



AG 4800X/XS

High Density Modular Frame

User Manual



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About Sencore

Sencore is an engineering leader in the development of high-quality signal transmission solutions for the broadcast, cable, satellite, IPTV, telecommunications, and professional audio/video markets. The company's world-class portfolio includes video delivery products, system monitoring and analysis solutions, and test and measurement equipment, all designed to support system interoperability and backed by best-in-class customer support. Sencore meets the rapidly changing needs of modern media by ensuring the efficient delivery of high-quality video from the source to the home. For more information, visit www.sencore.com.

Revision History

Date	Version	Description	Author
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Table of Contents

Revision History	3
Introduction	6
Documentation Conventions	6
Interface Elements	6
User Entered Text	6
Referenced Guides	6
Menu Sequences	6
Important Instructions	7
Contacting Technical Support	7
Before You Begin	8
Overview	8
Features	8
Workflow	8
Hardware Overview	10
Front Panel Overview	10
AG 4800X/XS Interior	11
Rear Panel Overview	12
openGear Rear Modules	12
Supports AG 4800 and AG 4800A Rear Modules	12
Identifying an AG 4800X/XS Rear Module	13
Rear Module Types	13
Physical Installation	14
Before You Begin	14
Static Discharge	14
Ventilation and Cooling	14
Ventilation	14
Cooling Fan Module	14
Airflow Requirements	15
Installation Requirements	15
Connecting to a Power Supply	15
Power Supply Connectors (PSU1, PSU2)	16
Power Cable Connection	16
Ethernet Cabling	17
Cabling the Ethernet Port on the AG 4800X/XS Frame	17
Required Pinouts	17
Connecting to a Network	17
Reference Cabling	19
GFC-8322 Overview	19
Connecting a Video Reference Source	19
Connecting to a Reference Source	19
Looping the Reference Signals	19
Troubleshooting	20
Using DashBoard	21

Overview	21
Launching DashBoard	21
Using the Automatic Detection Feature	21
Manually Adding AG 4800X/XS Frames to DashBoard	21
Re-naming the AG 4800X/XS Frame in the Tree View	22
Removing an AG 4800X/XS Frame from the Tree View in DashBoard	23
Auto-Discovery	24
Using DashBoard to Access openGear Cards in the AG 4800X/XS Frame	24
Maintenance	27
Installing a Frame Power Supply	27
Fan Filter Maintenance	27
Cleaning the Frame Air Filter	27
Replacing the Frame Air Filter	28
Replacing the Cooling Fan Module	29
Replacing the AG 4800X/XS Door	29
Technical Specifications	30
Dimensions	30
AG 4800X/XS Power Supply	30
Card Slots	30
Frame Controller and Fans	31
GFC-8322	31
Reference Inputs	31
Environment	31
Service Information	32
Sencore One-Year Warranty	32
Returning Products for Service or Calibration	32
RMA Number	32
Shipping the Product.	32
Glossary	33

Introduction

This guide covers the installation and use of the AG 4800X/XS openGear High Density Modular Frame. 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 AG 4800X/XS.
- “**Hardware Overview**” provides a basic introduction to the AG 4800X/XS hardware features.
- “**Physical Installation**” provides instructions for the physical installation of the AG 4800X/XS.
- “**Ethernet Cabling**” provides an overview of connecting input and output devices to the AG 4800X/XS.
- “**Reference Cabling**” provides an overview of the reference distribution and how to connect a reference source to the AG 4800X/XS.
- “**Using DashBoard**” outlines the Diagnostic Panel features and displaying the AG 4800X/XS in DashBoard.
- “**Maintenance**” provides instructions for cleaning the fan filter and replacing a failed Cooling Fan Module.
- “**Technical Specifications**” provides the specifications for the AG 4800X/XS.
- “**Service Information**” provides information on the warranty and repair policy for your AG 4800X/XS.
- “**Glossary**” provides a list of terms used throughout this guide.

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 Manual***.

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

After-sales service and technical support is provided directly by Sencore ProCare support. During business hours (Central Time), technical support personnel are available by telephone and email.

- **Technical Support Phone:** (+1) 605-978-4600
- **Technical Support E-mail:** ProCare@sencore.com
- **Website:** <http://www.sencore.com>

Before You Begin

If you have questions pertaining to the operation of AG 4800X/XS, please contact us at the numbers listed in the section “**Contacting Technical Support**”. Our technical staff is always available for consultation, training, or service.

Overview

The AG 4800X/XS frame 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 accommodates one card each, or a high-density split rear module that accommodates two cards each. Using the split rear module allows for up to 20 independent openGear solutions to be installed.

- ★ Cards and rear modules designed for the AG-4800A frames are also supported by the AG 4800X/XS frames. However, some cards and rear modules may be designed specifically for the AG 4800X/XS frames only. Refer to the documentation for your openGear card for details on the frames you can use.

Features

The AG 4800X/XS frame includes the following features:

- 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
- Aluminum and steel construction to reduce weight and increase strength
- 2RU frame houses up to 20 cards
- Robust 500W 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 MFC-OG3-N Network Controller Card)
- 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 conditions
- Removable door with durable powder-coat paint finish
- 5-year transferable warranty

Workflow

The AG 4800X/XS frame comes 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.

★ Gigabit Ethernet is only available with the MFC-OG3-N installed in the AG 4800X/XS frame.

