

# ***USER MANUAL***

***Power Must 400/600/800 LCD***



**Uninterruptible Power System**

# IMPORTANT SAFETY INSTRUCTIONS

**SAVE THESE INSTRUCTIONS –This manual contains important instructions for models Power Must 400/600/800 LCD that should be followed during installation and maintenance of the UPS and batteries.**

## **Safety – CAUTION!**

- This UPS utilizes voltages that may be hazardous. Do not attempt to disassemble the unit. The unit contains no user serviceable parts. Only factory service personnel may perform repairs.
- Internal battery voltage is 12Vdc. Sealed, lead-acid, 6 cells battery.
- Connection to any other type of receptacle other than a two-pole, three-wire grounding receptacle may result in a shock hazard as well as violate local electrical codes.
- In the event of an emergency, turn the power switch to the "off" position and disconnect the power cord from the AC power supply to properly disable the UPS
- Do not allow any 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 locations 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.

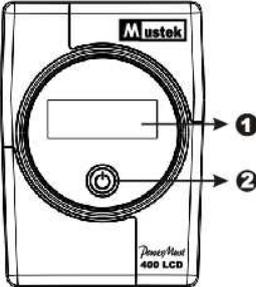
- Unplug the UPS prior to cleaning and do not use liquid or spray detergent.
- Do not dispose of battery or batteries in a fire. The battery may explode.
- Do not open or mutilate the battery or batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.
- A battery can present a risk of electrical shock and high short circuit current. The following precautions should be observed when working on batteries :
  - 1) Remove watches, rings, or other metal objects from the hand.
  - 2) Use tools with insulated handles.
  - 3) Wear rubber gloves and boots.
  - 4) Do not lay tools or metal parts on the top of batteries.
  - 5) Disconnect charging source prior to connecting or disconnecting batteries terminal.
- 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 batteries, replace with the same number of the sealed lead-acid batteries.
- This pluggable type A equipment with battery already installed by the supplier is operator installable and may be operated by laymen.
- During the installation of this equipment it should be assured that the sum of the leakage currents of the UPS and the connected loads does not exceed 3.5mA.
- The mains socket outlet that supplies the UPS shall be installed near the UPS and shall be easily accessible.

**WARNING:** This is a UPS Class C2. In residential subdivision the product may cause harmful interference, then the users have to take additional measures.”

# System Description

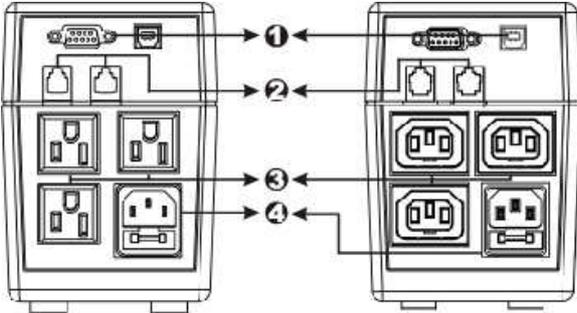
## Front Panel—

- 1. LCD Back-Light
- 2. Power "ON/OFF" Switch



## Back Panel—

- 1. Communication Port(optional)
- 2. Modem/Phone Line Surge Protection
- 3. AC Output
- 4. AC Input



# Installation and Operation

Installing the UPS is as easy as following the steps shown. Be aware of the Power Switch must be kept in the "ON" position, otherwise, the UPS will be disabled and your equipment will not be protected during a power failure.

## 1. Inspection

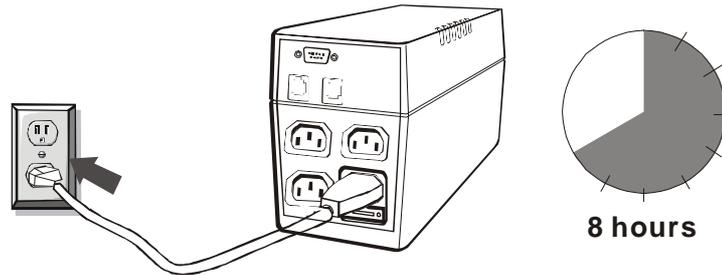
Remove the UPS from its packaging and inspect it for damage that may have occurred during shipping. If any damage is discovered, repack the unit and return it to the place of purchase.

## 2. Placement

Install the UPS unit in any protected environment that provides adequate airflow around the unit, and is free from excessive dust, corrosive fumes and conductive contaminants. Do not operate your UPS in an environment where the ambient temperature or humidity is high. On the other hand, place the UPS unit away from monitor at least 20cm to avoid interference.

