Ultripower

User Guide

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Our mission is to:

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

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

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

David Ross
CEO, Ross Video
dross@rossvideo.com

Ross Video Code of Ethics

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

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

Ultripower · User Guide

- Ross Part Number: **2101DR-304-07**
- Release Date: March 29, 2023.

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

Copyright

Patents

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

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Safety Notices

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

EMC Notices

US FCC Part 15

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

against harmful interference when the equipment is operated in a Commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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

CANADA

This Class "A" digital apparatus complies with Canadian **ICES-003**.

Cet appareil numerique de la classe "A" est conforme a la norme **NMB-003** du Canada.

EUROPE

This equipment is in compliance with the essential requirements and other relevant provisions of **CE Directive 2014/30/EU and 2014/35/EU**.

AUSTRALIA

This equipment has been tested to **AS/NZS CISPR 32:2015** and found to comply with the limits for a Class A Digital device.

INTERNATIONAL

This equipment has been tested to **CISPR 32: Edition 2.0 2015-03** and found to comply with the limits for a Class A Digital device.

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

Ultripower-PS

This Equipment has been approved in accordance with/ Cet équipement a été approuvé conformément à/ Dieses Geraet ist zugelassen gemaess/이 장비는에 따라승인되었습니다 IEC 62368-1:2014 with National difference for EU Group, EU Special National Conditions, National Difference CA , US - CSA/UL 62368-1:2014, National Difference DK - DS/EN 62368-1:2014.

If this unit is built into information technology equipment, the installation must comply with the above standard. Si cet appareil est construit dans l'équipement de technologie de l'information, l'installation doit être conforme à la norme précitée. Im falle dass dieses Geraet in Einrichtungen der Informationstechnik eingebaut werden soll, muss die Installation gamaess der obengenannten Norm erfolgen. 이 제품이 IT 장비에 내장 된 경우 설치는 위의 표준을 준수해야합니다.

Rated Input/Entrée Nominale/ Nenneingang/입력 등급: 100-240V~, 50/60Hz, 13A; Class I/ Classe I/ Schutzklasse I, 클래스 1 DC SELV Output/ DC Sortie/ DC SELV Ausgaenge/산출: 15V/80A

Maximum Output Power/ Puissance de sortie maximale/ Max. Ausgangsleitstung/최대 출력 전력: 1200W Maximum operating ambient temperature/ Température ambiante de fonctionnement maximale/ Max. Umgebungstemperatur/최대 작동 온도: 50ºC

Unit fused by internal fuse type/ Type de fusible interne/ Interne sicherung/메인 퓨즈: F100, F102: Littelfuse Inc. 324020, or/ou/oder/또는Bussmann ABC-V-20: 20A/250V~.

For continued protection replace fuse with the same type and rating only/ Pour une protection continue Remplacez le fusible avec le meme type et note seulement/Nur Sicherung des gleichen Types benutzen/: 같은 종류 만로 교체..

Caution — *Power supply is service replaceable only. L'alimentation électrique n'est pas remplaçable par l'utilisateur Warnung: Die Stromversorgung ist nicht vom Benutzer veränderbar 주의: 전원 공급 장치 : 은 서비스 교체 만 가능합니다.*

This product has been tested for IT Power System with phase-to-phase voltage AC240V (IEC 62368-1:2014).

Ce produit a été testé pour le système d'alimentation informatique avec tension phase-phase 240V (IEC 62368-1:2014) Dieses Produkt ist fuer den IT-Netz mit eine Nennwechselspannung (Phasenleiter-Phasenleiter) von 240V vorgesehen. (IEC 62368-1:2014).

Ultripower

This Equipment has been approved in accordance with/ Cet équipement a été approuvé conformément à/ Dieses Geraet ist zugelassen gemaess/이 장비는에 따라 승인되었습니다 IEC 62368-1:2014 with National difference for EU Group, EU Special National Conditions, National Difference CA , US - CSA/UL 62368-1:2014, National Difference DK - DS/EN 62368-1:2014.

If this unit is built into information technology equipment, the installation must comply with the above standard. Si cet appareil est construit dans l'équipement de technologie de l'information, l'installation doit être conforme à la norme précitée. Im falle dass dieses Geraet in Einrichtungen der Informationstechnik eingebaut werden soll, muss die Installation gamaess der obengenannten Norm erfolgen. 이 제품이 IT 장비에 내장 된 경우 설치는 위의 표준을 준수해야합니다.

Rated Input/Entrée Nominale/ Nenneingang/입력 등급: 2 X 100-240V~, 50/60Hz, 12A; Class I/ Classe I/ Schutzklasse I/클래스 1 DC SELV Output/ DC Sortie/ DC SELV Ausgaenge/산출: 4 X (15V/20A) Maximum Output Power/ Puissance de sortie maximale/ Max. Ausgangsleitstung/최대 출력전력: 1200W (110 – 240V~); 1100W (100 – 240V~) Maximum operating ambient temperature/ Température ambiante de fonctionnement maximale/ Max. Umgebungstemperatur/최대 작동 온도 : 50ºC.

Caution — *Power supply is service replaceable only. L'alimentation électrique n'est pas remplaçable par l'utilisateur Warnung: Die Stromversorgung ist nicht vom Benutzer veränderbar 주의: 전원 공급 장치 : 은 서비스 교체 만 가능합니다.*

This product has been tested for IT Power System with phase-to-phase voltage AC240V (IEC 62368-1:2014) Ce produit a été testé pour le système d'alimentation informatique avec tension phase-phase 240V (IEC 62368-1:2014) Dieses Produkt ist fuer den IT-Netz mit eine Nennwechselspannung (Phasenleiter-Phasenleiter) von 240V vorgesehen. (IEC 62368-1:2014).

Warranty and Repair Policy

The product is backed by a comprehensive one-year warranty on all components.

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

If an item becomes defective within the warranty period Ross will repair or replace the defective item, as determined solely by Ross.

Warranty repairs will be conducted at Ross, with all shipping FOB Ross dock. If repairs are conducted at the customer site, reasonable out-of-pocket charges will apply. At the discretion of Ross, and on a temporary loan basis, plug in circuit boards or other replacement parts may be

supplied free of charge while defective items undergo repair. Return packing, shipping, and special handling costs are the responsibility of the customer.

This warranty is void if products are subjected to misuse, neglect, accident, improper installation or application, or unauthorized modification.

In no event shall Ross Video Limited be liable for direct, indirect, special, incidental, or consequential damages (including loss of profit). Implied warranties, including that of merchantability and fitness for a particular purpose, are expressly limited to the duration of this warranty.

This warranty is TRANSFERABLE to subsequent owners, subject to Ross' notification of change of ownership.

Environmental Information

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

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

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

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

This appliance may contain a Coin type battery which should not be treated as household waste.

To ensure that the battery will be treated properly use the appropriate take-back systems in your area. These systems will reuse or recycle most of the materials from your end-of-life equipment in an environmentally friendly and health conscious manner.

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Contents

Introduction

This guide is for system administrators and installers of the Ross Video Ultripower. It provides instructions on how to install, configure, and monitor your Ultripower rack mount power supply unit.

This guide contains the following chapters that cover the installation and setup of an Ultripower:

- "**Introduction**" summarizes the guide and provides important terms, and conventions.
- "**Getting Started**" provides general information to keep in mind before installing and configuring your Ultripower.
- "**Hardware Overview**" provides a basic introduction to the Ultripower front and rear panels.
- "**Physical Installation**" provides instructions for the basic physical installation of the Ultripower.
- "**Connecting to an ULTRIX-FR12**" outlines how to configure and connect multiple Ultripowers ti an ULTRIX-FR12 router.
- "**Using DashBoard**" provides instructions on navigating the Ultripower interfaces, and establishing communications in DashBoard.
- "**Configuration**" outlines how to grant a DashBoard client access to the Ultripower, configure the PSU outputs, and link multiple Ultripowers into a primary-client configuration.
- "**Monitoring the Ultripower**" provides instructions on how to monitor the Ultripower status via the chassis and the DashBoard read-only status fields.
- "**DashBoard Menus Overview**" summarizes the tabs, menus, fields, and parameters displayed in the DashBoard window for Ultripower.
- "**Maintenance**" provides instructions for removing a blank module plate from the chassis, removing a PSU module from the chassis, and installing a new PSU module.
- "**Technical Specifications**" provides the specifications, such as dimensions and power consumption, for the Ultripower.

If you have questions pertaining to installation of this Ross Video product, please contact us at the numbers listed in the section "**Contacting Technical Support**". Our technical staff is always available for consultation, training, or service.

Related Publications

It is recommended to consult the following Ross documentation before installing your Ultripower:

- ***Ultricore User Guide***, Ross Part Number: 2201DR-104
- ***Ultricore Quick Start Guide***, Ross Part Number: 2201DR-102
- ***ULTRIX-FR1 and ULTRIX-FR2 Quick Start Guide***, Ross Part Number: 2101DR-002
- ***ULTRIX-FR5 Quick Start Guide***, Ross Part Number: 2101DR-502
- ***Ultrix Installation Guide***, Ross Part Number: 2101DR-003
- ***Ultrix User Guide***, Ross Part Number: 2101DR-004

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 **Save Layout** dialog, click **OK**.

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

Italic text is used to identify the titles of referenced guides, manuals, or documents. For example:

For more information, refer to the ***Ultrix Installation Guide***.

Menu Sequences

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

Important Instructions

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

✶ When the Ultripower cannot connect to the network, a **Message** dialog box opens to report the connection problem.

