

CyberPower®

Smart App Sinewave Series PR500LCDRT1U/PR750LCDRT1U/PR1000LCDRT1U User's Manual

K01-0000323-02

PRODUCT REGISTRATION

Thank you for purchasing a CyberPower product. Please take a few minutes to register your product at www.cyberpowersystems.com/registration. Registration certifies your product's warranty, confirms your ownership in the event of a product loss or theft and entitles you to free technical support. Register your product now to receive the benefits of CyberPower ownership.

IMPORTANT SAFETY WARNINGS (SAVE THESE INSTRUCTIONS)

This manual contains important instructions that should be followed during installation and maintenance of the UPS and batteries. Please read and follow all instructions carefully during installation and operation of the unit. Read this manual thoroughly before attempting to unpack, install, or operate.

CAUTION! To prevent the risk of fire or electric shock, install in a temperature and humidity controlled indoor area, free of conductive contaminants. Please see specifications for acceptable temperature and humidity range.

CAUTION! For pluggable equipment, the socket-outlet shall be installed near the equipment and shall be easily accessible.

CAUTION! To reduce the risk of fire, connect only to a circuit provided with 20 amperes maximum branch circuit overcurrent protection in accordance with the National Electric Code, ANSI/NFPA 70.

CAUTION! The UPS must be connected to a grounded AC power outlet with fuse or circuit breaker protection. DO NOT plug the UPS into an outlet that is not grounded. If you need to de-energize this equipment, turn off and unplug the UPS.

CAUTION! DO NOT USE FOR MEDICAL OR LIFE SUPPORT EQUIPMENT! CyberPower Systems does not sell products for life support or medical applications. DO NOT use in any circumstance that would affect operation or safety of any life support equipment, with any medical applications, or patient care.

CAUTION! The battery can energize hazardous live parts inside even when the AC input power is disconnected.

CAUTION! To reduce the risk of electric shock, do not remove the cover, except to service the battery. There are no serviceable parts inside, except for the battery.

CAUTION! To avoid electrical shock, turn off the unit and unplug it from the AC power source before servicing the battery or installing a computer component.

CAUTION! DO NOT USE WITH OR NEAR AQUARIUMS! To reduce the risk of fire, do not use with or near aquariums. Condensation from the aquarium can come in contact with metal electrical contacts and cause the machine to short out.

CAUTION! DO NOT USE WITH LASER PRINTERS! The power demands of laser printers are too large for a UPS.

WARNING: This product can expose you to chemicals including Styrene, which is known to the State of California to cause cancer, and Bisphenol-A, which is known to the State of California to cause birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

INSTALLING YOUR UPS SYSTEM

UNPACKING

Inspect the UPS upon receipt. The box should contain the following:

(1) UPS Unit; (1) User's Manual for UPS; (2) Rack Mount Brackets; (2) Wall Mount Brackets; (2) Tower Stands; (1) Emergency Power Off Cable (gray); (1) Serial Interface Cable (RJ45/DB-9); (1) USB A+B type cable.

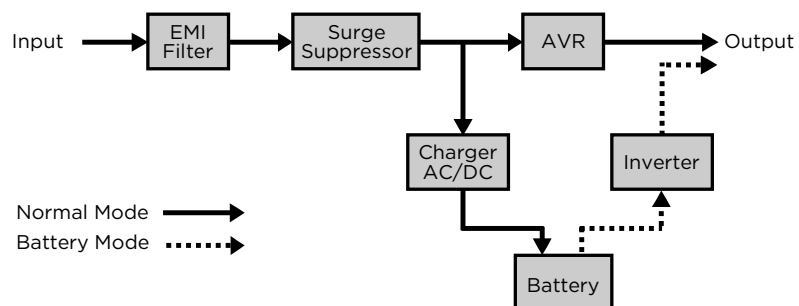
OVERVIEW

The PR500LCDRT1U/ PR750LCDRT1U/ PR1000LCDRT1U provides automatic voltage regulation for inconsistent utility power. The PR500LCDRT1U/PR750LCDRT1U/PR1000LCDRT1U features 1030 Joules of surge protection, and provides battery backup during power outages. The PR500LCDRT1U/ PR750LCDRT1U/ PR1000LCDRT1U ensures consistent power to your computer system and its included software will automatically save your open files and shutdown your computer system during a utility power loss.

