

U P S

Line Interactive Simulated Sine Wave

1025VA - 3000VA

■ USER'S MANUAL ■

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IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS

- **WARNING (SAVE THESE INSTRUCTIONS):** This manual contains important instructions that should be followed during installation and maintenance of the UPS and batteries. The equipment can be operated by any individuals with no previous experience.
- **WARNING:** It is highly recommended to install the product in a controlled environment; maximum ambient temperature is 40°C.
- **CAUTION (UPS has internal batteries):** Risk of electric shock – Hazardous live parts inside this unit is energized from the battery supply even when the input AC power is disconnected.
- **CAUTION (No user serviceable parts):** Risk of electric shock – do not remove cover, no user serviceable parts inside. Refer service to qualified service personnel.
- **WARNING (Fuses):** To reduce risk of fire, replace only with the same type and rating of fuse.
- **WARNING:** Do not disconnect battery connector under load.
- **ATTENTION:** Hazardous through electrical shock. Also with disconnection of this unit from the mains, hazardous voltage still may be accessible through supply from the batteries. The battery supply should therefore be disconnected in the positive and the negative pole when maintenance or service work inside the battery cabinet or UPS is considered.
- **CAUTION (For any pluggable only):** With the installation of this equipment it should be prevented, that the sum of the leakage current of the UPS and connected consumer does not exceed 3.5 mA.
- **CAUTION (For permanent connection only):** HIGH LEAKAGE CURRENT, Earth connection essential before connection supply.
- **CAUTION:** Do not dispose of batteries to fire, the battery may explode.
- **CAUTION:** Do not open or mutilate the battery, released electrolyte is harmful to human skin, eyes, etc.
- **CAUTION:** A battery can bring risk of electric shock and high short circuit current. The following precaution should be observed when working on batteries:
 - A. Remove watches, rings or other metal objects.
 - B. Use only 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 prior to connecting or disconnecting battery terminals.

Servicing of batteries should be performed or supervised by personnel with knowledge of batteries and the required precautions. Keep unauthorized personnel away from batteries.

- **CAUTION:** When replacing batteries, replace with the same type and number of batteries.
- **CAUTION:** To reduce risk of fire, use only No.26 AWG or larger telecommunication line cable.
- **CAUTION:** Do not apply for uses in a computer room as defined in the Standard for the Protection of Electronic Computer / Data Processing Equipment, ANSI/NFPA75.
- **CAUTION: This UPS is not applicable for motors, hair dryers, speakers, and fluorescent lamps.**
- **User's operations:**
 - The only operations that users are permitted to do are:
 - Turning the UPS unit on and off.
 - Operating the users interface.
 - Connecting data interface cables.

All such operations are to be performed exactly as instructed in this manual. The greatest care possible must be taken for any of these operations and any change thereof may prove very hazardous to the operator.

The instructions contained within this safety manual are deemed important and should be closely followed at all times during installation and follow-up maintenance of the UPS and batteries.

SAVE THESE INSTRUCTIONS

Please read and save this manual

Thank you for selecting this uninterruptible power system (UPS). It provides you with a perfect protection for connected equipment. The manual is a guide to install and use the UPS. It includes important safety instructions for operation and correct installation of the UPS. If you should have any problems with the UPS, please refer to this manual before calling customer service.

Please save or recycle the packaging materials

The UPS's shipping materials are designed with great care to provide protection within delivery. These materials are invaluable if you ever have to return the UPS for service. Damage happened during transit is not covered under the warranty.

1. Introduction

The UPS is a line interactive uninterruptible power system (UPS). When utility input is normal, the UPS would provide surge protection and energy to charge the internal battery. If the utility input is abnormal, the UPS can supply AC power to the loads immediately.

- (1) Utilizes microprocessor based controls, it will minimize the dependency on hardware. Beside this, it maximizes system flexibility and optimizes the assurance of reliability.
- (2) Automatic frequency selection to match with utility power.
- (3) High-grade battery charger to prolong battery's life and fully charge the battery.
- (4) With actual overload protection both in line and battery mode.

2. System Description

Intelligent microprocessor control

The product is an advanced line-interactive UPS based on microprocessor control. This means that it operates with the newest technology, high performance and powerful function.

