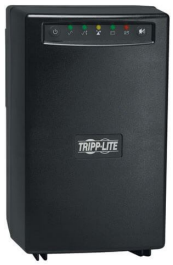
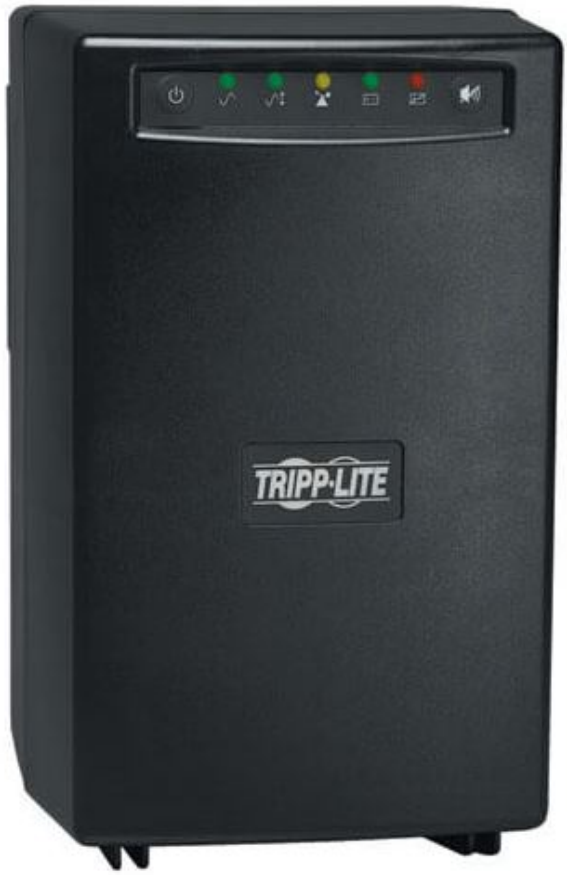


TRIPP-LITE SMART1500XL Line Interactive UPS System Owner's Manual

Contents

TRIPP-LITE SMART1500XL Line Interactive UPS System



Important Safety Instructions

UPS Location Warnings

- Install your UPS indoors, away from excess moisture or heat, conductive contaminants, dust or direct sunlight.
- For best performance, keep the indoor temperature between between 32º F and 104º F (0º C and 40º C).
- Leave adequate space around all sides of the UPS for proper ventilation.

UPS Connection Warnings

- Connect your UPS directly to a properly grounded AC power outlet. Do not plug the UPS into itself; this will damage the UPS.
- Do not modify the UPS's plug, and do not use an adapter that would eliminate the UPS's ground connection.
- Do not use extension cords to connect the UPS to an AC outlet. Your warranty will be voided if anything other than Tripp Lite surge suppressors are used to connect your UPS to an outlet.
- If the UPS receives power from a motor-powered AC generator, the generator must provide clean, filtered, computer-grade output.

Equipment Connection Warnings

- Do not use Tripp Lite UPS Systems for life-support applications in which a malfunction or failure of a Tripp Lite UPS System could cause failure or significantly alter the performance of a life-support device.
- Do not connect surge suppressors or extension cords to the output of your UPS. This might damage the UPS

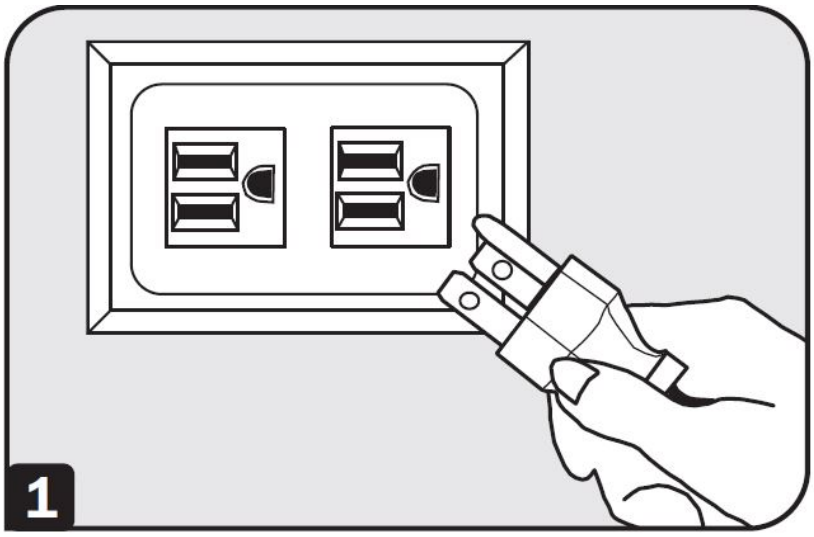
and will void the surge suppressor and UPS warranties.

