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Owner's Manual

Switched Rack PDU

Zero U (Vertical) Format



*CE logo applies to models with IEC power inlet.

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Important Safety Instructions

SAVE THESE INSTRUCTIONS

This manual contains instructions and warnings that should be followed during the installation, operation, and storage of this product. Failure to heed these instructions and warnings will void the product warranty.



- The PDU provides convenient multiple outlets, but it DOES NOT provide surge or line noise protection for connected equipment.
- The PDU is designed for indoor use only in a controlled environment away from excess moisture, temperature extremes, conductive contaminants, dust or direct sunlight.
- Do not connect the PDU to an ungrounded outlet or to extension cords or adapters that eliminate the connection to ground.
- The power requirement for each piece of equipment connected to the PDU must not exceed the individual outlet's load rating.
- The total power requirement for equipment connected to the PDU must not exceed the maximum load rating for the PDU.
- Do not drill into or attempt to open any part of the PDU housing. There are no user-serviceable parts inside.
- Do not attempt to modify the PDU, including the input plugs and power cables.
- Do not attempt to use the PDU if any part of it becomes damaged.
- Do not attempt to mount the PDU to an insecure or unstable surface.
- Never attempt to install electrical equipment during a thunderstorm.
- Use of this equipment in life support applications where failure of this equipment can reasonably be expected to cause the failure of the life support equipment or to significantly affect its safety or effectiveness is not recommended. Do not use this equipment in the presence of a flammable anesthetic mixture with air, oxygen or nitrous oxide.

Installation

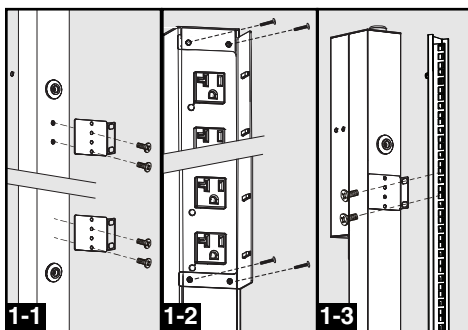
Mounting the PDU

Note: The illustrations may differ somewhat from your PDU model. Regardless of configuration, the user must determine the fitness of hardware and procedures before mounting. The PDU and included hardware are designed for common rack and rack enclosure types and may not be appropriate for all applications. Exact mounting configurations may vary. Screws for attaching the mounting brackets and cord retention shelf to the PDU are included. Use only the screws supplied by the manufacturer, or their exact equivalent (#6-32, 1/4" flat head).

1-1 Attach the mounting brackets to the PDU.

1-2 (Optional) Attach the cord retention bracket(s) to the PDU.

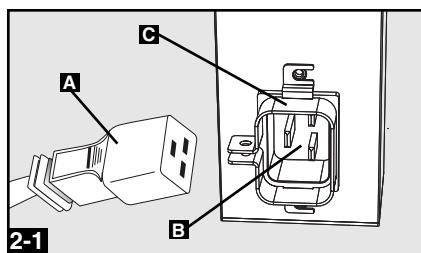
1-3 Attach the PDU to a vertical rail in your rack or rack enclosure. (Use the mounting hardware that came with your rack or rack enclosure to attach the mounting brackets to the rail.)



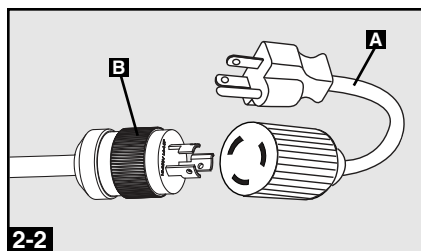
Connecting the PDU

2-1 (Models with IEC power inlet only.) Select models have a detachable power cord. Attach the included power cord to the PDU by inserting the IEC connector **A** of the power cord into the IEC power inlet **B** located near the end of the PDU. Use the included bracket **C** to secure the power cord connection.

Note: Optionally, a user-supplied power cord can be attached to the PDU by connecting it to the IEC inlet. Do not attempt to attach a user-supplied power cord unless it is certified to be compatible with the input power source that will be used by the PDU.

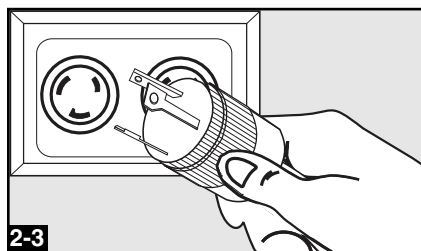


2-2 (Optional - models with input plug adapter only.) Select models include an input plug adapter that converts the twist-lock input plug to a straight-blade input plug. Attach the input plug adapter **A** to the input plug **B** if you wish to plug the PDU into a compatible straight-blade outlet.



