

Raritan PXE

Quick Setup Guide

Thank you for purchasing the Raritan PXE intelligent power distribution unit (PDU). The intended use of the Raritan PXE is distribution of power to information technology equipment such as computers and communication equipment where such equipment is typically mounted in an equipment rack located in an information technology equipment room.

This Quick Setup Guide explains how to install and configure the Raritan PXE. For additional information on any aspect of Raritan PXE, see the Raritan PXE User Guide, which can be downloaded from the Firmware and Documentation section (<http://www.raritan.com/support/firmware-and-documentation/>) of Raritan's website. OR you can access the product's online help in the Product Online Help section (<http://www.raritan.com/support/online-help/>). For more detailed information on this release, see the latest release notes, also available from the Firmware and Documentation section.

Unpacking the Raritan PXE

The Raritan PXE comes in Zero U and 1U sizes. The following describes the equipment shipped with each size. Unpack the components. If any pieces are missing or damaged, report this to Raritan Technical Support at tech@raritan.com.

Zero U Size

- The Raritan PXE device
- Mounting screws, brackets and/or buttons
- Cable retention clips for outlets (optional)

1U Size

- The Raritan PXE device
- Mounting screws, brackets and/or buttons

Before You Begin

1. Prepare the installation site. Make sure the installation area is clean and not exposed to extreme temperatures or humidity. Allow sufficient space around the Raritan PXE for cabling and outlet connections. Safety instructions are provided in the Raritan PXE User Guide.
2. Fill out the Equipment Setup Worksheet found in the Raritan PXE User Guide. Record the model, serial number, and use of each IT device connected to the PDU's power outlets.

Mounting the Raritan PXE

Use one of the mounting methods to install your Raritan PXE device as appropriate.

Circuit Breaker Orientation Limitation

Usually a PDU can be mounted in any orientation. However, when mounting a PDU with circuit breakers, you must obey these rules:

- Circuit breakers CANNOT face down. For example, do not horizontally mount a Zero U PDU with circuit breakers on ceiling.
- If a rack is subject to shock in environments such as boats or airplanes, the PDU CANNOT be mounted upside down. If installed upside down, shock stress reduces the trip point by 10%.

Note: If normally the line cord is down, upside down means the line cord is up.

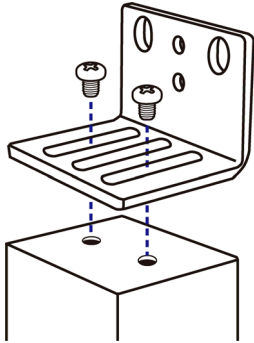
Mounting 1U Models Using L-Brackets and Buttons

This section describes how to mount a 1U Raritan PXE device using L-brackets and two buttons.

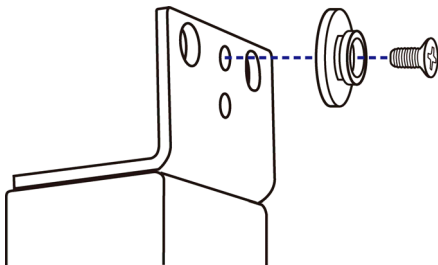


► **To mount 1U models using L-brackets and two buttons:**

1. Align the two edge slots of the L-bracket with the two screw holes on the top of the Raritan PXE device.
2. Screw the L-bracket to the device and ensure the bracket is fastened securely.



3. Repeat Steps 1 to 2 to screw another L-bracket to the bottom of the device.
4. After both L-brackets are installed on the device, you can choose either of the following ways to mount the device in the rack.
 - Using rack screws, fasten the device to the rack through two identical holes near the edge of each L-bracket.
 - Mount the device by screwing a mounting button in the back center of each L-bracket and then having both buttons engage the mounting holes in the rack. The recommended torque for the button is 1.96 N·m (20 kgf·cm).



