Power Protection System With AVR

UPS

Model: 350VA~1600VA

LINE INTERACTIVE UPS

USER'S MANUAL

Catalogue

1. Remarks about Safety

(In order to keep safe in using the UPS, please comply with the following:)

■Please charge the battery at least 12 hours before the UPS is in operation.

■After the battery is discharged or over three months without operation, the battery should be charged immediately for at least 12 hours, ensuring the battery is full and avoiding any unnecessary damage of the battery.

■The UPS is specially designed for computer only and it should not be connected with any inductive or capacitive load, or the pure resistance full load. like electromotor, daylight lamp, laser printer, etc.

■The UPS is not suitable for being used in life support systems, because it may have some problems and bring trouble to the life support systems. The responsibility will be users', if they insist on using the UPS in life support systems.

■ It is normal that the temperature of the UPS surface reaches up to 50℃ when it is in operation.

■ When AC fails and the "ON" button on the front panel is pressed, the UPS will output voltage; if the "OFF" button on the front panel is pressed, the UPS will not output voltage.

■ It is forbidden to open the case, because there is danger with electricity. If there is problem, please handle with the instruction of experts.

■ It is forbidden to put container containing liquid inside on the UPS, because it will cause danger of electric shock or fire when the UPS short-circuits.

■ When the UPS is abnormal, please cut off power immediately and turn to experts or the dealer for help.

■As there is no overload protection of the UPS, it can not be overloaded. Otherwise, it would cause danger.

■ It is strictly forbidden to place and operate the UPS in the following environment:

Place with inflammable gas or corrosive gas or much dust;

Place with very high temperature or very low temperature(above 40℃ or below 0℃) or high humidity(above 90%);

Place with direct sunlight or near heater;

Place with strenuous vibration;

Outside

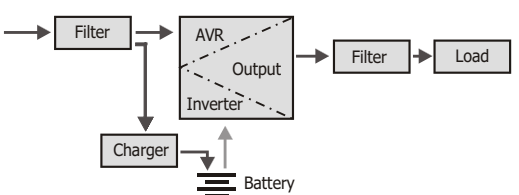
■Please use dry powder fire extinguisher in case of fire; it is forbidden to use fluid fire extinguisher because it will cause electric shock.

■The mains socket outlet that supplies the UPS shall be installed near the UPS and shall be easily accessible. When the UPS power cord must be connected to an earthed mains socket outlet for safety reasons, the UPS marking or installation instructions shall so state; the same requirement for marking applies to any special equipotential earth bonding to other connected UPS equipment or Class I loads.

2. Working Principle

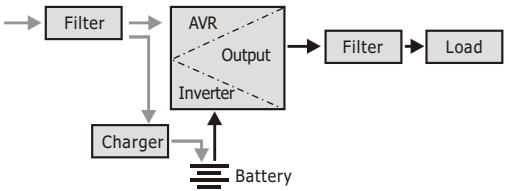
2.1 AC mode

When UPS is in normal working mode, AC goes through the filter and the harmful waves are filtered. After that, AC charges the battery and meanwhile, passes UPS AVR and the filter and provide power for the equipment.



2.2 AC Failure

When AC fails,the battery will supplypower to the inverterand then passes filterand provide power for theequipment, ensuring the continuouspower supply.



2.3 Battery and Charging:

1. When theUPS is connected toAC, the charger will chargethe batteryfully inabout 10 hours, then thecharge light outautomatically.
2. When thebattery is used up,please charge thebattery immediately sothat to prolong the life of thebattery.

3. Main Features

3.1 Unattended Operation:

■ Please connect the UPSto AC andpress the ON button on the front panel, the UPS is turned on andthe AC outputsstabilized voltage.

■ When AC fails,UPS will supply powerto the equipment immediately.And when the battery is used up,UPS will turn off automatically.

■ When ACcomes back, UPS willturn on automatically.

3.2 Protection:

■ Battery over dischargeprotection: when the batterydischargesand the UPS is in inverter mode, thebattery will check and monitor the workingstatus ofthe battery; when the battery voltage drops tothe limited lowest voltage, the inverter will turn offautomatically and protect thebattery; WhenAC comes back, UPSwill turn on automatically.

