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## Tripp lite smart pro ups smart500rt1u manual

Mounting, Installation and Safety Instructions for SMARTPro UPS Systems [www.tripplite.com/warranty1111](http://www.tripplite.com/warranty1111) W. 35th Street, Chicago, IL 60609 USA [www.tripplite.com/support](http://www.tripplite.com/support) Important Safety Instructions 1 Always use caution when lifting the UPS due to its considerable weight. Ensure at least two people assist you in lifting and installing the system. 2 Install the UPS indoors, away from excess moisture or heat, dust or direct sunlight for optimal performance. 3 Maintain an ambient temperature between 0°C and 40°C (32°F and 104°F) near the UPS for best results. 4 Leave sufficient space around all sides of the UPS for proper ventilation, avoiding obstruction of its vents or fan openings. Do not dispose of batteries in a fire. Before replacing UPS batteries, unplug and turn off the device and use tools with insulated handles. Only authorized personnel can replace the batteries with the same type and number as the original ones. The old batteries are recyclable and can be returned to Tripp Lite or checked at [www.tripplite.com/UPSbatteryrecycling](http://www.tripplite.com/UPSbatteryrecycling) for recycling information. If you need a replacement battery, visit [www.tripplite.com/support/battery/index.cfm](http://www.tripplite.com/support/battery/index.cfm) for the specific one for your UPS model. When replacing the batteries, make sure they have the same type and number as before. The correct placement of equipment in a rack is crucial. Begin by attaching the unit using an assistant if needed, ensuring it's securely fastened with screws through its mounting ears into the rack rails. Follow specific guidelines when mounting UPS models, as outlined in the user manual. The recommended orientation for UPS models includes an upright position, with the LED panel facing upwards. Before mounting equipment, verify that you have sufficient hardware and follow proper installation procedures to ensure safety. When connecting your equipment, please note the maximum output capacity of your UPS unit. Exceeding this capacity may result in damage to your equipment or overloading. Always check the VA ratings on the nameplates of your devices and consult the "OUTPUT LOAD LEVEL" LED description if you're unsure about overload. Finally, turn on the UPS by pressing and holding the "ON/OFF/STANDBY" button for one second, then release it. These connections to USB and RS-232 serial ports are optional but may be necessary for specific applications. Connecting EPO Port Enables Emergency Shutdown of Inverter This feature is an optional one that comes in handy when you're dealing with applications requiring connection to a facility's Emergency Power Off (EPO) circuit. When your UPS is connected to this circuit, it gives you the option for emergency shutdown of the inverter. To hook up the EPO port, use the provided cable and connect the UPS's EPO port (located in section 2A) to a user-supplied switch - either normally closed or normally open, as per the circuit diagram in section 2B. However, please note that the EPO port is not for phone line surge protection; do not plug a phone line into this port. Operating the "ON/OFF/STANDBY" Button To turn your UPS ON: simply press and hold the "ON/OFF/STANDBY" button for one second while it's plugged into a live AC wall outlet. Release the button, and if there's no utility power available, you can use the "cold-start" function by holding the "ON/OFF/STANDBY" button for one second to supply power from its batteries. To turn your UPS OFF: press and hold the "ON/OFF/STANDBY" button for one second while it's receiving utility power, then unplug it from the wall outlet. Your UPS will be completely powered down. Managing Alarms with the "MUTE/TEST" Button Silencing (or "Muting") UPS Alarms: briefly press and release the MUTE/TEST button to silence the alarms. Running a Self-Test: plug your UPS in, turn it ON, and press and hold the MUTE/TEST button for two seconds. Keep holding until you hear several beeps, indicating that the self-test is complete. You can leave connected equipment on during this test. Important Safety Note: Do not unplug your UPS to test its batteries as this will remove safe electrical grounding and may cause damage to your network connections. If the LED stays on, contact Tripp Lite for service. If your UPS requires a battery replacement, visit [www.tripplite.com](http://www.tripplite.com) to find the correct replacement battery.