

# Owner's Manual

## SmartPro® RMX 1000-2000 VA

*120V Input/Output UPS Systems  
Intelligent • Line-Interactive • Industrial Cabinet*



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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 all Tripp Lite UPS Systems. Failure to heed these warnings will void your warranty.

### UPS Location Warnings

- Use caution when lifting UPS. Because of the considerable weight of all 3U Rackmount UPS systems, at least two people should assist in lifting and installing them.
- 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 32° F and 104° F (0° C and 40° C).
- Leave adequate space around all sides of the UPS for proper ventilation.

### UPS Connection Warnings

- The UPS contains its own energy source (battery). The output terminals may be live even when the UPS is not connected to an AC supply.
- 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.
- 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 devices in which a malfunction or failure of a Tripp Lite UPS System could cause failure or significantly alter the performance of that device.
- Do not connect extension cords or surge suppressors to the output of your UPS. This may damage your UPS and will void both the surge suppressor and UPS warranties.

### Battery Warnings

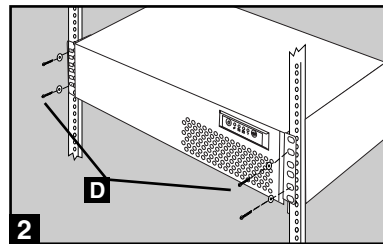
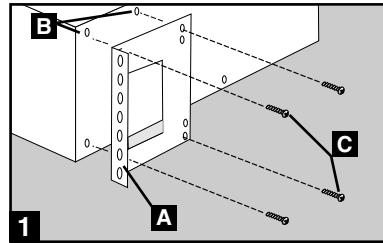
- Your UPS does not require routine maintenance. Do not open your UPS for any reason except battery replacement. There are no user-serviceable parts inside.
- Battery replacement must be performed by qualified service personnel. Because the batteries present a risk of electrical shock and burn from high short-circuit current, observe proper precautions. Unplug and turn off the UPS before performing battery replacement. Use tools with insulated handles, and take caution that the battery terminals do not contact the metal housing of the UPS. 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.
- The UPS batteries are recyclable. Refer to local codes for disposal requirements, or in the USA only call 1-800-SAV-LEAD for recycling information. Do not dispose of the batteries in a fire.
- Do not attempt to add external batteries to your UPS system.

## Mounting

Your UPS may be rackmounted in 4- or 2-post racks using these suggested mounting procedures. These procedures are for common rack types and may not be appropriate for all rack configurations. User must determine the fitness of rackmount hardware and procedures before mounting.

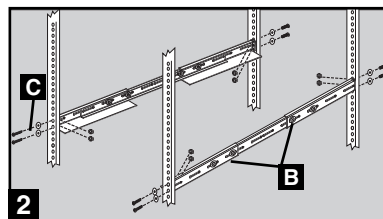
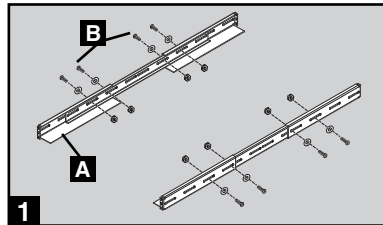
### Suggested Rackmount Installation for the SM1000RMX

- 1** Attach mounting ears (A) to the front mounting holes of the UPS (B) using the screws provided (C).
- 2** Have an assistant lift the UPS and hold it in position with the mounting ears flush against the rack's side supports. Mount the UPS by screwing user-supplied rack bolts (D) through its mounting ears, and into the rack's side supports.



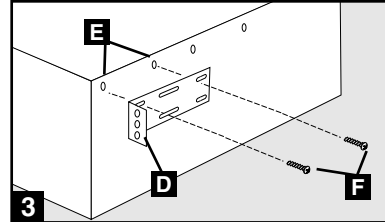
### Suggested 4-Post Rackmount Installation for the SM2000RMX

- 1** Connect the three segments of each shelf (A) using the included screws, nuts and washers (B). Leave the screws slightly loose so that the shelves can be adjusted in the next step.
- 2** Adjust each shelf to fit your rack, then mount them in the lowest available space of your rack with the screws, nuts and washers provided (C). Note that the support ledges should face inward. Tighten the screws that connect the shelf segments (B).

