USER MANUAL

600VA/800VA/1000VA/1200VA/1500VA
Line Interactive Sinewave UPS
(110/120 VAC)

Version: 1.0

SAFETY INSTRUCTION

Thank you for purchasing this power protection product. Please comply with all warnings and operating instructions in this manual strictly. Save this manual properly and read carefully the following instructions before installing the unit. Do not operate this unit before reading through all safety information and operating instructions carefully.

Transportation

- Please transport the UPS system only in the original package to protect against shock and impact.

Preparation

- Do not dismantle the UPS system, except the specialized technical personnel.
- 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.
- Condensation may occur if the UPS system is moved directly from cold to warm environment. The UPS system must be absolutely dry before being installed. Please allow at least two hours for the UPS system to acclimate the environment.
- Do not install the UPS system near water or in moist environments.
- Do not install the UPS system where it would be exposed to direct sunlight or near heater.
- Do not block ventilation holes in the UPS housing.

Installation

- This unit intended for installation in a controlled environment (temperature controlled, indoor area free of conductive contaminants). Avoid installing the UPS in locations where there is standing or running water, or excessive humidity.
- **Caution -** 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 instructions, may cause harmful 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 by one or more of the following measures:
  - Reorient or relocate the receiving antenna.
  - Increase the separation between the equipment and receiver.
  - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
  - Consult the dealer or an experienced radio/TV technician for help.
- **Caution -** Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Operation

- Prevent no fluids or other foreign objects from inside of the UPS system.
- Do not connect appliances or devices which would overload the UPS system to the UPS output sockets.
- Place cables in such a way that no one can step on or trip over them.
- Do not connect domestic appliances such as hair dryers to UPS output sockets.
- The UPS can be operated by any individuals with no previous experience.
- Connect the UPS system only to an earthed shockproof outlet which must be easily accessible and close to the UPS system.
- Please use only VDE-tested, UL-marked mains cable (e.g. the mains cable of your computer) to connect the UPS system to the building wiring outlet (shockproof outlet).

Maintenance, service and faults

- The UPS system operates with hazardous voltages. Repairs may be carried out only by qualified maintenance personnel.
- **Caution -** risk of electric shock. Even after the unit is disconnected from the mains (building wiring outlet), components inside the UPS system are still connected to the battery and electrically live and dangerous.
- Before carrying out any kind of service and/or maintenance, disconnect the batteries and verify that no current is present and no hazardous voltage exists in the terminals of high capability capacitor such as BUS-capacitors.

Storage & Maintenance

The UPS system contains no user-serviceable parts. If the battery service life (3~5 years at 25°C ambient temperature) has been exceeded, the batteries must be replaced. In this case, please contact your dealer.

Be sure to deliver the spent battery to a recycling facility or ship it to your dealer in the replacement battery packing material.

Before storing, charge the UPS 5 hours. Store the UPS covered and upright in a cool, dry location. During storage, recharge the battery in accordance with the following table:

Storage Temperature	Recharge Frequency	Charging Duration
0 - 40°C	Every 3 months	1-2 hours

1. Introduction

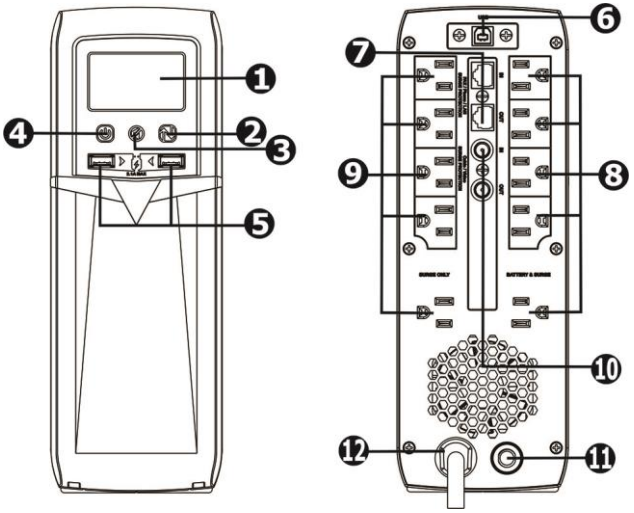
This product is an intelligent line interactive sinewave UPS (Uninterruptible Power Supply) which is designed to protect your personal computer or sensitive electronic equipment from all forms of power interference, including complete power failure.