Equipment Connection Warnings

- Your UPS does not require routine maintenance. Do not open your UPS for any reason except battery replacement. There are no user-serviceable parts inside.
- Because the batteries present a risk of electrical shock and burn from high short-circuit current, observe proper precautions. Unplug and turn off the UPS before performing battery replacement. Use tools with insulated handles, and replace the existing batteries with the same number and type of new batteries (Sealed Lead-Acid). Do not open the batteries. Do not short or bridge the battery terminals with any object. Tripp Lite offers a complete line of UPS System Replacement Battery Cartridges (R.B.C.). Visit Tripp Lite on the Web at tripplite.com/support/battery/index.cfm to locate the specific replacement battery for your UPS.
- The UPS batteries are recyclable. Refer to local codes for disposal requirements, or in the USA only call 1-800-SAV-LEAD or 1-800-8-BATTERY (1-800-8-228-8379) or visit rbrc.com for recycling information. Do not dispose of the batteries in a fire.
- (Select models only) If your UPS model is equipped with an external battery connector, only connect Tripp Lite battery packs of the appropriate type and correct voltage. Do not connect or disconnect external batteries while the UPS is operating from battery power.
- Do not attempt to connect external batteries to your UPS system if it does not include an external battery connector.

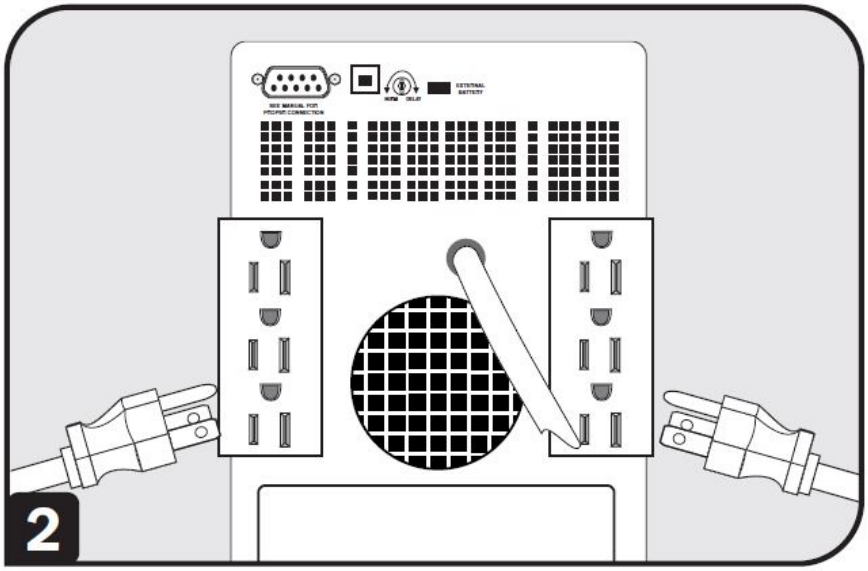
Quick Installation

Plug the UPS into an outlet on a dedicated circuit.



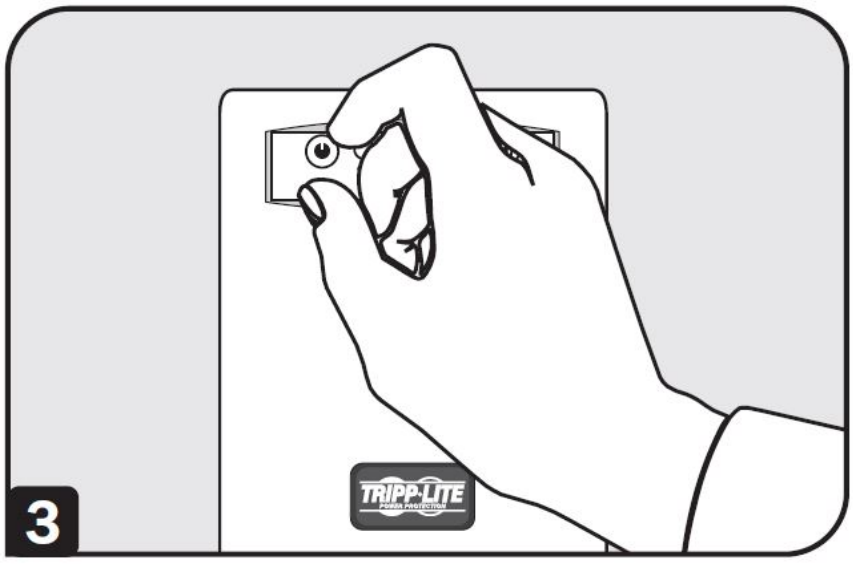
NOTE! after you plug the UPS into a live AC outlet, the UPS will automatically charge its batteries,** but will not supply power to its outlets until it is turned ON (see Step 3 below). See Specifications for circuit amperage requirements. Select models include an additional plug which can be switched by a qualified electrician. See Specifications for details. The BATTERY CHARGE LED will be the only LED illuminated

Plug your equipment into the UPS.