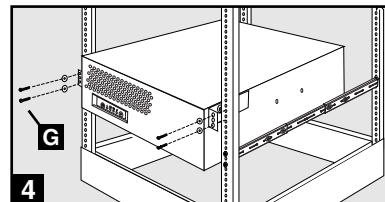


## Mounting *continued*

- 3** Attach mounting ears (D) to the front mounting holes of your UPS (E) using the screws provided (F). Do not attach the mounting ears to your equipment's middle holes.

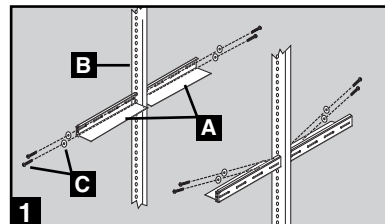


- 4** Using an assistant if necessary, lift your equipment and slide it onto the mounting shelves. Attach your equipment to the rack by passing the user-supplied screws, nuts and washers (G) through its mounting ears and into the rack rails.

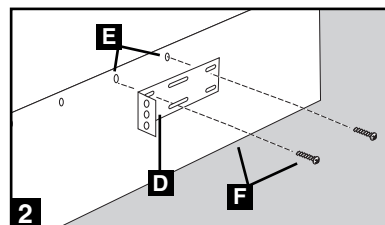


### Suggested 2-Post Rackmount Installation for the SM2000RMX

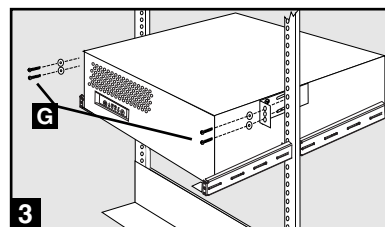
- 1** Attach the four mounting shelf segments shown (A) to both rack posts (B) with the screws, nuts and washers provided (C). Note that the side supports should face inward.



- 2** Attach mounting ears (D) to the middle mounting holes of your UPS (E) using the screws and washers provided (F). Do not attach the mounting ears to your equipment's front holes.



- 3** Using an assistant if necessary, lift your UPS and slide it onto the mounting shelves. Attach your UPS to the rack by passing the user-supplied screws, nuts and washers (G) through its mounting ears and into the rack rails.

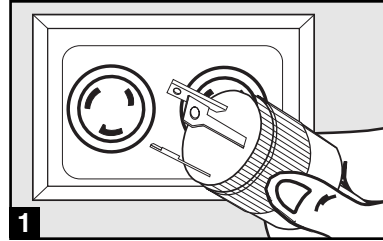


## Connection

### 1 Plug your UPS's line cord into an electrical outlet.

Your UPS must be connected directly to a 3-wire grounded AC receptacle. Do not use extension cords with your UPS.

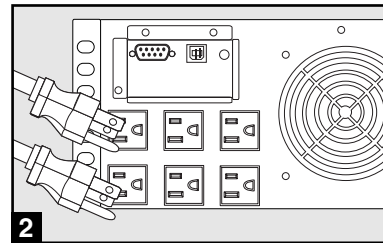
Once your UPS is plugged in, the UPS will enter STANDBY mode. The fan will activate and the “✓” LED will begin flashing. The UPS system's outlets will not be active until the UPS is turned ON.



1 SM2000RMX plug (NEMA L5-20P) shown

### 2 Plug your equipment into your UPS.

Your UPS is designed to support only computer equipment. You will overload your UPS if you connect household appliances, laser printers or surge suppressors to the UPS's outlets.