AUTOMATIC VOLTAGE REGULATOR(AVR)

The PR500LCDRT1U/ PR750LCDRT1U/ PR1000LCDRT1U stabilizes inconsistent utility power. The incoming utility power may be damaging to important data and hardware, but with Automatic Voltage Regulation, the computer will not experience damaging voltage levels. An Automatic Voltage Regulator automatically increases low or decreases high voltage to a safe and consistent output voltage. The unit powerful sealed lead-acid batteries will provide power only if the incoming voltage drops below 80v or increases above 150V.

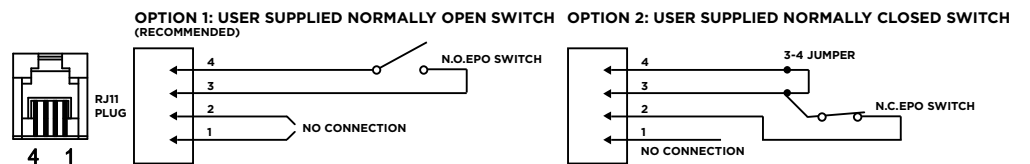
SYSTEM BLOCK DIAGRAM



HARDWARE INSTALLATION GUIDE

- Your new UPS may be used immediately upon receipt. However, recharging the battery for at least 8 hours with the unit turned on or at least 24 hours with the unit turned off is recommended to ensure that the battery's maximum charge capacity is achieved. Charge loss may occur during shipping and storage. To recharge the battery, simply leave the unit plugged into an AC outlet. The unit will charge in both the on and off position.
- If you will use the software, connect either the USB cable or Serial cable to the corresponding port on the UPS and on the computer with PowerPanel® Business software installed. PowerPanel Business software is available on our website. Please go to www.cyberpowersystems.com/products/software/power-panel-business for the free download. Note: USB and Serial port cannot be used simultaneously. Serial port will be disabled if the USB port is used.
- With the UPS unit off and unplugged, connect your computer, monitor, and any externally powered data storage device (Hard drive, Tape drive, etc.) into the battery power supplied outlets. DO NOT plug a laser printer, copier, space heater, vacuum, paper shredder or other large electrical device into the UPS. The power demands of these devices will overload and possibly damage the unit.
- Plug the UPS into a 2 pole, 3 wire grounded receptacle (wall outlet). Make sure the wall branch outlet is protected by a fuse or circuit breaker and does not service equipment with large electrical demands (e.g. air conditioner, refrigerator, copier, etc.). Avoid using extension cords.
- Depress the power switch to turn the unit on. The power on indicator light will illuminate. If an overload is detected, an audible alarm will sound and the unit will emit one long beep. To correct this, turn the UPS off and unplug at least one piece of equipment from the battery power supplied outlets. Wait 10 seconds. Make sure the circuit breaker is depressed and then turn the UPS on.
- To maintain optimal battery charge, leave the UPS plugged into an AC outlet at all times.
- To store your UPS for an extended period, cover it and store with the battery fully charged. Recharge the battery every three months to ensure battery life.

- EPO (Emergency Power Off) Port: The feature is for the application to enable emergency power shutdown. Use the gray cable provided to connect the UPS to a normally closed or normally open contact switch according to the circuit diagram. EPO function is provided in the UPS. EPO remote switch which is a Push-Back button installed computer room outside by a phone line and not connected any other equipment.



BASIC OPERATION

FRONT / REAR PANEL DESCRIPTION

- Power Switch: Master on/off switch for equipment connected to the UPS.
- Power On Indicator: Indicates the power is on.
- LCD Module Display: LCD shows all the UPS information with icons and messages.
- LCD Display Toggle Button: The button can be used to toggle between different data displays on the LCD.
- Battery Backup and Surge Protected Outlets: Provides six battery powered, surge protected and AVR outlets for connected equipment and ensures temporary uninterrupted operation of connected equipment during a power failure. Surge Only: Surge only outlet provide surge protection without backup and AVR function. Critical /Non-critical: When the UPS is overloaded, the circuit breakers will be tripped to interrupt the power supply to the uncritical outlets while continuing to supply the critical outlets. As well, as the battery capacity depletes under the threshold value, the non-critical outlets will be shut down and the UPS will provide power for critical outlets. The threshold can be determined and set by users via software.
- Input Power Cord: Heavy-duty, extra long power cord.
- Input Circuit Breaker: Resettable circuit breakers provide Input optimal overload Protection.
- USB port: USB communication port for management software.
- Serial Port: Serial port allows connection and communication between the UPS and the computer.
- SNMP/HTTP Network slot: Remove the cover panel to install optional RMCARD that allows remote monitoring and control UPS on networks.
- Site Wire Fault Indicator: This LED will illuminate to warn the user that a wiring problem exists within the AC receptacle, such as a bad ground, missing ground or reversed wiring. If illuminated, disconnect all equipment and contact an electrician to ensure outlet is properly wired.
- EPO (Emergency Power Off) port: The interface can be used to connect to switches for emergency power off.
- TVSS Screw: To prevent the risk of electric shock, follow the steps to ground the UPS. Connect a ground wire to the TVSS screw on the rear panel of UPS and then connect another side of the ground wire to the ground.

