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# Owner's Manual

## PDUMH15HVNET PDUMH20HVNET

Switched Rack PDU

• 208/230V, 50/60Hz AC Input and Output



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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.

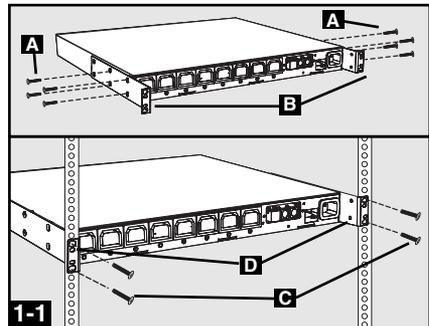
## Installation

### Mounting the PDU

The PDU supports five primary mounting configurations: 1U Rack, 0U Rack (Vertical), Wall, Under-Counter and Reduced-Depth.

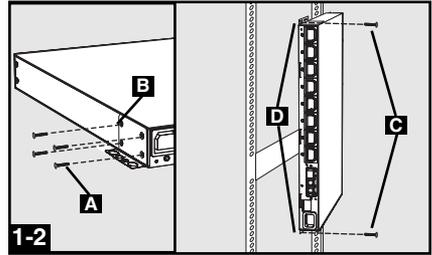
*Note: Regardless of configuration, the user must determine the fitness of hardware and procedures before mounting. The PDU and included hardware are designed for common rack and rack enclosure types and may not be appropriate for all applications. Exact mounting configurations may vary. Screws for attaching 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 1U Rack Mounting:** Use 4 screws **A** to attach each of the 2 longer mounting brackets **B** to the PDU as shown. You can mount the PDU in a recessed position by attaching the mounting brackets so they extend beyond the front panel of the PDU. (If you plan to use the cord retention shelf, attach the mounting brackets in a recessed position.) Mount the PDU in the rack by inserting 4 user-supplied screws **C** through the mounting brackets **D** and into the mounting holes of the rack rails.

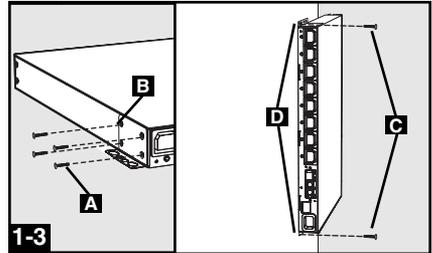


## Installation *continued*

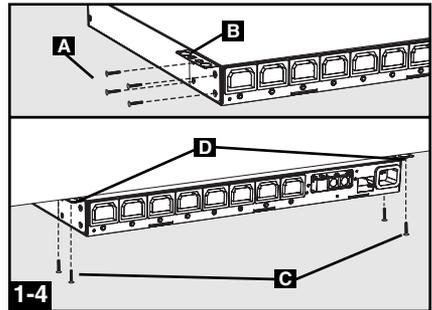
**1-2 0U Rack Mounting:** Use 4 screws **A** to attach each of the 2 shorter mounting brackets **B** to the PDU as shown. Mount the PDU vertically by inserting 2 or more user-supplied screws **C** through the mounting brackets **D** and into mounting points in the rack or rack enclosure.



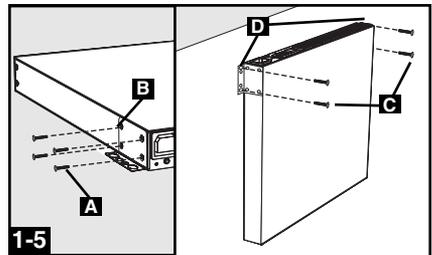
**1-3 Wall Mounting:** Use 4 screws **A** to attach each of the 2 shorter mounting brackets **B** to the PDU as shown. Mount the PDU to the wall by inserting 2 or more user-supplied screws **C** through the mounting brackets **D** and into secure mounting points.



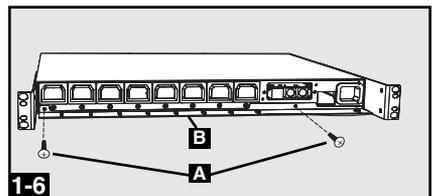
**1-4 Under-Counter Mounting:** Use 4 screws **A** to attach each of the 2 shorter mounting brackets **B** to the PDU as shown. Mount the PDU under the counter by inserting 2 or more user-supplied screws **C** through the mounting brackets **D** and into secure mounting points.



**1-5 Reduced-Depth Mounting:** Use 4 screws **A** to attach each of the 2 shorter mounting brackets **B** to the PDU as shown. Mount the PDU to a stable surface with the outlets facing upward by inserting 2 or more user-supplied screws **C** through the mounting brackets **D** and into secure mounting points.