\* The alarm will beep once after passing its interval.The Indicator Light descriptions apply when the UPS is plugged into a wall outlet and turned ON."POWER" LED: This green light stays on while the UPS supplies power from the utility source. It flashes and an alarm sounds (4 short beeps followed by pause) to indicate internal battery power during a blackout or severe brownout. If prolonged, save files and shut down equipment since internal batteries will run out. See "BATTERY CHARGE" LED description below."VOLTAGE CORRECTION" LED: This green light stays on when automatically adjusting AC voltage without battery help. The UPS also emits a slight clicking noise. These are normal operations, no action required."OUTPUT LOAD LEVEL" LED: This multicolored light shows the connected equipment load. It turns from green (light) to yellow (medium) to red (overload). If red, clear overload by unplugging some equipment until the light changes to yellow or green.CAUTION! Unresolved overloads may cause UPS shutdown and power loss during a blackout or brownout."BATTERY CHARGE" LED: This light indicates battery charge when operating from utility power. It turns red (charging), yellow (midpoint), or green (fully charged). When running on battery during a blackout, it shows energy level: red (low), yellow (medium), or green (high). Since batteries gradually deplete, perform self-test before a blackout to check energy levels. During prolonged blackouts, save files and shut down equipment since batteries will run out.Red LED with continuous alarm indicates nearly depleted power and imminent shutdown. The UPS features a red LED that indicates when batteries need recharging or replacement. It also has an alarm that sounds intermittently during self-tests. For issues with the LED, contact Tripp Lite for service. If the UPS requires battery replacement, visit their website to find a compatible replacement battery. The UPS provides 15-amp AC outlets, which protect connected equipment from surges and line noise. Some models have load banks that can be remotely switched off using software. Others have surge-only outlets for heavy-draw devices like laser printers. The UPS also has USB or RS-232 ports for connecting to workstations or servers. Using the PowerAlert Software, you can automatically save files and shut down equipment during a blackout. You can monitor AC line power and UPS operating conditions with the software. The UPS features an Emergency Power Off (EPO) port that allows connection to a contact closure switch for emergency shutdown. There's also an Accessory Slot where you can install optional accessories to remotely monitor and control the UPS. To protect against waveform distortions, set the Power Sensitivity Adjustment dial fully counter-clockwise. The UPS will then provide sine wave power from its battery reserves during distortion. In areas with unstable power supply or backup generators, a UPS might switch to battery too often due to distorted waveforms, depleting its reserves. Adjusting the waveform tolerance dial can sometimes help reduce this issue caused by moderate distortion. However, be aware that increasing this setting makes the UPS more lenient towards waveform distortions affecting connected equipment. It's recommended to test these changes in a safe mode before applying them to critical systems. Additionally, always turn off your UPS completely when storing it: press and hold the "ON/OFF/STANDBY" button for one second while it's receiving power, then unplug it. If stored for an extended period, recharge the batteries every three months by letting it charge for 12 hours before storing it again. Failing to do so can lead to permanent battery capacity loss. Extended warranty and on-site service programs are available from Tripp Lite, including details at [www.tripplite.com/support](http://www.tripplite.com/support). Before seeking service, ensure you've reviewed the manual carefully to rule out any misunderstandings of its instructions. Purchaser Information: Instructions for Returning Products The RMA number and shipping instructions will be sent to you via email. Please ensure the product has been marked with the RMA number on the outside package. For warranty-eligible products, include a copy of your sales receipt. During shipment, any damages (direct, indirect, special or consequential) are not covered under warranty. Prepaid transportation costs are required for products shipped to authorized service centers. Use an insured carrier to return the product to the specified address. Safety Precautions: When replacing batteries, follow these steps: 1 Remove Front Panel 2 Disconnect Batteries 3 Remove/Dispose of Batteries 4 Add Batteries 5 Connect Batteries Attach connectors according to the manual (black-to-black and red-to-red). FCC NOTICE: (For Class A Models) This equipment has been tested to comply with FCC Rules. However, improper installation or use can cause radio frequency interference, which may lead to user responsibility for correction. FCC NOTICE: (For Class B Models) Similar to Class A models, but with some variations in residential installations. Given article text here "Installation and Safety Precautions" \* Install the UPS in an interior location, away from humidity, excessive heat or light. \* Ensure the ambient temperature around the