BATTERY REPLACEMENT

Read and follow the important safety instructions before servicing the batteries. Visit CyberPower official website www.cyberpowersystems.com or contact your dealer for more information on replacement batteries.

CAUTION! RISK OF BATTERY EXPLOSION, IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERY ACCORDING TO THE INSTRUCTIONS.

CAUTION! RISK OF ELECTRICAL SHOCK, REFER TO INSTRUCTION MANUAL BEFORE REPLACE BATTERY.

CAUTION! When replacing batteries, replace with the same number of the following battery: CyberPower RB0690X2A for PR500LCDRT1U, CyberPower RB0670X4A for PR750LCDRT1U, CyberPower RB0690X4B for PR1000LCDRT1U.

CAUTION! Risk of Energy Hazard, 6V, maximum 8 Ampere-hour battery. Before replacing batteries, remove conductive jewelry such as chains, wrist watches, and rings. High energy through conductive materials could cause severe burns.

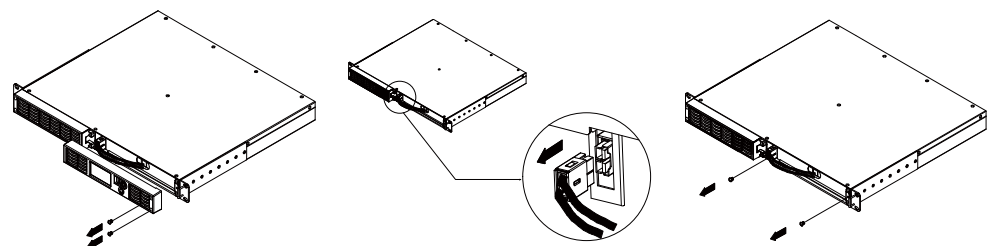
CAUTION! The used batteries are considered hazardous waste and must be disposed through recycling. Most retailers that sell lead-acid batteries collect used batteries for recycling, as required by local regulations. Do not dispose of batteries in a fire. The batteries may explode. Follow all local ordinances regarding proper disposal of batteries.

CAUTION! Do not open or mutilate batteries. Released material is harmful to the skin and eyes. It may be toxic.

CAUTION! A battery can present a risk of electrical shock and high short-circuit current and. Contact with part of a grounded battery can result in electrical shock. The following precautions should be observed when working on batteries:

- Remove all watches, rings or other metal objects.
- Use tools with insulated handles.
- Wear rubber gloves and boots.
- Do not lay tools or metal parts on top of batteries or any terminals.
- Remove battery grounds during installation and maintenance to reduce likelihood of shock. Remove the connection from ground if any part of the battery is determined to be grounded.

BATTERY REPLACEMENT PROCEDURE



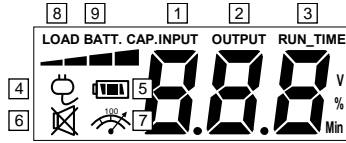
1. Remove two screws and right side front panel.

2. Disconnect the black and red cable.

3. Remove two retaining screws, pull out the old battery pack and replace new one. Reassemble the retaining screws, covers, black and red cable, and front panel in the reverse sequence of the above steps. Recharge the unit for at least 8 hours with the unit turned on or at least 24 hours with the unit turned off to ensure maximum UPS battery runtime.

