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USER MANUAL

PowerMust 400/600/800 USB

2nd Edition, 2005

Uninterruptible Power System

28-2BLA000133

IMPORTANT SAFETY INSTRUCTIONS

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

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PowerMust 400/600/800 USB User Manual

1. Introduction

This UPS is specially designed for Personal Computer with multi-functions. Its light weight, compact design perfect fits to the limited working environment. The line of UPS is equipped with boost and buck AVR to stabilize input voltage range. It is also built-in with DC start function. This function enables the UPS to be started up without AC power supplied. Although it's a small UPS, it's equipped with Smart RS-232 Communication Port to offer users more benefits. The download software helps users monitor UPS inside status. The main features of PowerMust 400/600/800 USB UPS are listed below:

- Microprocessor control guarantees high reliability.
- Equipped with Boost and Buck AVR.
- Built-in RS-232/USB Communication Ports.
- Free Software (Please check **Software Installation**.)
- DC Start Function.
- Auto restart while AC recovery.
- Auto charging battery even though UPS is off.
- Provides AC overload protection.
- Provides Modem/Phoneline surge protection.

2. 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.
- 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 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 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 observed 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.
 - 5) Disconnect charging source prior to connecting or disconnecting batteries terminals.
- 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 and type of sealed lead-acid battery.
- 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
- 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 in the plus and minus pole at the connectors of the battery when maintenance or service work inside the UPS is necessary.
- The mains socket outlet that supplies the UPS shall be installed near the UPS and shall be easily accessible.

3. System Description

Front panel:

1. Power Switch
2. LED Indicators –

For 400/600 Model:

AC Mode: Green LED lighting

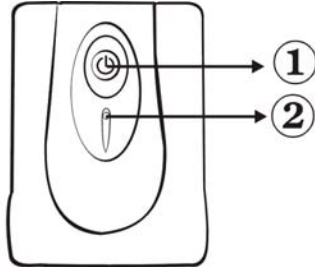
Battery Mode: Green LED flashing

For 800 Model:

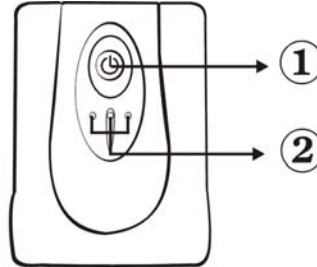
AC Mode: Green LED on

Battery Mode: Yellow LED flashing

Fault: Red LED on



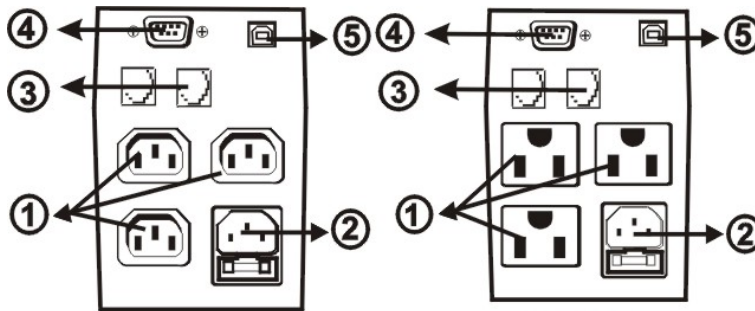
400/600 Models



800 Model

Back Panel--

1. Output receptacles
2. AC input with AC fuse
3. Modem/Phoneline Surge Protection
4. RS-232 Communication Port
5. USB Port



IEC

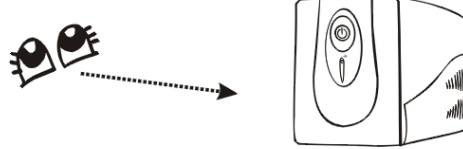
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4. Installation and operation

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.

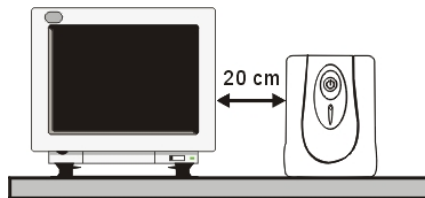
1. Inspection

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.



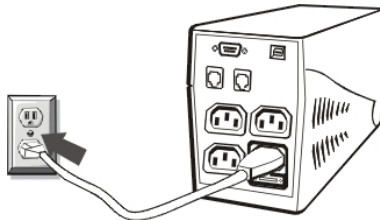
2. Placement

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 away from the monitor at least 20cm to avoid interference.