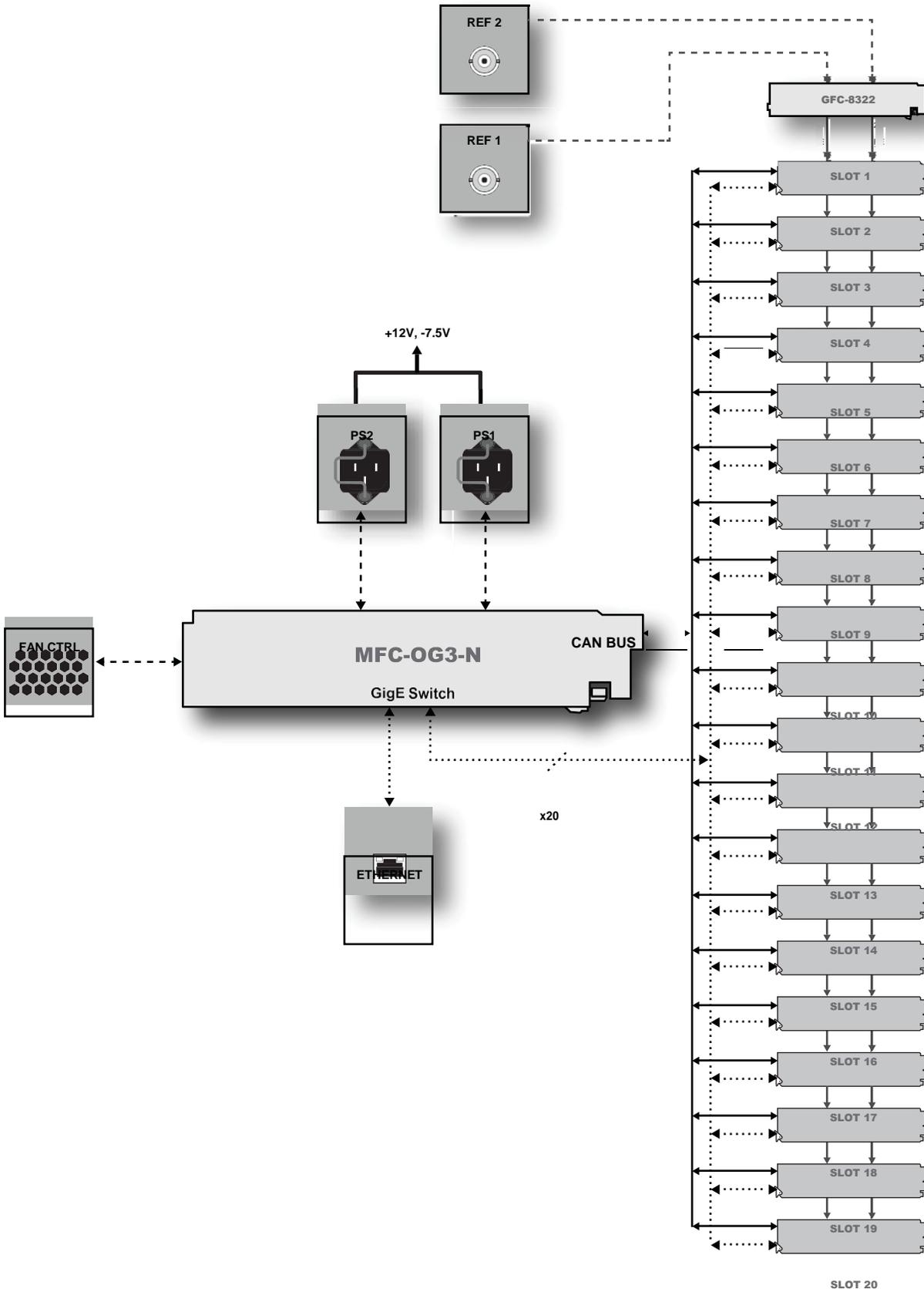


Figure 2.1 Workflow of the AG 4800X/XS

Hardware Overview

Your AG 4800X/XS frame is a 2RU modular frame, designed to accommodate openGear cards. A complete list of available openGear cards is available on our website.

Front Panel Overview

This section briefly summarizes the features of the AG 4800X/XS front panel.



Figure 3.1 AG 4800X/XS — Front Panel

1. Diagnostic Panel

The 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 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-OG3-N Network Controller Card. Refer to the user guide for your card to learn more about setting the IP address and frame name in DashBoard.
- › 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. The Diagnostic Panel organizes the messages starting with the most recent at the top of the list. Refer to the user guide for your openGear card to learn more about the types of error conditions that your card reports.

2. Toggle Button

The **Toggle** button is located directly to the left of the Diagnostic Panel and enables you to mute the audio alarm, or quickly scroll through the error messages reported on the second line of the Diagnostic Panel.

- › Pressing the **Toggle** button once mutes the audio alarm.
- › Pressing the **Toggle** button multiple times scrolls through the messages.
- ★ 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.

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.

4. Frame Glow

This feature is a user-programmable frame glow that can be configured to glow a preset color, or customized colors to indicate different alarms. This is also useful when trying to locate the frame within a rack room. Refer to the *MFC-OG3-N and MFC-8322-S User Guide* for details on configuring this feature.

AG 4800X/XS Interior

This section briefly summarizes the features of the interior of the AG 4800X/XS chassis.

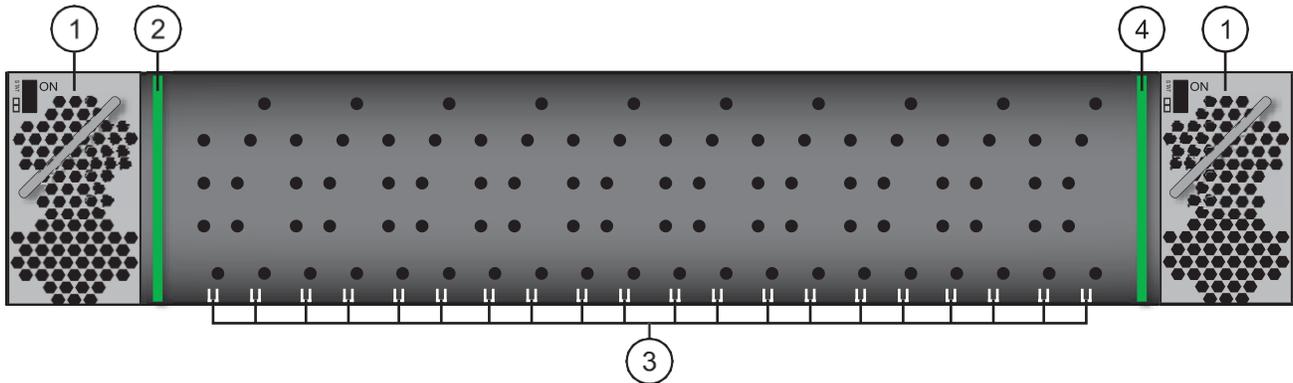


Figure 3.2 AG 4800X/XS — Interior Features with Door Removed

1. Power Supplies

The AG 4800X/XS frame can accommodate two front-loaded power supplies. However, each frame comes standard with one power supply (the power supply on the left in **Figure 3.2**). 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.

2. GFC-8322

The GFC-8322 comes pre-installed in the designated slot immediately to the right of PS1, and is secured with a metal retaining latch. Its primary function is to distribute the reference signals to openGear cards installed in the frame. Refer to the section “**GFC-8322 Overview**” for more information.

3. Card Slots

There are a total of 20 card slots in the AG 4800X/XS chassis and are used to install openGear cards into the chassis. Depending on the card model and rear module you are using, multiple slots may be required. Refer to the user guide for your openGear card for installation details for your card.