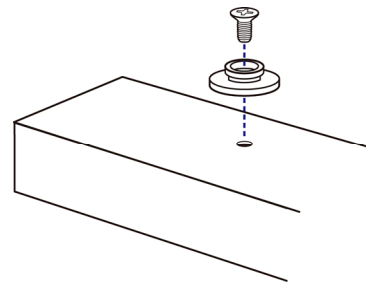
Mounting Zero U Models Using Two Rear Buttons

The following describes how to mount a PDU using two buttons only. If your PDU has circuit breakers implemented, read **Circuit Breaker Orientation Limitation** (on page 1) before mounting it.



► **To mount Zero U models using two buttons:**

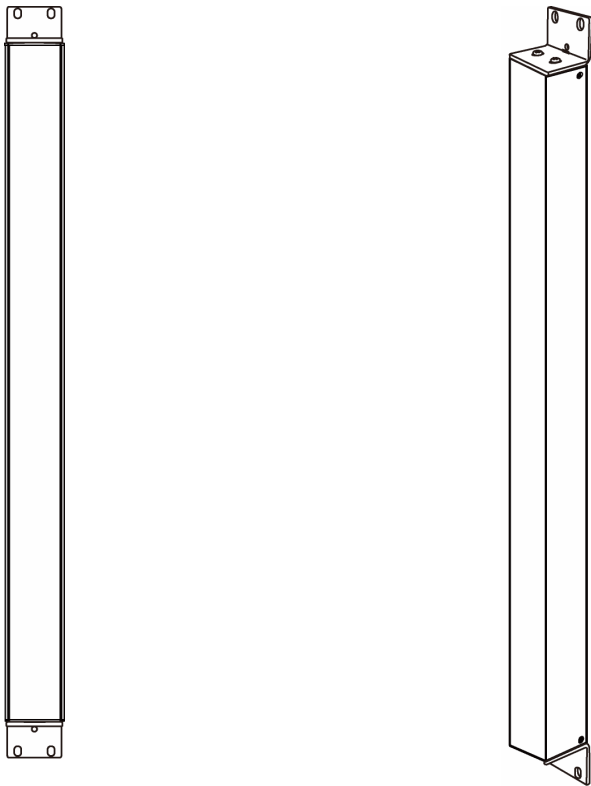
1. Turn to the rear of the PDU.
2. Locate two screw holes on the rear panel: one near the bottom and the other near the top (the side of cable gland).
3. Screw a button in the screw hole near the bottom. The recommended torque for the button is 1.96 N·m (20 kgf·cm).



4. Screw a button in the screw hole near the top. The recommended torque for the button is 1.96 N·m (20 kgf·cm).
5. Ensure that the two buttons can engage their mounting holes in the rack or cabinet simultaneously.
6. Press the Raritan PXE device forward, pushing the mounting buttons through the mounting holes, then letting the device drop slightly. This secures the Raritan PXE device in place and completes the installation.

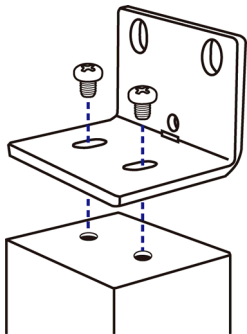
Mounting Zero U Models Using L-Brackets and Buttons

This section describes how to mount a PDU using L-brackets and two buttons. If your PDU has circuit breakers implemented, read **Circuit Breaker Orientation Limitation** (on page 1) before mounting it.



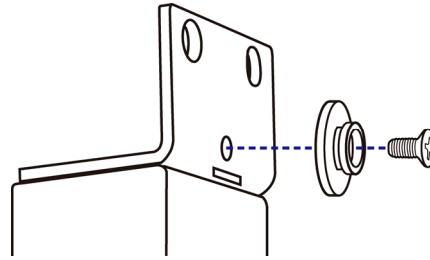
► To mount Zero U models using L-brackets and two buttons:

1. Align the two central holes of the L-bracket with the two screw holes on the top of the Raritan PXE device.
2. Screw the L-bracket to the device and ensure the bracket is fastened securely.



3. Repeat Steps 1 to 2 to screw another L-bracket to the bottom of the device.

4. After both L-brackets are installed on the device, you can choose either of the following ways to mount the device in the rack.
 - Using rack screws, fasten the device to the rack through two identical holes near the edge of each L-bracket.
 - Mount the device by screwing a mounting button in the back center of each L-bracket and then having both buttons engage the mounting holes in the rack. The recommended torque for the button is 1.96 N·m (20 kgf·cm).