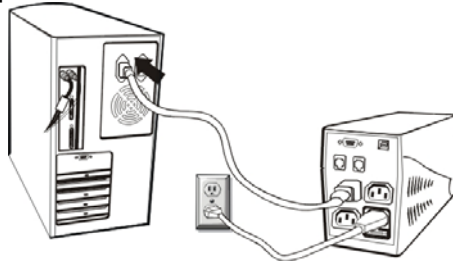
3. Charging

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. For 400/600 models, plug the unit into an appropriate power supply and allow the UPS to charge fully by leaving it plugged in for at least 8 hours with no load (no electrical devices such as computers, monitors, etc.) connected. For 800 Model, please charge at least 4 hours.



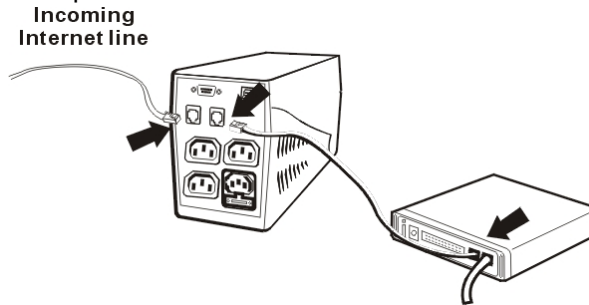
4. Computer Connection

Connect one computer-related device into each of the power receptacles supplied on the back of the UPS.



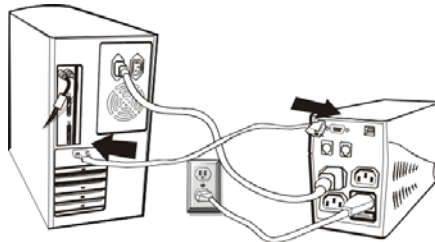
5. Modem/Phoneline Connection

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 below.



6. Serial Cable Connection

To allow for unattended system shutdown for your operating system, connect the RS-232 serial cable as per diagram below. For the USB serial cable, just simply plug into the UPS and PC and it will be auto detected.



7. Turn On/Off

PowerMust 400/600/800 USB series will be turned on automatically at first plug-in. At this moment, press power switch lightly to turn off the UPS. To turn on the UPS unit, press the power switch lightly. To turn off the UPS unit, press the power switch again.

8. DC Start Function

DC Start Function enables UPS to be started up when AC utility power is not available and battery is fully charged. Just simply press the power switch to turn on the UPS.

9. Software Installation – WinPower (FOR WINDOWS O/S)

1. Insert the installation CD into CD-ROM drive and then follow the on-screen instructions. If there no screen shows when inserting the CD after 1 minute, please execute setup.exe for initiating installation software.
2. Enter 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.

5. Trouble Shooting

Symptom	Possible Cause	Remedy
No LED display on the front panel.	1. Missing battery.	1. 400/600 models: Charge battery up to 8 hours. 800 model: Charge battery up to 4 hours.
	2. Battery defect.	2. Replace with the same type of battery.
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. 400/600 models: Charge battery 8 hours or more. 800 model: Charge battery 4 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.	1. Fuse is blown.	1. Replace the same type of fuse.
	2. Power cord is loose.	2. Reconnect the power cord properly.

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

6. Specification

MODEL		PowerMust 400 USB	PowerMust 600 USB	PowerMust 800 USB
CAPACITY	VA/W	400VA/240W	600VA/360W	800VA/480W
INPUT	Voltage	220/230/240VAC		
	Voltage Range	162~268VAC		
	Frequency	45-65 Hz (Auto Sensing)		
OUTPUT	Voltage	220/230/240VAC		
	Voltage Regulation (Batt. Mode)	±10%		
	Frequency	50Hz or 60Hz		
	Frequency Regulation (Batt. Mode)	+/-1 Hz		
	Output Waveform	Modified Sinewave		
BATTERY	Battery Type & Number	12V4.5 Ah x 1	12V7AH x 1	12V9AH x 1
	Back up Time at a PC load with 15" Monitor (typical)	8-30 minutes		
	Recharge Time	8 hours to 90% after complete discharge		4 hours to 90% after complete discharge
TRANSFER TIME	Typical	2-6ms		
INDICATOR	AC Mode	Green LED lighting		
	Backup Mode	Green LED flashing	Yellow LED flashing	
	Fault	No LED light	Red LED lighting	
AUDIBLE ALARM	Backup Mode	Sounding every 10 seconds		
	Low Battery	Sounding every second		
	Overload	Sounding every 0.5 second		
	Battery Replacement Fault	Sounding every 2 seconds		
		Continuously sounding		
PROTECTION	Full Protection	Discharge, overcharge, and overload protection		
PHYSICAL	Dimension (mm), DXWXH	330X100X140		
WEIGHT	Net Weight (kgs)	6.5		
ENVIRONMENT	Operating Environment	0- 40°C, 0-90 % Relative humidity (non-condensing)		
	Noise Level	Less than 40dB		
INTERFACE	Smart RS-232	Support windows 95/98/NT/2000/XP, Novell, and Linux		