra del cable de alimentación del equipo. Para reducir el riesgo de descarga eléctrica al operador y el personal de servicio, este conductor de conexión de la tierra debe ser conectado a la misma tierra.

**Warning!**

In some countries, it may be necessary to supply the correct mains supply cord. Use only an approved IEC 320 C-13 type A/C line cord rated for a minimum 10A at 250V and certified for the country of use.

Avertissement — Dans certains pays, il peut être nécessaire de fournir le cordon électrique adéquat. N'utilisez que des cordons électriques homologués de type CEI 60320 C13 d'au moins 10A en 250V et certifiés pour le pays d'utilisation.

Achtung — In einigen Ländern kann es erforderlich sein, das richtige Netzkabel zur Verfügung zu stellen. Nur ein zugelassenes IEC 320 C-13 AC-Netzkabel benutzen, das für mindestens 10A bei 250V bemessen und für das Verwendungsland zertifiziert ist.

Aviso — Em alguns países, poderá ser necessário fornecer o cabo de alimentação elétrico correto. Utilize apenas cabo de linha C/A tipo IEC 320 C-13 aprovado para um mínimo de 10A a 250V e certificado para o país de utilização.

Advertencia — En algunos países, puede ser necesario suministrar la red de cable de alimentación correcta. Utilice solamente un cable aprobado de línea IEC 320-13 C Tipo A/C nominal para un mínimo de 10A a 250V y certificado para el país de uso.

**Caution!**

Attempting to install an OG-3-FR rear module into a DFR-8321, DFR-8320, or DFR-8310 series frame can damage the rear module.

Attention! Tenter d'installer un module arrière OG-3-FR dans une structure des séries DFR-8321, DFR-8320 ou DFR-8310 peut détériorer ce module arrière.

Vorsicht! Der Versuch, ein rückseitiges OG-3-FR-Modul in ein Gestell der Serie DFR-8321, DFR-8320 oder DFR-8310 zu installieren, kann zu Beschädigung des rückseitigen Moduls führen.

Cuidado! A tentativa de instalar um módulo traseiro OG-3-FR num bastidor série DFR-8321, DFR-8320, ou DFR-8310 poderá causar danos ao módulo traseiro.

¡Precaución! El intento de instalar un módulo posterior OG-3-FR en un DFR-8321, DFR-8320, o un marco de serie DFR-8310 puede dañar el módulo posterior.

Warranty and Repair Policy

Limited Warranty

AJA Video Systems, Inc. (AJA Video) warrants that this product will be free from defects in materials and workmanship for a period of five years from the date of purchase. If a product proves to be defective during this warranty period, AJA Video, at its option, will either repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product.

In order to obtain service under this warranty, you the Customer, must notify AJA Video of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. The Customer shall be responsible for packaging and shipping the defective product to a designated service center nominated by AJA Video, with shipping charges prepaid. AJA Video shall pay for the return of the product to the Customer if the shipment is to a location within the country in which the AJA Video service center is located. Customer shall be responsible for paying all shipping charges, insurance, duties, taxes, and any other charges for products returned to any other locations.

This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate maintenance and care. AJA Video shall not be obligated to furnish service under this warranty a) to repair damage resulting from attempts by personnel other than AJA Video representatives to install, repair or service the product, b) to repair damage resulting from improper use or connection to incompatible equipment, c) to repair any damage or malfunction caused by the use of non-AJA Video parts or supplies, or d) to service a product that has been modified or integrated with other products when the effect of such a modification or integration increases the time or difficulty of servicing the product.

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Contact Us

Contacting Support

When calling for support, have all information at hand prior to calling.

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+1.530.271.3140

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Support Email

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