

LINE-INTERACTIVE UPS UNINTERRUPTIBLE POWER SYSTEM GUARDIAN

GUARDIAN 600A/AP
GUARDIAN 800A/AP
GUARDIAN 1000A/AP
GUARDIAN 1200A/AP
GUARDIAN 1500A/AP
GUARDIAN 2000A/AP
GUARDIAN LCD 600A/AP
GUARDIAN LCD 800A/AP
GUARDIAN LCD 1000A/AP
GUARDIAN LCD 1200A/AP
GUARDIAN LCD 1500A/AP
GUARDIAN LCD 2000A/AP



USER MANUAL

ENGLISH

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IMPORTANT SAFETY INSTRUCTIONS

- The utilized voltages by this UPS may be hazardous. Do not attempt to disassemble the unit. The unit contains no user replaceable parts. Only authorized service personnel may perform repairs.
- Internal battery voltage is 12V DC per one battery. Sealed, lead-acid, 6 cells battery.
- Connection to any other type of receptacle other than a two-pole, three-wire grounded receptacle may result in shock hazard as well as violate local electrical codes.
- In the event of an emergency, press the "OFF" button and disconnect the power cord from the AC power supply to properly disable the UPS.
- DO NOT allow liquids or any foreign object to enter the UPS. Do not place beverages or any other liquid-containing vessels on or near the unit.
- This unit intended for installation in a controlled environment (temperature controlled, indoor area free of conductive contaminants). Avoid installing the UPS in location where there is standing or running water, or excessive humidity.
- DO NOT plug the UPS input into its own output.
- DO NOT attach a power strip or surge suppressor to the UPS.
- DO NOT attach non-computer-related items, such as medical equipment, life-support equipment, microwave ovens, or vacuum cleaners to UPS
- To reduce the risk of overheating the UPS, do not cover the UPS cooling vents and avoid exposing the unit to direct sunlight or installing the unit near heat emitting appliances such as space heaters or furnaces.
- Unplug the UPS prior for cleaning and do not use liquid or spray detergent.
- DO NOT dispose of batteries in a fire as they may explode.
- DO NOT open or mutilate the battery or batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.

- A battery can present a risk of electrical shock and high short circuit current. The following precautions should be taken when working on batteries :
 1. Remove watches, rings, or other metal objects from the hands.
 2. Use tools with insulated handles.
 3. Wear rubber gloves and boots.
 4. Do not lay tools or metal parts on top of batteries. Disconnect charging source prior to connecting or disconnecting battery terminal.
- Servicing of batteries should be performed or supervised by experienced personnel about batteries and the required precautions should be taken. Keep unauthorized personnel away from batteries.
- When replacing batteries, replace with the same number of the sealed lead-acid batteries.
- The socket-outlet shall be installed near the equipment and easily accessible.
- With the installation of the UPS, it should be prevented that the sum of (UPS and) the connected (load) leakage current exceeds 3.5mA.
- This pluggable type A equipment with battery installed by the supplier is operator installable and may be operated by laymen.
- Attention!! Hazardous through electric shock. Also with disconnection of this unit from the mains, hazardous voltage still may be accessible through supply from battery. The battery supply should be therefore disconnected from the plus and minus poles of the battery connectors when maintenance or service work inside of the UPS is necessary.
- The mains socket outlet that supplies the UPS shall be installed near the UPS and shall be easily accessible.

INTRODUCTION

This UPS is specially aimed for use with multi function personal computer. It is equipped with boost & buck AVR to stabilize the wide input voltage range. It also comes with high-efficient switch-mode battery charger. This charger design minimizes power loss to save charging time. The built-in DC start function enables the UPS to be started up without a supply of AC power. The main features of this UPS are listed below:

- Microprocessor control guarantees high reliability
- Built-in enhanced boost & buck AVR
- Fast charger
- DC start function
- Auto restart during AC recovery
- Optional Modem and phone-line surge protection
- Optional USB communication port
- Compact size, light weight

SYSTEM DESCRIPTION

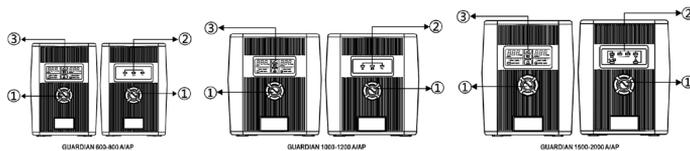
Front panel:

1. Power Switch
2. LED Indicators –

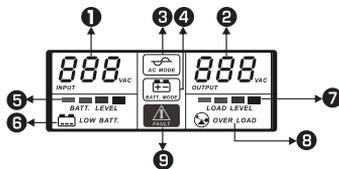
AC Mode: Green LED lighting (600-1200VA) / The left green LED lighting & the 1st to 4th green LEDs gradually lighting indicating load level (1500-2000VA)

Battery Mode: Yellow LED Flashing (600-1200VA) / The left green LED flashing & the 1st to 4th green LEDs gradually lighting indicating battery capacity (1500-2000VA)

Fault Mode: Red LED Lighting



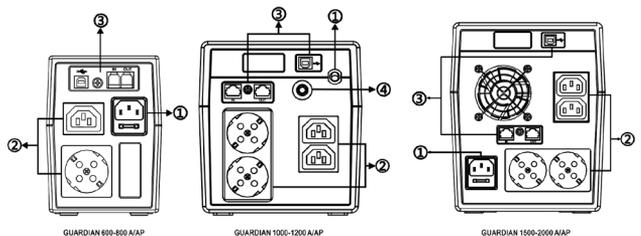
3. LCD Display (Optional)