DEFINITION FOR ILLUMINATED LCD INDICATORS

- Input Voltage Meter:** This meter measures the AC voltage from the wall outlet. The INPUT voltage readout is used to identify the input voltage information. This can be used as a diagnostic tool to identify the quality of input power.
- Output Voltage Meter:** This meter measures, in real time, the AC voltage that the UPS is providing to your connected equipment via the UPS outlets.
- Estimated Runtime:** This displays how many minutes of runtime can be expected of the UPS if it were to experience a power outage. Note: The number displayed may be less than actual runtimes for low loads.
- Normal Icon:** This icon illuminates when the UPS is working under normal conditions.
- Battery Icon:** When there is a utility power loss, this icon will appear followed by an alarm, (two short beeps), indicating that the UPS is now working using its internal batteries. Once the batteries are running out of power (over a period of time), the alarm will beep rapidly every 1/2 second. If this happens and main power has not been restored, it is recommended that you save your files and turn off your equipment manually as soon as possible.
- Silent Mode Icon:** This icon indicates that the buzzer will not make an audible noise while in battery operating mode. During Silent Mode, the unit's alarm does not sound until the battery reaches low-capacity threshold.
- Overload Icon:** This icon will appear followed by an alarm, indicating that an overload condition has been reached. To recover from the overload condition, unplug equipment from the UPS outlets until the icon disappears and the alarm stops.
- LOAD CAPACITY:** It is shown as a bar chart; each segment indicates approximately 25% of load capacity.
- BATT. CAPACITY:** It is shown as a bar chart; each segment indicates approximately 25% of battery capacity.



LCD SETUP FUNCTIONS

1. GENERAL MODE

- Press the Display Toggle button to check the UPS status:

#	Items	Unit
1	Input Voltage	V
2	Output Voltage	V
3	Load Capacity	%
4	Battery Capacity	%

- Press and hold the Display toggle for 4 seconds.
 - If the machine is in the Battery Mode, it enters the silent mode. Press again for 4 seconds and it will return to normal (buzzer) mode.
 - If the machine is in the Line Mode, it proceeds to Self Test.
- If the Display toggle remains untouched for over 30 seconds, the LCD backlight will turn off automatically.

2. SET-UP MODE

Step 1: The machine enters Set-Up Mode after holding the Display toggle for 10 seconds.

Step 2: By pressing the Display toggle, users can switch between setup functions. User configurable functions are as follows:

- Sensitivity:** Set the level of tolerance for UPS. Increase the UPS compatibility for local utility power condition.
 - High: The UPS will turn to battery power more often to provide the steady power supply to the connected equipment.
 - Low: The UPS will tolerate more fluctuations and turn to battery power less often.
- Battery Lifetime:** Show the batteries already used time. Reset the logger when battery module replacement or first time installation.
- Firmware Version:** Show the UPS version number.

The settable items are sorted by unit as in the following table:

#	Items	Unit
1	Sensitivity	-
2	Battery Lifetime	Year
3	Firmware Version	-

Step 3: Press and hold the toggle for 4 seconds. When the icons blink, the value of each item can be changed by slightly pressing the toggle.

Step 4: To save the value and return to general mode, press and hold the toggle for 4 seconds.

Note: If the machine is left idle for over 30 seconds during setup, it will turn off the backlight and return to general mode automatically.

Note: If user wants to return to general mode without saving changes, there are two methods:

- Wait for the backlight to turn off
- Press and hold the Display toggle for 10 seconds

TECHNICAL SPECIFICATIONS

Model	PR500LCDRTIU	PR750LCDRTIU	PR1000LCDRTIU
Capacity	500VA / 400W	750VA / 600W	1000VA / 800W
Nominal Input Voltage	125Vac		
Input Frequency	60Hz +/- 3Hz (Auto-sensing)		
Input Plug Type	NEMA 5-15P		
On Battery Output Voltage	Pure Sine Wave at 120Vac +/- 5%		
On Battery Output Frequency	60Hz +/- 1%		
Outlets	(7) NEMA 5-15R		
Transfer Time (Typical)	4ms		
Overload Protection	On Utility: Circuit Breaker, On Battery: Internal Current Limiting		
Lightning/Surge Protection	Yes		
Replacement Battery	RB0690X2A	RB0670X4A	RB0690X4B
Dimensions (WxHxD)	1U Rack, 17.1" x 1.7" x 9.6"	1U Rack, 17.1" x 1.7" x 15.8"	
Weight	19.8 lbs	30.7 lbs	35.9 lbs
Operating Temperature	32°F - 104°F / 0°C - 40°C		
Operating Relative Humidity	0% - 95% Non-condensing		
Operating Elevation	0 - 9,843 feet / 0 - 3,000 meters		
Storage Temperature	5°F - 113°F / -15°C - 45°C		
Storage Relative Humidity	0% - 95% Non-condensing		
Storage Elevation	0 - 49,213 feet / 0 - 15,000 meters		

