Owner's Manual

SmartPro® & SmartPro® XL

Intelligent, Line-Interactive UPS Systems (Tower Configuration)
• 120V Input/Output • 700 - 1500VA Capacities • Extended-Run Options

UL 1778

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1111 W. 35th Street Chicago, IL 60609 USA
Customer Support: (773) 869-1234 • www.tripplite.com

Important Safety Instructions

SAVE THESE INSTRUCTIONS

This manual contains instructions and warnings that should be followed during the installation, operation and storage of all Tripp Lite UPS Systems. Failure to heed these warnings will void your warranty.

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.

Battery Warnings

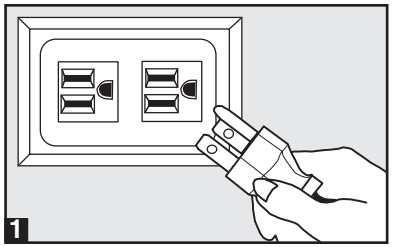
- Your UPS does not require routine maintenance. Do not open your UPS for any reason except battery replacement. There are no user-serviceable parts inside.
- Because the batteries present a risk of electrical shock and burn from high short-circuit current, observe proper precautions. Unplug and turn 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 www.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 www.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

1 Plug the UPS into an outlet on a dedicated circuit.*

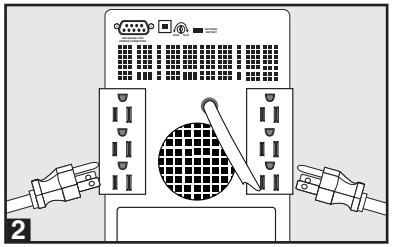
NOTE! after you plug the UPS into a live AC outlet, the UPS will automatically charge its batteries,** but will not supply power to its outlets until it is turned ON (see Step 3 below).

** 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*



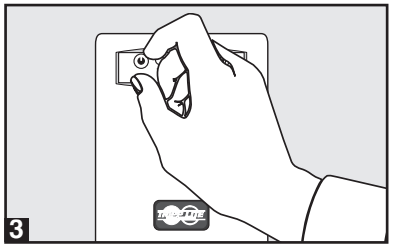
2 Plug your equipment into the UPS.

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 "OUTPUT LOAD LEVEL" LED description.



3 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.

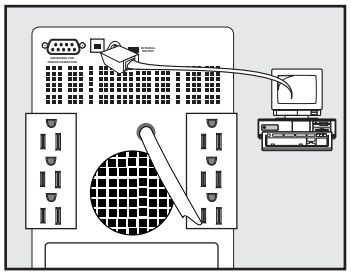


Optional Installation *(select models only)*

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

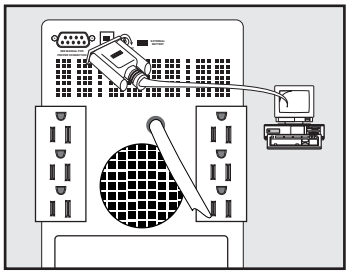
- ## USB Communications (Select Models Only)

  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 www.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 www.tripplite.com and install it on your computer.

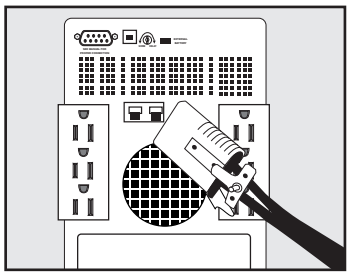


- ## External Battery Connection (Select Models Only)

  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 outlet,* 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 indicated 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.

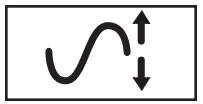
- If the "BATTERY WARNING" LED remains lit and the alarm continues to sound after the test, the UPS batteries need to be recharged or replaced. Allow the UPS to recharge continuously for 12 hours, and repeat the self-test. If the LED remains lit, contact Tripp Lite for service. If your UPS requires battery replacement, visit www.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

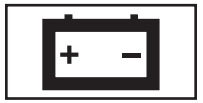
All Indicator Light descriptions apply when the UPS is plugged into a wall outlet and turned ON.

"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.

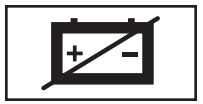


"VOLTAGE CORRECTION" LED: this green LED lights continuously whenever the UPS is automatically correcting high or low AC voltage on the utility line without the assistance of battery power. The UPS will also emit a slight clicking noise. These are normal, automatic operations of the UPS, no action is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

"OUTPUT LOAD LEVEL" LED: this multicolored LED indicates the 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.



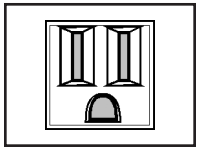
"BATTERY CHARGE" LED: when the UPS is operating from utility power, this LED indicates the approximate charge state of the UPS's internal batteries: red indicates the batteries are beginning to charge; yellow indicates the batteries are roughly midway through charging; and green indicates the batteries 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.