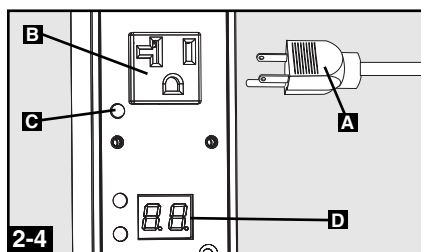
2-3 Connect the input plug to a compatible AC power outlet. If the PDU does not have a circuit breaker, it should be provided with a branch-rated over-current protection device that matches the rated amperage of the PDU.

Note: The AC power source should not share a circuit with a heavy electrical load.

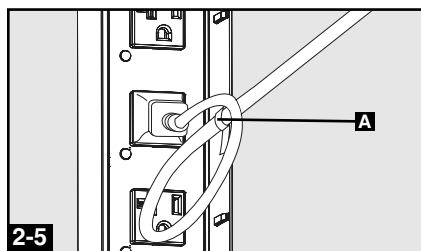


2-4 Connect your equipment's input plugs **A** to the outlets **B** of the PDU. The LED **C** near each outlet illuminates when the outlet is ready to distribute live AC power. The digital load meter **D** displays the total connected equipment load in amps. (Select models provide additional load data. See the **Features** section for more information.)

Note: In order to minimize interference among connected devices, connect each device to the nearest PDU outlet and coil excess power cord length.



2-5 (Optional) If you attached the cord retention bracket(s), tie each equipment power cord to the retention bracket. Attach each cord to the retention shelf by looping the cord and securing it with one of the included cable ties **A**. Make sure that each cord can be unplugged from the PDU without removing the cable tie.



Networking the PDU

Note: The MAC address of the PDU (a 12-digit string in this format: 000667xxxxxx) is printed on a label attached to the PDU enclosure. The MAC address is also printed on a label attached to the internal network card.

If your network's DHCP server will assign a dynamic IP address to the PDU automatically, go to Step **3-1**. If you will assign a static IP address to the PDU manually, go to Step **4-1**. If you are uncertain which method to use, contact your network administrator for assistance before continuing the installation process.

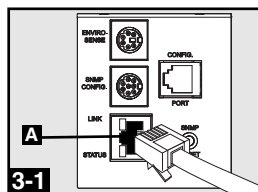
Dynamic IP Address Assignment

3-1 Connect PDU to Network: While the PDU is powered, connect a standard Ethernet patch cable to the RJ-45 Ethernet port **A** on the PDU.

Note: This port is not compatible with PoE (Power over Ethernet) applications.

The PDU will attempt to obtain an IP address via DHCP. This may take as long as several minutes, depending on your network environment.

3-2 Discover IP Address: Contact your network administrator to determine which dynamic IP address has been assigned to the PDU by the DHCP server. The PDU can be identified on the DHCP server by referring to its MAC address. (The MAC address is a 12-digit string in this format: 000667xxxxxx. Refer to the MAC address label attached to the PDU.) You may wish to request a long-term lease period for the IP address, depending on your application. After you have discovered the IP address, skip Steps **4-1** through **4-6** and proceed directly to Step **5-1**.



Static IP Address Assignment

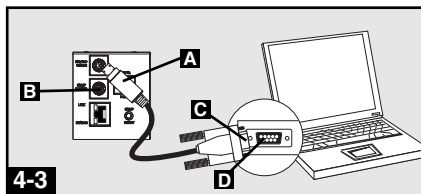
4-1 Determine IP Information: Before assigning a static IP address, you'll need to know the IP address, gateway address and subnet mask. If you do not have this information, contact your network administrator for assistance.

4-2 Configure Terminal Emulation Program: Open a VT100-compatible terminal emulation program (such as the HyperTerminal program bundled with Microsoft® Windows®) on a computer with an available DB9 serial port. (A notebook computer may be the most convenient choice.) Set the terminal emulation program to use the COM port that corresponds to the computer's DB9 serial port. Specify the parameters required to communicate with the PDU terminal interface:

Bits per second:	9600	Stop bits:	1
Data bits:	8	Flow control:	None
Parity:	None		

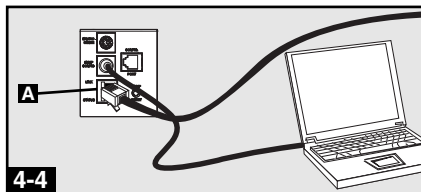
If the terminal emulation program supports multiple emulation modes, you may also need to specify VT100 emulation.