4. Controller Card

There are two models of Controller Card: MFC-8322-S and the MFC-OG3-N. The Controller Card comes pre-installed in the AG 4800X/XS frame. You must have the MFC-OG3-N installed in the AG 4800X/XS frame to take advantage of the Gigabit ethernet connectivity available for openGear cards in the frame.

Refer to the

MFC-OG3-N User Guide for more information.

5. Mounted Fans (not shown)

The AG 4800X/XS frames were designed with front-door mounted fans to provide forced air cooling for all cards, and additional cooling for the power supplies. 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.

Rear Panel Overview

This section briefly summarizes the features of the AG 4800X/XS rear panel.

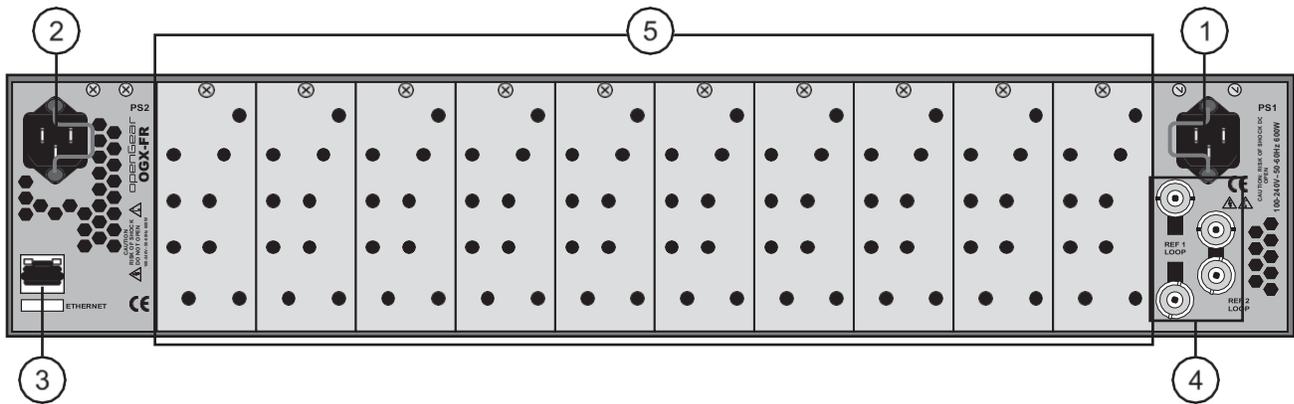


Figure 3.3 AG 4800X/XS — Rear Panel

1. PS1 Power Supply Connector

This connector is the AC Connector for the main power supply. Refer to the section “**Connecting to a Power Supply**” for more information.

2. PS2 Power Supply Connector

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

3. ETHERNET Communication Port

The Ethernet port is an RJ45 connector is used to connect the optional 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 frame. Only cards with the Communication bus interface will be able to be monitored and controlled this way.

★ The Ethernet port does not provide Power-over-Ethernet (PoE).

4. REF 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, and AES/DARS reference.

5. Rear Modules for openGear Cards

The AG 4800X/XS frame supports module-dependent rear modules. Rear modules can be ordered with cards, and are easy and quick to install. Blank plates must be installed if the slots are not populated with openGear cards and rear modules.

openGear Rear Modules

If your AG 4800X/XS 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.

Supports AG 4800 and AG 4800A Rear Modules

The AG 4800X/XS frame supports all existing rear modules designed for the AG 4800A and AG 4800 frames. However, rear modules designed for use in the AG 4800X/XS frame are not compatible with other openGear frames.

Identifying an AG 4800X/XS Rear Module

There are two ways to identify an AG 4800X/XS frame rear module:

- the notched top of the rear module, and
- a small notch on the bottom left corner of the rear module that fits into a second seating slot on the midplane of the AG 4800X/XS frames. Note that this small notch is not present on other frame rear module types.

Rear Module Types

This section provides an overview of the rear module types for your AG 4800X/XS frame.

Full Rear Modules

The full rear modules feature 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 in the AG 4800X/XS frame. Up to 10 cards can be installed in a frame when using these modules.

Split Rear Modules

Much like the modules for the AG 4800A frames, split modules for the AG 4800X/XS 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 AG 4800X/XS 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.

Physical Installation

If you have questions pertaining to the installation of AG 4800X/XS, please contact us at the numbers listed in the section “**Contacting Technical Support**”. Our technical staff is always available for consultation, training, or service.

For More Information on...

- the technical specifications for the AG 4800X/XS, refer to the chapter “**Technical Specifications**”.
- installing an openGear card and its rear module in the AG 4800X/XS frame, refer to the user guide for your openGear card.

Before You Begin

The AG 4800X/XS 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.

For More Information on...

- installing the brackets, refer to the section “**Installing the Rear Support Bars and Brackets**”.
- the frame dimensions refer to **Table 9.1**.

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.*

Ventilation and Cooling

Your AG 4800X/XS frame was specially engineered to minimize internal heat buildup and thus improve card reliability.

For More Information on...

- the power dissipation of individual openGear cards, refer to the user guide for your card.
- replacing the cooling fan module, refer to the section “**Fan Filter Maintenance**”.

Ventilation

For applications using less than 40W in a non-ventilated AG 4800X/XS, 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 AG 4800X/XS frame door not be opened for longer than 5 minutes on frames loaded with more than 40W. For some extra high power cards, the door should not be open for more than 1 minute.*

Cooling Fan Module

The AG 4800X/XS frames come standard with a Cooling Fan Module installed in the frame door. The frame and 4800X-OPT-1 can supply up to a maximum of 500W of card power, with 15W per card. Under these ventilated conditions, there is no requirement for extra vertical spacing between the frames. The AG 4800X/XS frames can be stacked one on top of the other, a feature that is highly desirable in densely crowded rack frame environments.



Caution — *The two sides of the AG 4800X/XS frame have perforations that are needed to ventilate the power supplies and must not be blocked.*

Airflow 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 AG 4800X/XS 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.

Installation Requirements

Keep the following in mind when installing your AG 4800X/XS frame:

- Install the frame for maximum stability during operation 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.

Connecting to a Power Supply

The AG 4800X/XS comes standard with one power supply, with a second optional power supply (AG 4800X-OPT-1) 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 AG 4800X/XS. 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.

Power Supply Connectors (PSU1, PSU2)

There are two power supply connectors located on the back of the AG 4800X/XS:

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

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

For More Information on...

- power supply locations in your AG 4800X/XS, refer to the section “**Rear Panel Overview**”.
- installing the AG4800X-OPT-1, refer to the section “**Installing a Frame Power Supply**”.

Power Cable Connection

This section includes information for connecting the power cables for the AG 4800X/XS frame.