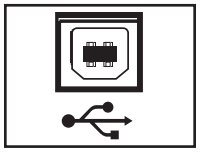
"BATTERY WARNING" LED: this LED lights red and an alarm sounds intermittently after you initiate a self test (See "MUTE/TEST" Button description) to indicate the UPS batteries need to be recharged or replaced. Allow the UPS to recharge continuously for 12 hours, and repeat the self-test. If the LED continues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

www.tripplite.com/support/battery/index.cfm to locate the specific Tripp Lite replacement battery for your UPS.

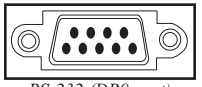
Other UPS Features



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.

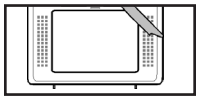


USB port



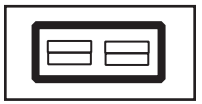
RS-232 (DB9 port)

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

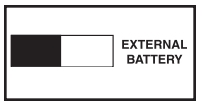


Battery Replacement Door: Under normal conditions, the original battery in your UPS will last several years. Refer to "Battery Warnings" in the Safety section on page 2.

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 NOT set 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

Before returning your UPS for service, follow these steps:

1. Review the installation and operation instructions in this manual to ensure that the service problem does not originate from a misreading of the instructions. Also, check that the UPS System's circuit breaker(s) are not tripped. This is the most common cause of service inquiries which can be easily remedied by following the resetting instructions in this manual.

2. If the problem continues, do not contact or return the UPS to the dealer. Instead, call Tripp Lite at (773) 869-1233. A service technician will ask for the UPS's model number, serial number and purchase date and will attempt to correct the problem over the phone.

3. If the problem requires service, the technician will issue you a Returned Material Authorization (RMA) number, which is required for service. If you require packaging, the technician can arrange to send you proper packaging. Securely pack the UPS to avoid damage during shipping. Do not use Styrofoam beads for packaging. Any damages (direct, indirect, special, incidental or consequential) to the UPS incurred during shipment to Tripp Lite or an authorized Tripp Lite service center is not covered under warranty. UPS Systems 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 UPS System is within the 2-year warranty period, enclose a copy of your sales receipt. Return the UPS for service using an insured carrier to the address given to you by the Tripp Lite service technician.

Specifications

Tripp Lite has a policy of continuous improvement. Specifications are subject to change without notice.

SmartPro® UPS Systems

Model Number: **Series Number:**	**SMART700** **AGSM700PJR3**	**SMART1050** **AGSM1050PJR3**	**SMART1500** **AGSM1500XPSR3**
Input Voltage/Frequency:	120V/60 Hz	120V/60 Hz	120V/60 Hz
On-Line Input Voltage Range:	79 - 147 volts	79 - 147 volts	79 - 147 volts
Output Capacity (VA/Watts):	700/450	1050/705	1500/980
Battery Runtime (Half Load/Full Load) Minutes:	20/6	23/8	20/7
Battery Recharge Time:	2-4 hrs.	2-4 hrs.	2-4 hrs.
Approvals:	UL, cUL, NOM, FCC B	UL, cUL, NOM, FCC B	UL, cUL, NOM, FCC A

SmartPro® XL UPS Systems

Model Number: **Series Number:**	**SMART750XL** **AGSM1500XPSR3**	**SMART1050XL** **AGSM1500XPSR3**	**SMART1500XL** **AGSM1500XPSR3**
Input Voltage/Frequency:	120V/60 Hz	120V/60 Hz	120V/60 Hz
On-Line Input Voltage Range:	79 - 147 volts	79 - 147 volts	79 - 147 volts
Output Capacity (VA/Watts):	750/600	1050/800	1500/980
Battery Runtime (Half Load/Full Load) Minutes:	29/12+	19/8+	20/7+
Battery Recharge Time:	2 - 4 hrs.	2 - 4 hrs.	2 - 4 hrs.
Approvals:	UL, cUL, NOM, FCC A	UL, cUL, NOM, FCC A	UL, cUL, NOM, FCC A

ALL UNITS:
Output Waveform Line Mode (filtered sinewave); Output Waveform Battery Mode (PWM sine wave); AC Surge Suppression (exceeds IEEE 587 Cat. A & B standards); AC Noise Attenuation (>40 dB at 1MHz); AC Protection Modes (H to N, H to G, N to G).

+ Battery runtime can be extended with addition of optional Tripp Lite External Battery Packs (Model #: BP36V27, sold separately). External batteries will increase both the battery runtime and the battery recharge time.

FCC RADIO/TV INTERFERENCE NOTICE (U.S. ONLY):
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.

FCC CLASS A RADIO/TV INTERFERENCE NOTICE (U.S. ONLY):
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 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 interference to radio communications. Operation of this equipment 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.

FCC CLASS B RADIO/TV INTERFERENCE NOTICE (U.S. ONLY):
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 instruction manual, may cause 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 using one or more of the following measures: reorient or relocate the receiving antenna; increase the separation between the equipment and the receiver; connect the equipment into an outlet on a circuit different from that which the receiver is connected; consult the dealer or an experienced radio/television technician for help. 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.

Note on Labeling
Two symbols are used on the label.
V~ : AC Voltage
V⎓ : DC Voltage

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