2. Package Contents

NOTE: Before installation, please inspect the unit. Be sure that nothing inside the package is damaged. Please keep the original package in a safe place for future use. You should have received the following items inside of package:

❶ UPS unit ❷ User manual ❸ USB cable ❹ Coaxial cable/RJ45 cable (option)

3. Product Overview

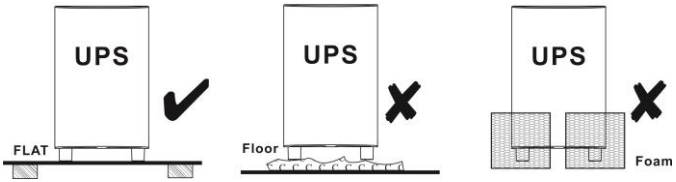


1. LCD display (Please check LCD section for the details)
2. Up/down button
3. Mute button
4. ON / OFF button
5. USB charger port
6. USB communications port: UPS monitoring and control
7. Modem/phone/network surge protection
8. Battery backup outlets
9. Surge-protected outlets
10. Coax surge protection (option)
11. Input circuit breaker
12. Input power cord: Connecting to utility power

4. Installation

Before installing the UPS, please read below to select a proper location to install the UPS.

- UPS should be placed on the flat and clean surface. Place it in an area away from vibration, dust, humidity, high temperature, flammable liquids and gases, corrosive and conductive contaminants. Install the UPS indoors in a clean environment, where it is away from window and door.



- It's required to maintain the maximum altitude of 1000m to keep UPS normal operation at full load UPS. If it's used in high altitude area, please reduce the connected load. Altitude derating power with connected loads for UPS normal operation is listed as below:

Altitude (m)	Derating factor[1)]
1 000	1.0
1 500	0.95
2 000	0.91
2 500	0.86
3 000	0.82
3 500	0.78
4 000	0.74
4 500	0.7
5 000	0.67
Based on density of dry air =1.225 kg/m^3 at sea-level,+15ºC	
[1)] Since fans lose efficiency with altitude, force air-cooled equipment will have a smaller derating.	

- Place UPS: This UPS is equipped with the fan for cooling. Therefore, place the UPS in a well-ventilated area. It's required to maintain the minimum clearance of 100mm in the front of the UPS and 300mm in the back and two sides of the UPS for heat dissipation and easy-maintenance.

Step 1: UPS Input Connection

Plug the UPS into a two-pole, three-wire, grounded receptacle only. Avoid using extension cords.

Step 2: UPS Output Connection

Battery Backup Outlets(5)

Connect computer and monitor to the "Battery Backup" outlets. These outlets provide battery backup, EMI filtering, line conditioning, and surge protection. Battery power is automatically provided in case of power failure.

Surge-Protected Outlets(5)

Connect a printer, fax machine, or scanner to the "Surge-protected" outlets. These outlets do not provide power during power failure.

CAUTION: NEVER connect a laser printer or scanner to the battery backup sockets of UPS. The equipment may draw significantly power to overload the UPS.

Step 3: Connect Modem/Phone Line/Network Surge Protection

Connect a single modem/phone line into surge-protected "IN" outlet on the back panel of the UPS unit. Connect from "OUT" outlet to the computer with another phone line cable.

Step 4: Connect Communication Port and Install Software

Connect one end of the USB cable to PC and the other to the USB port at the rear of the UPS. Download the latest version of ViewPower software from http://www.power-software-download.com to your hard drive. Follow on-screen instructions to complete the software installation.

Optional HID Function

If this UPS is equipped with optional HID function, you may simply connect one computer with installed Microsoft windows OS via USB port to execute safely shutdown during power failure even though there is no monitoring software installed.

Step 5: Turn On The UPS

To turn on the UPS, simply press the ON/Mute button on the front panel for three seconds. Then, UPS will beep once and LCD will light up.

Note: The battery charges fully during the first five hours of normal operation. Do not expect full battery run capability during this initial charge period

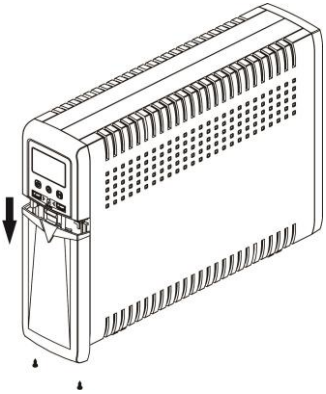
5. Battery Replacement

Please read all of the WARNINGS and CAUTIONS before attempting to service the batteries. Typical battery life is 3 to 5 years. Environmental factors do affect battery life. High temperatures, poor utility power, and frequent, short duration discharges have a negative impact on battery life.