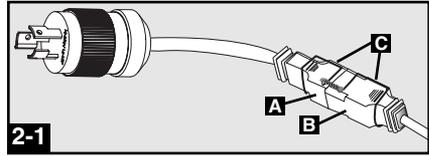


**1-6 Cord Retention Shelf Attachment (Optional):** Use 2 screws **A** to attach the cord retention shelf **B** to the front panel of the PDU.



## Connecting the PDU

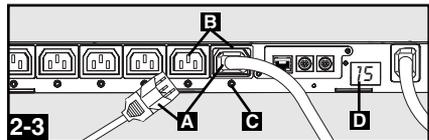
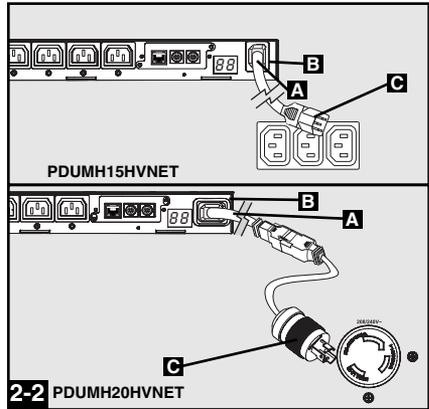
**2-1 NEMA Adapter Connection (Optional - PDUMH20HVNET Only):** The PDUMH20HVNET includes a plug adapter that adds a NEMA L6-20P plug to the input power cord. Use this adapter only if you will be connecting the PDUMH20HVNET to a NEMA L6-20R outlet. Insert the IEC 60320 C19 connector **A** of the adapter into the IEC 60320 C20 connector **B** of the input power cord. Secure the connection with the retention bracket **C** by using the included bolts to fasten the two halves of the bracket around the connection as shown. *Caution: To avoid the risk of electric shock, ensure that the Neutral (L2) conductor has been identified before connecting the PDU.*



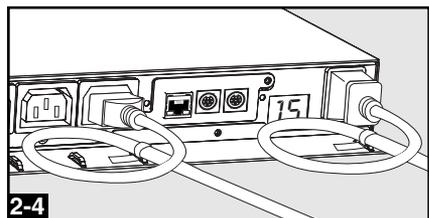
**2-2 Input Power Cord Connection:** Insert the IEC 60320 C19 (PDUMH20HVNET) or IEC 60320 C13 (PDUMH15HVNET) connector **A** of the input power cord into the IEC 60320 C20 (PDUMH20HVNET) or IEC 60320 C14 (PDUMH15HVNET) inlet **B** of the PDU. Connect the other end of the input power cord **C** to a compatible source of AC power, such as a UPS system, PDU or utility outlet. The PDU should be provided with over-current protection: PDUMH20HVNET should be provided with a maximum 20A branch-rated over-current protection device; PDUMH15HVNET should be provided with a maximum 15A branch-rated over-current protection device.

*Note: The AC power source should not share a circuit with a heavy electrical load (such as an air conditioner or refrigerator).*

**2-3 Equipment Power Cord Connection:** Insert the IEC 60320 C14 connectors **A** of the equipment power cords into the IEC 60320 C13 output receptacles **B** of the PDU. The LED **C** near each output receptacle illuminates when the receptacle is ready to distribute live AC power. The digital load meter **D** will display the total connected equipment load in amps.



**2-4 Cord Retention (Optional):** If you attached the cord retention shelf in step 1-6, tie the input power cord and each equipment power cord to the retention shelf. Attach each cord to the retention shelf by looping the cord and securing it to an attachment point with one of the included cable ties. Make sure that each cord can be unplugged from the PDU without removing the cable tie.



## Networking the PDU

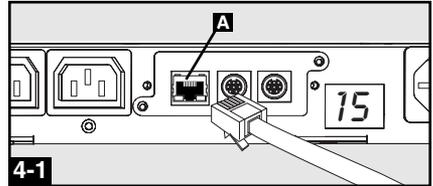
Note: The MAC address of the PDU (a 12-digit string in this format: 000667xxxxxx) is printed on a label attached to the PDU enclosure. The MAC address is also printed on a label attached to the internal network card.

If your network's DHCP server will assign a dynamic IP address to the PDU automatically, go to Step **4-1**. If you will assign a static IP address to the PDU manually, go to Step **5-1**. If you are uncertain which method to use, contact your network administrator for assistance before continuing the installation process.

### Dynamic IP Address Assignment

**4-1 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.



**4-2 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 **5-1** through **5-6** and proceed directly to Step **6-1**.

### Static IP Address Assignment

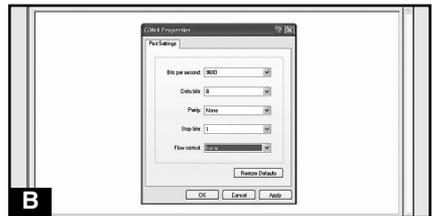
**5-1 Determine IP Information:** Before assigning a static IP address, you'll need to know the IP address, gateway address and subnet mask. If you do not have this information, contact your network administrator for assistance.