UPS is between 0°C to 40°C (32°F to 104°F). \* Leave sufficient space around the UPS for proper ventilation. Do not block air vents or openings of fans. \* When installing the UPS in a vertical orientation, ensure that the LED display panel is at the top level and not at the bottom. \* Never install the unit with its front or rear panel facing downwards (at any angle). This can cause internal overheating and damage to the product. \* The UPS contains its own power source (battery) and may have energized output terminals even when it's not connected to a CA power source. Make sure to connect the UPS to a correctly grounded CA power outlet. \* Never modify the UPS's grounding terminal or use adapters that can eliminate grounding of the UPS. \* Do not plug the UPS into itself; this will damage the unit and void its warranty. \* When connecting the UPS to an activated motor-driven generator, ensure that the generator provides a filtered, regulated output suitable for computer systems. Connecting the UPS to an unqualified generator can nullify the unit's Maximum Life Expectancy (MLE) guarantee. \* The use of this equipment is not recommended in applications where failure of the UPS could reasonably cause failure of life-support equipment or affect its safety or effectiveness. \* Do not operate this equipment near flammable anesthetics, oxygen, or nitrous oxide mixtures. \* Never connect surge protectors or extension cables to the UPS output. This can damage the UPS and affect the warranties of the surge protector and the UPS. \*\*Battery Safety\*\* \* Be aware that batteries may present a risk of electrical discharge and burns due to short circuit currents. Take appropriate precautions. Do not dispose of batteries in fire. When replacing the battery in your UPS during operation, it will not provide backup power in case of a blackout or other energy interruptions. \*\*Important:\*\* 1. Do not operate the UPS without batteries. 2. The battery maintenance service should be performed by someone familiar with batteries and following required precautions. 3. When replacing batteries, use the same type and number of batteries or modules. 4. \*\*Warning:\*\* Do not dispose of batteries in fire. Batteries can explode. \*\*Warning:\*\* Do not open or mutilate batteries. Released electrolytes are harmful. \*\*Installation:\*\* 1. Install your equipment in a rack with 4 posts or a cabinet (see below for installation instructions). 2. Before installation, determine the suitability of accessories and procedures. 3. If the accessories and procedures are not suitable for your application, contact the manufacturer of your rack or cabinet. 4. The procedures described in this manual are for common types of racks and cabinets and may not be appropriate for all applications. \*\*Note:\*\* Illustrations may differ from your model. All UPS models include required accessories for installation in a 4-post rack. To install: 1. Use the installation ears (A) in the front installation holes of your equipment (B), using the provided screws (C). The ears should point forward. 2. If necessary, use an assistant to lift and install your equipment in the rack, securing it with suitable accessories (D) through its installation ears and the rack's rails. \*\*Installation Instructions\*\* 1. Install the UPS on a rack using the provided screws. Make sure the ears of the UPS point backwards. 2. Use an assistant if needed to lift and install the UPS in the rack, securing it with the included accessories. \*\*UPS Installation\*\* 1. Place the UPS upright with the LED panel facing upwards. 2. Attach the installation ear to the rack using the provided screws. 3. Connect your equipment to the UPS. \*\*Safety Notes\*\* \* The UPS can only support electronic equipment. Overloading may damage the UPS. \* Check the VA ratings of your equipment and ensure they don't exceed the output capacity of the UPS. \*\*Powering On\*\* 1. Press the "ON/OFF/STANDBY" button to turn on the UPS. 2. A brief beep will sound after a second, then release the button. \*\*Optional Features\*\* 1. Communications (USB and Serial): Use the included USB cable or DB9 serial cable to connect your computer to the UPS. 2. EPO Port: This optional feature is for applications that require it. \*\*Software Installation\*\* 1. Install the PowerAlert software from Tripp Lite on your computer, matching the operating system. 2. The UPS may have additional communication ports that can be connected to other computers with PowerAlert installed. For more information, refer to the PowerAlert manual. \*\*UPS Connection and Power-On/Off Procedure\*\* To connect your UPS, you need to establish an emergency shutdown circuit (EPO). When the UPS is connected to this circuit, it enables emergency shutdown of the inverter. Use the provided cable to connect the EPO port of your UPS (see diagram) to a normally open or closed switch provided by the user. \*\*Power-On and Power-Off Procedure\*\* To turn on the UPS: 1. Plug the UPS into a live AC power outlet. 