4-3 Connect PDU to Computer: Use the mini-DIN to DB9 serial cable (part number 73-1025) included with the PDU to connect the PDU to the computer. The circular connector **A** at one end of the cable attaches to the 8-pin mini-DIN serial port **B** on the PDU. (Align the connector carefully to avoid damaging the pins.) The DB9 connector **C** at the other end of the cable connects to the computer's serial port **D**.



4-4 Connect PDU to Network: While the PDU is powered, connect a standard Ethernet patch cable to the RJ-45 Ethernet port **A** on the PDU.

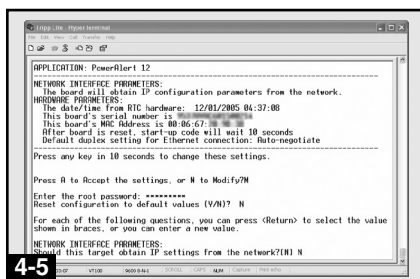
Note: This port is not compatible with PoE (Power over Ethernet) applications.



Networking the PDU *continued*

4-5 Configure PDU in Terminal Mode: After a brief pause, an initialization page should appear in the terminal emulation program. Press any key on the keyboard within 10 seconds to change the PDU settings. (If the 10-second period has elapsed, you can reboot the PDU by powering down completely and then restoring power.)

Follow the sequence of responses below in order to assign an IP address to the PDU. The default terminal mode root password is *TrippLite*. Sample IP settings are shown - supply your own IP information when you configure your PDU.



Press A to Accept the settings, or M to Modify? **M**

Enter the root password: *********

Reset configuration to default values (Y/N)? **N**

For each of the following questions, you can press <Return> to select the value shown in braces, or you can enter a new value.

NETWORK INTERFACE PARAMETERS:

Should this target obtain IP settings from the network? [N] **N**

Static IP address [192.168.1.19]? **192.168.0.123**

Static IP address is 192.168.0.123

Subnet Mask IP address [255.255.0.0]? **255.255.255.0**

Subnet Mask IP address is 255.255.255.0

Gateway address IP address [192.168.1.1]? **192.168.0.1**

Gateway address IP address is 192.168.0.1

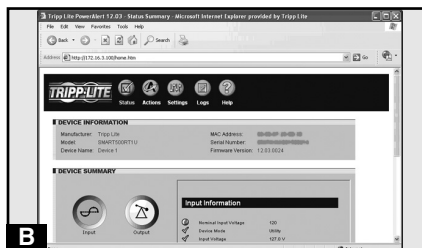
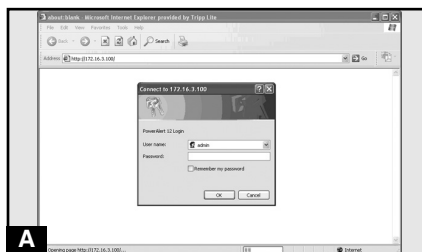
You can also change the root password, real-time clock and other settings. (Tripp Lite recommends against changing the default settings unless you are an advanced user with a specific purpose.) After you have finished entering settings, the PDU will save changes to memory and reboot (this may take several minutes). After the PDU reboots, the initialization page should display the new static IP settings.

4-6 Remove Serial Cable: Remove the serial cable from the PDU and proceed to Step **5-1**.

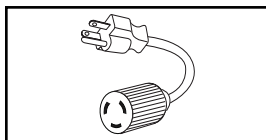
Testing Network Connection

5-1 Access PDU with Web Browser: After an IP address has been assigned to the PDU, attempt to access it with a Web browser that supports frames, forms and Java™. Open a Web browser on a computer connected to the LAN and enter the IP address assigned to the PDU. You should be prompted for a password **A**. The user name is *admin* and the default password is *admin*. After you enter the user name and password, the PowerAlert status page **B** will appear in the browser window. For more information about configuration and operation of the PDU via the PowerAlert interface, refer to the SNMPWEBCARD User's Guide, included on the CD-ROM bundled with the PDU.