The line-interactive UPS is an intelligent protector and provides pure, reliable AC power to the critical loads - protecting them from utility power blackout, swells, sags, surges and interference. The loads could include sensitively medical instruments, computers, telecommunication systems, and industrially automatic equipment. Under power normal condition, the line-interactive design enables the system to adjust and filter power fluctuations continuously and automatically. In the event of power failure, it can provide immediately back-up power from the batteries without any interruption. Complete transference will be achieved within 4m seconds, with no interruption.

Beside this, when the utility power is connected, the charger would work automatically even under power switch is OFF. Furthermore, in order to save the battery energy, UPS can be set to turn it off under backup mode if none of the connected loads is operating.

Advanced battery management

The visual and audible indications of the UPS present the battery's status including capacity degree and battery condition. Self-test function let UPS detect a weak battery before it is put into service. The UPS normally perform a self-test at power up and manual self-test condition. Self-test function can be conducted manually with the ON/TEST switch at any time.

Advanced monitoring software

The line-interactive UPS and UPSMON series monitoring software (optional kits) make your computer operate intelligent and provide you with the ability of perfect protection of your critical devices. The software is available for most operation systems and is supplied with a communication cable that connects to the UPS.

3. Storage

Please adhere to the following instructions if the UPS is not installed immediately:

- Store the equipment as is in its original packing and shipping carton.
- Do not store in temperatures outside the range of +15°C to +25°C.
- Ensure that the equipment is fully protected from wet or damp areas and from moist air.

In order to maintain the vitality of the batteries, ensure that the UPS is recharged every 6 months for at least 8 hours.

Storage and Transportation

Please handle the unit with extreme caution since a high amount of energy is contained with the batteries. Always keep the unit in position as marked on the packaging and never drop the unit.

4. Installation

4.1 Environment



Please follow below instructions about locating the UPS system and battery option or the safety of installation personnel cannot be guaranteed and the unit may malfunction.

- Please ensure no flammable substances such as gases or fumes are present.
- Avoid extreme temperature and humidity. Protect the equipment from moisture.
- Ensure there are enough space at the behind and side of UPS for well ventilation.
- Ensure that the front of the UPS remains clear for user operation.
- Battery lifecycle could be extended with recommended temperature range of 15 °C to 25 °C.
- Only a technician from the manufacturer or an authorized agent may service the unit.
- Do not open UPS cabinet as the components may contain high voltage and may be fatal.
- The output receptacles may carry live voltage even when it is not connected to power supply.

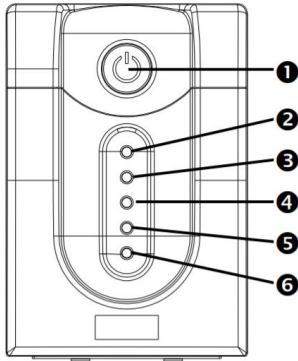
4.2 Connection to mains and loads

- The input power cord needs to connect the rear inlet socket of the UPS and plug into a socket on the wall. Please notice the voltage of utility power should match with the UPS. For example, the rating voltage of UPS is 110V/(220V), the input utility power should be the same as 110V/(220V).
- Connect the input cable to the UPS and connect the other end to a grounded outlet. The batteries will automatically charge when connected to the mains. Please realize that although you may start using the UPS immediately, maximum back-up time will still not be available, so it is recommended to charge the batteries for a minimum of 8 hours before use.
- Do not connect any devices that have the possibility of overloading the UPS or drawing half-wave rectified current, such as hair dryers or vacuum cleaners.
- Should computer or alarm connections be used, use connections according to chapter 5 of the manual provided with that option. The connections can be referred to on the rear panel.
- The installation is now complete.

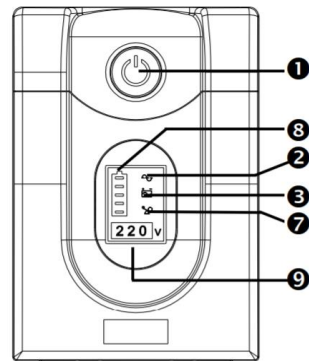
CAUTION: Never connect a laser printer or plotter to the “UPS outlets”. A laser printer or plotter periodically draws significantly more power than when its idle status, and may overload the UPS.

4.3 Front panel view

Front Panel



LED Type



Digital Type

❶ “ON/OFF/TEST/SILENCE” button

No matter the UPS plugged in or not. Press the “ON/OFF/TEST/SILENCE” button till the beep stop to turn on or to turn off the UPS. When UPS is working under AC mode, it also activates the UPS’s self-test by pressing the bottom less than 1 second. In back up mode, press and hold the bottom about 1 second to activate the UPS’s silence function.