■ Battery over-charge protection:
When in ACmode, UPS automatically enterthe chargemode, batterytesting system will automatically detect thebattery state of charge. when battery fullcomplet ely, the charge will beautomatically closed system toensure that the service life of batteries, energy conservation.

■ Short-circuit Protection： when UPS is ininverter mode and there is shock or short-circuit, UPS will output limited currency, protecting the UPS(When in AC mode, the UPS willbe protected first byinput fuse and thentransfers to the inverter working mode).

3.3 Interface Port(with function ofintelligent monitoring ofcomputer): (optional)

■ This series UPS can have DB9 or USB interface port, which can servicefor such systems as WINDOWS98/NT/2000/ME/2003/ XP/Vistaetc. and keepfiles andmonitor UPS to turn off automatically.

■ Automatically check AC normalor bad and the battery voltageand UPS data of the running.

■ When AC fails, theUPS will countdown to keep the files,turn off the systems and shut down UPS automatically.

■ The interface provides the function of predicatingand setting the time of uninterruptible power supply and record the UPS andAC status, such as historicaldata.

■ Display the countdown time of turnoff of the UPS.

■ The interface can set the timeof self-testing of the UPS and timingturn on/off.

3.4 Three Kindsof Alarm Function(new model)

■ When ACfails, and the UPSsupplies power, UPSwill alarmonce every 6seconds and the beep stopsabout 40 seconds later.

■ When the batteryis nearly used up,the UPS willalarm automatically andthe beep frequency isonce every 2 seconds.

■ When the batteryis really used up, the UPS will alarmfor a very longtime and turn off automatically.

3.5 Lock Phase Function(new model)： In AC mode, the UPS system automatically tracks AC phase and ensures that the output wave form ofthe inverter is the same with AC voltage wave form, in this way,it reduces the peak pulse and surge voltage and minimizes the interference and damage to the equipment.

3.6 No-load turn off function automatically(Optional): when UPS is inverter mode, it will automatically detect the load rating; when the equipment load remains less than 5%, UPS will be judged to be no-load, and automatically turn off after 1min,to reducing unnecessary wear and tear, to ensure that the UPS battery fully and longer battery life.

3.7 The Function of the Self-set Frequency(CPU control): When UPS is connected to AC, the acquiescence frequency is 50/60Hz, and UPS could be inspect the AC frequency automactally. When AC shutdown, the frequency is automatically set to 50Hz or 60Hz in accordance with AC.

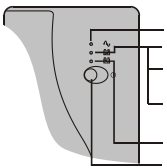
4. Specifications

MODEL	350VA	500VA /525VA	600VA /650VA	700VA /750VA	800VA /850VA	1000VA /1200VA	1500VA /1600VA
Battery	NP4AH/12V ×1	NP7AH/12V ×1	NP7AH/12V ×1	NP7AH/12V ×1	NP8AH/12V ×1	NP7AH/12V ×2	NP8AH/12V ×2
DC Voltage of long backup	12VDC	12VDC	12VDC	12VDC	12VDC	24VDC	24VDC
Type of load	Computer, displayer						
Input voltage	110V/120V/220V/230V/240V±25%(-35% optional)						
Input freq.	50/60Hz±10%						
Output voltage	110V/120V/220V/230V/240V±10%						
Output freq.	50/60Hz±0.5Hz(in battery mode)						
Power Factor	PF=0.6(when Input range -35% to -23%, PF=0.45)						
Backup time	8~20mins(rated computer as load)						
Transfer time	≤10ms						
Short-circuit protection	Fuse in AC mode, limited output currency in inverter mode						
Efficiency of power	>80% in inverter mode						
Temperature	0℃~40℃						
Humidity	10%~90%						
Display	LED display: AC, charging, inverting/LCD(optional)						
Interface	RS232/USB(optional)						

Remark: Output and input voltage and frequency can be set according to customers' requirements.

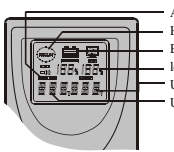
5. Introduction

5.1 Off-line UPS LED

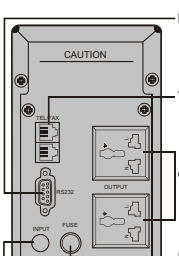


AC "on" indicator(green):when AC is normal;
Charging,over-load indicator(orange)
1. AC normal lights(charging indicator light,when battery capacity to 90% after the CPU out)
2. If charging is normal but the light does not illume, the light will indicate for low voltage of battery or overload.
Inverting indicator(red): AC fails or AC abnormal;
"on" and "off" switch.