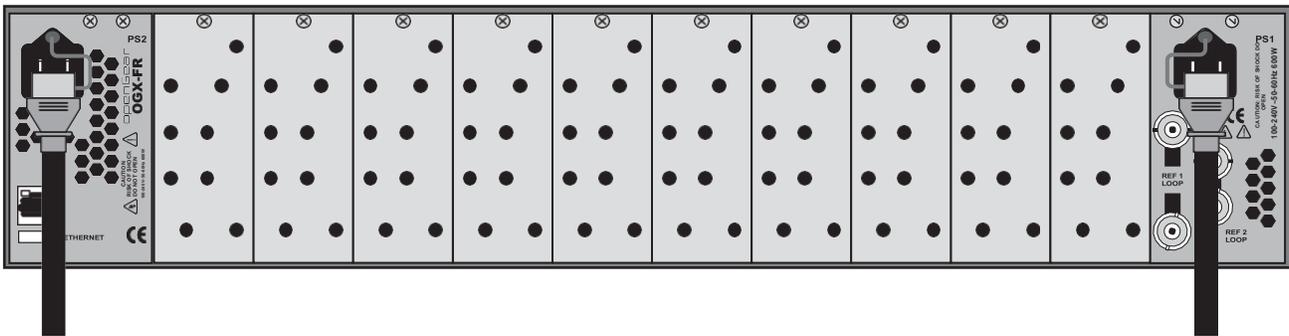
Warning Hazardous Voltages — *The safe operation of this product requires that a protective earth connection be provided. This protective earth is provided by the grounding conductor in the equipment's supply cord. To reduce the risk of electrical shock to operator and service personnel, this ground 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 AG 4800X/XS

1. Connect the cable's female IEC connector to the frame socket marked **PS 1**.
2. If the **Redundant Power Supply** option is installed, plug the second IEC connector into **PS2**.



To Redundant Power Supply

To Main Power Supply

★ Each AC connector includes a PowerLock, which is designed to retain the power cable connector.

3. 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 Cabling

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.

★ DashBoard uses the open SLP protocol to locate openGear frames on the network.

For More Information on...

- configuring the Network Controller card, refer to its user guide.
- installing and using DashBoard, refer to the *DashBoard User Manual*.
- the specifications for the AG 4800X/XS, refer to the chapter “**Technical Specifications**”.

Cabling the Ethernet Port on the AG 4800X/XS Frame

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-OG3-N installed in the AG 4800X/XS to take advantage of the Gigabit ethernet connectivity available for cards in the AG 4800X/XS frame.

Required Pinouts

The Ethernet port has its RJ45 connector wired as a Network Interface Card (NIC). **Table 5.1** provides the wiring information based on the type of Network Controller card installed in the AG 4800X/XS frame.

Table 5.1 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	*	TD3+
5	*	TD3-
6	Rx-	TD2-
7	*	TD4+
8	*	TD4-

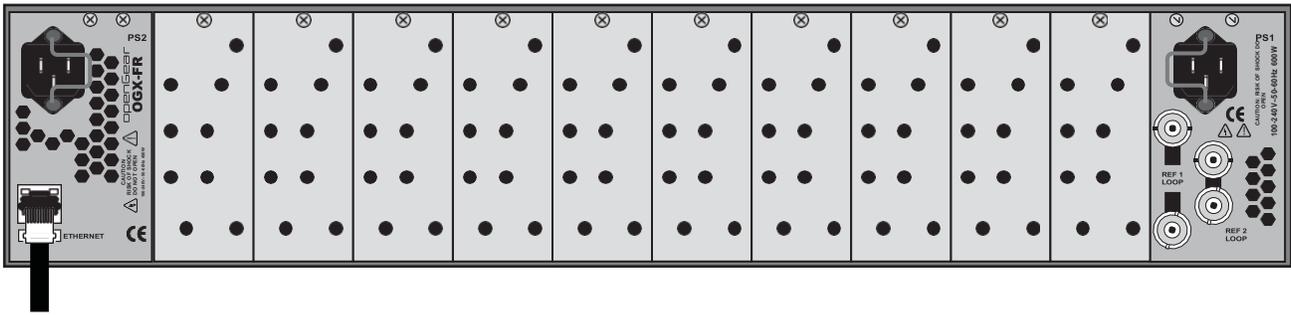
* Shorted, 75ohm to Ground

Connecting to a Network

Use up to 328ft (100m) of CAT6 cable or better for Gigabit Ethernet network or use up to 328ft (100m) of CAT5 cable or better for 10/100Mbit Ethernet networks.

To connect the Ethernet port to a network

- ★ Connect the **ETHERNET** (RJ-45) port to the same network as your DashBoard client computer or to a network that has a route to the network your DashBoard client computer is on.
1. Connect one free end of a straight through CAT5/5e/6 cable to a free port of the network hub.
 2. Connect the other end of the same cable to the Ethernet port on the AG 4800X/XS rear panel.



To Ethernet Network

Figure 5.1 AG 4800X/XS Frame — Ethernet Cabling

Reference Cabling

The AG 4800X/XS frame includes two independent looping reference BNCs (**REF 1**, **REF 2**) with connection to each card slot. Each REF BNC accepts a single composite or tri-level sync signal to feed timing information to the openGear cards installed in the frame.

GFC-8322 Overview

The GFC-8322 receives the analog reference signals driven to the **REF 1** and **REF 2** BNCs located on the rear panel of AG 4800X/XS frame. The GFC-8322 then distributes both reference signals to each of the 20 slots in the frame.

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.

Connecting a Video Reference Source

This feature distributes one or two reference signals to all cards in the AG 4800X/XS 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.

Connecting to a Reference Source

If only one reference type is required for the AG 4800X/XS frame, connect it to the **REF 1** BNC. Two reference types enables you to use reference sources with a different signal formats, each via a separate REF BNC.

For More Information on...

- on specifying the analog reference source for your openGear card, refer to its user guide.

To connect a reference source to the AG 4800X/XS

1. Connect one end of a Belden cable to the **REF 1** BNC on the AG 4800X/XS rear panel.
2. Connect the other end of the same Belden cable to the applicable output port on the external reference source device.