Note: Your UPS is designed to only support computer equipment. You will overload the UPS if the total VA ratings for all the equipment you connect exceeds the UPS's Output Capacity (see Specifications). To find your equipment's VA ratings, look on their nameplates. If the equipment is listed in amps, multiply the number of amps by 120 to determine VA. (Example: 1 amp × 120 = 120 VA). If you are unsure if you have overloaded the UPS's outlets, see the "OUTPUT LOAD LEVEL" LED description.

Turn the UPS ON.



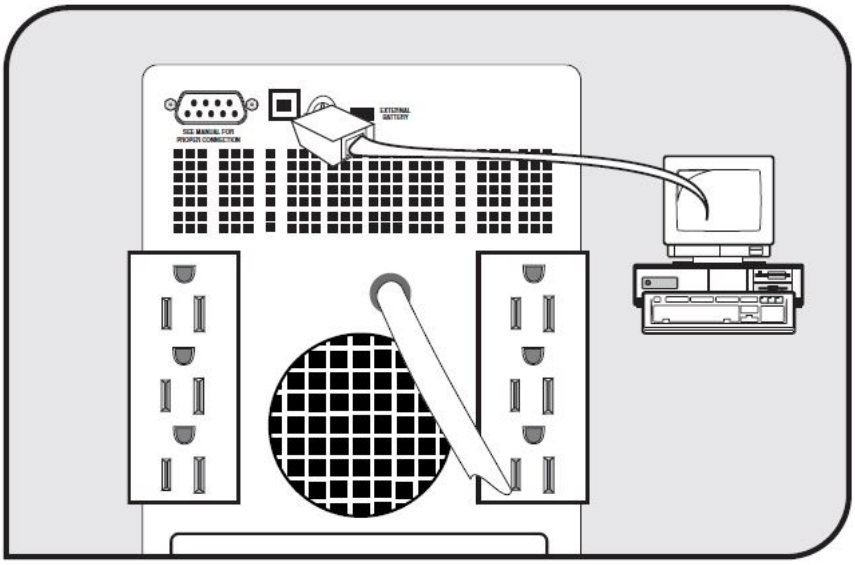
Press and hold the "POWER" button for one second. The alarm will beep once briefly after one second has passed. Release the button.

Optional Installation

(select models only)

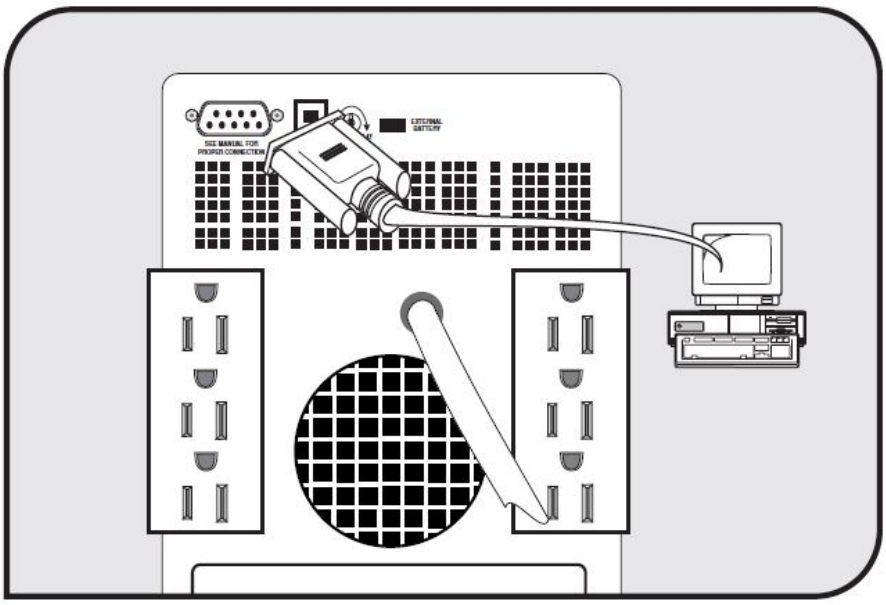
These connections are optional. Your UPS will function properly without these connections.