**5-2 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 **A** that corresponds to the computer's DB9 serial port. Specify the parameters **B** required to communicate with the PDU terminal interface:

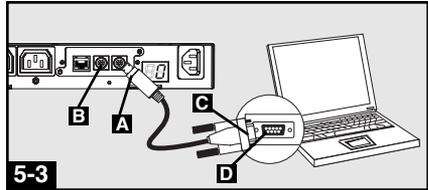
Bits per second:	9600
Data bits:	8
Parity:	None
Stop bits:	1
Flow control:	None

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



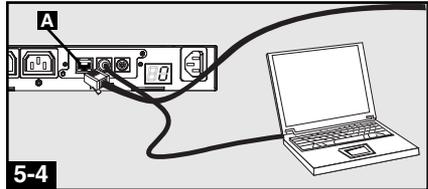
## Networking the PDU *continued*

**5-3 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**.



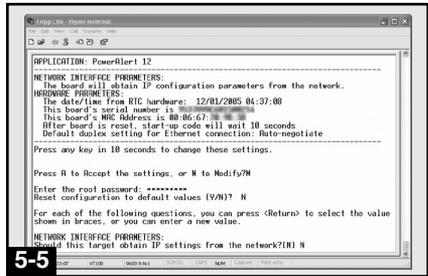
**5-4 Connect PDU to Network:** While the PDU is powered, connect a standard Ethernet patch cable to the RJ-45 Ethernet port **A** on the PDU.

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



**5-5 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

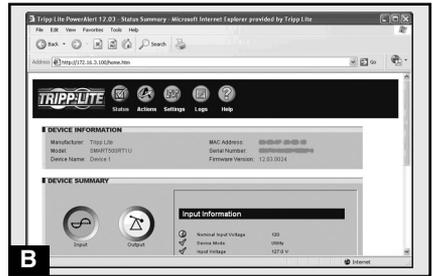
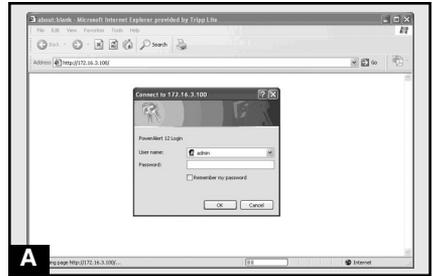
You can also change the root password, real-time clock and other settings. (Tripp Lite recommends against changing the default settings unless you are an advanced user with a specific purpose.) After you have finished entering settings, the PDU will save changes to memory and reboot (this may take several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

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

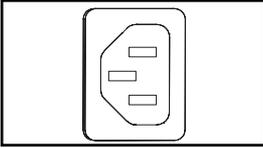
### Testing Network Connection

**6-1** **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.

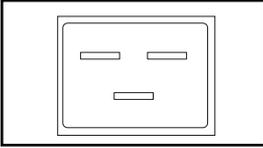
*Note for Network Management System Users Only: Two MIB files - Tripplite.mib and RFC1628.mib - must be loaded on each Network Management Station that will monitor the PDU via SNMP. The files are provided on the CD-ROM included in the product package.*



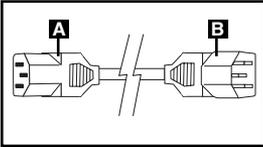
## Features



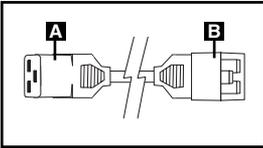
**AC Input Power Inlet (Model PDUMH15HVNET):** The IEC 60320 C14 inlet connects to the detachable AC Input Power Cord.



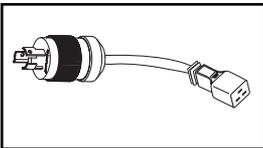
**AC Input Power Inlet (Model PDUMH20HVNET):** The IEC 60320 C20 inlet connects to the detachable AC Input Power Cord.



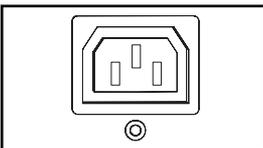
**AC Input Power Cord (Model PDUMH15HVNET):** The detachable cord has an IEC 60320 C13 connector **A** and an IEC 60320 C14 connector **B**.



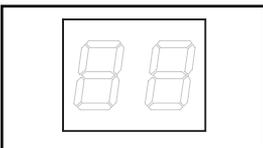
**AC Input Power Cord (Model PDUMH20HVNET):** The detachable cord has an IEC 60320 C19 connector **A** and an IEC 60320 C20 connector **B**.