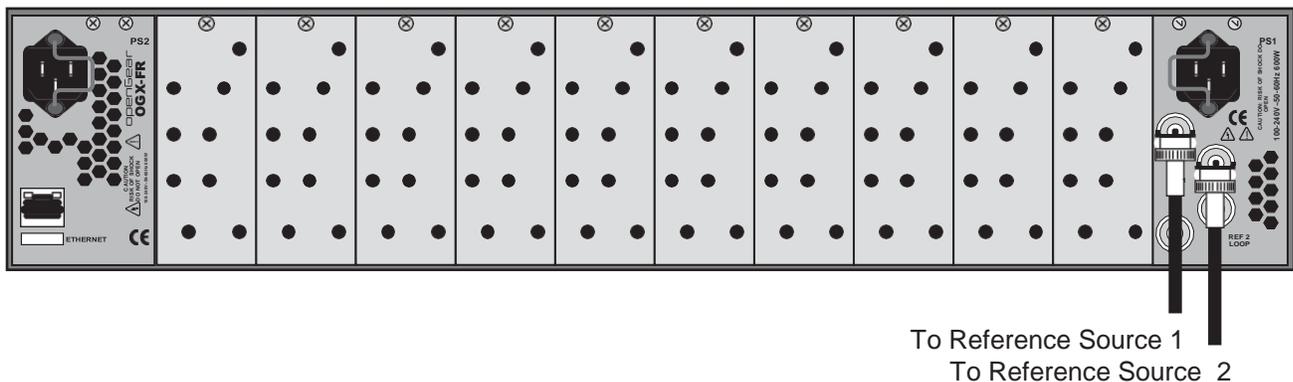


Figure 6.1 AG 4800X/XS — Reference Input Cabling

3. If the reference is not being looped to another device, ensure that the **REF 1 LOOP** BNC is terminated with a 75ohm terminator.
4. Repeat steps 1-3 for **REF 2** if a second reference source is required.

Looping the Reference Signals

Use this procedure if you have multiple frames that will switch simultaneously.

To loop a reference signal

1. Connect the **REF 1 LOOP** BNC on the rear panel of the first frame to the **REF 1 IN** BNC on the rear panel of the next frame using a 75ohm coaxial cable.
2. Continue looping the REF connectors across the frames that you want reference to this signal.
3. Ensure that the last frame in the video referencing loop has a 75ohm termination connected to its REF 2 IN BNC.

Troubleshooting

During normal operation, the GFC-8322 must never be removed from the AG 4800X/XS 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 AG 4800X/XS frame
- loss of network connection or the network settings for the AG 4800X/XS frame were reset to the default values

Using DashBoard

This chapter provides instructions for launching DashBoard, displaying the AG 4800X/XS in the Tree View of DashBoard, and accessing the interfaces for the openGear cards installed in your frame.

Overview

Each AG 4800X/XS frame reports the openGear cards installed in its chassis as sub-nodes in DashBoard. Each openGear card can be configured and monitored independently via its options in DashBoard.

Before you can access your openGear cards, you must first ensure the AG 4800X/XS displays in DashBoard. There are two methods for adding an AG 4800X/XS frame to the Tree View in DashBoard:

- using the auto-connect feature or
- manually adding a frame by specifying the IP address of the frame.

Both methods are described in the following sections.

Launching DashBoard

DashBoard connects to the AG 4800X/XS frame using a TCP/IP LAN connection.

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

For More Information on...

- downloading and installing the DashBoard client software, refer to the *DashBoard User Manual*.

To launch DashBoard

1. Ensure that DashBoard is installed on a PC connected to the same network as your AG 4800X/XS frame.
2. Ensure that you are running the latest DashBoard software.
3. Launch DashBoard by double-clicking its icon on your computer desktop.

Using the Automatic Detection Feature

When DashBoard is launched, and the Automatic Discovery feature of DashBoard is enabled, the AG 4800X/XS frame is automatically discovered and is available in the Tree View.

By default, DashBoard auto-detects any AG 4800X/XS frame on the same IP subnet. How often DashBoard queries the network for new AG 4800X/XS frames (the default is every 10 seconds) depends on how the Automatic Detection feature is configured in the Preferences menu of the DashBoard client.

Manually Adding AG 4800X/XS Frames to DashBoard

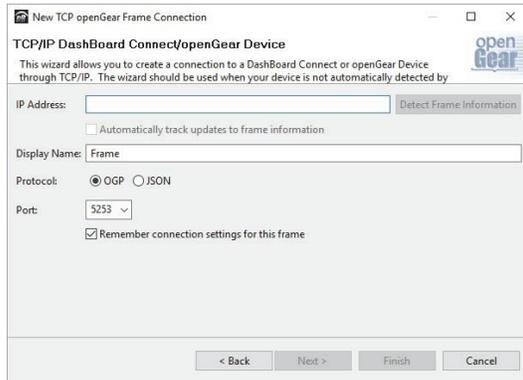
You must add AG 4800X/XS frames to the Tree View manually when the frame is on a different subnet from your computer running the DashBoard client.

To manually add an AG 4800X/XS frame to a DashBoard Tree View

1. Click  from the Tree View toolbar.
The **Select Equipment or Service Type to Add** dialog opens.
2. Expand the **openGear / DashBoard Connect** node.
3. Select **TCP/IP DashBoard Connect or openGear Device**.

4. Click **Next >**.

The **New TCP openGear Frame Connection** dialog opens.



5. In the **IP Address** box, type the IP address of the AG 4800X/XS frame.

To request that DashBoard detect the frame properties automatically

1. Click **Detect Frame Information**.
2. Verify that DashBoard retrieves the correct port, name, unique identifier, and other connection information from the specified IP address.
3. Verify that the **Automatically Track Updates to Frame Information** box is selected so that any changes are automatically updated in DashBoard.

To specify frame properties manually

1. Type the name of the AG 4800X/XS frame, as you want it to appear in DashBoard.
2. From the **Protocol** options select **OGP** (openGear Protocol).
3. Use the **Port** field to specify the port used for communication.
4. Select the **Remember connection settings for this frame** box to retain the settings.
5. Click **Finish** to display the AG 4800X/XS frame in the Tree View.

★ AG 4800X/XS frames added to the Tree View are also displayed in the Advanced Tree View.

6. Repeat the procedure for each AG 4800X/XS frame that you wish to add to the Tree View.

Re-naming the AG 4800X/XS Frame in the Tree View

Once your AG 4800X/XS frame displays in DashBoard, you may wish to provide a unique display name for the frame for easier identification in the Tree View. There are two methods for re-naming an AG 4800X/XS frame in DashBoard depending on how you added the frame to the Tree View in DashBoard. The first method is for frames manually added to the Tree View. The second method describes how to re-name an auto-detected frame using the DashBoard menu options available on the Network Controller Card. Both methods are described below.