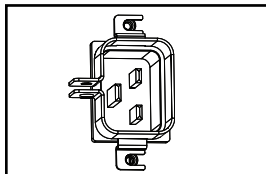
Note for Network Management System Users Only: Two MIB files - Tripplite.mib and RFC1628.mib - must be loaded on each Network Management Station that will monitor the PDU via SNMP. The files are provided on the CD-ROM included in the product package.



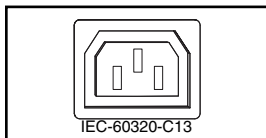
Features



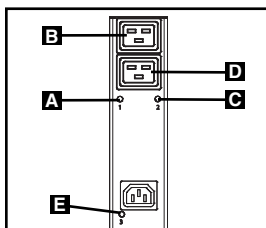
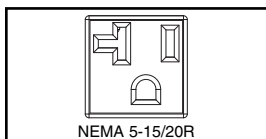
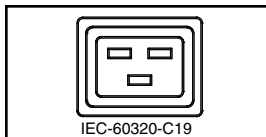
Input Plug Adapter (Select Models): Converts the twist-lock input plug to a straight-blade input plug.



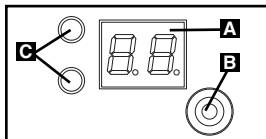
Power Inlet (Select Models): The IEC power inlet connects to the included power cord or a compatible user-supplied power cord. The inlet includes a bracket to secure the cord connection.



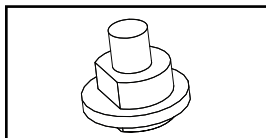
Outlets (Vary by Model): During normal operation, the outlets distribute AC power to connected equipment. When an outlet is live, the associated LED illuminates.



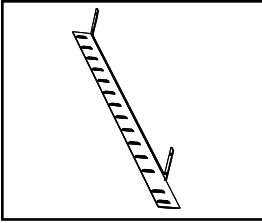
Outlet LED: Each outlet LED illuminates when the associated outlet is ready to distribute live AC power. The IEC-60320-C19 outlets are arranged in pairs, and there are 2 LEDs below each pair. The LED to the left **A** is associated with the upper outlet **B**. The LED to the right **C** is associated with the lower outlet **D**. Other outlet types have an LED **E** directly below each outlet.



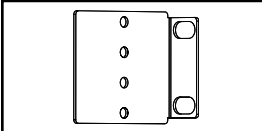
Digital Load Meter (Ammeter): The total connected equipment load is displayed on the meter **A** in amperes. Models with multiple outlet banks can also display the connected equipment load for each outlet bank. Use the mode selection switch **B** to display the total load (all bank LEDs **C** illuminated) or the load for each outlet bank (corresponding bank LED illuminated).



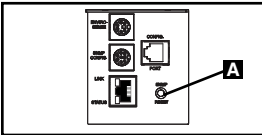
Circuit Breaker (Select Models): If the connected equipment load exceeds the Maximum Load Rating of the PDU, the circuit breaker will trip. Disconnect excess equipment and allow the breaker to cool before depressing the plunger to reset the breaker. Models with multiple outlet banks have a circuit breaker for each bank.



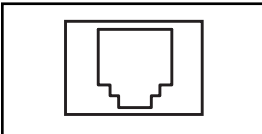
Cord Retention Bracket: Provides secure attachment points for connected equipment cords.



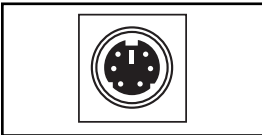
Mounting Brackets: Use these brackets to mount the PDU .



SNMP Reset Button: Press the reset button **A** for 3 seconds to reboot the PDU's network card. Rebooting the network card will not erase network settings or interrupt AC power.



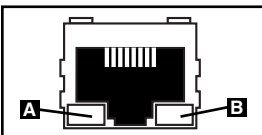
Factory Port: The port is reserved for configuration by factory authorized personnel only. Do not connect anything to the port.



PS/2 Port: Use this port to connect a Tripp Lite ENVIROSENSE environmental sensor to provide remote temperature/humidity monitoring and a dry contact interface to control and monitor alarm, security and telecom devices. Contact Tripp Lite Customer Support at (773) 869-1234 for ordering information. Note: Do not connect a keyboard or mouse to this port.



Mini-DIN Serial Port: Use this port to provide a direct terminal connection to a computer with a terminal emulation program. A serial cable (part number 73-1025) is included with the PDU. If you need to order a replacement cable, contact Tripp Lite Customer Support at (773) 869-1234.