USB Communications



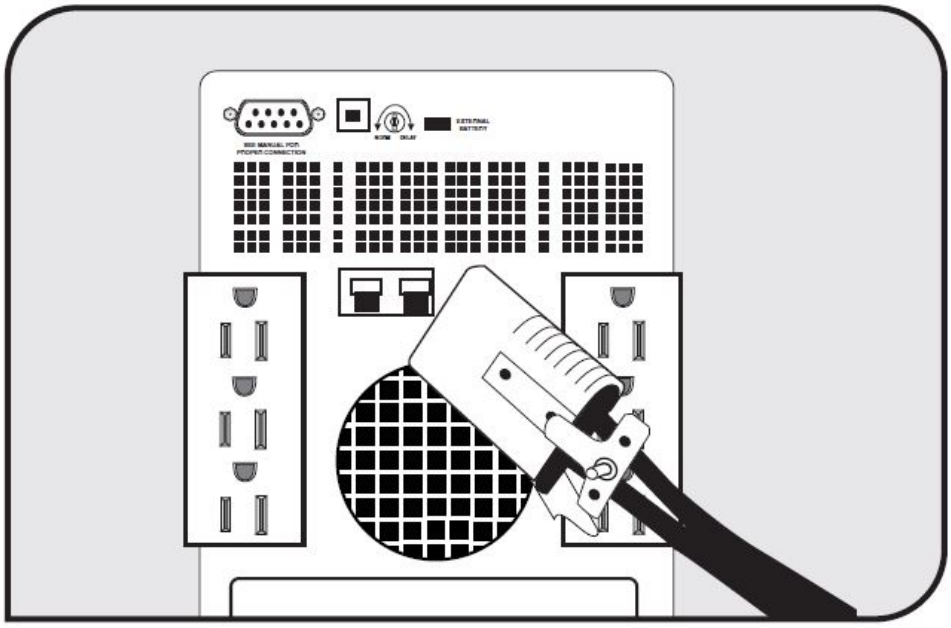
Use any USB cable to connect the USB port of your computer to the USB port of your UPS. Download the PowerAlert® UPS monitoring software program appropriate for your operating system from tripplite.com and install it on your computer.

RS-232 Serial Communications (Select Models Only)



Use the serial cable provided with your UPS to connect the DB9 port of your computer to the DB9 port of your UPS. Download the PowerAlert UPS monitoring software program appropriate for your operating system from tripplite.com and install it on your computer.

External Battery Connection (Select Models Only)

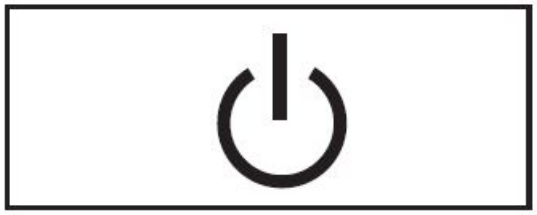


Your UPS comes with a robust internal battery system; external batteries are only needed to extend runtime. Adding external batteries will increase recharge time as well as runtime. The illustration shows the location of your UPS's External Battery Connector, where you will insert the battery pack cable. Complete installation instructions for your battery pack appear in the battery pack's owner's manual. Make sure that cables are fully inserted into their connectors. Small sparks may result during battery connection; this is normal. Do not connect or disconnect battery packs when the UPS is running on battery power. If you connect more than one external battery, set the Battery Charge Level Switch to the "EXTERNAL BATTERY" position. This will increase your UPS's charger output so the additional batteries charge faster.

CAUTION! DO NOT set the Battery Charge Level Switch to the "EXTERNAL BATTERY" position without an external battery connected. There is a risk of damaging the UPS's internal battery system.

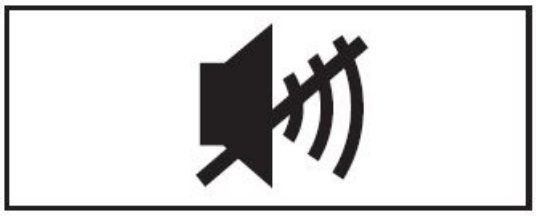
Basic Operation

Buttons
"Power" Button



- **To turn the UPS ON:** with the UPS plugged into a live AC wall out-let,* press and hold the POWER button for about two seconds.** Release the button. If utility power is absent, you can "cold-start" the UPS (i.e.: turn it ON and supply power for a limited time from its batteries***) by pressing and holding the POWER button for about two seconds.
- **To turn the UPS OFF:** with the UPS ON and receiving utility power, press and hold the POWER button for one second.** Then unplug the UPS from the wall outlet. The UPS will be completely OFF. After you plug the UPS into a live AC outlet, the UPS will automatically charge its batteries, but will not supply power to its outlets until it is turned ON. ** The alarm will beep once briefly after the indi-cated interval has passed. *** If fully charged.

"Mute/Test" Button



- **To Silence (or “Mute”) UPS Alarms:** briefly press and release the MUTE/TEST button.* Note: continuous alarms (warning you to immediately shut down connected equipment) cannot be silenced.
- **To Run a Self-Test:** with your UPS plugged in and turned ON, press and hold the MUTE/TEST button for two seconds.* Continue holding the button until the alarm beeps several times and the UPS performs a self test. See “Results of a Self-Test” below. Note: you can leave connected equipment on during a self-test. Your UPS, however, will not perform a self-test if it is not turned ON (see “POWER” Button description).

CAUTION! Do not unplug your UPS to test its batteries. this will remove safe electrical grounding and may introduce a damaging surge into your network connections.