To re-name a manually added AG 4800X/XS frame

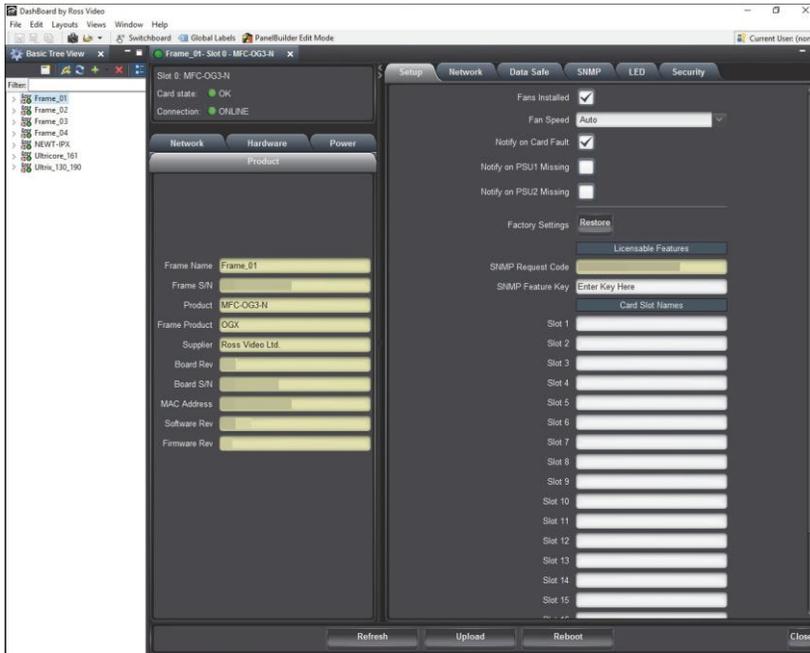
1. Right-click the AG 4800X/XS frame you wish to rename.
2. Select **Rename Frame**.
3. Enter the new name for the AG 4800X/XS frame in the text field provided.

To re-name an auto-detected AG 4800X/XS frame

1. Right-click the AG 4800X/XS frame you wish to rename.
2. Select **Open**.

The interface for the Network Controller Card displays in the DashBoard window.

In the following example, the interface for an MFC-OG3-N displays.



3. Select the **Network** tab.
4. Enter a new name for the AG 4800X/XS frame in the **Frame Name** field.
5. Press **Enter**.
6. Click **Apply**.

Removing an AG 4800X/XS Frame from the Tree View in DashBoard

This section outlines how to remove an AG 4800X/XS frame from a Tree View in DashBoard. Once a frame is removed, DashBoard no longer reports the status in the Tree View and you are no longer able to monitor or control the affected devices. If communication with a frame is disconnected via the Disconnect option, the status indicator is light gray until the frame is re-connected. If the status indicator is dark gray, with the rest of the node displaying as normal, a connection cannot currently be established to the device.

★ If the AG 4800X/XS frame you are removing is in a Custom Folder, you must first delete the frame from the Custom Folder before it can be removed from the Tree View.

To remove an AG 4800X/XS frame from the Tree View

1. Right-click the AG 4800X/XS frame you wish to remove.
2. Select  to remove the AG 4800X/XS frame from the Tree View.

To disconnect an AG 4800X/XS frame from the Tree View

1. Toggle  to off.
2. Right-click the AG 4800X/XS frame status indicator.
3. Select  or toggle  to on.

Auto-Discovery

Selecting  for an auto-detected AG 4800X/XS frame will temporarily remove the frame but the frame will re-appear in the Tree View again due to the auto-discovery feature of DashBoard. You must first disable the auto-discovery feature before you can remove a frame in this instance. Refer to the *DashBoard User Manual* for details on configuring the auto-discovery feature.

★ You can still disconnect from an auto-discovered frame by toggling the Automatic Discovery option off.

Using DashBoard to Access openGear Cards in the AG 4800X/XS Frame

The AG 4800X/XS frame displays in DashBoard as a main node in the Tree View with a series of sub-nodes. Each sub-node represents an openGear card installed in that frame.

For More Information on...

- available menus and parameters for your openGear card, refer to the user guide for your card.

To access an openGear card in DashBoard

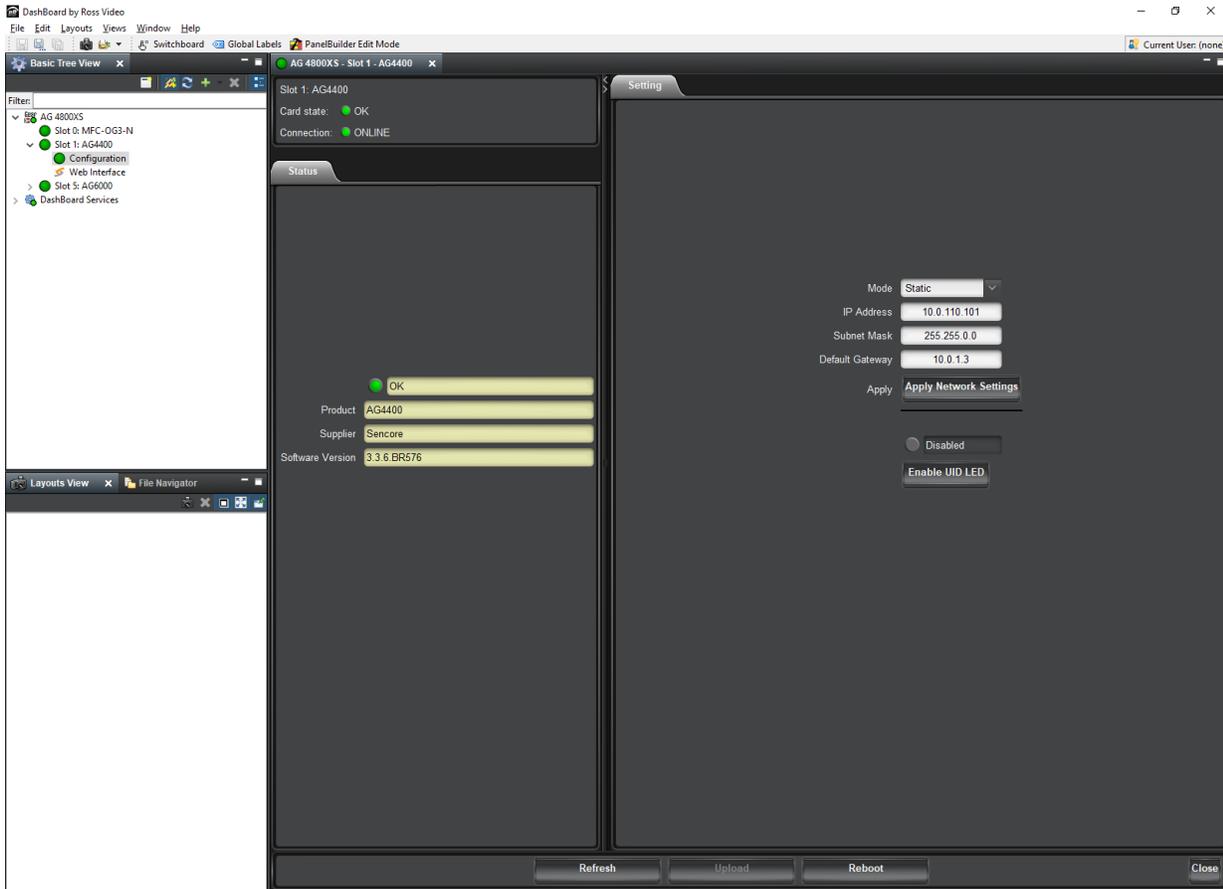
1. Locate the AG 4800X/XS frame in DashBoard.
2. Expand the AG 4800X/XS frame node.