❷ “LINE mode” indicator (Green)

The indicator illuminates when the utility input is normal.

❸ “AVR BOOST mode” indicator (Yellow)

The indicator illuminates when the UPS boost the input power to associate the load.

❹ “BACKUP mode” indicator (Yellow)

The indicator illuminates when the power is supplied from the battery.

❺ “AVR BUCK mode” indicator (Yellow)

The indicator illuminates when the UPS buck the input power to associate the load.

❻ “Battery Fault indicator (Red)

The indicator illuminates to indicate two statuses of the UPS: When this Red LED is steady illuminated, it indicates that the battery needs to be replaced or the charger of UPS is fail to function. When this Red LED flashes rapidly, it indicates the UPS is over loaded.

❼ “OVER LOAD” indicator (Red)

The indicator illuminates when the connected loads exceed the maximum rated capacity.

❽ “Battery level” bar

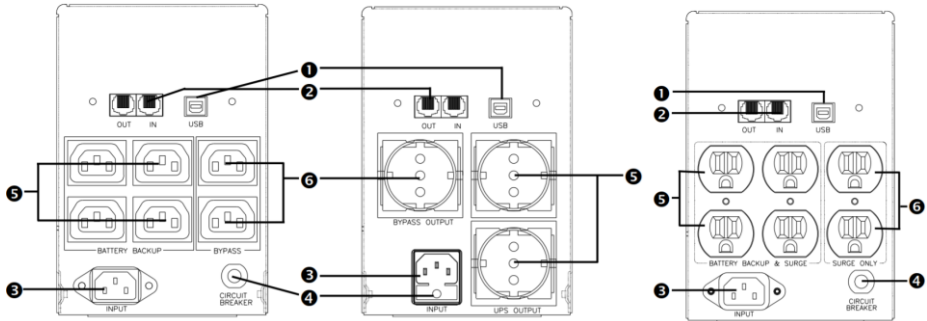
It indicates the battery capacity and battery status. When the battery capacity is low, it becomes dim, when the battery needs to be replaced or the charger of UPS is fail to function, indicators on all the bar flash.

❾ “Output Voltage”

This digital indicates present output voltage.

4.4 Rear panel view

Rear Panel



❶ REMOTE PORT

Provide USB to support NOVELL, LINUX, UNIX, WINDOWS and other operating systems.

❷ TEL/ MODEM protection

Telecom transfer ports provide users to extend the applications.

Caution: To reduce the risk of fire, use only No. 26AWG or larger telecommunication line cord.

❸ AC INPUT POWER RECEPTACLE

The input power cord needs to connect the rear inlet socket of the UPS and plug into a socket on the wall. Please notice the voltage of utility power should match with the UPS. For example, the rating voltage of UPS is 110V/(220V), the input utility power should be the same as 110V/(220V).

❹ INPUT CIRCUIT BREAKER/ FUSE

It trips when the connected loads exceed the protected receptacle's capacity.

❺ UPS & SURGE PROTECTED OUTLETS

When utility power is normal, the UPS outlets are powered by utility power with AVR function. Any higher or lower utility power would be rectified by AVR function. When utility power is fail, the UPS outlets are powered from battery.

❻ CONVENIENCE OUTLET(S)

CONVENIENCE outlets protect the loads from spike.

5. UPS Monitoring Connection

To monitor the UPS status and perform some simple UPS self-test, it is required to connect the UPS to the computer or the internet.

5.1 Connect UPS to Computer with USB / RS232 port

- Refer to [Chapter 4.4](#), find the USB / RS232 port at the rear of UPS.
- Connect UPS and Computer with the communication cable provided with UPS.
- Make sure the computer supports the power management software and install the power management software in the Computer.

!!Notice!! Either USB port or RS232 port, only one port will function at a time.

6. Operations

6.1 Switch on with “Green Mode” Function

When utility input is connected to the UPS, press “ON” button and keep pressing until the “Bi” beep stops to turn on the UPS. After that, connect the electrical cords of the equipments that will be used (such as desktop computer and CRT monitor) to the rear panel of UPS. In order to save the power, it will also automatically enable the “Green mode” - No Load (or Light load) shut-down function under backup mode (about 4 minutes later).