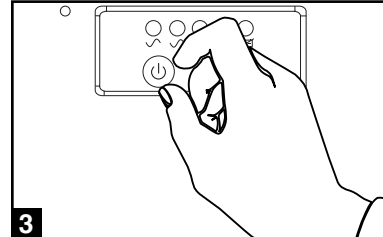


2 SM1000RMX shown

### 3 Turn your UPS ON

- Press the “POWER” button
- Hold the button for a moment, until the “✓” LED stops flashing and illuminates constantly
- Release the button

Your UPS is now ON and its AC outlets are active.



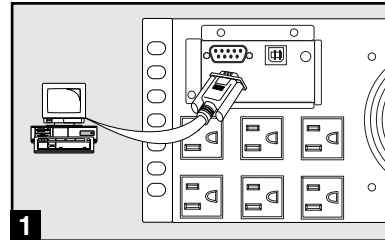
3 SM2000RMX shown

## Connection *optional*

Your UPS will function properly without these connections.

### 1 DB9 Port Connection

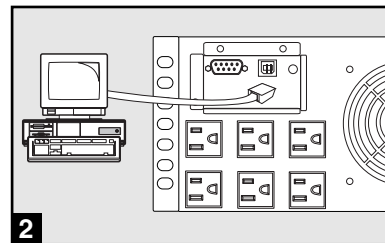
Using the DB9 cable provided, connect a DB9 port on your computer to a DB9 port on your UPS. Install the Tripp Lite power protection software appropriate to its operating system. If your UPS has two DB9 ports, a second computer with a DB9 port may be connected if desired.



SM1000RMX shown

### 2 USB Port Connection

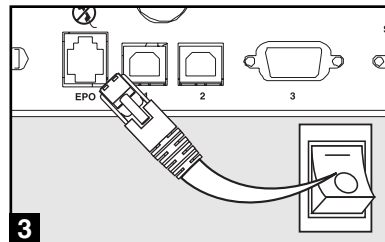
Using the USB cable provided, connect a USB port from a computer to a USB port on your UPS. Install the Tripp Lite power protection software appropriate to its operating system. If your UPS has two USB ports, a second computer with a USB port may be connected if desired.



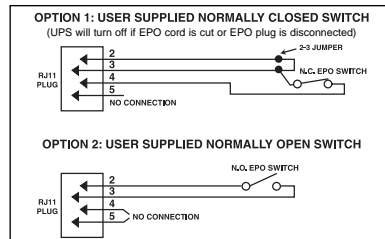
SM1000RMX shown

### 3 EPO Port Connection (Select Models Only)

Using the RJ11 cable provided, connect the Emergency Power Off (EPO) port of your UPS to a user-supplied normally closed or normally open switch according to the circuit diagram below. The EPO port is not a phone line surge suppressor; do not connect a phone line to this port.



SM2000RMX shown



EPO Circuit Diagrams

## Basic Operation

### Buttons (Front Panel)



Use the **POWER** button to switch your UPS between its four modes of operation.

**OFF:** No indicator lights are on. The UPS is completely shut down for storage or shipping. If the UPS is connected to AC power, it will start up in **STANDBY** mode. If the UPS is not connected to AC power and the **POWER** button is pressed for two seconds, the UPS will “cold start” into **INVERT** mode.

**STANDBY:** The “ $\surd$ ” light is flashing. The UPS is receiving AC power and using it to charge its batteries, but its outlets are not active. Pressing the **POWER** button while the UPS is in **STANDBY** mode will put the UPS in the **ON** mode. Unplugging the UPS or cutting AC power while the UPS is in **STANDBY** mode will put the UPS in the **OFF** mode.

**ON:** The “ $\surd$ ” light is on. The UPS is receiving AC power, charging its batteries and delivering power to connected equipment. If AC power is lost while the UPS is **ON** (i.e. a blackout occurs), the UPS will switch into **INVERT** mode. Pressing the **POWER** button while the UPS is **ON** will put the UPS in **STANDBY** mode.

**INVERT:** The “ $\boxtimes$ ” light is flashing. The UPS is powering connected equipment from battery backup. If AC power is restored, the UPS will switch to the **ON** mode. Pressing the **POWER** button while the UPS is in **INVERT** will put the UPS into the **OFF** mode. If the UPS is in **INVERT** mode and its batteries are drained, the UPS will switch to the **OFF** mode until AC power is restored, then switch to the **ON** mode.

