

## INSTALLATION & OPERATION

### 1 Inspection

The following items are inside the box:

- UPS unit
- User manual

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

### 2 Connect to Utility Power

Connect AC power cord to utility power. Then, the UPS will start to charge inside battery. For best result, charge the battery for 6 hours prior to initial use.

### 3 Plug in Equipment

#### Battery Backup Outlets(4 or 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(4 or 5)

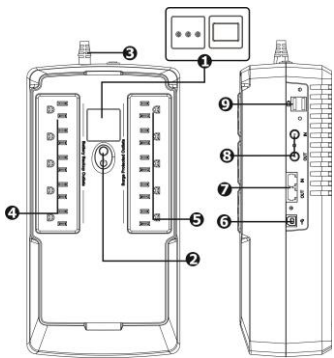
Connect a printer, fax machine, or scanner to the "Surge-protected" outlets. These outlets do not provide power during power failure.

**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.

### 4 Turn On/Off the UPS

To turn on the UPS unit, press the power switch lightly. Then, the LED or LCD will light up. To turn off the UPS unit, press the power switch again. Then, display will shut off.

## PRODUCT OVERVIEW



- 1 LCD display or LED indicators (Please check LED or LCD section for the details)
- 2 Power switch
- 3 AC input
- 4 Battery backup outlets
- 5 Surge-protected outlets
- 6 USB port (option)
- 7 Modem/phone/network surge protection (option)
- 8 Coax surge protection (option)
- 9 USB charger port (option)

## LED Indicators

LED	Alarm	UPS Status
● Green	Off	The mains is normal and UPS is operated normally.
★ Yellow	Sounding every 10 seconds	Power failure occurs and UPS is on battery mode.
★ Yellow	Sounding every second	Low battery
○ Green	Off	UPS is off.
● Red	Continuously sounding	UPS fault

● LED on ○ LED Off ★ LED flashing

## LCD DISPLAY

### Operation Display

UPS Mode	LCD	Description
UPS Power on		When UPS is powered on, it will enter this mode for 4 seconds.
AC Mode		LCD information will be displayed in the following order when LCD is touched. <ol style="list-style-type: none"> <li>1. Output voltage</li> <li>2. Input voltage</li> <li>3. Load level</li> <li>4. Battery capacity</li> </ol>
Overload in AC mode		When overload occurs, alarm will beep every 0.5 second.
Battery Mode		Alarm will beep every 10 seconds and LCD information will be displayed in the following order when LCD is touched. <ol style="list-style-type: none"> <li>1. Output voltage</li> <li>2. Input voltage</li> <li>3. Load level</li> <li>4. Battery capacity</li> </ol> When battery level is low,  icon will flash.
Overload in battery mode		When overload occurs, alarm will beep every 0.5 second.

**NOTE:** If backlight shuts off, you may activate it by touching the screen.

### Fault Code Table:

Fault condition	LCD	Solutions
Output short circuited	F01	Disconnect short-circuited loads and restart the UPS again.
Overload fault	F02	Disconnect all output loads and restart the UPS again.
Overcharge	F03	Call for service immediately.
Bad or severely discharged battery	F04	Please replace the battery.
High output voltage fault	F05	Call for service immediately.

If fault alarm occurs, please call for service immediately.

## TROUBLESHOOTING

Problem	Possible Cause	Solutions
Nothing is displayed on the panel.	The UPS is not on.	Press the power switch again to turn on the UPS.
	Battery voltage is too low.	Charge the battery at least 6 hours.
	Battery fault.	Replace the battery.
The UPS always on battery mode.	Power cord loose.	Re-plug the power cord.
The UPS continuously beeps.	Please check the fault code for the details.	Please check the fault code for the details.
Backup time too short.	Battery voltage is too low.	Charge the battery at least 6 hours.
	Overload.	Remove some unnecessary loads. Before reconnecting equipment, please verify that the load matches the UPS capability specified in the specs.
	Battery defect.	Replace the battery.

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

## SAFETY CAUTION

**SAVE THESE INSTRUCTION-This manual contains important instructions that should be followed during installation and maintenance of the UPS and batteries.**

- This UPS utilizes voltage that may be hazardous. Do not attempt to disassemble the unit. The unit contains no user replaceable parts. Only factory service personnel may perform repairs.
- This pluggable type A equipment with battery already installed by the supplier is operator installable and may be operated by laymen.
- The mains socket outlet that supplies the UPS shall be installed near the UPS and shall be easily accessible.
- 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.
- 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 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.
- 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 terminal.
  - 6) Remove battery grounds during installation and maintenance to reduce likelihood of shock
- Unplug the UPS prior to cleaning and do not use liquid or spray detergent.
- **NOTE:** 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.
- Do not dispose of batteries in a fire as they may explode.
- 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.
- Do not open or mutilate the battery or batteries. Release electrolyte is harmful to the skin and eyes. It may be toxic.
- 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.
- 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 heater or furnaces.
- **WARNING:** Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- Internal battery voltage is 12VDC. Sealed, lead-acid, 6-cell battery.

## SPECIFICATIONS

MODEL	450/450LCD		550 550LCD
<b>CAPACITY</b>	350VA/ 210W	450VA/ 240W	550VA/ 330W
<b>Input Voltage</b>	110/120 VAC		
<b>Input Voltage Range</b>	90-145 VAC		
<b>Output Voltage Regulation</b>	± 10 % (Bat. mode)		
<b>Transfer Time</b>	Typical 2-6 ms		
<b>Waveform</b>	Simulated Sine Wave		
<b>Battery Type</b>	12V/4.5Ah	12V/4.5Ah	12V/5Ah
<b>Battery Number</b>	1	1	1
<b>Charging Time</b>	8 hours recover to 90% capacity		
<b>Dimension (DxWxH)mm</b>	305 x 158.5 x 95		
<b>Net Weight (kgs)</b>	1.45	1.45	1.55
<b>Humidity</b>	0-90% RH @ 0-40°C non-condensing)		
<b>Noise Level</b>	Less than 40dB		

\*Specifications are subject to change without notice.

MODEL	750LCD-H 750H	750LCD-L 750L	850LCD 850
<b>CAPACITY</b>	750VA/ 450W	550VA/ 330W	850VA/ 500W
<b>Input Voltage</b>	110/120 VAC		
<b>Input Voltage Range</b>	90-145 VAC		
<b>Output Voltage Regulation</b>	± 10 % (Bat. mode)		
<b>Transfer Time</b>	Typical 2-6 ms		
<b>Waveform</b>	Simulated Sine Wave		
<b>Battery Type</b>	12V/6Ah	12V/5Ah	12V/7Ah
<b>Battery Number</b>	1	1	1
<b>Charging Time</b>	8 hours recover to 90% capacity		
<b>Dimension (DxWxH)mm</b>	305 x 158.5 x 95		
<b>Net Weight (kgs)</b>	1.55	1.9	1.84
<b>Humidity</b>	0-90% RH @ 0-40°C non-condensing)		
<b>Noise Level</b>	Less than 40dB		

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