ATTENTION: At backup mode, UPS can be automatically shut-down if none of the connected loads is operating. (Green mode; No Load shut down function) Once the utility power is normal again, the unit can be waked up by itself.

CAUTION: Never connect a laser printer or plotter to the UPS. A laser printer or plotter draws significantly more power periodically than its idle status, and may overload the UPS.

6.2 Switch on with “Disabled Green Mode” Function

When utility input is connected to the UPS, press “ON” button and keep pressing until the “Bi.Bi-Bi” beeps stopped to turn on the UPS. After that, connect the electrical cords of the equipment that will be used (such as Notebook computer and LCD monitor) to the rear panel of UPS. If the load is lighter than 30W, please also refer this function to avoid any inconvenience cause by “Green Mode” function.

6.3 Switch off UPS

Press the “OFF” button at “LINE” or “BACKUP” modes and keep pressing more than 3 second to turn off the UPS.

ATTENTION: UPS can automatically charge itself under “OFF” mode. (Advanced Battery Management Technology)

6.4 Silence Function

When UPS is under “BACKUP” mode, press the “SILENCE” button about 1 second to silence the audible alarm. The function is disabled when UPS is under condition of “LOW BATTERY” or “OVERLOAD”

6.5 Self-test Function

Press the “TEST” button at “LINE” mode about 0.5 second, UPS will perform self-test procedure automatically.

ATTENTION: No load shut-down function can be disabled by pressing button until bi-bi beep to turn on the UPS.

7. Battery Maintenance

WARNING Please read the following cautions before replacing batteries. Servicing of batteries should always be performed or supervised by personnel knowledgeable of batteries and required precautions. Keep unknowledgeable (i.e., unauthorized) personnel away from the batteries.

CAUTION: Except for the battery, the unit contains no user serviceable parts. Repairs should be performed only by factory trained service personnel.

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

- (1) Remove watches, rings, or other metal objects.
- (2) Use tools with insulated handles.

CAUTION: Do not dispose of batteries in a fire. The batteries may explode.

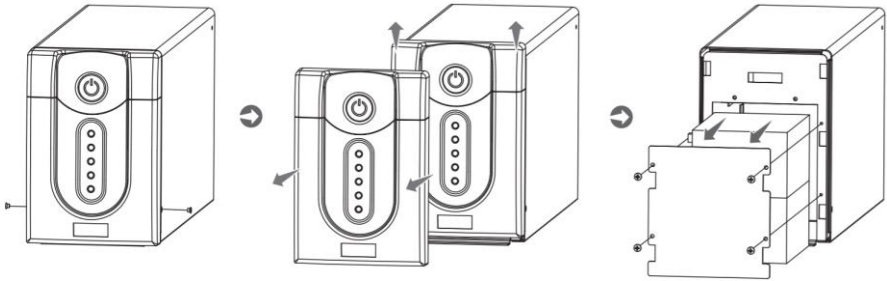
CAUTION: Do not open or mutilate batteries. They contain electrolyte are toxic and harmful to the skin and eyes.

CAUTION: When replacing batteries, use the same number and type of batteries.

7.1 Battery Replacement Procedure

The following is a step by step tutorial for replacing the internal battery:

1. Remove the screws on the front panel.
2. Pull up and open the front panel
3. Unscrew the screw and remove the metal baffle plate.
4. Pull out the batteries.
5. Disconnect the battery wires which connect the batteries to the UPS.
!!DO NOT DISCONNECT the batteries while UPS is in Battery mode!!
6. Replace the batteries with the same number and type as originally installed.
7. Wired up the batteries, make sure the red wire is connected to the red battery terminal and the black wire is connected to the black battery terminal.
8. Push the batteries into the UPS.
9. Reinstall the metal baffle plate and the front panel.



Batteries may cause electrical shock or burn from high short circuit currents.

Please observe the following precautions:

1. Remove jewelry and metal objects such as watches and rings.
2. Use tools that have insulated handles.
3. Keep tools and other metal objects from contacting and away from the batteries.

ELECTRIC ENERGY HAZARD: Do not attempt to rewire, alter, or change any battery wiring or connectors. Attempting to make such alterations can cause injury.

8. Trouble Shooting

8.1 "BACKUP" (slow alarm)

When the UPS is working under "BACKUP" mode, the UPS would emit audible alarm. The alarm stops when the UPS is return to "LINE" mode operation.