Use the **MUTE/TEST** button to do two things:



**SILENCE ALARM:** Your UPS has three alarms. The first, the **INVERT** alarm, emits four short beeps every ten seconds when the UPS is in **INVERT** mode, to warn you that AC power has failed. The second, the **OVERLOAD** alarm, emits short, rapid beeps when the UPS is in **INVERT** mode if the total power draw of connected equipment exceeds the UPS’s output capacity, to warn you to reduce the load. The third, the Low Battery alarm, emits a constant beep when the UPS is in **INVERT** mode and its batteries are very nearly depleted, to warn you that connected equipment must be shut down. To silence the **INVERT** or **OVERLOAD** alarms, press the **MUTE/TEST** button. The **LOW BATTERY** alarm will only stop when the UPS switches to the **OFF** or **ON** mode.

**SELF-TEST BATTERIES AND ALARMS:** If your UPS is in the **ON** mode and has a load connected, you may test its batteries by pressing the **MUTE/TEST** button for two seconds. The UPS will switch to **INVERT** mode for several seconds. Normally, the **INVERT** alarm (four short beeps) will sound, indicating that the system is working properly. If the **OVERLOAD** alarm (short, rapid beeps) sounds, reduce the load on the UPS. If the **LOW BATTERY** alarm (a constant beep) sounds, your UPS’s batteries may need replacing or the batteries may simply be less than fully charged. Let the UPS charge for 12 hours, then perform a second self-test. If the **LOW BATTERY** alarm sounds again, contact Tripp Lite for service. Do not unplug your UPS to test its batteries, or you will remove safe electrical grounding and may introduce a damaging surge into your network connections.

## Basic Operation *continued*

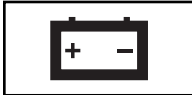
### Indicator Lights (Front Panel)



**POWER:** Lights green when the UPS is receiving AC power. Illuminates constantly when the UPS is in the **ON** mode, indicating that batteries are charging and connected equipment is receiving filtered AC power. Flashes while in **STANDBY** mode to indicate that batteries are charging but connected equipment is not receiving power.



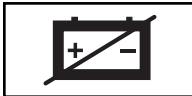
**VOLTAGE CORRECTION:** Lights green whenever your UPS is automatically correcting high or low AC line voltage. The UPS will also click. These are normal, automatic UPS operations, and no action is required on your part.



**BATTERY CHARGE:** This multicolored light displays 7 separate UPS battery charge conditions. It will turn from red (low) to yellow (medium) to green (full) to show you the level of battery charge. If the light is constant, your UPS is in the **ON** or **STANDBY** mode, operating from line power, and the battery is charging. If the light is flashing, your UPS is in the **INVERT** mode, operating from battery, and the battery is discharging. If the light is flashing red, your UPS is in **INVERT** and is nearly out of power: you should save files and shut down your equipment immediately.

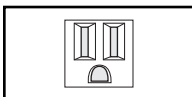


**OUTPUT LOAD:** This multicolored light shows how heavy your UPS's load is. Steady green indicates a light load, steady yellow a medium load. When the light is red, your UPS is supporting a load above 85% of its capacity. If the red light begins flashing, then your UPS is severely overloaded. Immediately remove load from the UPS until the light stops flashing.



**BATTERY WARNING:** Lights red if your UPS's self-test (initiated with the Mute/Test Switch) reveals a low battery charge or internal fault. If this light turns on, let the UPS charge for 12 hours then perform a second self-test. If the light stays on, contact Tripp Lite for service.

### Other UPS Features (Rear Panel)



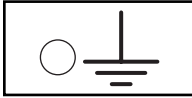
15 amp NEMA 5-15R

**AC Receptacles:** Your UPS has 15-amp outlets that provide 120V AC power. These output receptacles supply your connected equipment with AC line power during normal operation and battery power during blackouts and brownouts. The UPS protects equipment connected to these receptacles against damaging surges and line noise. If you have a DB9 or USB connection to your UPS, you can remotely reboot connected equipment by turning the UPS **OFF** and **ON** using Tripp Lite's PowerAlert Software. See software instructions for details.