Results of a Self-Test: The test will last approximately 10 seconds as the UPS switches to battery to test its load capacity and battery charge. The “POWER” LED will be flashing and the “OUTPUT LOAD LEVEL” and “BATTERY CHARGE” LEDs will be lit and the UPS alarm will sound.

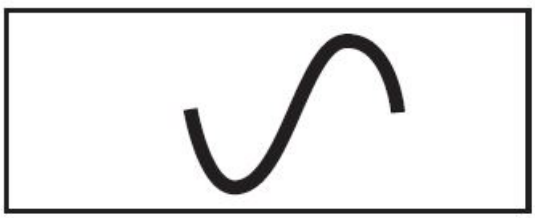
- If the “OUTPUT LOAD LEVEL” LED remains lit red and the alarm continues to sound after the test, the UPS’s outlets are overloaded. To clear the overload, unplug some of your equipment and run the self-test repeatedly until the “OUTPUT LOAD LEVEL” LED is no longer lit red and the alarm is no longer sounding.

CAUTION! Any overload that is not corrected by the user immediately following a self-test may cause the UPS to shut down and cease supplying output power in the event of a blackout or severe brownout.

- If the “BATTERY WARNING” LED remains lit and the alarm continues to sound after the test, the UPS batteries need to be recharged or replaced. Allow the UPS to recharge continuously for 12 hours, and repeat the self-test. If the LED remains lit, contact Tripp Lite for service. If your UPS requires battery replacement, visit tripplite.com/support/battery/index.cfm to locate the specific Tripp Lite replacement battery for your UPS.
- The alarm will beep once briefly after the indicated interval has passed.

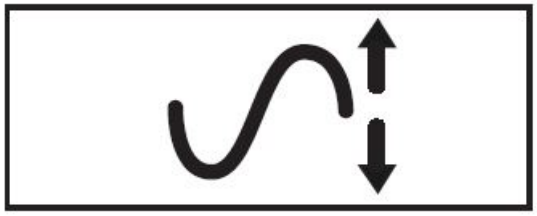
Indicator Lights

All Indicator Light descriptions apply when the UPS is plugged into a wall outlet and turned ON.



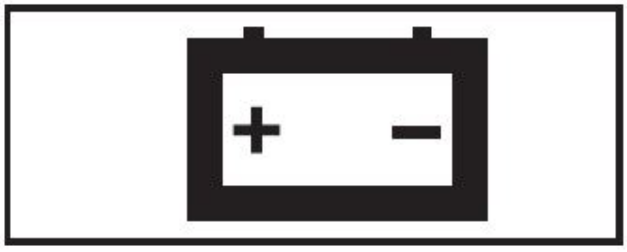
“POWER” LED: this green LED lights continuously when the UPS is ON and supplying connected equipment with AC power from a utility source. The LED flashes and an alarm sounds (4 short beeps followed by a pause) to indicate the UPS is operating from its internal batteries during a blackout or severe brownout. If the blackout or severe brownout is prolonged, you should save files and shut down your equipment since internal battery power

will eventually be depleted. See “BATTERY CHARGE” LED description below.

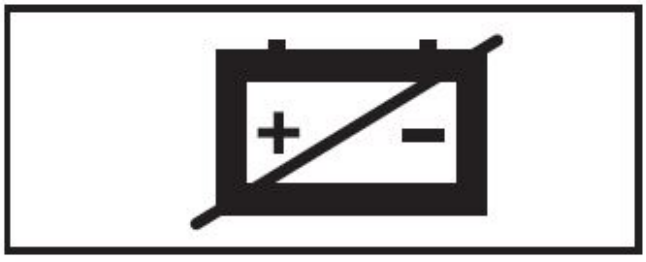


“VOLTAGE CORRECTION” LED: this green LED lights continuously whenever the UPS is automatically correcting high or low AC voltage on the utility line without the assistance of battery power. The UPS will also emit a slight clicking noise. These are normal,automatic operations of the UPS, no action is required on your part.

“OUTPUT LOAD LEVEL” LED: this multicolored LED indicates he approximate electrical load of equipment connected to the UPS’s AC outlets. It will turn from green (light load) to yellow (medium load) to red (overload). If the LED is red (either illuminated continuously or flashing), clear the overload immediately by unplugging some of your equipment from the outlets until the LED changes from red to yellow (or green) and the alarm is no longer sounding.
CAUTION! Any overload that is not corrected by the user immediately may cause the UPS to shut down and cease supplying output power in the event of a blackout or severe brownout.