Contacting Technical Support

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

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

- **Technical Support**: (+1) 613-652-4886
- **After Hours Emergency**: (+1) 613-349-0006
- **E-mail**: techsupport@rossvideo.com
- **Website**: http://www.rossvideo.com

Getting Started

The Ultripower offers a reliable, fault tolerant, and fail-safe option for Ultrix routers. It delivers up to a maximum of 1200W. It also provides an Ethernet port for monitoring purposes via DashBoard.

General Overview

The Ultripower provides load balanced high reliability DC power to all connected routers. The Ultripower comes standard as a positive power rail supply.

Supported Devices

The Ultripower supports the following Ross devices:

- ULTRIX-FR1
- ULTRIX-FR2
- ULTRIX-FR5
- ULTRIX-FR12

Notice — *Refer to the Ultrix Online Configuration Tool, available on the Ross Video website, for specific information on the Ultripower requirements for your system.*

Features

The Ultripower includes the following features:

- 1200W output 15VDC @ 20A per output connection (x4)
- 2 front hot swappable AC-DC power supply modules
- 2 rear mounted AC inputs capable with Universal input voltage of 90-264VAC
- DashBoard interface to all reported status data
- Status LEDs on each power supply
- Reversible rack mount ears to provide mounting options

Block Diagram

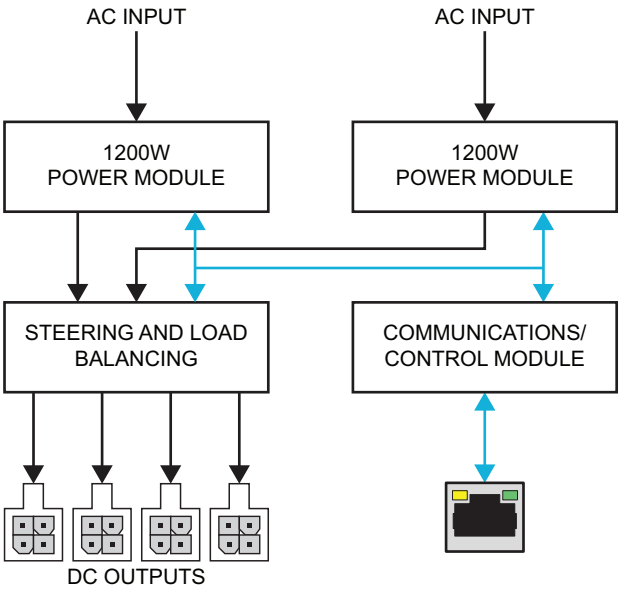


Figure 1 Ultripower Internal Block Diagram

Example Configuration

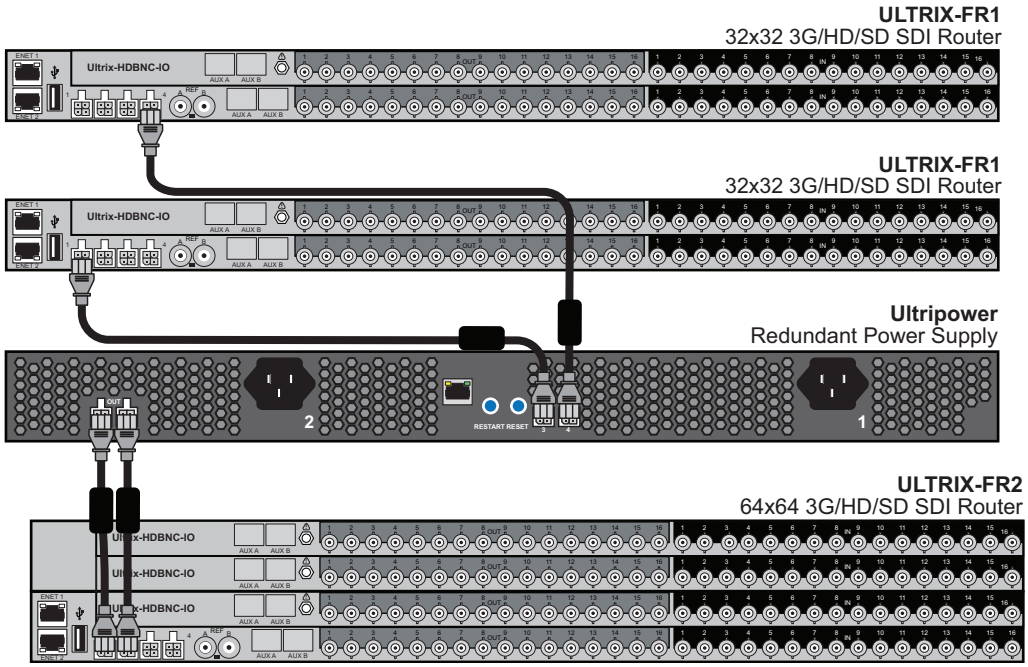


Figure 2 Ultripower Example — Two ULTRIX-FR1 and One ULTRIX-FR2 Connections

Hardware Overview

This chapter presents information on the Ultripower front and rear panels.

Front Panel Overview

The Ultripower front panel enables you to monitor the power supplies via the LEDs for each slot.

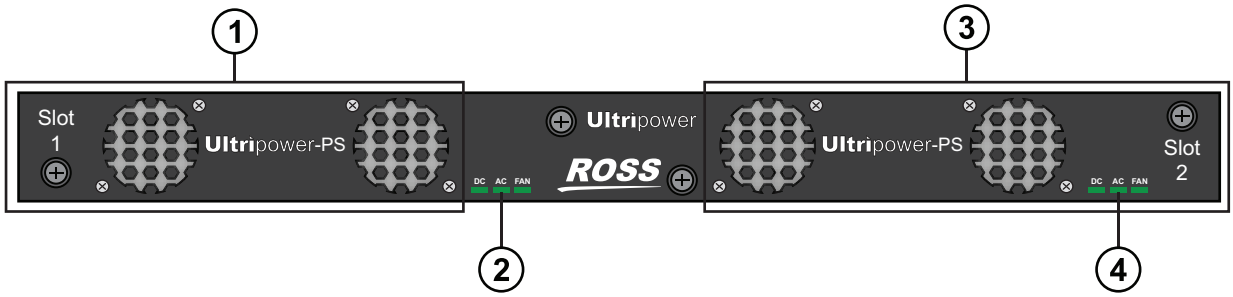


Figure 3 Ultripower — Front Panel

1) Slot 1 Power Supply Module	3) Slot 2 Power Supply Module
2) Slot 1 Status LEDs	4) Slot 2 Status LEDs

1. Slot 1 Power Supply Module

The Slot 1 Power Supply Module provides power to the four DC outputs. If a PSU module is present and operating in Slot 2, the load is distributed between the operating modules.

2. Slot 1 Status LEDs

The Slot 1 Status LEDs monitor the Slot 1 PSU power supply and status. Refer to **Table 1**.

3. Slot 2 Power Supply Module

The Slot 2 Power Supply Module provides power to the four DC outputs. If a PSU module is present and operating in Slot 1, the load is distributed between the operating modules.

4. Slot 2 Status LEDs

The Slot 2 Status LEDs monitor the Slot 2 PSU power supply and status. Refer to **Table 1**.

Rear Panel Overview

The rear panel provides a support structure for connecting power inputs, power outputs, and to your facility network.

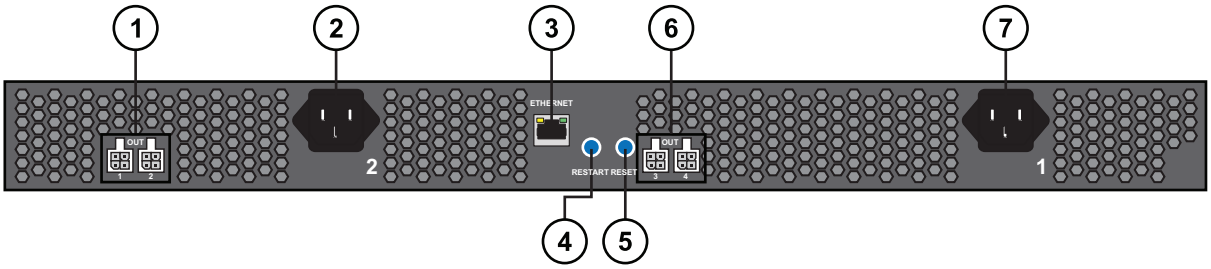


Figure 4 Ultripower — Rear Panel Overview

1) PSU OUT Ports 1 and 2	3) 10/00 Ethernet Port	5) Restart Button	7) PSU IN Port 1
2) PSU IN Port 2	4) Reset Button	6) PSU OUT Ports 3 and 4	

1. **PSU OUT Ports 1 and 2**

   These ports are Molex mini-fit 4-position connectors that provide power drawn from both power supplies. Each connector can support one connection to an Ultrix router.

2. **PSU IN Port 2**

   This connection is the AC connector for the power supply module inserted in Slot 2.

3. **10/00 Ethernet Port**

   The Ethernet port is an RJ45 connector used to connect the Ultripower to an external Ethernet network. This port is required for monitoring and control of the Ultripower.

Notice — *The Ethernet ports do not provide Power-over-Ethernet (PoE).*

4. **Reset Button**

   If the **DB Whitelist** is enabled on the Ultripower (refer to "**Restricting Access to the Ultripower**") and the Ultripower network settings change, there is a potential for a lock-out situation. In this case, use the Reset button to clear any entries from the DashBoard whitelist, enabling any DashBoard client to connect to this Ultripower.