Connecting the Raritan PXE to a Power Source

The distance between a PDU and its power source must be SHORTER than the PDU's line cord to avoid stretching out the cord. A locking connector used at the power source is highly recommended for a secure connection.

► To connect a PDU to the power source:

1. Verify that all circuit breakers on the Raritan PXE device are set to ON. If not, turn them ON.
For a PDU with fuses, ensure that all fuses are inserted and seated properly. If there are any fuse covers, ensure that they are closed.

Note: Not all Raritan PXE devices have overcurrent protection mechanisms.

2. Connect each Raritan PXE device to an appropriately rated branch circuit. See the label or nameplate affixed to your Raritan PXE device for appropriate input ratings or range of ratings.
3. When a Raritan PXE device powers up, it proceeds with the power-on self test and software loading for a few moments.
4. When the software has completed loading, the LED display illuminates and shows numeric digits.

Connecting the Raritan PXE to a Computer

Now establish a USB connection between the Raritan PXE and a computer for initial configuration.

► To make a USB connection:

1. Connect one end of a regular USB cable to the USB-B port on the Raritan PXE device.
2. Connect the other end of the USB cable to the USB-A port on the computer.

Installing the USB-to-Serial Driver

The Raritan PXE device can enumerate a USB-to-serial converter after being connected to a computer over a USB connection. A USB-to-serial driver named "Dominion Serial Console" is required for Microsoft® Windows® operating systems. That driver (`dominion-serial.inf` and `dominion-serial-setup.exe`) can be downloaded from the Raritan website's **Firmware and Documentation section** (<http://www.raritan.com/support/firmware-and-documentation/>).

► To install the driver in Windows® Vista and 7:

1. If the Raritan PXE has been connected to the computer over a USB connection, disconnect that USB cable from the computer.
2. Run `dominion-serial-setup.exe`. A Dominion Serial Console Driver Setup Wizard appears.
3. Click Install to install the driver.
4. Click Finish when the installation is complete.
5. Re-connect the Raritan PXE to the computer via a USB cable. The driver is automatically installed.

► To install the driver in Windows® XP:

1. If the Raritan PXE has been connected to the computer over a USB connection, disconnect that USB cable from the computer.
2. Check if the file "`usbser.sys`" is available in `C:\Windows\ServicePackFiles\i386`. If not, extract it from the Windows installation CD disc, and copy it to the same directory where the USB-to-serial driver is stored.
 - On a CD disc with SP3 included, it is extracted from `i386\SP3.CAB`.
 - On a CD disc with SP2 included, it is extracted from `i386\SP2.CAB`.
 - On a CD without any SP, it is extracted from `i386\DRIVER.CAB`.
3. Re-connect the Raritan PXE to the computer via a USB cable.
4. The computer detects the new device and the "Found New Hardware Wizard" dialog appears. If this dialog does not appear, choose Control Panel > System > Hardware > Device Manager, right-click the Dominion Serial Console, and choose Update Driver.
5. Select "Install from a list or specific location," and manually specify the location where the driver is stored.
6. If it asks for the file "`usbser.sys`," specify the location where that file exists.
7. The installation is now complete.

► In Linux:

No additional drivers are required, but you must provide the name of the tty device, which can be found in the output of the "`dmesg`" after connecting the Raritan PXE device to the

computer. Usually the tty device is "`/dev/ttyACM#`" or "`/dev/ttyUSB#`," where # is an integer number.

For example, if you are using the kermit terminal program, and the tty device is "`/dev/ttyACM0`," perform the following commands:

```
> set line /dev/ttyACM0
```

```
> connect
```

Connecting the Raritan PXE to Your Network

To use the web interface to administer the Raritan PXE, you must connect the Raritan PXE device to your local area network (LAN).

► To make a wired connection:

1. Connect a standard Category 5e/6 UTP cable to the ETHERNET port on the Raritan PXE device.
2. Connect the other end of the cable to your LAN.