A list of sub-nodes displays in the Tree View.

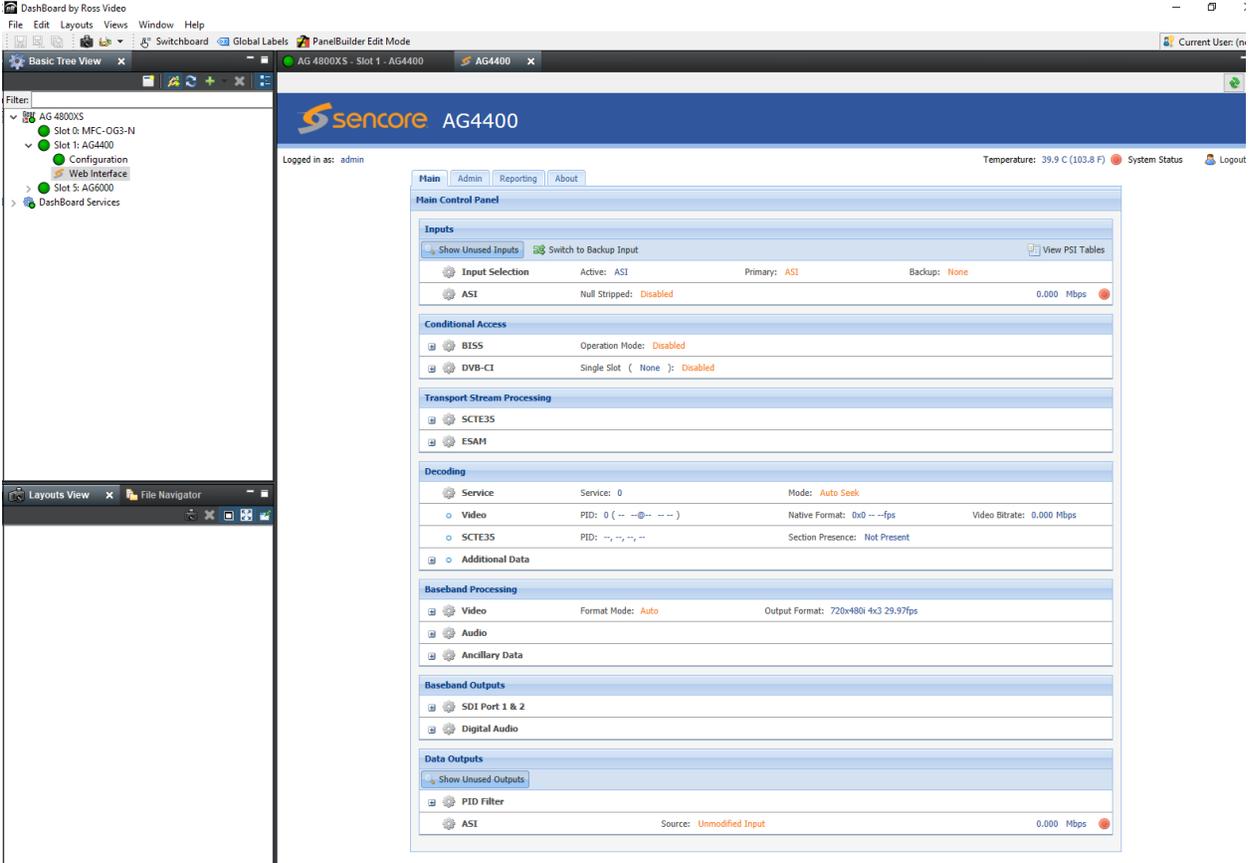


3. Double-click an openGear card node to displays its interface in DashBoard.

In the example below, the AG4400 was selected.



4. If your openGear card has multiple interfaces:
 - a. Expand the openGear card node.
 - b. Double-click a sub-node to display that interface in the Dashboard window.
- In the example below, the Configuration interface for an AG 4400 is displayed.



Maintenance

This chapter summarizes maintenance tasks such as installing a new frame power supply, cleaning the frame air filter, and replacing the Cooling Fan Module.

Installing a Frame Power Supply

The AG 4800X/XS is a power factor corrected supply, capable of working with all world AC standards (100-240V). Each supply has an indicator LED on its front panel, and an error detection circuit that monitors the power supply operation.

★ The AG 4800X/XS power supply installs on the right or left side of the AG 4800X/XS 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 side of the frame.
3. Push the power supply in firmly to ensure a tight connection at the rear of the frame.

Fan Filter Maintenance

Routine maintenance of the fan filter installed in the AG 4800X/XS is highly recommended to ensure proper airflow through the chassis.

Cleaning the Frame Air Filter

The AG 4800X/XS 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 remove the air filter from the frame door

1. Locate the four 3/16" screws on the frame door faceplate. (**Figure 8.1**)



Figure 8.1 AG 4800X/XS — Screw Locations on Front Panel

2. Using a Phillips screwdriver, remove the four screws that secure the faceplate. Set the screws aside.
3. Ensure that the side door tabs are disengaged from the door.
4. Remove the faceplate by gently pulling it towards you while avoiding the Diagnostic Panel, the **Toggle** button, and the **STATUS LED**.
5. Gently remove the air filter off the metal protective screen that separates the filter from the fans.

To clean the air filter

1. Brush any loose dust off of the filter.
2. 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.
3. Remove the filter from the water and thoroughly pat dry with a towel to remove any moisture.