5. **Restart Button**

   Use the Restart button to reboot the Ultripower software.

6. **PSU OUT Ports 3 and 4**

   These ports are Molex® mini-fit 4-position connectors that provide power drawn from both power supplies.

7. **PSU IN Port 1**

   This connection is the AC connector for the power supply module inserted in Slot 1.

Physical Installation

If you have questions pertaining to the installation of your Ultripower, please contact us at the numbers listed in "**Contacting Technical Support**".

Before You Begin

Notice — *The Ultripower utilizes front-to-rear airflow management. It is a requirement that the airflow is not restricted.*

These installation guidelines assume the following:

- The relevant Ross equipment is installed into a ventilated rack frame. The relative humidity in the environment of the equipment should be <70% (non-condensing). The ambient temperature of the air entering the front panel should not exceed 40°C (104°F), and should not fall below 0°C (32°F). It is recommended to leave a 1RU gap between each unit.
- Ensure that adequate space exists in front, and behind of the chassis for airflow exhaust.
- The install location of the chassis should be accessible, dry, and dust-free.
- The socket/outlet should be installed near the equipment and be easily accessible.

Static Discharge

Throughout this chapter, please heed the following cautionary note:

ESD Susceptibility — *Static discharge can cause serious damage to sensitive semiconductor devices. Avoid handling circuit boards in high static environments such as carpeted areas and when synthetic fiber clothing is worn. Always exercise proper grounding precautions when working on circuit boards and related equipment.*

Unpacking the Equipment

On receiving your Ultripower, check the contents against the packing list. Ensure that all equipment itemized on the packing list is present and there are no signs of damage before installing the Ultripower in your system.

If anything is missing or damaged, contact Ross Video immediately to obtain the correct warranty service procedures.

We recommend that the equipment is installed by qualified and experience personnel, to any relevant standards and approvals.

Mounting Requirements

The Ultripower is designed for installation into a standard 19" equipment rack. It has integrated rack ears, allowing it to be screwed in using standard screws and cage nuts.

The Ultripower mounts in the rack frame by means of four rack screws fastened through the mounting ears. This should normally be sufficient to carry the load, including the weight of accompanying cables.

Under some conditions, the ambient air temperature inside rack-mount cabinets can be greater than the ambient temperatures within a room. For safe long term reliability, ensure the ambient air temperatures at the chassis right-side intake are within the Ultripower specified operating temperature range. Adequate ventilation within a rack frame must also be maintained.

For More Information on...

- the technical specifications for the Ultripower, refer to "**Technical Specifications**".

Connecting Ultripower to a Network

The **ETHERNET** port is a standard 10/100 RJ45 Ethernet connector and is used to exchange data and communicate with control and monitoring applications such as DashBoard.

✶ 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.

The Ultripower is connected directly to your network so that it can interface with the devices and the computer running the DashBoard client. After a physical connection is established, DashBoard is used to configure the network settings for the Ultripower.

For More Information on...

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

✶ If difficulties or problems are experienced when connecting the Ultripower to a network hub, or with assigning IP addresses, please contact your network administrator.

To establish a physical connection to the network

1. Connect one free end of a standard CAT 5/5e/6 Ethernet cable to a free port of the network hub.
2. Connect the other end of the same cable to the **ETHERNET** port on the rear of the Ultripower.

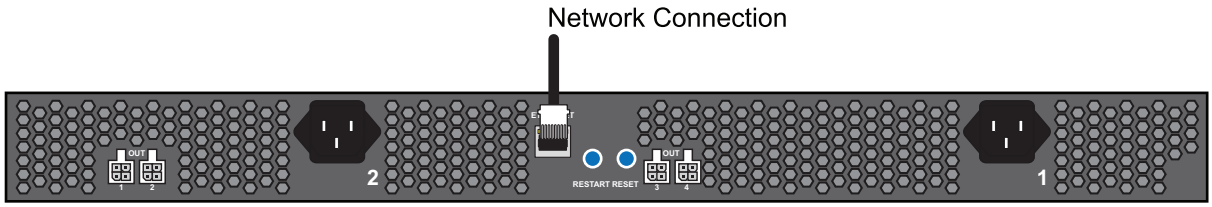


Figure 5 Ultripower — Network Connections

Connecting an Ultrix Router to Ultripower

Caution — *Do not exceed 1200W total power for all connected devices. Damage can occur and the Ultripower will not be able to supply power if the limit is exceeded. Refer to the appropriate user guide for the maximum power consumption of each device, or contact Ross Video Technical Support.*

✶ Ultripower grouping is to be configured prior to connecting the power connections to the ULTRIX-FR12 router. Refer to "**Connecting to an ULTRIX-FR12**" for details.

You must first establish DC connections between the Ultrix routers and Ultripower before you can connect a power source to the Ultripower.

Connecting to an ULTRIX-FR1 Router

You must use a Molex® connector on one end to connect to the Ultripower, and a Molex® connector on the other to connect to the Ultrix-FR1 router. This cable is supplied by Ross Video and shipped with Ultripower.

Notice — *The ULTRIX-FR1 router automatically powers on when power is applied to Ultripower.*

To connect the Ultripower to an ULTRIX-FR1 router

1. Connect one end of the power cable into an **OUT** socket on the Ultripower rear panel.

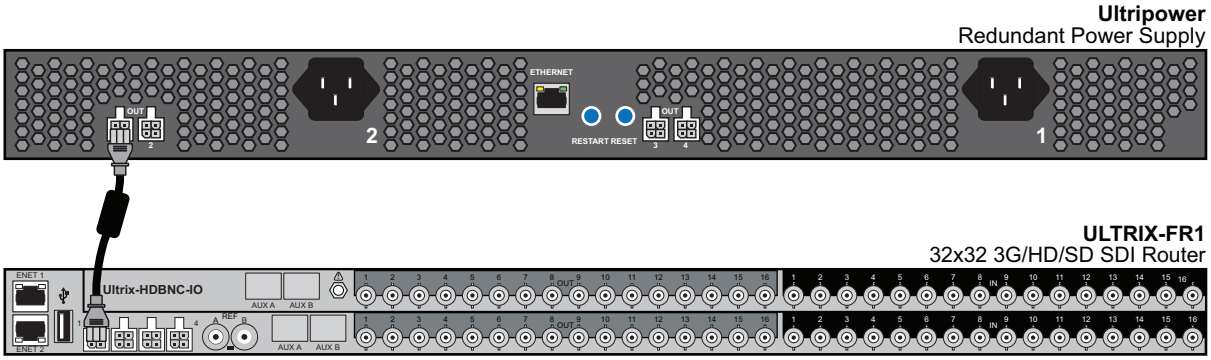


Figure 6 Ultripower — Connection to an ULTRIX-FR1 Router

Caution — *Ensure that the power cable end with the ferrite bead connects to the Ultripower port. (***Figure 6***)*

2. Connect the other end of the power cable into the PSU socket marked **1** on the ULTRIX-FR1 rear panel.
3. Repeat steps 1 and 2 for up to three additional ULTRIX-FR1 routers.

Connecting to an ULTRIX-FR2 Router

You must use a Molex® connector on one end to connect to the Ultripower, and a Molex® connector on the other to connect to the ULTRIX-FR2 router. This cable is supplied by Ross Video and shipped with Ultripower.

Notice — *The ULTRIX-FR2 requires a minimum of two power supply connections.*

To connect the Ultripower to an ULTRIX-FR2 router

1. Connect one end of the first power cable into the **OUT 1** socket on the Ultripower rear panel.
2. Connect one end of the second power cable into the **OUT 2** socket on the Ultripower rear panel.

Caution — *Ensure that the power cable end with the ferrite bead connects to the Ultripower port (***Figure 7***).*

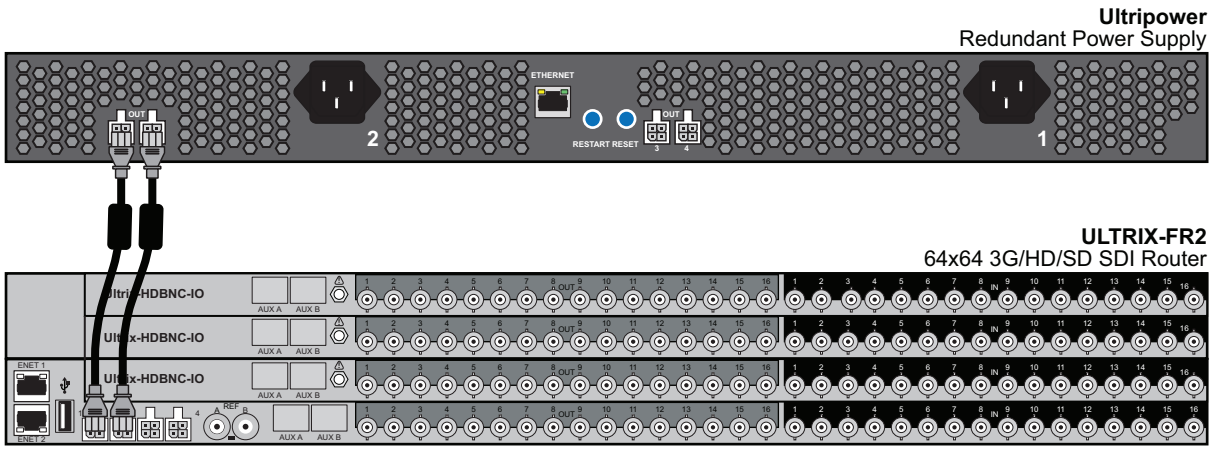


Figure 7 Ultripower — Connections to an ULTRIX-FR2 Router

Notice — *The ULTRIX-FR2 router automatically powers on when power is applied to Ultripower. Connect DC cables prior to connecting AC power source to Ultripower. This prevents the ULTRIX-FR2 from trying to draw too much power while only one DC cable is installed.*

3. Connect the first power cable into the PSU socket marked **1** on the ULTRIX-FR2 rear panel.
4. Connect the second power cable into the PSU socket marked **2** on the ULTRIX-FR2 rear panel.