Configuring the Raritan PXE

1. Go to the computer that you connected to the Raritan PXE device and open a communications program such as HyperTerminal or PuTTY.
2. Select the appropriate COM port, and make sure the port settings are configured as follows:
 - Bits per second = 115200 (115.2Kbps)
 - Data bits = 8
 - Stop bits = 1
 - Parity = None
 - Flow control = None

Tip: For a USB connection, you can find out which COM port is assigned to the Raritan PXE by choosing Control Panel > System > Hardware > Device Manager, and locating the "Dominion Serial Console" under the Ports group.

3. Press Enter.
4. The Raritan PXE prompts you to log in. Note that both of user name and password are case sensitive.
 - a. At the Username prompt, type `admin` and press Enter.
 - b. At the Password prompt, type `raritan` and press Enter.
5. You are prompted to change the password if this is the first time you log in to the Raritan PXE device. Follow the onscreen instructions to type your new password.
6. The # prompt appears when you log in successfully.
7. Type `config` and press Enter.
8. To configure network settings, type appropriate commands, and press Enter. All commands are case sensitive.

- a. The default networking mode is the "wired" mode. Do NOT change the default mode. The following command sets the networking mode to "wired."

```
network mode wired
```

- b. Configure the LAN interface settings. In most scenarios, the default setting (auto) works well and should not be changed unless required.

To set	Use this command
LAN interface speed	<pre>network interface LANInterfaceSpeed <option></pre> <p>where <option> is <i>auto</i>, <i>10Mbps</i>, or <i>100Mbps</i>.</p>
LAN interface duplex mode	<pre>network interface LANInterfaceDuplexMode <mode></pre> <p>where <mode> is <i>half</i>, <i>full</i> or <i>auto</i>.</p>

Tip: You can combine multiple commands to configure multiple parameters at a time. For example,

```
network interface LANInterfaceSpeed <option> LANInterfaceDuplexMode <mode>
```

- c. To determine which IP protocol is enabled and which IP address returned by the DNS server is used, configure the following parameters.

To set	Use this command
IP protocol	<pre>network ip proto <protocol></pre> <p>where <protocol> is <i>v4Only</i> for enabling IPv4, <i>v6Only</i> for enabling IPv6 or <i>both</i> for enabling both IPv4 and IPv6 protocols.</p>
Which IP address returned by the DNS server is used	<pre>network ip dnsResolverPreference <resolver></pre> <p>where <resolver> is <i>preferV4</i> for IPv4 addresses or <i>preferV6</i> for IPv6 addresses.</p>

- d. If you enabled the IPv4 protocol in the previous step, configure the IPv4 network parameters.

To set	Use this command
IP configuration method	<pre>network ipv4 ipConfigurationMode <mode></pre> <p>where <mode> is either <i>dhcp</i> for auto configuration (default) or <i>static</i> for specifying a static IP address.</p>

- For the IPv4 DHCP configuration, configure this parameter.

To set	Use this command
Preferred host name (optional)	<pre>network ipv4 preferredHostName <name></pre> <p>where <name> is the preferred host name.</p>

Tip: To override the DHCP-assigned IPv4 DNS servers with those you specify manually, type this command:

```
network ipv4 overrideDNS <option>
```

where <option> is *enable* or *disable*. See the table below for the IPv4 commands for manually specifying DNS servers.

- For the static IPv4 configuration, configure these parameters.

To set	Use this command
Static IPv4 address	<pre>network ipv4 ipAddress <ip address></pre> <p>where <ip address> is the IP address you want to assign.</p>
Subnet mask	<pre>network ipv4 subnetMask <netmask></pre> <p>where <netmask> is the subnet mask.</p>
Gateway	<pre>network ipv4 gateway <ip address></pre> <p>where <ip address> is the IP address of the gateway.</p>
Primary DNS server	<pre>network ipv4 primaryDNSServer <ip address></pre> <p>where <ip address> is the IP address of the primary DNS server.</p>
Secondary DNS server (optional)	<pre>network ipv4 secondaryDNSServer <ip address></pre> <p>where <ip address> is the IP address of the secondary DNS server.</p>

- e. If you enabled IPv6 in the earlier step, configure the IPv6 network parameters.