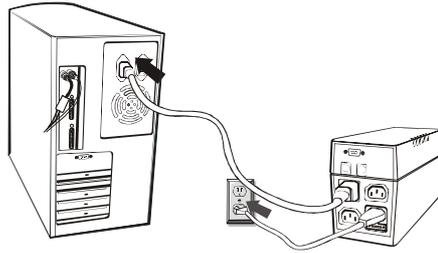
## 3. Charging

This unit is shipped from the factory with its internal battery fully charged. However, some energy may be lost during shipping so the battery should be recharged before using it. Plug the unit into an appropriate power supply and allow the UPS to charge fully by leaving it plugged in for 8 hours.



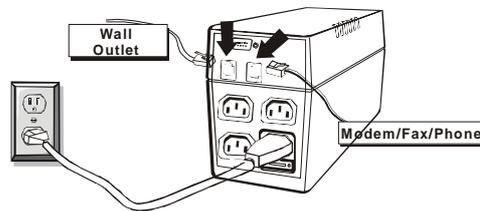
#### 4. Computer Connection

Connect one computer-related device into each of the power receptacles supplied on the back of the UPS (maximum of three devices).



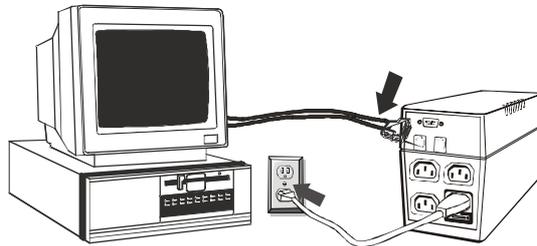
#### 5. Modem/Phoneline Connection

Plug incoming internet line into the "In" socket at the back of the UPS. Use one more Internet line cable and plug one end of the Internet line cable to the "Out" socket at the back of the UPS. Plug the other end to the modem input socket as shown.



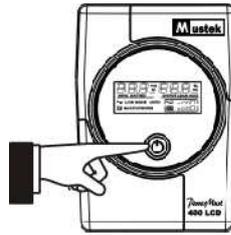
#### 6. Serial Cable Connection

To allow for unattended system shutdown for your operating system, connect the serial cable as per diagram below.



## 7. Turn On/Off

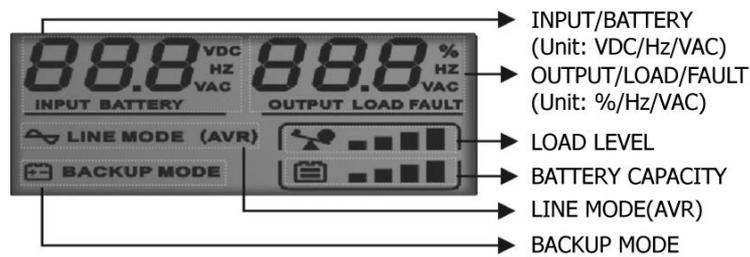
To turn on the UPS unit, press the power switch lightly. To turn off the UPS unit, press the power switch again (When Switch ON □ The LED lighting.).



## 8. LCD Display Specification

The LED will always turns on when UPS works, including in off charging mode and fault mode.

When LCD start to work, it will display all information for 3s



1).When in normal mode, it will display as below.



2).When in AVR mode, it will display as below. And the mark  will flicker every 1second.



3).When in battery mode, it will display as below. And the mark  will flicker every 1second.



Note: If  $I/P-V < 40V$  input voltage will display "000"

4).When in off charging mode, it will display as below.



Note: the output voltage always is displayed as "000" in off charging mode.

5).When in fault mode, it will display as below. "FAULT" character and the reason of fault only.



Note: the fault code will be showed in fault mode.

6).Load level definition:

Load LEVEL	Load bar Indication
	0%~25%
	25%~50%
	50%~75%
	75%~100%

7).Battery capacity definition:

Battery LEVEL	Battery bar Indication
	Battery voltage $\leq$ 11V
	11V $\leq$ Battery voltage $\leq$ 11.5V
	11.5V $\leq$ Battery voltage $\leq$ 12.5V
	Battery voltage $\geq$ 12.5V

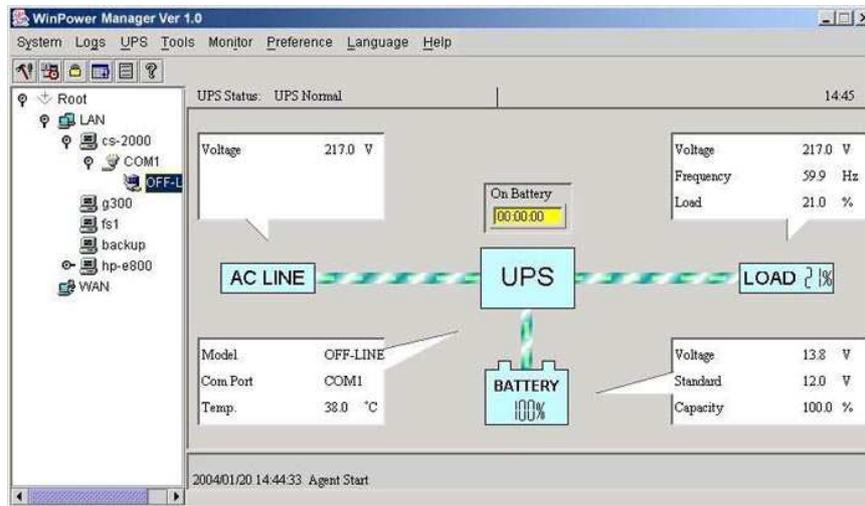
8).When over load, the mark  will flicker every 1second.