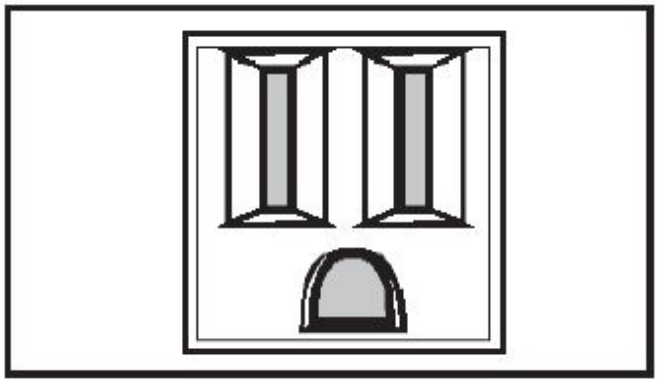
“BATTERYCHARGE” LED: when the UPS is operating from utility power, this LED indicates the approximate charge state of the UPS’s internal batteries: red indicates the batteries are beginning to charge; yellow indicates the batteries are roughly midway through charging; and green indicates the batteries are fully charged. When the UPS is operating from battery power during a blackout or severe brownout, this LED indicates the approximate amount of energy (ultimately affecting runtime) which the UPS’s batteries will provide: red indicates a low level of energy; yellow indicates a medium level of energy; and green indicates a high level of energy. Since the runtime performance of all UPS batteries will gradually deplete over time, it is recommended that you periodically perform a self-test (see “MUTE/TEST” Button description) to determine the energy level of your UPS batteries BEFORE a blackout or severe brownout occurs. During a prolonged blackout or severe brownout, you should save files and shut down your equipment since battery power will eventually be depleted. When the LED turns red and an alarm sounds continuously, it indicates the UPS’s batteries are nearly out of power and UPS shut down is imminent.



“BATTERY WARNING” LED: this LED lights red and an alarm sounds intermittently after you initiate a self test (See “MUTE/TEST” Button description) to indicate the UPS batteries need to be recharged or replaced. Allow the UPS to recharge continuously for 12 hours, and repeat the self-test. If the LED continues to light, contact Tripp Lite for service. If your UPS requires battery replacement, visit tripplite.com/support/battery/index.cfm to locate the specific Tripp Lite replacement battery for your UPS.

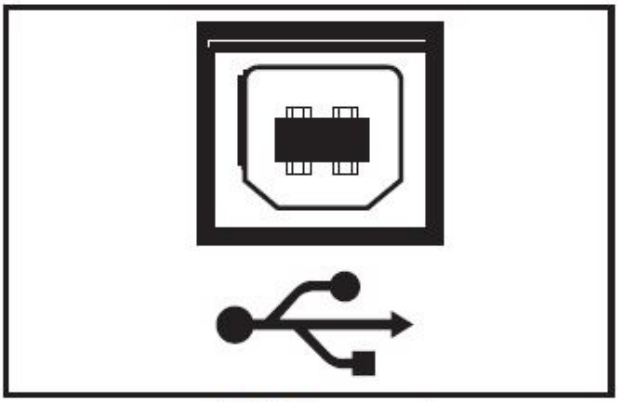
Other UPS Features

AC Receptacles:

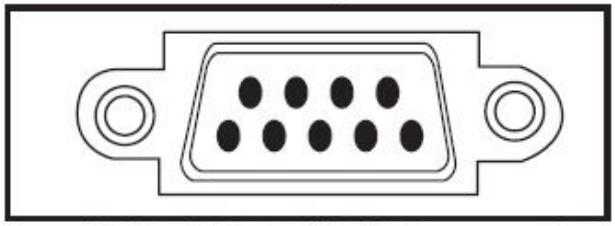


These output receptacles provide your connected equipment with AC line power during normal operation and battery power during power outages. The UPS protects equipment connected to these receptacles against damaging surges and line noise. If you have a USB or DB9 connection to your UPS, you can remotely reboot connected equipment by turning its receptacles OFF and ON using Tripp Lite software. Select models have a receptacle or receptacles (clearly identified on the rear panel) that may be remotely switched ON and OFF without interrupting power to other outlets. See software instructions for details.

Communication Ports (USB or RS-232) (Select Models Only):



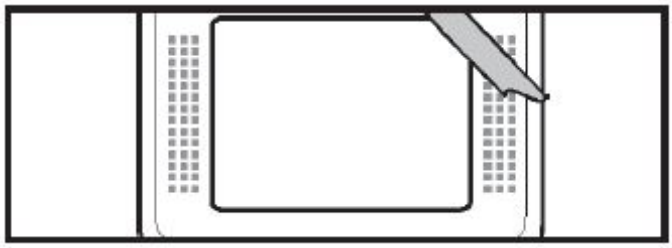
USB port



RS-232 (DB9 port)

These ports connect your UPS to any workstation or server. Use with Tripp Lite’s PowerAlert Software and included cables to enable your computer to automatically save open files and shut down equipment during a blackout. Also use PowerAlert Software to monitor a wide variety of AC line power and UPS operating conditions. Consult your PowerAlert Software manual or contact Tripp Lite Customer Support for more information. See “USB Communications” and “RS-232 Serial Communications” in the “Optional Installation” section for installation instructions.

