

# U P S

## Uninterruptible Power System

### Line Interactive (Network) UPS

400VA/ 500VA/ 600VA/ 800VA

■ USER'S MANUAL ■

## Important Safety Instructions

### 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.
- Intended for installation in a controlled environment.
- Servicing of batteries should be performed or supervised by personnel knowledgeable of batteries and the required precautions. Keep unauthorized personnel away from batteries.
- When replacing battery, replace with the same number and type.
- **CAUTION:** Do not dispose of battery or batteries in a fire, the battery may explode.
- **CAUTION:** Do not open or mutilate the battery or batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.
- **CAUTION:** A battery can present a risk of electric shock and high short circuit current. The following precaution should be observed when working on batteries:
  - Remove 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.
  - Disconnect charging source prior to connecting or disconnecting battery terminals.

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## Introduction

**Please read and save this manual !**

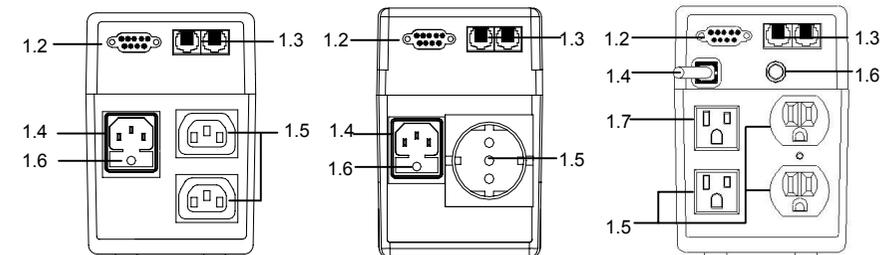
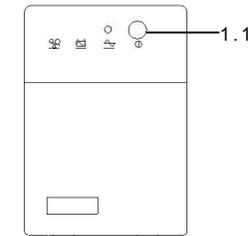
Thank you for selecting this uninterruptible power system (UPS). It provides you with a perfect protection for connected equipment. The manual is a guide to install and use the UPS. It includes important safety instructions for operation and correct installation of the UPS. If you should have any problems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

### 1. Presentation

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 load 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). Hi level battery charger to prolong battery’s life and fully charge the battery.
- (4). With actual overload protection both in line and battery mode.

- 1.1) Power Switch
- 1.2) RS-232 Port (option)
- 1.3) Phone Jack (option)
- 1.4) AC Input
- 1.5) UPS Outlets
- 1.6) AC Fuse/ Breaker
- 1.7) Convenience Outlet



## 2. Installation

### 2.1 Inspection

Inspect the UPS upon receipt. The packaging is recyclable; save it for reuse or dispose of it properly.

### 2.2 Utility Power

The input power cord on the rear panel needs to plug into a socket on the wall. Please notice the voltage of utility power should match with the UPS. (For example, the UPS is 220V, the input utility power should be 220V as well.)

### 2.3 Connection

The employed equipment's power cords (such as computer) are plugged into the sockets on the rear panel.

## 3. Operation

### 3.1 Switch on with "Green Mode" Function under AC mode

When utility input is connected to the UPS, press "ON" button and keep pressing less than 3 sec 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 turned off 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 with other computer equipment. A laser printer or plotter periodically draws significantly more power than when its idle status, and may overload the UPS.

### 3.2 Switch on with "Disabled Green Mode" Function under AC mode

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 equipments that will be used (such as Notebook computer and LCD monitor) to the rear panel of UPS. If the load is lighter than 15W, please also refer this function to avoid any inconvenience cause by "Green Mode" function.

### 3.3 DC Start with "Green Mode" Function

If the power of UPS isn't supplied by utility but by the internal batteries to engage the UPS, press the power button and keep pressing less than 3 seconds.

### 3.4 DC Start with "Disabled Green Mode" Function

If the power of UPS isn't supplied by utility but by the internal batteries to engage the UPS, press the power button and keep pressing until the sounds of "Bi Bi-Bi".

### 3.5 Switch off

Press the power switch and keep pressing more than 3 seconds to turn off the UPS.

### 3.6 Silence

When UPS is under "BACKUP" mode, press power switch more than 1 second to silence the audible alarm. (The function is disable when UPS is under condition of "LOW BATTERY" or "OVERLOAD")

### 3.7 Self test function

Press power switch while utility power is connected, UPS will perform self-test procedure automatically.

## 4. Alarm

### 4.1 "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 regain the sound.

### 4.2 "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.

### 4.3 "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 automatically turn off. Please disconnect nonessential devices from UPS to eliminate the overload alarm.

## 5. Software and Interface Port(Optional)

### 5.1 Power Monitoring Software

The UPSMON series software (or other power monitoring software) is applied standard RS-232 interface to perform monitoring functions, and then provides an orderly shutdown of a computer in the event of power failure. Moreover, UPSMON displays all the diagnostic symptoms on monitor, such as Voltage, Frequency, Battery level and so on. The software is available for DOS, Windows 3.1x, Windows 95, Windows 98, Windows 2000, Windows ME, Windows XP, Windows NT or later, Novell Netware, Linux, and others. Call your dealer for more information on computer OS compatible solutions.