2. Press and hold the "ON/OFF/STANDBY" button for one second. 3. Release the button. 4. If there is no public grid electricity, you can start the UPS in "cold start" mode by pressing and holding the "ON/OFF/STANDBY" button for one second. To turn off the UPS: 1. Ensure the UPS is receiving power from the public grid. 2. Press and hold the "ON/OFF/STANDBY" button for one second. 3. Release the button. 4. Unplug the UPS from the power outlet. \*\*Autodiagnosis Procedure\*\* To run an autodiagnostic test: 1. Ensure the UPS is turned on. 2. Press and hold the "MUTE/TEST" button for two seconds. 3. Continue holding the button until the alarm sounds several times and the UPS runs a diagnostic test. \*\*Important Safety Notice\*\* Do not disconnect your UPS to test its batteries, as this may cause electrical shock or damage to your equipment. \*\*Autodiagnosis Results\*\* The autodiagnostic test will take approximately 10 seconds while the UPS checks its battery capacity and charge level. If the "OUTPUT LOAD LEVEL" LED remains red and the alarm continues after the test, the UPS's output is overloaded. To correct this, disconnect some of your equipment and re-run the autodiagnostic test until the LED turns off and the alarm stops. If the power goes out or there's a voltage drop, the UPS will shut down and stop providing output power. If the "BATTERY WARNING" LED remains lit and the alarm continues to sound after testing, the UPS batteries need to be recharged or replaced. Allow the UPS to continuously recharge for 12 hours and then repeat the self-diagnosis. If the LED remains lit, contact Tripp Lite for service. If your UPS requires battery replacement, visit [www.tripplite.com](http://www.tripplite.com) to find the specific replacement battery. The following LEDs are described: \* "POWER" (green): Indicates that the UPS is on and providing power from its internal batteries during a blackout or voltage drop. \* "VOLTAGE CORRECTION" (green): Shows that the UPS is automatically correcting for high or low voltage in the output power without using battery power. A slight click will also be emitted, which is normal. \* "OUTPUT LOAD LEVEL" (multicolor): Displays the approximate electrical load of connected equipment on the UPS's CA outlets. It will change from green (light load) to yellow (medium load) to red (overload). If it remains lit or flashing red, eliminate any overload by disconnecting some devices until it changes back to yellow or green. \*\*Warning:\*\* Failure to correct an overload in a timely manner can cause the UPS to shut down and stop providing output power. \*\*Battery Warning\*\* If your UPS (Uninterruptible Power Supply) is low on battery power, an LED light will flash red and sound an intermittent alarm after you initiate self-diagnostic testing (see "MUTE/TEST" button description). This indicates that the UPS batteries need to be recharged or replaced. Allow the UPS to continue charging for 12 hours and repeat the self-diagnostic test. If the LED remains lit, contact Tripp Lite for assistance. To replace the battery, visit [www.tripplite.com](http://www.tripplite.com) to locate the specific replacement battery for your UPS. \*\*NEMA 5-15R Receptacles\*\* Your UPS has NEMA 5-15R receptacles that provide 15 amps of AC power. These outlets supply line power to connected equipment during normal operation and battery power during outages or voltage drops. The UPS protects connected equipment from overvoltage, noise, and other electrical hazards. \*\*Communication Ports (USB or RS-232)\*\* These ports connect your UPS to a workstation or server. Use the PowerAlert software from Tripp Lite with included cables to automatically save open files and shut down equipment during an outage. You can also use the software to monitor various power conditions and UPS operations. For more information, consult the PowerAlert manual or contact Tripp Lite's customer support. \*\*EPO (Emergency Power Off) Port\*\* Your UPS has an EPO port that allows you to connect the UPS to a contact closure interruptor to activate emergency shutdown of the inverter. Consult the Installation Optional section for instructions on installing this feature. \*\*Auxiliary Slot\*\* Remove the small panel from the top cover to install optional accessories that allow remote monitoring and control of your UPS. For installation instructions, consult the manual. \*\*Troubleshooting and Warranty Information\*\* If you encounter any issues with your product, please review this manual to ensure that it is not due to misreading instructions. \*\*Warranty and Return Policy\*\* If the issue persists, do not contact or return the product to the manufacturer. Instead, visit [www.tripplite.com/support](http://www.tripplite.com/support) to request a Return Merchandise Authorization (RMA) number. This number is required for technical service. Please provide your product's