Battery Replacement Door:

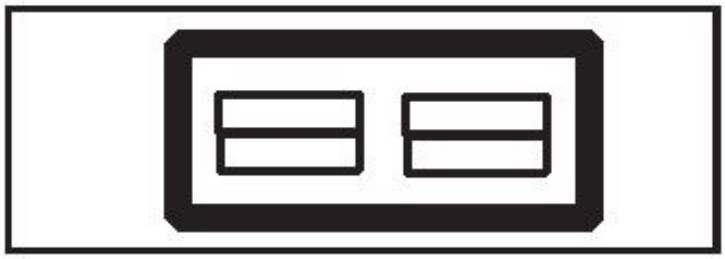


Under normal conditions, the original battery in your UPS will last several years. Refer to “Battery Warnings” in the Safety.

Input Breaker:

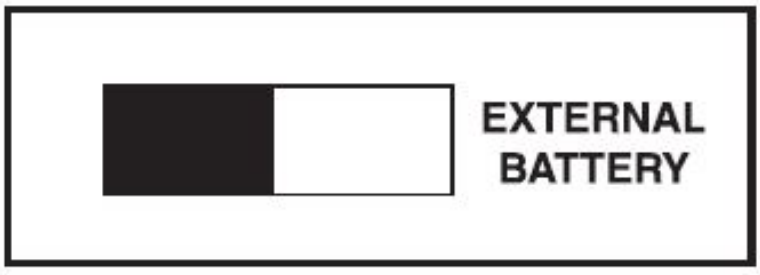
Protects your electrical circuit from overcurrent draw from the UPS load. If this breaker trips, remove some of the load, then reset it by pressing the breaker in.

External Battery Connector (Select Models Only):



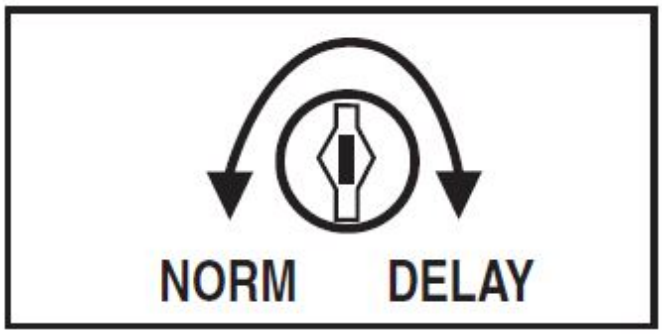
Use to connect one or more Tripp Lite battery packs for additional runtime. Refer to Specifications and/or the label next to the connector to determine the appropriate variety of battery pack to use. Refer to the battery pack instruction manual for complete installation information and important safety warnings. See “External Battery Connection” in the “Optional Installation” section.

Battery Charge Level Switch (Select Models Only):



Select models feature a switch that controls the UPS system’s battery charge rate. If you connect more than one external battery, set the Battery Charge Level Switch to the right. This will increase your UPS’s charger output so the additional batteries charge faster.
CAUTION! DO NOTset the Battery Charge Level Switch to the right without an external battery connected. There is a risk of damaging the UPS’s internal battery system.

Power Sensitivity Adjustment (Select Models Only):



This dial is normally set fully counterclockwise, which enables the UPS to protect against waveform distortions in its AC input. When such distortion occurs, the UPS will normally switch to providing PWM sine wave power from its battery reserves for as long as the distortion is present. In areas with poor utility power or where the UPS's input power comes from a backup generator, chronic waveform distortion could cause the UPS to switch to battery too frequently, draining its battery reserves. You may be able to reduce how often your UPS switches to battery due to wave form distortion by experimenting with different settings for this dial. As the dial is turned clockwise, the UPS becomes more tolerant of variations in its input power's AC waveform. NOTE: The further the dial is adjusted clockwise, the greater the degree of waveform distortion the UPS will allow to pass to connected equipment. When experimenting with different settings for this dial, operate connected equipment in a safe test mode so that the effect on the equipment of any waveform distortions in the UPS's output can be evaluated without disrupting critical operations.

Storage & Service

Storage

CAUTION! Your UPS has an internal power source. Its outlets may still deliver current, even after the UPS is unplugged, until the UPS is completely turned OFF (deactivated). Before storing your UPS, turn it completely OFF: with the UPS ON and receiving utility power, press and hold the POWER button for one second (an alarm will beep once briefly after the interval has passed); then, unplug the UPS from the wall outlet. If you store your UPS for an extended period of time, recharge the UPS batteries once every three months: plug the UPS into a wall outlet; allow it to charge for 4 to 6 hours; and then unplug it and place it back in storage. Note: after you plug the UPS in, it will automatically begin charging its batteries; however, it will not supply power to its outlets (see Quick Installation section). If you leave your UPS batteries discharged for an extended period of time, they will suffer a permanent loss of capacity.