To replace the clean, dry filter into the frame door

1. Place the clean air filter across the metal protective screen, orienting it in the same position you found it in during step 1 of the procedure “**To remove the air filter from the frame door**”.
2. Install the faceplate by gently fitting it back onto the frame door, ensuring the faceplate does not interfere with the Diagnostic Panel, the **Toggle** button, and the **STATUS LED**.
3. Verify that the side door tabs are seated properly in the cutouts on the frame door bracket.
4. Using a Phillips screwdriver, secure the faceplate using the four screws removed during step 2 of the procedure “**To remove the air filter from the frame door**”.

Replacing the Frame Air Filter

Order the Air Filter Replacement Kit from your openGear sales representative before replacing the frame air filter in your AG 4800X/XS frame.

To remove the old air filter from the frame door

1. Using a Phillips screwdriver, remove the four 3/16” screws that secure the faceplate. Set the screws aside. (Figure 8.2)



Figure 8.2 AG 4800X/XS — Screw Locations on Front Panel

2. Ensure that the side door tabs are disengaged from the door.
3. Remove the faceplate by gently pulling it towards you while avoiding the Diagnostic Panel, the **Toggle** button, and the **STATUS LED**.
4. Gently remove the air filter off the metal protective screen that separates the filter from the fans.

To install the new filter into the frame door

1. Place the new air filter across the metal protective screen, orienting it in the same position you found it in during step 1 of the procedure “**To remove the old air filter from the frame door**”.
2. Install the faceplate by gently fitting it back onto the frame door, ensuring the faceplate does not interfere with the Diagnostic Panel, the **Toggle** button, and the **STATUS LED** on the frame door.
3. Verify that the side door tabs are seated properly in the cutouts on the frame door bracket.
4. Using a Phillips screwdriver, secure the faceplate using the four screws removed during step 1 of the procedure “**To remove the old air filter from the frame door**”.

Replacing the Cooling Fan Module

The Cooling Fan Module is installed in the AG 4800X/XS door. To replace a failed Cooling Fan Module, you need to replace the entire frame door.

★ Contact your Sencore sales representative to order a Cooling Fan Module Replacement Kit.

Replacing the AG 4800X/XS Door

The Cooling Fan Module Replacement Kit includes the fan board and filter pre-installed in a new AG 4800X/XS frame door. You will need to remove the old door from your AG 4800X/XS frame and replace it with the new door.

To remove the old door from the AG 4800X/XS frame

1. Gently pull the side door tabs towards the center of the door, releasing the door from the frame.

★ The door extender arms retain the door to the chassis.

2. Using both hands, pull the door towards you.

3. Tilt the door upward until the extender arms match the cutout for the retaining bolts.

4. Gently push the door extender arms in and over the retaining bolts and unhook from the frame.

5. Remove the door and place it on a clean, flat, static-free surface.

To install the new door in the frame

1. 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.

2. Pull and release the door tabs to ensure the:

- frame door is securely locked to the AG 4800X/XS frame, and
- the tabs latch into the frame.

Technical Specifications

This chapter provides technical information for AG 4800X/XS.

★ Specifications are subject to change without notice.

Dimensions

Table 9.1 Technical Specifications — Chassis Dimensions

Item	Specifications
Number of RU	2
Height	3.5" (8.89cm)
Width	19" (48.26cm)
Depth	17.7" (45cm)
Weight (two power supplies installed)	20lb (9.07kg)

AG 4800X/XS Power Supply

Table 9.2 Technical Specifications — Power

Item	Specifications
Input	6.3A (650W)
Output 1	12V 41.6A, 500W maximum
Output 2	-7.5V 5A, 37.5W maximum
Total	Sum of both outputs not to exceed 500W

Card Slots

Table 9.3 Technical Specifications — Card Slots

Item	Specifications
Number of Slots	20
Total Power Available	450W
Maximum Card Power	
High-density (Split) Rear Module ^a	15W per card
Standard Rear Module ^b	30W per card ^c
Double-wide Rear Module ^d	60W per assembly ^{e,f}

- a. Accommodates two openGear cards and requires two slots in the frame chassis.
- b. Accommodates one openGear card and requires two slots in the frame chassis.
- c. Or 45W if the openGear card has integrated cooling.
- d. Accommodates one or two openGear cards and requires four slots in the frame chassis.
- e. Or 75W for a single card with integrated cooling.
- f. Or 90W for a multi-slot assembly with integrated cooling and receiving power from two or more midplane connectors.

Frame Controller and Fans

Table 9.4 Technical Specifications — Frame Controller and Fans

Item	Specifications
Max. Power: +12V Rail	4A, 48W
Max. Power: -7.5V Rail	0.2A (1.5W)
Total	50W maximum

GFC-8322

Table 9.5 Technical Specifications — GFC-8322

Item	Specifications
Max. Power: +12V Rail	0.2A (2.4W)
Max. Power: -7.5V Rail	0.2A (1.5W)
Total	3.9W maximum

Reference Inputs

Table 9.6 Technical Specifications — Reference Inputs

Item	Specifications
Number of Inputs	2 looping
Level	1Vpp nominal
Signal	Analog video sync (black burst or tri-level), or AES/EBU DARS
Impedance	75ohm terminating
Return Loss	>30dB to 30MHz
Maximum DC on REF Input	±1V

Environment

Table 9.7 Technical Specifications — Environment

Item	Specifications
Maximum Ambient Temperature	0°C to 40°C (32°F to 104°F)
Humidity, non-condensing	<95%

Service Information

Routine maintenance to this Sencore 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 Sencore 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.

Sencore One-Year Warranty

Sencore warrants this instrument against defects from any cause, except acts of God and abusive use, for a period of 1 (one) year from date of purchase. During this warranty period, Sencore will correct any covered defects without charge for parts, labor, or recalibration.

Returning Products for Service or Calibration

The AG 4800X/XS is a delicate piece of equipment and needs to be serviced and repaired by Sencore. Periodically it is necessary to return a product for repair or calibration. In order to expedite this process please carefully read the instructions below.

RMA Number

Before any product can be returned for service or calibration, an RMA number must be obtained. In order to obtain an RMA number, use the following steps:

1. Contact the Sencore service department by going online to www.sencore.com/procare-support/service-repair.
2. Fill in the required information on the ProCare Service and Repair form.
3. An RMA number will be emailed you shortly after completing the form with return instructions.

Shipping the Product.

Once an RMA number has been issued, the unit needs to be packaged and shipped back to Sencore. It's best to use the original box and packaging for the product but if this not available, check with the customer service representative for the proper packaging instructions.

Note: DO NOT return any power cables or accessories unless instructed to do so by the customer service representative

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 AG 4800X/XS frame that houses the AG 4800X/XS.

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 AG 4800X/XS 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 AG 4800X/XS.

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