To set	Use this command
IP configuration method	<pre>network ipv6 ipConfigurationMode <mode></pre> <p>where <mode> is either <i>automatic</i> for auto configuration (default) or <i>static</i> for specifying a static IP address.</p>

Tip: To override the DHCP-assigned IPv6 DNS servers with those you specify manually, type this command:

```
network ipv6 overrideDNS <option>
```

where <option> is *enable* or *disable*. See the table below for the IPv6 commands for manually specifying DNS servers.

- For the static IPv6 configuration, you should configure the following parameters. Note that the IP address must follow the IPv6 format.

To set	Use this command
Static IPv6 address	<pre>network ipv6 ipAddress <ip address></pre> <p>where <ip address> is the IP address you want to assign.</p>
Gateway	<pre>network ipv6 gateway <ip address></pre> <p>where <ip address> is the IP address of the gateway.</p>
Primary DNS server	<pre>network ipv6 primaryDNSServer <ip address></pre> <p>where <ip address> is the IP address of the primary DNS server.</p>
Secondary DNS server (optional)	<pre>network ipv6 secondaryDNSServer <ip address></pre> <p>where <ip address> is the IP address of the secondary DNS server.</p>

- To quit the configuration mode with or without saving the changes, type either command, and press Enter.

Command	Description
apply	Save all configuration changes and quit the configuration mode.
cancel	Abort all configuration changes and quit the configuration mode.

The # prompt appears, indicating that you have quit the configuration mode.

- To verify whether all settings are correct, type the following commands one by one. Current network settings are displayed.

Command	Description
show network	Show network parameters.
show network ip all	Show all IP configuration parameters.

- If all are correct, type `exit` to log out of the Raritan PXE. If any are incorrect, repeat Steps 7 to 10 to change any network settings.

What To Do Next

- Connect IT equipment to the outlets on the Raritan PXE.
- From a computer connected to your LAN, open a browser and point it at the IP address of the Raritan PXE device.
- When prompted for a user name and password, enter *admin* and the new password you assigned during the procedure titled **Configuring the Raritan PXE** (on page 4).
- The Raritan PXE page opens.
- Choose Device Settings > Date/Time to configure Raritan PXE with the proper date and time or synchronize it with an NTP server. Raritan PXE's time must be in sync with the LDAP server to use LDAP authentication.

Important: If you are using Raritan's Power IQ to manage the Raritan PXE, you must configure Power IQ and the Raritan PXE to have the same date/time settings.

- Use the menu at the top of the page to create user profiles, set privileges, and set security.

Note: Detailed instructions are available in the **Raritan PXE User Guide**.

MAC Address

A label is affixed to a Raritan PXE device, near the LED display, showing both the serial number and MAC address of the PDU.



If necessary, you can find the PDU's IP address through the MAC address by using commonly-used network tools. Contact your LAN administrator for assistance.

Safety and Installation Information

Notice

This instruction should be used in conjunction with the **Raritan PXE User Guide**.

This product must be installed by suitably qualified personnel in accordance with the requirements of relevant legislation and regulations for the region (e.g. the National Electric Code in the USA, the Canadian Electric Code in Canada, the IEE wiring regulations in UK, etc.) as well as accepted practices in industry. Any information about the uses for which these products were designed and tested is available on request. Installation should be in accordance with any appropriate Health & Safety regulations.

Testing

All PDU's are fully tested and verified to conform to the required standards. Where further system wiring is carried out, or where the modules are integrated into larger systems, the entire installation must be tested prior to use as prescribed by national wiring regulations.

For compliance with certain standards, the installer must test the complete electrical installation prior to use, and, in general use, the products should be subject to regular checking. The frequency of the electrical and visual checks will depend on the nature of the use to which the PDU is put and as such the test frequency must be determined by the installer. Guidelines for normal tests are given below.

Earth Continuity

A current of 25 amps should be passed from an alternating current (AC) source with a no-load voltage not exceeding 12V, between the earth conductor of the power supply cord and the earth connection of the outlet sockets. This test should be repeated for metal parts surrounding the installation, which should be earthed.