9).When battery low, the mark  will flicker every 1second.

# Software Installation

## -- WinPower --

WinPower is a brand new UPS monitoring software, which provides user-friendly interface to monitor and control your UPS. This unique software provides safely auto shutdown for multi-computer systems while power failure. With this software, users can monitor and control any UPS on the same LAN no matter how far from the UPS



### Installation procedure:

1. Go to the website:  
<http://www.ups-software-download.com/winpower.htm>
2. Choose the operation system you need and follow the instruction described on the website to download the software.
3. When downloading all required files from the internet, enter the serial No: 511C1-01220-0100-478DF2A to install the software.

When your computer restarts, the WinPower software will appear as a green plug icon located in the system tray, near the clock.

## Trouble Shooting

Use the table below to solve minor UPS installation or operation problems. If any abnormal situations occur that are not listed above, please call service people immediately.

Symptom	Possible Cause	Remedy
No LED display on the front panel.	1. Missing battery.	1. Charge battery up to 8 hours.
	2. Battery defect.	2. Replace with the same type of battery.
	3. When the Input cord isn't electrified and Power switch is not pressed.	3. Press the power switch again or electrify the Input cord
Alarm buzzer beeps continuously when AC supply is normal.	Overload of the UPS.	Verify that the load matches the UPS capability specified in the specs.
When power failure, back-up time is shorten.	1. Overload of the UPS.	1. Remove some noncritical 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.
Communication lost between UPS and computer.	1. Software is not installed well.	1. Check the setting of the software .
	2. Cable is not properly connected.	2. Check the RS-232 or USB cable is firmly connected to COM1/COM2 of the computer and confirm the setting again.
Mains normal but LCD display Battery mode.	1. Circuit breaker is broken.	1. Reset the circuit breaker..
	2. Power cord is loose.	2. Reconnect the power cord properly.

# Specification

MODEL		Power Must		
		400	600	800
<b>CAPACITY</b>	VA/W	400/240	600/360	800/480
<b>INPUT</b>	Voltage Range	81-145VAC / 162-290VAC		
	Frequency	50Hz/60Hz		
<b>OUTPUT</b>	Voltage	110□120VAC/220□230□240VAC		
	Voltage Regulation	+/- 10%(Battery Mode)		
	Frequency	50Hz / 60Hz		
	Frequency Regulation	+/-1 Hz(Battery Mode)		
	Output Waveform	Modified Sine-wave		
<b>BATTERY</b>	Battery Type	12V/4.5Ah	12/28W	12V/34W
	Back up Time	10 mins□100W□	18 mins□100W□	22 mins□100W□
	Recharge Time	8 Hours to 90% after complete discharge		
<b>TRANSFER TIME</b>	Typical	2-6ms typical, 10 ms max		
<b>INDICATOR</b>	LCD Display Models	The LCD will always turn on when UPS work, Including in off charging mode and fault mode		
<b>AUDIBLE ALARM</b>	Backup Mode	Sounding every 10 seconds		
	Battery Low	Sounding every 1 second		
	Overload	Sounding every 0.5 seconds		
	Battery replace	Sounding every 2 seconds		
	Fault	Continuous sounding		
	Buck/boost with >70% SPS load	Sounding every 0.5sec. after 25min. And fault after 30 mins		
<b>PROTECTION</b>	Full Protection	Discharge,Overcharge short circuit and Overload Protection		
<b>PHYSICAL</b>	Dimension (DxWxD) (mm)	330* 100 * 140		
<b>WEIGHT</b>	Net Weight	4.4Kg	5.6Kg	6.1Kg
<b>ENVIRONMENT</b>	Operating Environment	0- 40°C, 0-90 % Relative Humidity (non-condensing)		
	Noise Level	Less than 40dB		
<b>INTERFACE</b>	SmartRS-232 (optional) USB(optional)	Windows family, Sun Solaris, IBM Aix, Compaq True64, UnixWare, FreeBSD, HP-UX, Linux and MAC For Windows family & Mac		