serial and model numbers, along with other general information. \*\*Product Care\*\* The original batteries in your UPS will last for many years under normal conditions. Before replacing the batteries, consult the Safety section of this manual. The batteries are designed for Hot-Swap replacement (i.e., while the UPS is running), but a qualified service technician may need to power off the UPS and disconnect it before proceeding. \*\*Disassembly Instructions\*\* 1. Remove the Front Panel 2. Disconnect the Batteries 3. Remove/Dispose of the Batteries 4. Install new Batteries 5. Connect the Batteries (make sure to connect the black wire to black and red wire to red) 6. Reinstall the Front Panel \*\*FCC Notice\*\* This device has been tested and found to comply with FCC rules for digital devices Class A. These limits are designed to provide reasonable protection against harmful interference when operated in a commercial environment. This device generates, uses, and can radiate radio frequency energy and may cause harmful interference if not installed and used according to the instructions. The operation of this equipment is likely to cause harmful interference, and you will be required to correct it at your own expense. You must use shielded cables and connectors with this product. \*\*Warning about Radio/TV Interference\*\* This product has been tested and complies with FCC rules for digital devices Class B, as outlined in Part 15 of the FCC Regulations. These limits are designed to provide reasonable protection against harmful interference in residential installations. However, there is no guarantee that this product will not cause interference in a particular installation. If you experience TV or radio reception problems after using this product, try troubleshooting by: \* Reorienting or relocating your antenna \* Increasing the distance between the device and receiver \* Plugging the device into a different power outlet \* Contacting a distributor or experienced electronics technician \*\*Important Notes\*\* \* This product emits radiofrequency energy and may cause interference if not installed and used as instructed. \* You must use shielded cables and connectors with this product. \* Any unauthorized modifications to this product may void its warranty. \*\*Compliance Information\*\* This device complies with FCC Regulations, Part 15. Its operation is subject to the following conditions: 1. This device shall not cause harmful interference. 2. This device shall accept any received interference, including that which may cause undesirable operation. \*\*Recycling Program\*\* Please recycle Tripp Lite products and their lead-acid batteries, which are highly recyclable. Check local recycling requirements or call 1-773-869-1234 for more information. Visit our website at for updated information on battery recycling. \*\*Important Safety Guidelines\*\* When installing, using, and storing this product, please follow these important instructions. Failure to do so may affect the warranty. \* Be cautious when lifting the device, as it can be heavy. Installation and maintenance should be done by at least two people. \* Install the device in a well-ventilated area, away from heat sources, humidity, dust, and direct sunlight. \* Ensure the ambient temperature is between 0°C and 40°C (32°F and 104°F) for optimal performance. \* Leave sufficient space around the device for proper ventilation. Do not obstruct air vents or openings. \* Make sure the display panel is at the top of the device and not at the bottom. \* Avoid mounting the device with its front and back panels facing downwards, as this may block internal cooling systems and cause damage. \* The device contains its own energy source (battery) and may be under tension even when it's not connected to a power source. Always plug in correctly. \* Do not modify the device's settings or connections in a way that could affect its compatibility with the electrical grid. \* Never connect the device to itself, as this can damage the device and void the warranty. \* If the device is connected to a generator powered by a motor, ensure it provides filtered and adapted power output suitable for computer equipment. Connecting the device to a generator may also void any future maintenance guarantees. \*\*Additional Guidelines\*\* \* Do not use this device in applications that may require it to be continuously powered or where failure could lead to the malfunction of other equipment. \* Consult the user manual and manufacturer guidelines for specific instructions on installation, operation, and maintenance. Do not use this equipment in situations that could compromise its security or effectiveness. Avoid using it where there is a mixture of anesthetic gases with flammable air, oxygen, or nitrogen oxide. Do not connect fuses or electrical extensions to the output of the power supply, as this may damage the device and void the warranty on the fuse and power supply.