Where the power cord specified exceeds 3M the 100mΩ limit common on many PAT testers may be exceeded. This does not mean the product has failed. The length of the cord should be checked and the appropriate allowance made.

Conductor Continuity and Polarity

The system should be checked to ensure correct polarity and continuity of all wiring.

Insulation Resistance

The insulation resistance between LINE/NEUTRAL and EARTH should be measured using a 500VDC test supply. The measured resistance should not be less than 1.0MΩ.

Flash Test

A flash voltage of 1500VAC between LINE/NEUTRAL and EARTH should exhibit a leakage of under 1mA. Note: where the power cord exceeds 3M, the unit may exhibit higher leakage. The appropriate allowance should be made.

Both insulation and flash testing may ONLY be carried out LN-E. Testing between L-N may give erroneous results due to the Neon indicator (if fitted).

Notes on units with integral filters

Units with integral filter systems may be LN-E insulation tested at 500VDC but if flash tested at 1500VAC, they will exhibit high leakage readings under insulation tests due to the nature of the filtering components.

The quiescent earth leakage of the filter unit under normal conditions may be checked and should not exceed 0.9mA at 250V~ 50Hz.

L to N flash and insulation tests would be inconclusive due to the presence of the filter system and may damage the surge suppression circuitry.

Uses

This system has been designed to conform to the latest safety requirements. In addition to compliance with standards for general use, this PDU has been factory configured for use in 19" rack mounting environments. This does NOT preclude their use in other situations.

Safety Precautions

WARNING! Read and understand all sections in this guide before installing or operating this product.

WARNING! Connect this product to an AC power source whose voltage is within the range specified on the product's nameplate. Operating this product outside the nameplate voltage range may result in electric shock, fire, personal injury and death.

WARNING! Connect this product to an AC power source that is current limited by a suitably rated fuse or circuit breaker in accordance with national and local electrical codes. Operating this product without proper current limiting may result in electric shock, fire, personal injury and death.

WARNING! Connect this product to a protective earth ground. Never use a "ground lift adaptor" between the product's plug and the wall receptacle. Failure to connect to a protective earth ground may result in electric shock, fire, personal injury and death.

WARNING! This product contains no user serviceable parts. Do not open, alter or disassemble this product. All servicing must be performed by qualified personnel. Disconnect power

before servicing this product. Failure to comply with this warning may result in electric shock, personal injury and death.

WARNING! Use this product in a dry location. Failure to use this product in a dry location may result in electric shock, personal injury and death.

WARNING! Do not rely on this product's receptacle lamps, receptacle relay switches or any other receptacle power on/off indicator to determine whether power is being supplied to a receptacle. Unplug a device connected to this product before performing repair, maintenance or service on the device. Failure to unplug a device before servicing it may result in electric shock, fire, personal injury and death.

WARNING! Only use this product to power information technology equipment that has a UL/IEC 60950-1 or equivalent rating. Attempting to power non-rated devices may result in electric shock, fire, personal injury and death.

WARNING! Do not use this product to power inductive loads such as motors or compressors. Attempting to power inductive loads may result in damage to the product.

WARNING! Do not use this product to power critical patient care equipment, fire or smoke alarm systems. Use of this product to power such equipment may result in personal injury and death.

WARNING! If this product is a model that requires assembly of its line cord or plug, all such assembly must be performed by a licensed electrician and the line cord or plugs used must be suitably rated based on the product's nameplate ratings and national and local electrical codes. Assembly by unlicensed electricians or failure to use suitably rated line cords or plugs may result in electric shock, fire, personal injury or death.

WARNING! This product contains a chemical known to the State of California to cause cancer, birth defects, or other reproductive harm.

Additional Information

For more information about the Raritan PXE™ and the entire Raritan product line, see Raritan's website (www.raritan.com). For technical issues, contact Raritan Technical Support. See the Contact Support page in the Support section on Raritan's website for technical support contact information worldwide.

Raritan's products use code licensed under the GPL and LGPL. You can request a copy of the open source code. For details, see the Open Source Software Statement at (<http://www.raritan.com/about/legal-statements/open-source-software-statement/>) on Raritan's website.