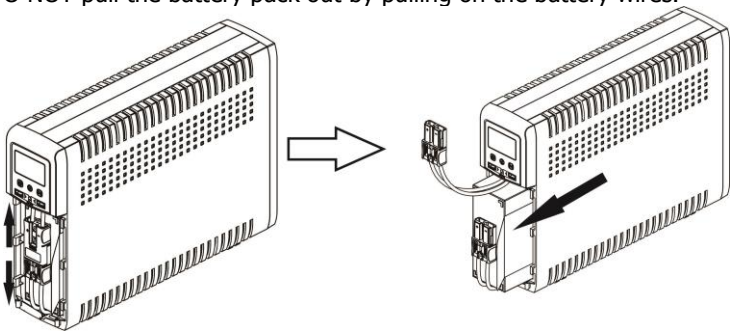
- **WARNING!** This UPS contains potentially hazardous voltages. Do not attempt to disassemble the UPS beyond the battery replacement procedure.
- This UPS contains no user serviceable parts. Repairs and battery replacement must be performed by QUALIFIED SERVICE PERSONNEL ONLY.
- **Caution -** Do not dispose of batteries in a fire. The batteries may explode.
- **Caution -** Do not open or mutilate batteries. Released electrolyte 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. Contact with any part of a grounded battery can result in electrical shock. The following precautions should be observed when working on batteries:
  a) Remove watches, rings, or other metal objects.
  b) Use tools with insulated handles.
  c) Wear rubber gloves and boots.
  d) Do not lay tools or metal parts on top of batteries.
  e) Disconnect charging source and load prior to installing or maintaining the battery.
  f) 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.
- **Caution -** risk of electric shock. The battery circuit is not isolated from the input voltage. Hazardous voltages may occur between the battery terminals and the ground. Before touching, please verify that no voltage is present.
- Please replace the fuse or circuit breaker only with the same type and amperage in order to avoid fire hazards.
- Only persons are adequately familiar with batteries and with the required precautionary measures may replace batteries and supervise operations. Unauthorized persons must be kept well away from the batteries.
- **Caution -** Replace batteries with the same number and type as originally installed in the UPS. These batteries have pressure operated vents. These UPSs contain sealed non-spillable maintenance-free lead acid batteries.

NOTE: If there is a power interruption while replacing the batteries, the load will not be backed up even though the UPS is still on. To replace the batteries with UPS on, please start with step 5.

Please follow below steps to replace the batteries if necessary.
Step 1: Turn off the equipment that is plugged into the output of the UPS.
Step 2: Turn off the UPS.
Step 3: Remove AC input plug of the UPS from the AC wall outlet.
Step 4: Remove all equipment from the output sockets of the UPS.
Step 5: Remove battery cover: Loosen two screws located on the bottom of the UPS and slide the battery cover downward, then outward. Set it aside.



Step 6: Disconnect the battery connector. Then, slide out the existing battery pack from the UPS by grasping the battery pull tap.
Caution - Do not short the positive wire and negative wire of battery.
Caution - DO NOT pull the battery pack out by pulling on the battery wires.



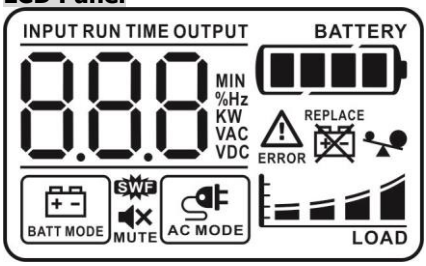
Step 7: Slide the new battery pack into the UPS.
Step 8: Verify proper polarity. Re-connect the battery connectors together.
NOTE- Some sparking might occur and this is normal.
Step 9: Reinstall the battery cover onto the UPS. Now, the UPS is ready for normal operation.
NOTICE: Properly dispose of the old batteries at an appropriate recycling facility or return them to the supplier in the packing material for the new batteries.

6. Operation

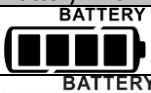
Button Function

Button	Function
ON/OFF button	● To turn the UPS ON: press and hold the On/Off Button 2 seconds and then release. ● To turn the UPS OFF: press and hold the On/Off Button 2 seconds and then release.
MUTE button	To mute audible alarm: press and hold the MUTE button 1 seconds and then release.
Up/Down button	To switch display information.

LCD Panel



Display	Function
Configuration and fault information	
	Indicates the fault codes.
Mute operation	
	Indicates that the UPS alarm is disabled.
Input, Battery, Backup time, Output & Load information	
	Indicate the input voltage, input frequency, battery voltage, battery capacity, Backup time, output voltage, output frequency, load capacity and load percentage. k: kilo, W: watt, V: voltage, A: ampere, %: percent, ℃: centigrade degree, Hz: frequency, min: minute
Load information	
	Indicates the load level by 0-24%, 25-49%, 50-74% and 75-100%.
	Indicates overload.
Mode operation information	
	Indicates the UPS connects to the Line mode. When the AC MODE is flashing in Boost or Buck mode.