ATTENTION: The alarm of "BACKUP" is going to beep every 2 seconds. (Slow-speed beep).

ATTENTION: The UPS provides mute function for the warning. When the beeping sound occurs, press "ON" to stop it; and press "ON" again to resume the sound.

8.2 "LOW BATTERY" (rapid alarm)

In the "BACKUP" mode, when the energy of battery becomes to lower level. (about 20% ~ 30%) The UPS beeps rapidly until the UPS shuts down from battery exhaustion or returns to "LINE" mode operation.

ATTENTION: The alarm of the batteries caused by low voltage beeps every 0.5 second.

ATTENTION: The rapid alarm under "LOW BATTERY" condition cannot be muted.

8.3 "OVER LOAD" (continuous alarm)

When the UPS is working under overload condition (the connected loads exceed the maximum rated capacity), the UPS will emit continuous alarm to warn an overload condition. In order to protect the unit and the loads, the UPS will be automatic turn off. Please disconnect nonessential devices from UPS to eliminate the overload alarm.

8.4 Trouble shooting

PROBLEM	POSSIBLE CAUSE	Solutions
UPS can't be turned on No lights on, no warning sounds	Time of pressing the button is too short	Keep pressing the button over 2 seconds
	The UPS output has short circuit or the UPS is overloaded.	Turn off UPS and remove all equipment to make sure there are no problems on it or any internal short circuit. Keep pressing button over 2 seconds
“BACKUP mode” Indicator is lit even if the utility power is present	The utility power voltage is out of range	No solution because mode of operation is correct
	Poor connection to the input utility power	Check the connection between UPS input outlet and utility power
	Fuse melted or circuit breaker tripped	Replace fuse or reset circuit breaker (you can find a spare fuse for UPS at inlet of UPS).
The indicator of battery lit & Buzzer keeps beeping	The UPS is overloaded	Remove less needed equipment
Available time of the batteries is too short.	Battery not fully charged	Keep UPS "ON" for over 24 hours to recharge the batteries
	The UPS is overloaded	Remove less needed equipment
	Batteries are near the end of its service life	Contact the dealer or service center for replacing batteries
	The charger is out of order	Contact the dealer or service center for help
Backup time is about 4min when the load is light.	Green Mode function active.	The load is lighter than 30W, please disable the Green Mode function. (See section 3.2)

9. Technical Specifications

Model	1025VA	1200VA	1500VA	2000VA	3000VA
Capacity (Watts)	615W	720W	900W	1200W	1800W
Form	Tower Type				
Input					
Voltage	100 / 110 / 120 VAC or 220 / 230 / 240 VAC				
Input Voltage Range	75 - 150 or 165 - 300 VAC				
Input Frequency Range	50 Hz / 60 Hz (Auto Sensing)				
Output					
Waveform	Simulated Sine Wave				
Voltage	100 / 110 / 120 VAC or 220 / 230 / 240 VAC				
Frequency	50 Hz / 60 Hz \pm 0.5 Hz				
Transfer Time	2 - 4 ms (Typical)				
Protection					
Full Protection	Overload, Surge, Short Circuit				
Tele Communication	RJ11 / RJ45 : AP model				
Battery					
Type	12V 7.2Ah			12V 9Ah	12V 9Ah
Quantity	2			2	3
Typical Recharge Time	6-8 hr to 90%				
Management & Communication					
Indicator	LED Control Panel : IMP model LCD Control Panel : IMD model				
Communication Port	USB B type : AP model				
Physical					
Dimensions (mm)	130 x 382 x 200				130 x 440 x 200
Weight (kgs)	13.5	13.5	16	16.6	22
Shipping Dimensions (mm)	253 x 488 x 321				253 x 556 x 321
Shipping Weight (kgs)	15.5	15.5	18	18.6	24
Alarm					
Overload / Fault	Continuous Beeping				
Battery Mode	Beep every 2 seconds				
Low Battery	Beep every 0.5 second				
Environment					
Operating Humidity	0-90 % RH at 0-40°C (Non-condensing)				
Audible Noise	Less than 40 dB				

* Digital Type Series are same specifications with LED Type Series, but in Digital Indicator.

** Specifications are subject to change without further notice.

** Specifications are for reference, actual information should be based on real product.