### 5.2 Interface Kits

A series of interface kits is available for operation systems that provide UPS monitoring. Each interface kit includes the special interface cable required to convert status signals from the UPS into signals which individual operating system recognizes. The interface cable at UPS side must be connected to REMOTE PORT, at computer side can be either COM 1 or COM 2. The other installation instructions and powerful features please refer to READ.ME file.

### 5.3 The characteristics of computer interface port

The computer interface port has the following characteristics:

The communication port on the back of the UPS may be connected to host computer. This port allows the computer to monitor the status of the UPS and control the operation of the UPS in some cases. Its major functions normally include some or all of the following:

- To broadcast a warning when power fails.
- To close any open file before the battery is exhausted.
- To turn-off the UPS.

Some computers are equipped with a special connector to link with the communication port. In addition, special plug-in cord may be needed. Some computers may need special UPS monitoring software. Contact your dealer for the details on the various interface Kits.

**ATTENTION:** UPSMON software and interface port function just available for model name with "P" affix. The standard RS-232 cable (pin to pin D-SUB 9 pin cable) can be connected between UPS REMOTE PORT and computer COM port for the UPSMON series software.

UPSMON software can be free download from [http:// www.pcmups .com.tw](http://www.pcmups.com.tw)

## Appendix A Troubleshooting

PROBLEM	POSSIBLE CAUSE	ACTION TO TAKE
UPS can not turn on LED not light	Power switch not pushed or push-time too short	Press the power switch more than 1 second
	Battery voltage less than 10V	Recharge the UPS at least 6 hours
	PCB failure	Call for service
	Load less than 20W at battery mode	Normal condition, "No load shutdown function" is active (See 3.2)
UPS always at battery mode	Power cord lose	Plug in the power cord
	AC fuse burn out	Replace the AC fuse
	Line voltage too high, too low or black out	Normal condition
	PCB failure	Call for service
Back up time too short	battery not fully charged	Recharge the UPS at least 6 hours
	PCB failure	Replace PCB, call for service
Buzzer continuous beeping	Overload	Remove some loads

## Appendix B Specifications

MODEL		400A	400AP	500A/AP	600A/AP	800A/AP
Input	Capacity	400VA	400VA	500VA	600VA	800VA
	Voltage	100V, 110V, 115V, 120V, 220V, 230V, 240V, +/-25% at line input				
	Frequency	50 or 60Hz +/- 10% (auto sensing)				
Output	Voltage (Backup mode)	Simulated sine wave at 100V, 110V, 115V, 120V, 220V, 230V, 240V +/- 5%				
	Frequency (Backup Mode)	50 or 60Hz +/- 1Hz				
	Auto Voltage Regulation (AVR)	AVR automatically increase output voltage 15% above input voltage if -9% to-25% of nominal. AVR decrease output voltage 13% below input voltage if +9% to +25% of nominal				
	Transfer Time	2/4 milliseconds, including detection time				
Protection and Filtering	Spike Protection	480 Joules, 2ms				
	Unit Input	Fuse or circuit breaker for overload & short circuit protection				
	Overload Protection	UPS automatic power off if overload exceeds 110% of nominal at 60s and 130% at 3s				
	10 Base-T Cable Port	Optional	YES	Optional/ YES	Optional/ YES	Optional/ YES
	Short Circuit	UPS output cut off immediately or input fuse protection				
Battery	Type	Sealed, maintenance-free lead acid batteries with 3-6 years typical lifetime				
	Typical Recharge Time	6 hours (to 90% of full capacity)				
	Protection	Auto discharge protection				
	Back up Time (PC with 15" monitor)	10-20min		20-30 min	25-35 min	30-40 min
Physical	Net Weight Kg (lbs)	4.2(9.2)	5.6(12.3)	6.0(13.2)/ 6.3(13.9)	6.2(13.7)/ 6.5(14.3)	6.3(13.9)/ 6.7(14.7)
	Shipping Weight Kg (lbs)	4.6(10.1)	6.0(13.2)	6.5(14.3)/ 6.8(15.0)	6.7(14.8)/ 7.0(15.4)	6.8(15.0)/ 7.2(15.9)

	Dimension (mm) W x D x H	97 x 260 x 135 (3.8" x 10.2" x 5.3")	97 x 320 x 135 (3.8" x 12.5" x 5.3")		
	Input Inlet	IEC 320 power inlet			
	Receptacles	NEMA5-15R (115V), IEC320 female appliance coupler (220V)			
Alarm	Battery Back-Up	Slow beeping sound (about 0.47Hz)			
	Battery Low	Rapid beeping sound (about 1.824Hz)			
	Overload	Continuously beeping sound			
Interface	RS-232	NO	YES	NO/YES	NO/YES
Environment	Ambient Operation	3,500 meters max. elevation, 0-95% humidity non-condensing, 0-40°C			
	Audible Noise	<40dBA(1 meter from surface)			
	Storage Condition	15,000 meters max.			

### OUTPUT RECEPTACLE OPTION



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