Connecting to an ULTRIX-FR5 Router

Each ULTRIX-FR5 router requires powering from an Ultripower Rack Mount Power Supply Unit.

Notice — *Powering an ULTRIX-FR5 from individual external power supplies is not supported.*

✶ When using an Ultripower with an ULTRIX-FR5, the ULTRIX-FR5 must run Ultrix software version 3.43 or higher.

To connect an Ultripower to an ULTRIX-FR5

1. Connect the ends of four power cables to the Ultripower rear panel **OUT** sockets.
2. Connect the free ends of the same power cables to the ULTRIX-FR5 rear panel.

Caution — *Ensure that the power cable end with the ferrite bead connects to the Ultripower port. (***Figure 8***)*

Notice — *The ULTRIX-FR5 automatically powers on when power is applied to Ultripower. Connect DC cables prior to connecting AC power source to the Ultripower. This prevents the ULTRIX-FR5 from trying to draw too much power while only one DC cable is installed.*

3. Connect an AC power cable to the Ultripower **PSU 1** socket.
4. If Ultripower is fitted with a second power module, connect a second AC power cable to the Ultripower **PSU 2** socket.

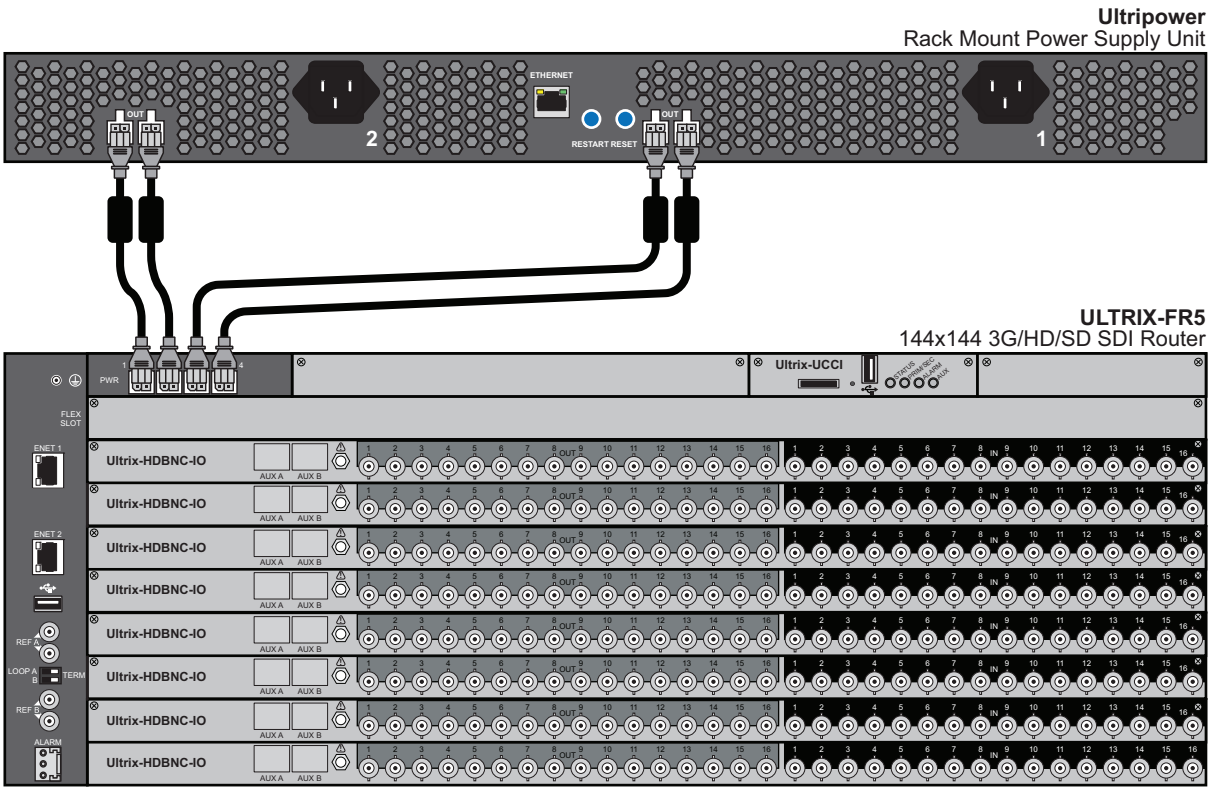


Figure 8 Ultripower — Connections to an ULTRIX-FR5 Router

Connecting to a Power Source

Each IEC power cord should be connected to a separate power source for protection against failure of the A/C power circuit. Under normal conditions with two power supply modules operating, the DC output power is shared between the two modules. In the event of one power supply failure, the single remaining power supply module automatically compensates for the increased demand and continues to power the connected devices with no interruption.

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

Warning — *In some countries it may be necessary to supply the correct mains supply cord. Use only certified cords for the country of use.*

Notice — *Ultripower does not support the use of an UPS with simulated sine wave outputs.*

To connect the power cables to the Ultripower

1. Connect the female end of the provided AC power cable into the socket marked **A** on the Ultripower rear panel.

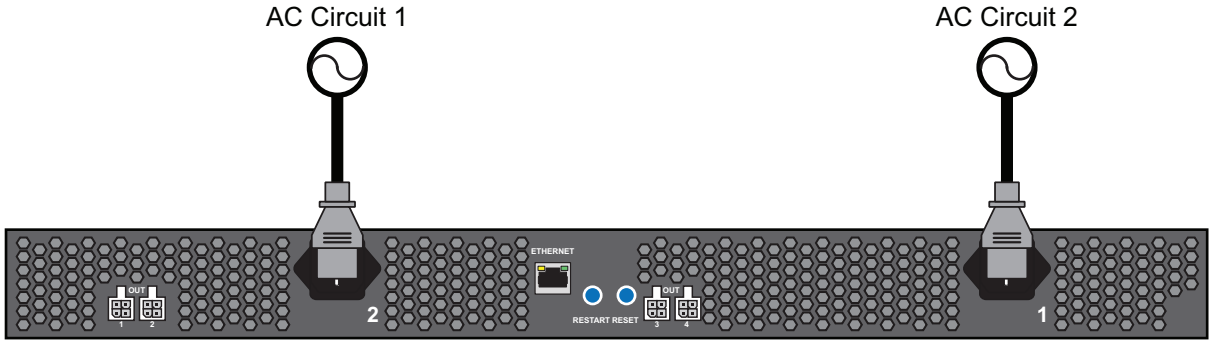


Figure 9 Ultripower — Power Connections

2. Connect the remaining power cable into the socket marked **B**.
3. Connect the supplied AC power cable into the power module.
4. Connect the supplied power cable's three-prong male connector to Mains Power.

Connecting to an ULTRIX-FR12

The ULTRIX-FR12 requires powering from multiple Ultripower units. These Ultripower units must be set to allow communication within a defined group. It is important that a Ultripower group be configured prior to DC cable connection between Ultripower units and the ULTRIX-FR12 chassis.

✶ The ULTRIX-FR12 requires a minimum of two Ultripower units. The remaining two power input groups are provided for high power configurations.

Notice — *The Ultripower units must be configured prior to connecting the power connections to the ULTRIX-FR12 chassis.*

Before You Begin

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

Warning — *In some countries it may be necessary to supply the correct mains supply cord. Use only certified cords for the country of use.*

Caution — *Risk of electrical shock. The ULTRIX-FR12 enclosure shall be connected to earth ground via protective earth stud and 12AWG conductor or larger.*

Notice — *An Ultripower connected to more than one PSU input group is not supported.*

Before proceeding, refer to the "***Important Regulatory and Safety Notices to Service Personnel***" document that was included with your ULTRIX-FR12 and Ultripower.

Workflow for Initial Power Up

When powering up the ULTRIX-FR12 for the first time, you will need to:

1. Use the Ultripower Manager to configure the Ultripower units into an Ultripower group.
2. Ensure each Ultripower state is set to 'Off' in DashBoard.
3. Connect the cables from each Ultripower unit to the ULTRIX-FR12.
4. Access the Ultripower Group via the Ultricore BCS DashBoard interface and enable power output.