	Indicates the battery is working.
Battery information	
	Indicates the battery level by 0-24%, 25-49%, 50-74%, and 75-100%.
	Indicates low battery.

Audible Alarm

Overload	Sounding every 0.5 seconds
Low battery	Sounding every second
Overcharge	Sounding every 1.5 seconds
Battery replacement	Sounding every 2 seconds
Battery mode	Sounding every 10 seconds
Fault	Continuously sounding

Warning Indicator

Warning	Icon	Flashing/on	Alarm
Output over Current		Flashing every 0.5 seconds	Sounding every 0.5 seconds
Overload		Flashing every 0.5 seconds	Sounding every 0.5 seconds
Low battery		flashing every 0.5 seconds	Sounding every one second
Battery replacement or battery is not connected.		On	Sounding every 2 seconds.
Site wiring fault		On	N/A

7. Trouble Shooting

If the UPS system does not operate correctly, please solve the problem by using the table below.

Problem/Fault code	Possible Cause/Fault Event	Solutions
UPS will not be turned on after pressing On/Off button. .	Hold the On/Off button too short.	Press and hold the On/Off button for at least 2 seconds and then release.
The mains supply is normal, but the UPS is operating in battery mode.	Power cord is loosen.	Re-connect AC input power cord.
	Circuit breaker is tripped.	Reset the input circuit breaker. If the input circuit breaker trips after UPS restarts, remove excessive loads from the UPS.
The AC normal icon is illuminated, but there is no output.	The UPS has an internal fault.	Disconnect the computer cable from the UPS, press the On button. If UPS works normally, the software has control of the UPS.
Battery backup time is shorter than nominal value.	Batteries are not fully charged.	Charge the batteries for at least 5 hours and then check capacity. If the problem still persists, consult your dealer.
	Battery defect.	Contact your dealer to replace the battery.
Fault icon is illuminated and a constant alarm.	The UPS has an internal problem.	Contact your dealer.
Fault code: E12. Battery mode output high.	The UPS has an internal fault.	Contact your dealer.
Fault code: E13. Battery mode output low.	The UPS has an internal fault.	Contact your dealer.
Fault code: E14.	Output short.	Check output wiring and if connected devices are in short circuit status. Disconnect short-circuited loads and restart the UPS again.
Fault code: E15.	Output over current.	Reduce the connected load by switching off some equipment.
Fault code: E20.	Fan lock fault.	Contact your dealer.
Fault code: E21.	Over Charge Voltage	Contact your dealer.
Fault code: E28.	Low battery voltage	Please replace the battery. If the fault still occurs after battery replaced, contact your dealer.
Fault code: E43.	Overload fault	Contact your dealer.

8. Specifications

Model	600	800	1000
CAPACITY	600 VA / 360 W	800 VA / 480 W	1000 VA / 600 W
Input Voltage	110/120 VAC		
Input Voltage Range	81~145 VAC		
Output Voltage Regulation	+/-10% (Batt. Mode)		
Transfer Time	Typical 6 ms, 10 ms max.		
Waveform	Pure Sine Wave		
Battery Type & Number	12 V/7 AH x 1	12 V/9 AH x 1	12 V/10 AH x 1
Charging Time	4-6 hours recover to 90% capacity		
Dimension (DxWxH)	288x99x280 mm		
Net Weight (kgs)	7.4	7.9	8.5
Humidity	0-90 % RH @ 0-40°C (non-condensing)		
Noise Level	Less than 40 dB @ 1 meter		

Model	1200	1500
CAPACITY	1200 VA / 720 W	1500 VA / 900 W
Input Voltage	110/120 VAC	
Input Voltage Range	81~145 VAC	
Output Voltage Regulation	+/-10% (Batt. Mode)	
Transfer Time	Typical 6 ms, 10 ms max.	
Waveform	Pure Sine Wave	
Battery Type & Number	12 V/7 AH x 2	12 V/9 AH x 2
Charging Time	4-6 hours recover to 90% capacity	
Dimension (DxWxH) mm	410 x 99 x 280	
Net Weight (kgs)	11.8	13.1
Humidity	0-90 % RH @ 0-40°C (non-condensing)	
Noise Level	Less than 45 dB	

*Specifications are subject to change without further notice.