TROUBLESHOOTING

Problem	Possible Cause	Solution
Outlets do not provide power to equipment.	Circuit breaker has tripped due to an overload.	Turn the UPS off and unplug at least one piece of equipment. Wait 10 seconds, reset the circuit breaker by depressing the button, and then turn the UPS on.
	Batteries are discharged.	Recharge the unit for at least 4 hours.
	Unit has been damaged by a surge or spike.	Contact CyberPower for repair.
	Uncritical outlets have turned off automatically due to an overload.	Turn the UPS off and unplug at least one piece of equipment. Wait 10 seconds, turn the UPS on.
The UPS does not perform expected runtime.	Battery not fully charged.	Recharge the battery by leaving the UPS plugged in.
	Battery is degraded.	Contact CyberPower about replacement batteries.
The UPS will not turn on.	The on/off switch is designed to prevent damage by rapidly turning it off and on.	Turn the UPS off. Wait 10 seconds and then turn the UPS on.
	The unit is not connected to an AC outlet.	The unit must be connected to a 120/125V outlet.
	The battery is worn out.	Contact CyberPower about replacement batteries.
	Mechanical problem.	Contact CyberPower for repair.
PowerPanel Business is inactive.	The serial cable or USB cable is not connected.	Connect the cable to the UPS unit. You must use the cable that came with the unit.
	The cable is connected to the wrong port.	Try another port of your computer.
	The unit is not providing battery power.	Shutdown your computer and turn the UPS off. Wait 10 seconds and turn the UPS back on. This should reset the unit.
	The serial cable is not the cable that was provided with the unit.	You must use the cable included with the unit for the software

CYBERPOWER GREENPOWER UPS™ TECHNOLOGY

CyberPower's patented GreenPower UPS with Bypass Technology are ENERGY STAR® compliant ensuring lower power consumption and energy costs compared to conventional UPS models. Even when utility power is normal, conventional UPS models constantly pass power through a transformer. By contrast, under normal conditions the advanced circuitry of a GreenPower UPS bypasses the transformer. As a result, the power efficiency is significantly increased while decreasing waste heat, using less energy, and reducing energy costs.

When an abnormal power condition occurs, the GreenPower UPS automatically runs power through its transformer to regulate voltage and provide "safe" power. Since utility power is normal over 88% of the time, the GreenPower UPS operates primarily in its efficient bypass mode.

The GreenPower UPS is also manufactured in accordance with the Restriction on Hazardous Substances (RoHS) directive making it one of the most environmentally-friendly on the market today.

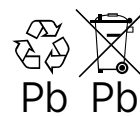


DISPOSAL



The Waste Electrical and Electronic Equipment (WEEE) Directive aims to contribute to sustainable production and consumption by contributing to the efficient use of resources and the retrieval of secondary raw materials through re-use, recycling, and other forms of recovery. The symbol on this product and/or its packaging indicates that the product must be disposed of separately from ordinary household wastes at its end of life. Contact your related WEEE management authority, local office, or your household waste disposal service about information on the recycling drop off site.

BATTERY DISPOSAL



This product contains non-spillable lead acid batteries. The used batteries are considered hazardous waste and must be disposed through recycling. Do not dispose of used batteries with your ordinary household wastes. Dispose of the batteries according to local regulations.

Note: Most retailers that sell lead-acid batteries collect used batteries for recycling, as required by local regulations.

REGULATORY COMPLIANCE

FCC Compliance Statement 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.

Important: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Canadian Compliance Statement CAN ICES-3 (A)/NMB-3(A)

LIMITED WARRANTY AND CONNECTED EQUIPMENT GUARANTEE

Please visit www.CyberPowerSystems.com for a copy of the Limited Warranty and Connected Equipment Guarantee.

Where Can I Get More Information?

The application of the United Nations Convention of Contracts for the International Sale of Goods is expressly excluded. CyberPower is the warrantor under Limited Warranty. For further information please feel free to contact CyberPower at:

Cyber Power Systems (USA), Inc.
4241 12th Ave E., STE 400
Shakopee, MN 55379

Call us at (877) 297-6937; or submit a web ticket online at cyberpowersystems.com/support.

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