Ultripower Manager

Notice — *The Ultripower units must be grouped prior to connecting the power connections to the ULTRIX-FR12 chassis.*

The ULTRIX-FR12 requires multiple Ultripower power supply units (with a minimum of two units). It is required that these power cycle together. The controlling Ultricore BCS has the Ultripower Manager feature that enables you to group up to 4 Ultripower units. When the Ultripower Group

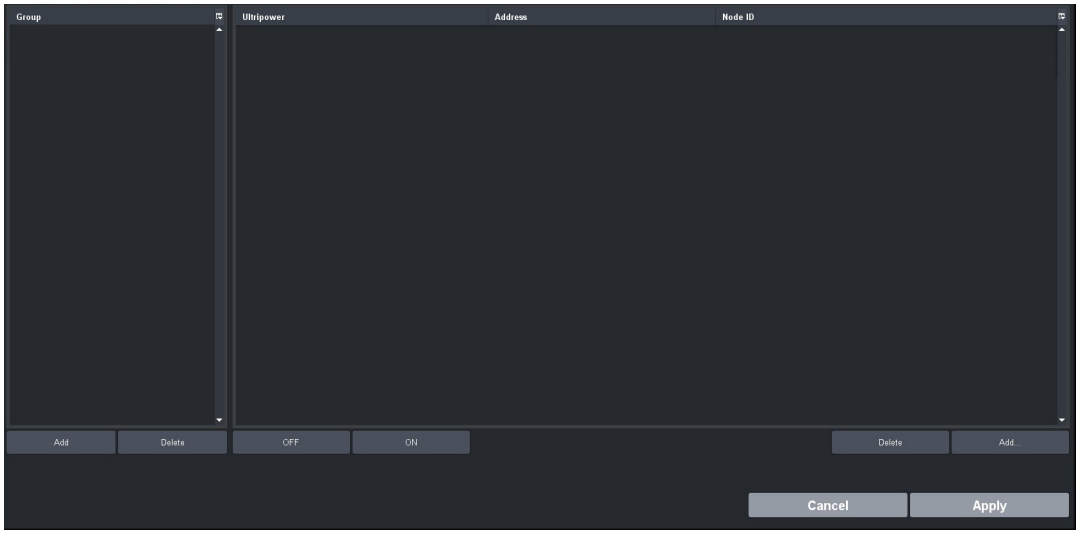
output state is changed, via the Ultripower Manager in the Ultricore BCS interface, the grouped units will follow suit.

To configure an Ultripower group

Notice — *Do not connect the Ultripower units to the ULTRIX-FR12 until the Ultripower units are configured and grouped.*

1. Connect each Ultripower unit to mains AC and your facility network.
2. Configure Ultripower network IP addresses via **DashBoard** > **Walkabout**. Refer to the ***Ultripower User Guide*** for details.
3. Change the names of the Ultripower units for easy identification in the DashBoard Tree View.
4. Add the Ultripower units to the DashBoard Tree View. Refer to "**Adding the Ultripower to the Tree View in DashBoard**".
5. Locate the **Ultricore BCS** node in the Tree View of DashBoard.
6. Expand the main **Ultricore BCS** node.
7. Expand the **Ultricore BCS** sub-node to display a list of sub-nodes in the Tree View.
8. Expand the **Devices** sub-node.
9. Double-click the **Ultripower Manager** sub-node.

   The Ultripower Manager interface displays.



10. Click **Add** under the **Group** pane.

    The **Group** pane displays a new entry "**`New Group`**".
11. To assign a unique identifier for the group, click "**`New Group`**" and edit as required.
12. Select the group from the list in the **Group** pane.
13. Click **Add** under the **Ultripower** pane.

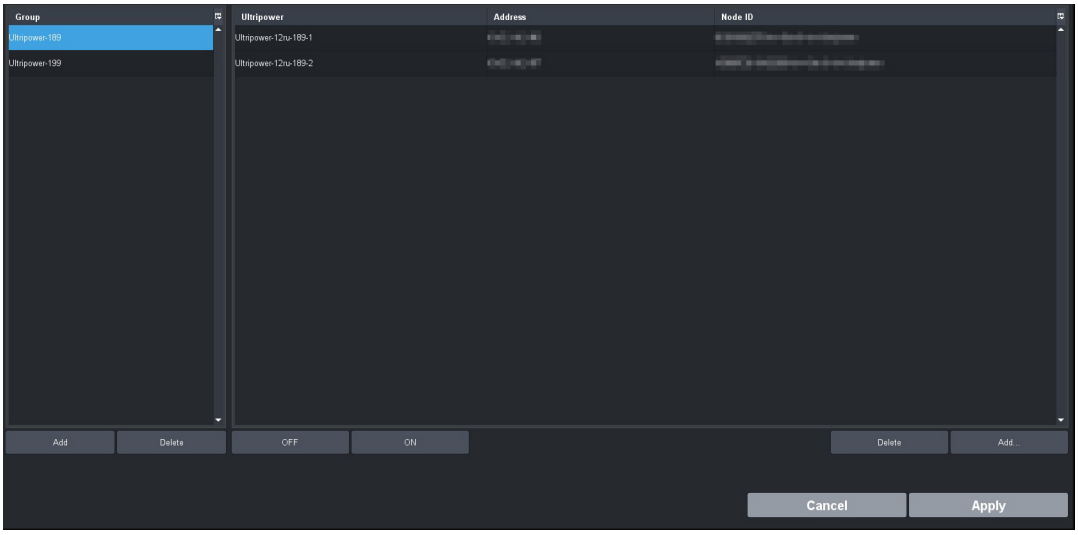
    The **Select Ultripower** dialog opens.
14. From the drop-down menu, expand the node for the Ultripower unit to include in this group.
15. Double-click the sub-node.

The top panel of the dialog updates to report the name, IP address, status, and number of power modules for the selected Ultripower. In the example below, the user selected an Ultripower that is reporting an error (yellow indicator).

16. Verify that the information is correct.
17. Click **OK**.

    The **Select Ultripower** dialog closes and the Ultripower pane updates to list the selected unit.
18. Repeat steps 13 to 17 to add the second Ultripower unit to the group.

✶ If you are setting up a redundant system or a high-powered system, you will need to include 4 Ultripower units to the group.



In the example above, the user created two Ultripower groups.

19. Click **OFF**.

Cabling the Ultripowers to the ULTRIX-FR12

Notice — *The **Output** state of the grouped Ultripowers must be toggled to **OFF** before connecting to the ULTRIX-FR12.*

There are 16 PSU sockets organized into 4 groups on the back of each ULTRIX-FR12. Each PSU group connects to one Ultripower Rack Mount Power Supply unit. The Ultripower is a 1RU 1200W power supply specifically designed for the Ultrix series routers. Powering an Ultripower from individual power supplies is not supported.

Verify the Output State of each Ultripower

Before connecting the ULTRIX-FR12 to the Ultripowers, you must first verify that the Output state of each Ultripower is set to Off. Once all Ultripowers are connected to the ULTRIX-FR12, you must toggle the Ultripower Group to ON.

To verify that the Ultripower group state is toggled to Off

1. Locate the **Ultricore BCS** node in the Tree View of DashBoard.
2. Expand the main **Ultricore BCS** node.
3. Expand the **Ultricore BCS** sub-node to display a list of sub-nodes in the Tree View.
4. Expand the **Devices** sub-node.
5. Double-click the **Ultripower Manager** sub-node.
6. From the **Group** list, select the required Ultripower group.
7. Click **OFF**.
8. Verify that each Ultripower is the same state (**Off**) on the Control tab.

Cabling the Ultripowers to the ULTRIX-FR12

For redundancy, each Ultripower may be fitted with an additional power supply module (ULTRIPOWER-PS).

To cable the first and second Ultripowers to the ULTRIX-FR12

Notice — *Ensure that the power cable end with the ferrite bead connects to the Ultripower port.*

1. To connect the first Ultripower to the ULTRIX-FR12:
   a. Connect the ends of four power cables to the primary Ultripower rear panel **OUT** sockets.
   b. Connect the free ends of the same power cables to the ULTRIX-FR12 rear panel.
2. To connect the second Ultripower to the ULTRIX-FR12:
   a. Connect the ends of four power cables to the second Ultripower rear panel **OUT** sockets.
   b. Connect the free ends of the same power cables to the ULTRIX-FR12 rear panel.

To cable additional Ultripowers (optional)

✶ This procedure is only required for high power configurations or for further isolated power redundancy.

1. To connect a third Ultripower to the ULTRIX-FR12:
   a. Connect the ends of four power cables to the third Ultripower rear panel **OUT** sockets.
   b. Connect the free ends of the same power cables to the ULTRIX-FR12 rear panel.
2. To connect a fourth Ultripower to the ULTRIX-FR12:
   a. Connect the ends of four power cables to the fourth Ultripower rear panel **OUT** sockets.
   b. Connect the free ends of the same power cables to the ULTRIX-FR12 rear panel.