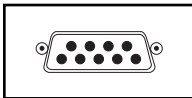


## Basic Operation *continued*

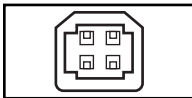
### Other UPS Features (Rear Panel)



**Ground Screw (Select Models Only):** Use this to connect any equipment that requires a chassis ground.



**Smart DB9 Ports:** Your UPS has one or two DB9 ports that may be used to connect the UPS to a DB9 port on any workstation or server. Use with Tripp Lite cabling and PowerAlert Software to monitor and manage network power and automatically save open files and shut down equipment during a blackout (see Connection.) The DB9 port labeled "SNMP Config" is also used to configure Tripp Lite SNMP Adapters.



**Smart USB Ports:** Your UPS has one or two USB ports that may be used to connect the UPS to a USB port on any workstation or server. Use with Tripp Lite cabling and PowerAlert Software to monitor and manage network power and automatically save open files and shut down equipment during a blackout (see Connection, page 5).



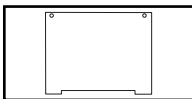
**EPO (Emergency Power Off) Port (Select models only):** Your UPS may have an EPO port that can be used to connect the UPS to a contact closure switch to enable emergency inverter shutdown (see Connection, page 5).



**Accessory Slot (Select models only):** Remove the small cover panel from this slot to use optional accessories to remotely monitor and control your UPS. Contact Tripp Lite at (773) 869-1234 for more information, including a list of available SNMP, network management and connectivity products.



**Input Breaker:** Your UPS has an input breaker that protects your UPS from overload. If the breaker button trips, remove some of the load from the UPS's receptacles and allow the unit to cool before resetting the breaker button by pressing it.



**Battery Door:** Qualified service personnel can remove this plate to remove and replace the UPS batteries. All Battery Warnings must be observed (see Important Safety Warnings, page 2).

## Storage & Service

### Storage

Before storing your UPS, disconnect all equipment to avoid battery drain, then place the UPS in the OFF mode by putting it in STANDBY mode, then unplugging it (see Basic Operation, page 7). If you store your UPS for an extended period of time, recharge the UPS batteries once every three months by following Steps 1 and 2 in the Connection section (page 5) and allowing the UPS to charge its batteries for 4-6 hours before placing it back in storage. If you leave your UPS batteries discharged for an extended period of time, they will suffer a permanent loss of capacity.

### Service

If returning your UPS for service, contact your local Tripp Lite dealer or distributor. They will refer you to a service center. Please carefully pack the UPS using the ORIGINAL PACKING MATERIAL that came with the unit. Enclose a letter describing the symptoms of the problem. If the UPS is within the 2 year warranty period, enclose a copy of your sales receipt.

## Specifications

Model Series	SM1000RMX AGSM1000IG30	SM2000RMX AGSM2200Y2U29
Output Capacity (VA/Watts):	1000/750	2000/1300
Battery Runtime in Minutes (Half Load/Full Load):	33/13	53/23
Battery Recharge Time:	2-4 hrs.	2-4 hrs.
Approvals:	UL, cUL	UL, cUL

Input Voltage (120V); Input Frequency (60 Hz); Online Input Voltage Range (79-147 volts); Voltage-Regulated Output Voltage Range (120  $\pm$ 9%); On-Battery Output Voltage Range (120  $\pm$ 5%); Output Waveform Line Mode (filtered sine wave); Output Waveform Battery Mode (PWM sine wave); AC Surge Suppression (exceeds IEEE 587 Cat. A & B standards); AC Noise Attenuation (>40 dB); AC Surge Protection Modes (H to N, H to G, N to G).

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.

Tripp Lite has a policy of continuous improvement. Specifications are subject to change.