Service

A variety of Extended Warranty and On-Site Service Programs are also available from Tripp Lite. For more information on service, visit tripplite.com/support. Before returning your product for service, follow these steps:

1. Review the installation and operation procedures in this manual to insure that the service problem does not originate from a misreading of the instructions.
2. If the problem continues, do not contact or return the product to the dealer. Instead, visit tripplite.com/support.
3. If the problem requires service, visit tripplite.com/support and click the Product Returns link. From here you can request a Returned Material Authorization (RMA) number, which is required for service. This simple on-line form will ask for your unit's model and serial numbers, along with other general purchaser information. The RMA number, along with shipping instructions will be emailed to you. Any damages (direct, indirect, special or consequential) to the product incurred during shipment to Tripp Lite or an authorized Tripp Lite service center is not covered under warranty. Products shipped to Tripp Lite or an authorized Tripp Lite service center must have transportation charges prepaid. Mark the RMA number on the outside of the package. If the product is within its warranty period, enclose a copy of your sales receipt. Return the product for service using an insured carrier to the address given to you when you request the RMA.

Specifications

Model	**SMART1050**	**SMART1500**	**SMART1500XL**
Nominal voltage and input range	120V~, 75-147V	120V~, 75-147V	120V~, 75-147V
Nominal input frequency a nd tolerance	60 Hz (+/- 5 Hz)	60 Hz (+/- 5 Hz)	60 Hz (+/- 5 Hz)
Nominal output voltage	120V~ in line mode and 1 15V~ in battery mode	120V~ in line mode and 1 15V~ in battery mode	120V~ in line mode and 115V~ in battery mode
Nominal output frequency	60 Hz (+/- 0.5 Hz)	60 Hz (+/- 0.5 Hz)	60 Hz (+/- 0.5 Hz)
Output voltage regulation i n line mode	120V~ (+8% / -18%)	120V~ (+8% / -18%)	120V~ (+8% / -18%)
Output voltage regulation i n battery mode	115V~ (+/- 5%)	115V~ (+/- 5%)	115V~ (+/- 5%)
Nominal output power in W / VA	705W / 1050VA	980W / 1500VA	980W / 1500VA

Output voltage waveform	Sinusoidal in line mode a nd quasi-sine (PWM) in b attery mode	Sinusoidal in line mode a nd quasi-sine (PWM) in b attery mode	Sinusoidal in line mode a nd quasi-sine (PWM) in battery mode
Maximum output current @ Power Factor	5.9A @ 120V~	8.2A @ 120V~	8.2A @ 120V~
	P.F. = 0.67	P.F. = 0.67	P.F. = 0.67
Efficiency with nominal loa d	96%	96%	96%
Maximum operating altitud e at 100% of nominal pow er	6562 ft. (2000 m)	6562 ft. (2000 m)	6562 ft. (2000 m)
Online Overload Capability	125% @ 10 minutes	125% @ 10 minutes	125% @ 10 minutes
Overload capacity in batter y mode	110% +/- 10% @ 5 seconds	110% +/- 10% @ 5 seconds	110% +/- 10% @ 5 seconds
Current limitation	12A	12A	12A
Autonomy time at full load	8 minutes @ 705W	7 minutes @ 980W	7 minutes @ 980W

Battery recharge time	4 hours	4 hours	4 hours
Transfer time	2 milliseconds typical (4 milliseconds max)	2 milliseconds typical (4 milliseconds max)	2 milliseconds typical (4 milliseconds max)
Outlets	6x 5-15R outlets with batt ery backup, regulation an d surge	6x 5-15R outlets with batt ery backup, regulation an d surge	6x 5-15R outlets with bat tery backup, regulation a nd surge
Maximum input current	6.7A	12A	12A

Product Registration and Regulatory Compliance

Visit tripplite.com/warranty today to register 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, Class A
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.
Note: 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 equipment. Any changes or modifications to this equipment not expressly approved by Tripp Lite could void the user's authority to operate this equipment.

FCC Notice, Class B
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.
Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any changes or modifications to this equipment not expressly approved by Tripp Lite could void the user's authority to operate this equipment. Equipment Attachment Limitations (models with the Industry Canada label in Canada only)

NOTICE: The Industry Canada label identifies certified equipment. This certification means that the equipment meets the telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements Document(s). The Department does not guarantee the equipment will operate to the user's satisfaction. Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that the compliance with the above conditions might not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment. Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas. Caution: Users should not attempt to make connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

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.
Tripp Lite has a policy of continuous improvement. Specifications are subject to change without notice. Photos and illustrations may differ slightly from actual products.

Note on Labeling
Two symbols are used on the label.

- **V~ :** AC Voltage
- **V :** DC Voltage

Documents / Resources

	TRIPP-LITE SMART1500XL Line Interactive UPS System [pdf] Owner's Manual SMART1050, SMART1500, SMART1500XL, SMART1500XL Line Interactive UPS System, Line Interactive UPS System, UPS System