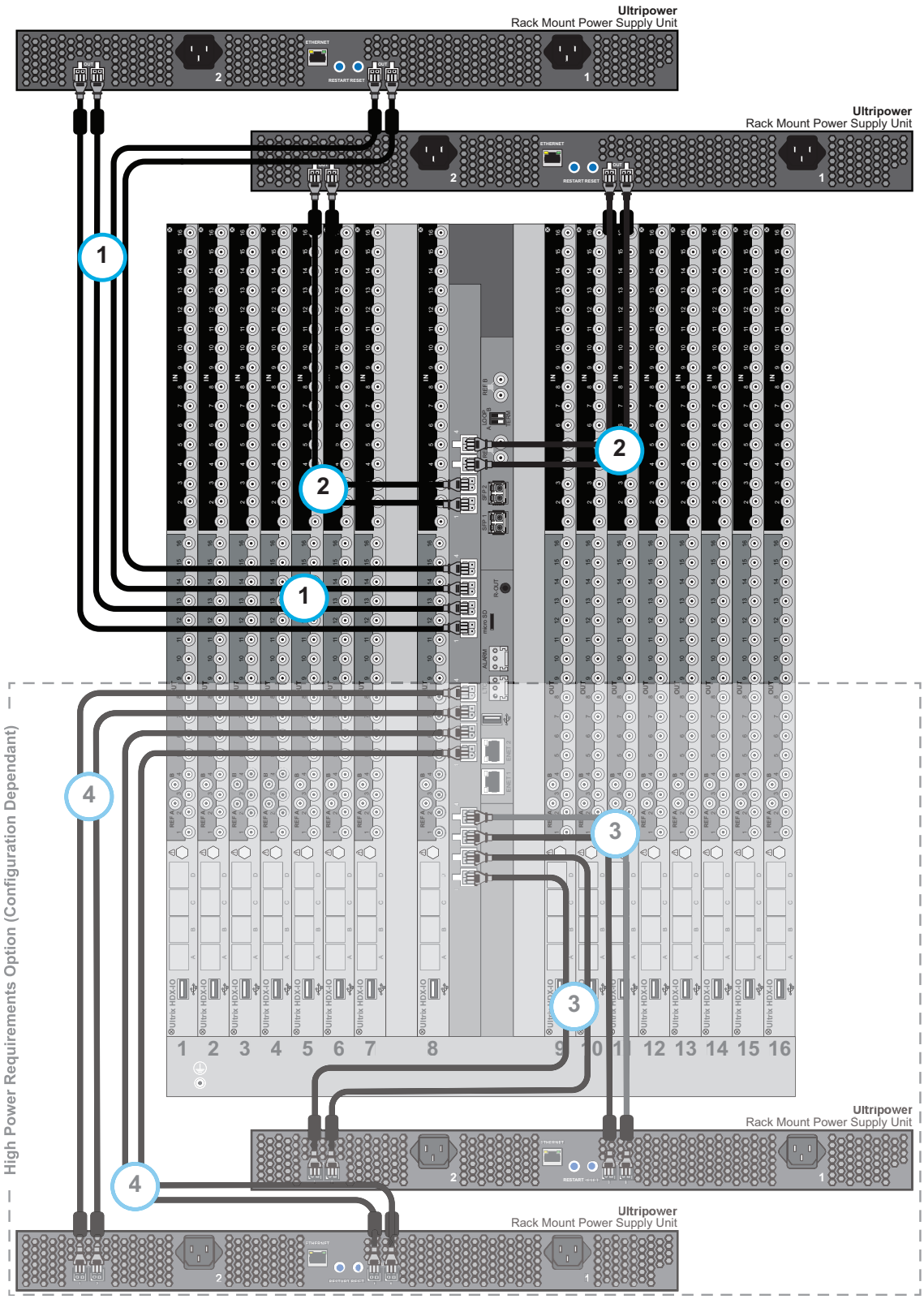


Figure 10 Ultripower — Power Connections

Powering on the ULTRIX-FR12 via DashBoard

Caution — *Before setting an Ultripower Group to ON, ensure its Ultripower PSU average power output is below 5W.*

Notice — *The Ultripower does not have a physical power switch.*

The Ultripower Group is powered on via the controlling Ultricore BCS interface.

To toggle the Ultripower Group to ON

1. Locate the **Ultricore BCS** node in the Tree View of DashBoard.
2. Expand the main **Ultricore BCS** node.
3. Expand the **Ultricore BCS** sub-node to display a list of sub-nodes in the Tree View.
4. Expand the **Devices** sub-node.
5. Double-click the **Ultripower Manager** sub-node.
6. Click **ON**.

✶ Click **OFF** to power down the Ultripower group.

Using DashBoard

This chapter outlines how to assign an IP address to the Ultripower, and access the interfaces and status fields displayed in the Ultripower DashBoard interface.

For More Information on...

- configuring the Ultripowers when connected to an ULTRIX-FR12, refer to the ***ULTRIX-FR12 Quick Start Guide***.

Launching DashBoard

DashBoard must be 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 you are running DashBoard software version 9.4 or higher.
2. Launch DashBoard by double-clicking its icon on your computer desktop.

Using Walkabout to Assign the Initial IP Address to the Ultripower

Once the Ultripower is physically installed and cabled to your facility network, you will need to assign it an initial static IP Address to enable DashBoard to locate it on your network. Establishing an initial IP Address enables DashBoard to communicate with the Ultripower and update the Basic Tree View with the Ultripower nodes.

To assign the initial static IP address for the Ultripower

1. Launch DashBoard.
2. From the DashBoard client main toolbar, select **File** > **Show Walkabout**.

   The DashBoard window displays the **Walkabout** table.
3. Click **Refresh**, located at the bottom of the Walkabout tab, to ensure the list in the Walkabout interface is current.
4. In the **Walkabout** table, find the entry for the Ultripower you want to configure.
5. Use the **Name** field to assign a unique identifier to the Ultripower. This will be the name displayed in the Tree View of DashBoard.

✶ After you edit a cell in the **Walkabout** table, the **Connection/Link Quality** value for the device reports **1%**. It is recommended to wait approximately 1 minute, then click **Refresh** to apply the new settings.

6. Use the **Address** field to specify the IP Address supplied by your IT Department for this device.
7. Ensure the **Netmask** field is set to match your network requirements.
8. Use the **Gateway** field to specify the IP Address for connection outside of the local area network (LAN).
9. Click **Reboot** in the row of the **Walkabout** table for the Ultripower.

✶ After initial setup, you can edit the network settings of the Ultripower using the Network tab options in DashBoard.

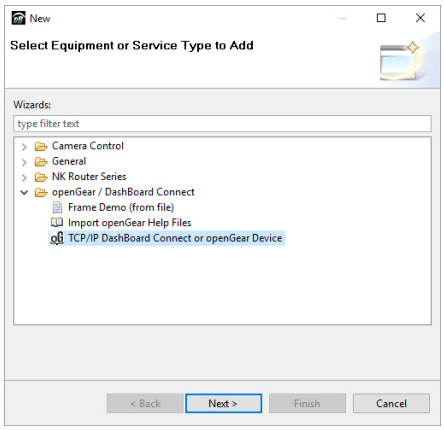
Adding the Ultripower to the Tree View in DashBoard

Once you have assigned the Ultripower a static IP Address, you can then manually add it to the Tree View. Manually adding the Ultripower displays its node in the Tree View, granting you access to the interfaces described used to monitor the status of the power supplies.

To manually add the Ultripower to the Tree View in DashBoard

1. In the **Basic Tree View** toolbar of DashBoard, click .

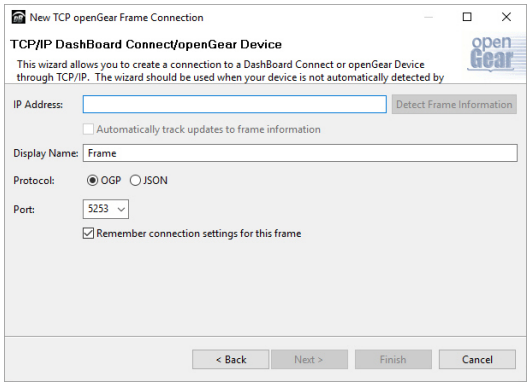
   The **Select Equipment or Service Type to Add** dialog opens.



2. Expand the **openGear/DashBoard Connect** node.
3. Select **TCP/IP DashBoard Connect or openGear Device**.
4. Click **Next >**.

   The **TCP/IP DashBoard Connect/openGear Device** dialog opens.

5. Select the **OGP** radio button as the **Protocol**.



6. Enter the IP Address for the router in the **IP Address** field that you assigned in the section "**To assign the initial static IP address for the Ultripower**".
7. Perform one of the following steps:
   - In the text fields provided, enter the display name for the Ultripower, and port of the panel you wish to add.
   - Click **Detect Frame Information** to automatically retrieve the connection details.
8. Click **Finish**.

   The Ultripower displays in the **Tree View**.

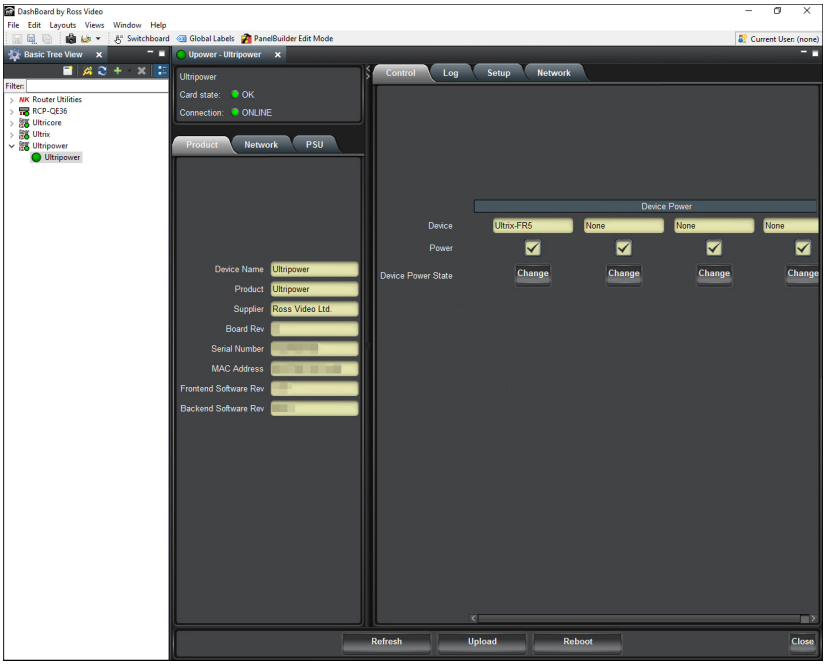
Accessing the Ultripower Interfaces in DashBoard

The interface is accessed by expanding the Ultripower node in the DashBoard Tree View and selecting the sub-node. The interface is divided vertically to show status and frame information on the left, and configuration options on the right.