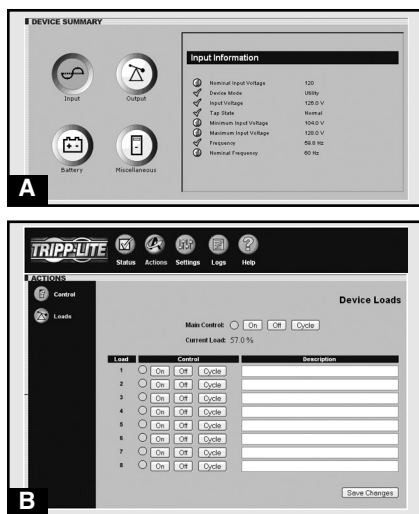
Ethernet Port: Use this RJ-45 jack to connect the PDU to the network with a standard Ethernet patch cable. The Link LED **A** and Status LED **B** indicate several operating conditions, as shown in the table below. *This port is not compatible with PoE (Power Over Ethernet) applications.*

Network Operating Conditions	
A Link LED Color	
Off	No Network Connection
Flashing Amber	100 Mbps Network Connection
Flashing Green	10 Mbps Network Connection
B Status LED Color	
Off	Card Not Initialized
Steady Green	Card Initialized and Operational
Flashing Amber	Error - Card Not Initialized

Configuration and Operation

Remote Monitoring and Control

The PDU provides remote monitoring **A**, outlet control **B** and more via Web browser, telnet and SNMP-based Network Management Systems. For more information about configuration and operation of the PDU via the PowerAlert Web browser interface, refer to the SNMPWEBCARD User's Guide, included on the CD-ROM bundled with the PDU.



Technical Support

Telephone: (773) 869-1233

8:00 AM - 6:00 PM CST Monday - Thursday

8:00 AM - 5:30 PM CST Friday

(CST is Central Standard Time in the United States.)

E-mail: techsupport@tripplite.com

Warranty and Warranty Registration

LIMITED WARRANTY

Seller warrants this product, if used in accordance with all applicable instructions, to be free from original defects in material and workmanship for a period of 2 years (except internal UPS system batteries outside USA and Canada, 1 year) from the date of initial purchase. If the product should prove defective in material or workmanship within that period, Seller will repair or replace the product, in its sole discretion. Service under this Warranty can only be obtained by your delivering or shipping the product (with all shipping or delivery charges prepaid) to: Tripp Lite, 1111 W. 35th Street, Chicago, IL 60609 USA. Seller will pay return shipping charges. Call Tripp Lite Customer Service at (773) 869-1234 before sending any equipment back for repair.

THIS WARRANTY DOES NOT APPLY TO NORMAL WEAR OR TO DAMAGE RESULTING FROM ACCIDENT, MISUSE, ABUSE OR NEGLIGENCE. SELLER MAKES NO EXPRESS WARRANTIES OTHER THAN THE WARRANTY EXPRESSLY SET FORTH HEREIN. EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, ALL IMPLIED WARRANTIES, INCLUDING ALL WARRANTIES OF MERCHANTABILITY OR FITNESS, ARE LIMITED IN DURATION TO THE WARRANTY PERIOD SET FORTH ABOVE; AND THIS WARRANTY EXPRESSLY EXCLUDES ALL INCIDENTAL AND CONSEQUENTIAL DAMAGES. (Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This Warranty gives you specific legal rights, and you may have other rights which vary from jurisdiction to jurisdiction).

WARNING: The individual user should take care to determine prior to use whether this device is suitable, adequate or safe for the use intended. Since individual applications are subject to great variation, the manufacturer makes no representation or warranty as to the suitability or fitness of these devices for any specific application.

WARRANTY REGISTRATION

Visit www.tripplite.com/warranty today to register the warranty for your new Tripp Lite product. You'll be automatically entered into a drawing for a chance to win a FREE Tripp Lite product!*

* No purchase necessary. Void where prohibited. Some restrictions apply. See website for details.

FCC Notice

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

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. The user must use shielded cables and connectors with this product. Any changes or modifications to this product not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Regulatory Compliance Identification Numbers

For the purpose of regulatory compliance certifications and identification, your Tripp Lite product has been assigned a unique series number. The series number can be found on the product nameplate label, along with all required approval markings and information. When requesting compliance information for this product, always refer to the series number. The series number should not be confused with the marking name or model number of the product.

The policy of Tripp Lite is one of continuous improvement. Specifications are subject to change without notice.
Made in China.



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