1. Input Voltage
2. Output Voltage
3. AC mode (UPS in AVR mode, this LCD symbol flashes)
4. Battery mode (when AC in put voltage is abnormal, this LCD symbol lights)
5. Battery Level (Battery capability)
6. Battery Low (when battery voltage is low, this LCD symbol flashes)
7. Load level (Load percent)
8. Over Load (when there is output over loading, this LCD symbol flashes)
9. Fault mode (This LCD symbol lights when UPS in fault mode, such as output shorted, over load or over charge)

Back Panel

1. AC input
2. Output receptacles
3. USB & RJ11/RJ45 Communication (RJ11 for 600-800VA and RJ45 1000-2000VA)
4. Breaker



INSTALLATION & OPERATION

1) INSPECTION

Inspect the UPS upon receipt. Notify the carrier and dealer if there is damage. The package is recyclable; save it for reuse or dispose of it properly.

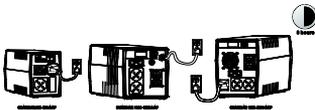
2) PLACEMENT

Install the UPS in a protected area that is free of excessive dust and has adequate air flow. Please place the UPS away from other units at least 20 cm to avoid interference. DO NOT operate the UPS where the temperature and humidity is outside the specific limits. (Please check the specs for the limitations.)



3) CHARGING

This unit is shipped from the factory with its internal battery fully charged, however, some charge may be lost during shipping and the battery should be recharged prior to use. Turn on the UPS, Plug the unit into an appropriate power supply and allow the UPS to charge fully by leaving it plugged in for at least 6 hours with no load (no electrical devices such as computers, monitors, etc.) connected.



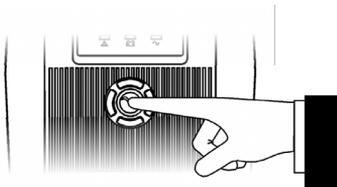
4) CONNECTION OF EQUIPMENT

Plug the UPS into a 2-pole, 3-wire grounded receptacle. Then connect one computer-related device into each of the power receptacles supplied on the back of the UPS.



5) TURN ON/OFF

To turn on the UPS unit, press the power switch lightly. To turn off the UPS unit, press the power switch again



6) DC START

All Series are equipped with DC Start. To start the UPS when AC utility power is not available, simply press the power switch.

7) GREEN POWER FUNCTION

All UPS is equipped with Green Power Function. For saving power and protecting battery, the method of deep discharging protection is adapted on inverter mode.

TROUBLE SHOOTING

All UPS is equipped with Green Power Function. For saving power and protecting battery, the method of deep discharging protection is adapted on inverter mode.

Symptom	Possible Cause	Remedy
No light on LED/LCD display front panel.	1. Battery weak.	1. Charge battery up to 8 hours.
	2. Battery defect.	2. Replace with the same type of battery.
	3. Power switch is not pressed.	3. Press the power switch again to start the UPS.
Alarm buzzer beeps continuously when AC supply is normal.	Overload of the UPS.	Remove some load first. Before reconnecting equipment, please verify that the load matches the UPS capacity specified in the specs.
During battery operation, back-up time is shorten.	1. Overload of the UPS.	1. Remove some non-critical load.
	2. Battery voltage is too low.	2. Charge battery 8 hours or more.
	3. Battery defect due to high temperature operation environment, or improper operation to battery.	3. Replace with the same type of battery.
Mains normal but LED is flashing.	Power cord is loose.	Reconnect the power cord properly.

If any abnormal situations occur that are not listed above, please call service people immediately

TECHNICAL SPECIFICATIONS

Model		600-800 A/AP	1000-1200 A/AP	1500-2000 A/AP
CAPACITY	VA/W	600VA/360W	1000VA/600W	1500VA/900W
		800VA/480W	1200VA/720W	2000VA/1200W
INPUT	Voltage	200VAC ya da 230VAC		
	Voltage Range	162-290VAC		
OUTPUT	Voltage	220/230VAC		
	Voltage Regulation (Batt. Mode)	+/-10%		
	Frequency	50Hz or 60Hz		
	Frequency Regulation (Batt Mode)	+/-1 Hz		
	Output Waveform	Modified Sine wave		
BATTERY	Battery Type	12 V/7 AH x 1/ 12 V/9 AH x 1	12 V/7 Ah x 2	12 V/9 Ah x 2
	Recharge Time	6-8 hours to 90% after complete discharge		
TRANSFER TIME	Typical	2-6 ms		
INDICATOR	AC Mode	Green LED lighting	Green LED lighting	The left green LED lighting & the 1st to 4th green LEDs gradually lighting indicating load level
	Battery Mode	Yellow LED Flashing	Yellow LED Flashing	The left green LED flashing & the 1st to 4th green LEDs gradually lighting indicating battery capacity
	Fault Mode	Red LED Lighting		
AUDIBLE ALARM	Backup Mode	Sounding every 10 seconds		
	Low Battery	Sounding every 1second		
	Overload	Sounding every 0.5 second		
	Fault	Continuously sounding		
PROTECTION	Full Protection	Discharge, overcharge, and overload protection		
PHYSICAL	Dimension (mm)	298(D)x101(G)x	353(D)x149.3(G)	380(D)x158(G)
	LXWXH	142(Y)	x162(Y)	x198(Y)
WEIGHT	Net Weight	4.35kg/4.7kg	7.8kg/8.4kg	10.1kg/10.5kg
ENVIRONMENT	Operating Environment	0°C - 40°C		
	Noise Level	Less than 40dB		