To access the Database interfaces in DashBoard

1. Locate the Ultripower in the Tree View of DashBoard.
2. Expand the Ultripower node to display the frame in the Tree View.
3. Double-click the Ultripower sub-node to display its interface in the right-side of the DashBoard window.
4. Select a tab to displays its contents in the DashBoard window.

   In the example below, the **Product** and **Setup** tabs are selected.



For More Information on...

- the Status tabs, refer to "**Monitoring via DashBoard**".

Configuration

This chapter outlines how to grant a DashBoard client access to the Ultripower, configure the PSU outputs, and link multiple Ultripowers into a primary-client configuration.

Restricting Access to the Ultripower

The Network tab provides an option to specify which DashBoard clients in your facility can access the Ultripower.

To add a DashBoard client to the Ultripower DB Whitelist

1. Display the Ultripower interface in DashBoard as outlined in "**To access the Database interfaces in DashBoard**".
2. Select the **Network** tab.
3. Use the **DB Whitelist** area to specify up to four DashBoard clients that are allowed to communicate with the Ultripower.
4. Click **Apply**.

Configuring the PSU OUT Ports

The four **PSU OUT** ports on the rear panel may be treated individually or grouped together depending on the physical cabling to Ultrix routers. Each **PSU OUT** port may be assigned to an external device using a user-defined label. For example, if you wired an ULTRIX-FR2 router to PSU OUT 1 and 2, you would enter a device label (e.g. Ultrix-FR2) in one of the device labels fields, then using the drop-down, select boxes in the Connected Device area, assign Ultrix-FR2 to OUT 1 and OUT 2.

For More Information on...

- the physical **PSU OUT** port locations, refer to "**Rear Panel Overview**".

To assign a PSU OUT port to a device

1. Display the Ultripower interface in DashBoard as outlined in "**To access the Database interfaces in DashBoard**".
2. Select the **Setup** tab.
3. User the **Device Labels** fields to assign a unique identifier for up to four devices.

✶ Ultripower does not support Unicode characters.

   This label is used in the Connected Device menus to identify each external device connected to the Ultripower.

4. Use the **Connected Device** menu to assign a device label to a physical Output Port on the Ultripower chassis.

✶ Some external devices require multiple ports (e.g. ULTRIX-FR5 requires four ports). Refer to the user guide for your external device to confirm the number of required connections to the Ultripower.

5. Click **Apply** in the **Connected Device** area.

Enabling Power to an ULTRIX-FR1, ULTRIX-FR2, or ULTRIX-FR5

Once the **PSU OUT** ports are assigned to external devices, you can enable power to those devices using the options in the Control tab.

To enable power to an external device

1. Locate the Ultripower in the Tree View of DashBoard.
2. Expand the Ultripower node.
3. Double-click the Ultripower sub-node.
4. Select the **Control** tab.

   The current power state is reported for each defined device.
5. Select the **Power** box for the device you wish to enable power for.
6. Click **Change** below the box you selected in step 5.

   The **Confirm** dialog opens.
7. Click **Yes**.

   The **Confirm** dialog closes and power is enabled to that device.

Monitoring the Ultripower

You can monitor the Ultripower from the front panel LEDs, the rear panel LEDs, and via the read-only fields in DashBoard. Each location reports the status on a specific feature of the Ultripower.

Monitoring via the Front Panel LEDs

The Ultripower front panel includes LEDs for each power supply to indicate if the unit is operating normally and whether the power supplies are functional.

For More Information on...

- the location of the LEDs on the front panel, refer to "**Front Panel Overview**".

Power Supply Module LEDs

There are three status LEDs per PSU module to indicate the operation status of Ultripower. **Table 1** outlines the LEDs available for each power supply module.

Table 1 Front Panel — Power Supply Module LEDs

LED	Status	Description
DC	On	The module is supplying DC voltage to the system.
	Off	The module is not supplying DC voltage to the system.
AC	On	A valid AC voltage supply is connected to the rear panel.
	Off	No AC voltage is present.
FAN	On	The two module fans are operating correctly.
	Off	One or both module fans are not operating correctly.

Monitoring via the Rear Panel LEDs

The Ultripower rear panel includes LEDs on the ETHERNET RJ45 port. (**Figure 11**)

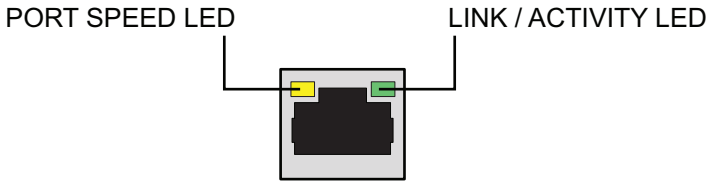


Figure 11 ETHERNET Port LEDs

Table 2 Rear Panel — ETHERNET LEDs

LED	Status	Description
LINK /ACTIVITY	Green	When lit solid green, this LED indicates an invalid link is detected on the RJ45 port or an absence of communication.
	Flashing Green	When flashing green, this LED indicates communication activity is occurring on the RJ45 port.
	Off	When unlit, this LED indicates an invalid link is detected on the RJ45 port or an absence of communication.
PORT SPEED	Yellow	When lit yellow, this LED indicates a 100Base-T Ethernet connection.
	Off	When unlit, this LED indicates a 10Base-T Ethernet connection.

Monitoring via DashBoard

The read-only fields in DashBoard enable you to monitor the PSU slots in the chassis.

For More Information on...

- the status tabs and fields in DashBoard, refer to "**Status Tabs Overview**".
- the Log tab entires, refer to **Table 7**.

Monitoring the PSU Slots

If the **Alarm on missing PSU** option is enabled, the **PSU** tab in DashBoard reports the status of each slot in the chassis. Refer to "**PSU Tab**" for a list of possible messages in these fields.

To enable monitoring of the PSU slots

1. Locate the Ultripower in the Tree View of DashBoard.
2. Expand the **Ultripower** node.
3. Double-click the **Ultripower** sub-node.

   The Ultripower tabs display in the right-half of the DashBoard window.
4. Select the **Setup** tab.
5. Select the **Alarm on missing PSU** check box.

To view the status of a PSU slot via DashBoard

1. Locate the Ultripower in the Tree View of DashBoard.
2. Expand the **Ultripower** node.
3. Double-click the **Ultripower** sub-node.
4. Select the **PSU** tab.

   The **PSU Slot** area displays a read-only field for each slot in the Ultripower chassis.

Monitoring the Ultripower PSU OUT Ports

You can use DashBoard to monitor the overall status of each **PSU OUT** port. Refer to "**PSU Tab**" for a list of possible messages in these fields.

To view the status of a PSU OUT port via DashBoard

1. Locate the Ultripower in the Tree View of DashBoard.
2. Expand the **Ultripower** node.
3. Double-click the **Ultripower** sub-node.
4. Select the **PSU** tab.

   The **Outputs** area displays a read-only field for each PSU OUT port on the Ultripower rear panel.

DashBoard Menus Overview

The DashBoard client software enables you to configure and monitor the Ultripower. Using the tabs provided via the DashBoard client software, you can:

- Configure the network settings for your Ultripower
- Assign physical PSU OUT ports to external devices
- Monitor the status of each PSU OUT port

Ultripower groups the configuration and monitoring features two areas in the DashBoard client window: Status (tabs in the left pane of the window), and Configuration (tabs in the right pane of the window). The following sections outline the fields, menus, and parameters displayed in each area.

Status Tabs Overview

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

Product Tab

Table 3 summarizes the read-only information displayed in the **Product** tab.

Table 3 Product Tab

Item	Parameters	Description
Device Name	#	Indicates the name assigned to the device in the Setup tab
Product	Ultripower	Indicates the model name of this unit
Supplier	Ross Video	Indicates the supplier of this unit
Board Rev	#	Indicates the hardware version of the Ultripower control module
Serial Number	#	Indicates the serial number assigned to this unit
MAC Address	#	Media Access Control (MAC) address for ethernet connectivity
Frontend Software Rev	#	Read-only information used by Ross Technical Support
Backend Software Rev	#	

Network Tab

Table 4 summarizes the read-only information displayed in the **Network** status tab.

Table 4 Network Tab

Item	Parameters	Description
IP Address	#.#.#.#	Displays the current Ethernet TCP/IP address assigned to this unit
Subnet Mask	#.#.#.#	Displays the current Ethernet subnet mask assigned to this unit
Default Gateway	#.#.#.#	Displays the current gateway for communication outside of the local area network (LAN)
Active Connections	#	Indicates the total number of active DashBoard client connections to this unit

PSU Tab

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

Table 5 PSU Tab

Item	Parameters	Description
PSU		
Slot # Status	OK (Green)	Ultripower is operating within specifications
	Not Installed (Yellow)	The specific PSU slot is not populated
	Input Voltage Fault (Red)	Ultripower is not powered
	Temperature Fault (Red)	The PSU is not within the specified temperature range
	Output Voltage Fault (Red)	The PSU DC output is out of range
	Fan Fault (Red)	The PSU has a blocked or faulty fan
	Fault (Red)	The PSU has an undefined fault
Outputs		
Out # Status	OK (Green)	The Ultripower output is operational within the specified limits
	Over Current (Red)	Over current fault detected. Output protection enabled.
	Under Voltage (Red)	The output port is under voltage
	Fault (Red)	The output port has another undefined fault
Power		
Avg Output (watts)	#	Reports the overall power consumption (+/- 5%)

Configuration Tabs Overview

The Configuration options are arranged into three tabs: Control, Log, Setup, and Network.