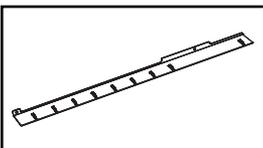
**AC Input Adapter (Model PDUMH20HVNET):** The adapter converts the AC input power cord to a NEMA L6-20P plug. The included retention bracket (not shown) secures the connection.



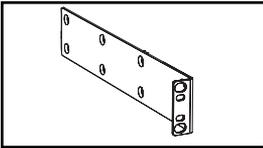
**IEC 60320 C13 Output Receptacles:** During normal operation, the output receptacles distribute AC power to connected equipment. When an outlet is live, the associated LED illuminates.



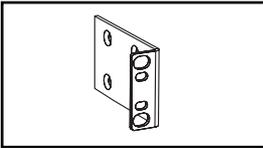
**Digital Load Meter (Ammeter):** The total electrical current drawn by connected equipment is displayed on the meter in amperes.



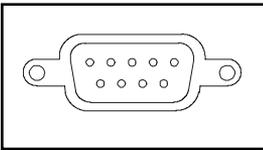
**Cord Retention Shelf:** When it is attached to the PDU, the cord retention shelf provides secure attachment points for the input cord and connected equipment cords. Use the included cable ties to secure the cords to the shelf.



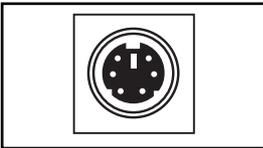
**Longer Mounting Brackets:** Use these brackets to mount the PDU horizontally in a standard rack or rack enclosure. The mounting depth can be adjusted by attaching the brackets to different positions on the PDU.



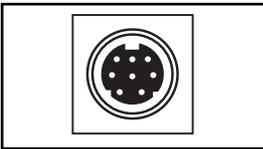
**Shorter Mounting Brackets:** Use these brackets to mount the PDU in a 0U rack, wall or under-counter configuration.



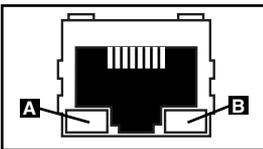
**Factory Port:** The port is reserved for configuration by factory authorized personnel only. Do not connect anything to the port.



**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.



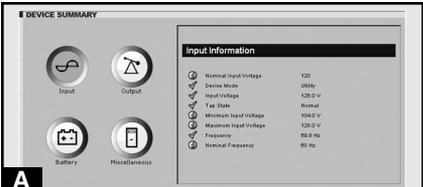
**Ethernet Port:** Use this RJ-45 jack to connect the PDU to the network with a standard Ethernet patch cable. The Link LED **A** and Status LED **B** indicate several operating conditions, as shown in the table below. *This port is not compatible with PoE (Power Over Ethernet) applications.*

Network Operating Conditions	
<b>A Link LED Color</b>	
Off	No Network Connection
Flashing Amber	100 Mbps Network Connection
Flashing Green	10 Mbps Network Connection
<b>B Status LED Color</b>	
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.

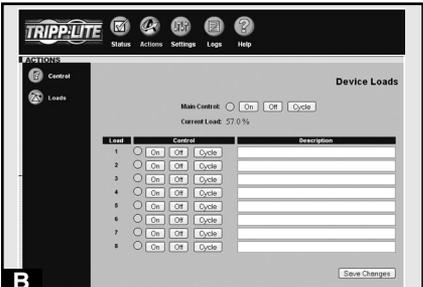


**A**

**DEVICE SUMMARY**

Input Information

ⓘ Nominal Input Voltage	120
ⓘ Device Mode	US/0V
ⓘ Input Voltage	128.0 V
ⓘ Tap State	Normal
ⓘ Minimum Input Voltage	104.0 V
ⓘ Maximum Input Voltage	132.0 V
ⓘ Frequency	60.0 Hz
ⓘ Nominal Frequency	60 Hz



**B**

**TRIPP-LITE** Status Actions Settings Logs Help

Actions: Control, Loads

Device Loads

Main Control:  On  Off  Cycle

Current Load: 57.0%

Level	Control	Description
1	<input type="radio"/> On <input type="radio"/> Off <input type="radio"/> Cycle	
2	<input type="radio"/> On <input type="radio"/> Off <input type="radio"/> Cycle	
3	<input type="radio"/> On <input type="radio"/> Off <input type="radio"/> Cycle	
4	<input type="radio"/> On <input type="radio"/> Off <input type="radio"/> Cycle	
5	<input type="radio"/> On <input type="radio"/> Off <input type="radio"/> Cycle	
6	<input type="radio"/> On <input type="radio"/> Off <input type="radio"/> Cycle	
7	<input type="radio"/> On <input type="radio"/> Off <input type="radio"/> Cycle	
8	<input type="radio"/> On <input type="radio"/> Off <input type="radio"/> Cycle	

Save Changes

# 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](mailto: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](http://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.