Control Tab

The **Control** tab allows for applying or disconnecting power to external devices. **Table 8** summarizes the options in the **Control** tab.

Table 6 Control Tab

Item	Parameters	Description
Device	<name>	Displays the device label as defined in the Setup tab. The default is Ultrix-FR5 and is assigned to all output ports.
Power	Selected	The power state for the external device is enabled
	Cleared	The power state for the external device is disabled
Device Power State	Change	Toggles the device power state

Log Tab

The read-only information displayed in the Logs tab is used by Ross Technical Support for diagnostic and troubleshooting purposes. **Table 8** summarizes the possible messages in the **Log** tab.

✶ The roll-over for entries is approximately 50 days.

Table 7 Log Tab

Message	Description
Out*x* overcurrent[a]	the device connected to output port x is drawing too much current
Out*x* undervoltage	the output port x is under voltage
Out*x* fault	the output port x has another undefined fault
Slot*y* uninstalled[b]	the module not present
Slot*y* vin fault	the power module AC input is out of range
Slot*y* fan fault	the power module has a blocked or faulty fan
Slot*y* vout fault	the power module DC output is out of range
Slot*y* temp fault	the power module is not within the normal temperature range
Slot*y* fault	undefined error

a. Where *x* is output 1 to 4.
b. Where *y* is power module 1 or 2.

Setup Tab

Table 8 summarizes the options in the **Setup** tab.

Table 8 Setup Tab

Item	Parameters	Description
Device Labels		
Device Labels	<text>	User-defined identifier for the device to be connected to this Ultripower
Connected Device		
Output Port #		Assigns a device to the specified OUT port on the Ultripower
Device Assignments	Apply	Apply any changes to the port assignment This may change device power state
Ultripower Linking		
IP Address	#	Specifies the IP address of up to three Ultripower peer units
Ultrix Connection		
Ultrix Name	<text>	Specifies the name/label of the connected Ultrix
Ultrix IP Address	#	Specifies the IP Address of the Ultrix that is connected to this Ultripower
Apply	Applies any changes made to the Ultrix Connection settings	
Alarm		
Alarm on Missing PSU	Selected	Ultripower will alarm if only one PSU module is present
	Cleared	Ultripower will not alarm if there is only PSU module present
Factory Settings	Restore	The following occurs: • factory settings will be restored • one device label assigned to all Output Ports • power is enabled

Network Tab

Table 9 summarizes the options in the **Network** tab.

Table 9 Network Tab

Item	Parameters	Description
Device Name	#	Assigns a unique name to the device. This name also displays in the DashBoard tree view. The default is Ultripower.
IP Address	#.#.#.#	Specifies the IP address for the Ultripower. The default is 192.168.20.123.
Subnet Mask	#.#.#.#	Specifies the subnet mask for the Ultripower. The default is 255.255.255.0.

Table 9 Network Tab

Item	Parameters	Description
Default Gateway	#.#.#.#	Specifies the gateway for communication outside of the local area network (LAN). The default is 192.168.20.1.
DB Whitelist		
IP Address	#	Specifies the IP Address for a DashBoard client granted access to the Ultripower
Apply		Updates the IP Address, Subnet Mask, Default Gateway, and DB Whitelist fields with current the settings
Cancel		Ignores any unsaved changes made to the Network tab

Maintenance

This chapter provides additional information for the ongoing maintenance of your Ultripower.

Installing a PSU Module

The PSU Module is accessed via the front of the Ultripower chassis and requires that you loosen the two thumb-screws securing the module to the chassis before sliding the module out of the chassis.

ESD Susceptibility — *Static discharge can cause serious damage to sensitive semiconductor devices. Avoid handling circuit boards in high static environments such as carpeted areas and when synthetic fiber clothing is worn. Always exercise proper grounding precautions when working on circuit boards and related equipment.*

Removing a Blank Module Plate from the Ultripower Chassis

If you are not replacing a PSU Module, you will need to first remove the blank module plate from the required slot. You will need a #1 Phillips screwdriver to remove the two screws. The following procedure is applicable to any PSU Module slot.

To remove a blank plate from the chassis

1. Locate the blank module plate from the Ultripower front panel.
2. Use a #1 Phillips screwdriver to loosen the two screws that affix the blank module plate to the chassis.
3. Remove the plate from the chassis slot and set it aside.
4. Continue to the procedure "**Installing a new PSU Module into the Ultripower Chassis**".

Removing the PSU Module from the Ultripower Chassis

Each PSU Module is accessed via the front of the Ultripower chassis and requires that you loosen the two retaining bolts securing the module to the chassis before sliding the module out of the chassis. The following procedure is applicable to any PSU Module slot.

To remove a failed PSU Module from the chassis

1. Locate the failed PSU module from the Ultripower front panel.
2. Disengage the two retaining bolts that affix the module to the chassis. Note that the bolts are not removable. Refer to **Figure 12** for the bolt locations.

Caution — *Ensure the Retaining Bolts are fully unfastened before attempting to remove the PSU module from the chassis. While the bolts are not removable and serve as a threaded insertion and extraction tool. It should be free to move in and out a few millimeters in its socket once unfastened.*

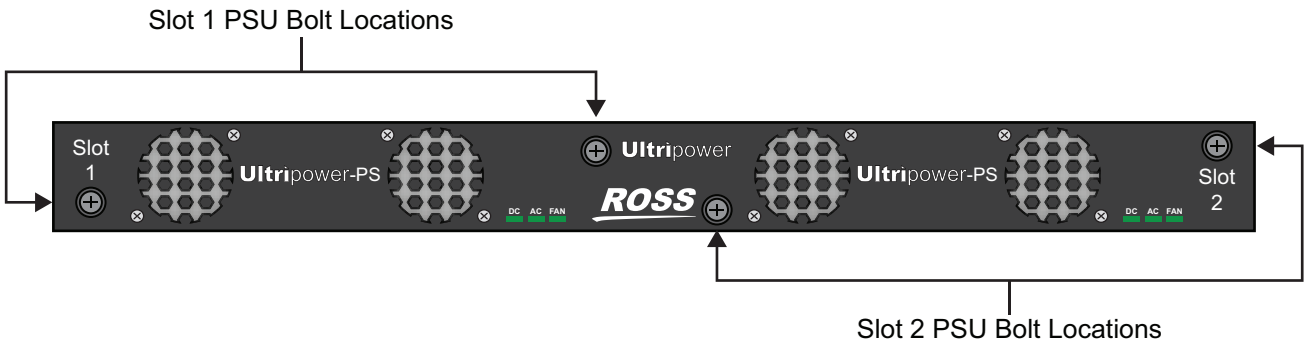


Figure 12 Ultripower Front Panel — Location of Screws on the PSU Modules

3. Gently pull the PSU module towards you to unseat it from the backplane and to disengage the PSU module from the chassis.
4. Pull the PSU module free from the chassis and set it on a static-free surface.

Installing a new PSU Module into the Ultripower Chassis

Once you have removed the failed PSU module or the blank module plate from the Ultripower chassis, you can install the new PSU module into the unpopulated slot. The following procedure is applicable to any PSU Module slot.

To install a new PSU module into the chassis

1. Align the new PSU module into the slot inside the chassis.
2. Gently slide the new PSU module into the slot until the module is fully seated. You will feel the back connector of the module engaged with its connector inside the chassis.
3. Fully tighten both retaining bolts. These bolts secure the PSU module to the chassis from the interior, ensuring proper contacts between the PSU module and the Ultripower backplane.

Caution — *Tightening the bolts separately may damage the PSU module. Ensure the bolts are equally tightened and at the same time.*

Technical Specifications

This chapter provides technical information for the Ultripower. Note that specifications are subject to change without notice.

Physical Dimensions

Table 10 Physical Dimensions

Item		Specifications
Width (not including rack mounting ears)		17.5” (444.5mm)
Depth (chassis only)		8.1” (206mm)
Height		1.7” (43.2mm)
Weight (approx)	Chassis + 1PSU	3.24kg (7.14lb)
	1 PSU module only	1.59kg (3.51lb)

General Specifications

✶ The C14 AC input connector is limited to 10amps. Therefore Ultripower is de-rated when powered from a source less than 120VAC.

Notice — *Ultripower does not support the use of an UPS with simulated sine wave outputs.*

Table 11 General Specifications

Item	Specifications
Inputs	90-240VAC
Positive Output	15VDC @ 300W per output connector
Maximum Total Output	1200W
On-board Cooling	4 x dynamically controlled fans

Communications

Table 12 Communications

Item	Specifications
Type	10/100Mbps Ethernet
Defaults	
Address (IPv4[a])	192.168.20.123
DashBoard	TCP port 5253
Walkabout	UDP port 5555
Ultripower Link	UDP port 56778

a. IPv6 is not supported.

Environmental

Table 13 Environmental Specifications

Item	Specifications
Max. Ambient Temperature Range	0°C to 40°C (32°F to 104°F)
Humidity	<70% (non-condensing)