5.2 Off-line UPS LCD

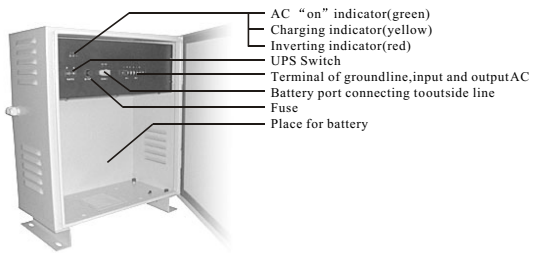


Alarm indicator
Hello
Battery capacity
load
UPS output volatge
UPS input voltage or freqency



RS232 interface port
TEL/MODEN/FAX
Output socket
FUSE
AC Input

5.3 Outside UPS



Name	Power	Battery inside	DC voltage
CP150	120W	100AH×1	12VDC
CP150L	220W	100AH×1	12VDC
CP150LH	220W	100AH×2	12VDC
CP150LH-350W	350W	100AH×2	24VDC
CP150LH-400W	400W	100AH×2	24VDC

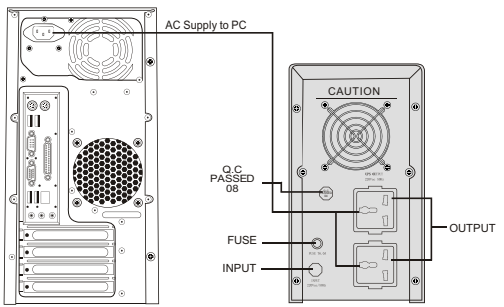
6. Installation and Operation

6.1 Installation forStandard UPS

1) Shut down theload (for example PC),pullout power gird.
2) Put UPS onthe proper position(following themanual)
3) Connect load(for examplePC) to the UPS
4) Put the plugto the ACpower socket(make sure GNDis connected well)

SUGGESTION

OFFLINE UPS is the power supply for the computer monitor and hard disk(CD) etc. It has the limited back time for the load, so you'd better not connect the printer or other equipments to it.

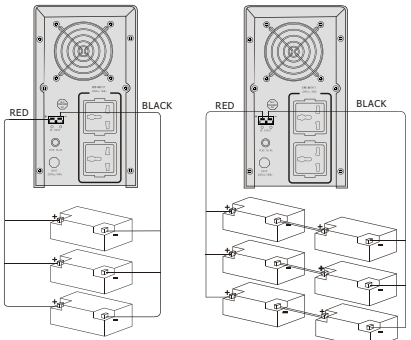


5）Connect toAC: press the panelswitch turning on theUPS, the green LEDand yellow LED light, thenyou can turn onyour computer etc.
6）Battery mode：press the panel switch turning on the UPS,the red LED lights, then you canturn on your computeretc.
7）Normally turning UPS：press the panel switchturning on the UPS.
8）Normally turning offUPS：press the panel switchturning off theUPS.

Remark:
1) Generally speaking, don'tturn off theUPS and keep batterycharging.
2) Once AC fails, UPS will turnto battery mode, pleasesave impor tant docme nts in time.

6.2 Installation ofLong Back-up UPS:

1) Installation batteries：connect the red cableto the anode andblack cable to the cathode，(pay attention to 24VDCups，for 2 batteries connecting in series)
2)when the connection isright，you'd better connect withUPS before testing the voltage 24VDC .



12VDC UPS 24VDC UPS

7. Maintenance

7.1 Preventative Maintenance

Preventive Maintenance ensures the longer Service life of UPS.

Please check the following steps every month:

1.Turn off the UPS;

2.Make sure the airway not blocked;

3.Make sure that the UPS surface is not covered by dust;

4.Check whether the input, output and battery connecting lines are firm or not and the insulation is effective or not;

5.Make sure that the UPS is not affected with damp;

6.Turn on the UPS;

7. Let the UPS work in battery mode for about 5 minutes and in this period, if there is no other alarm from the UPS, then the UPS is normal; if there is other alarm message，please contact the local dealer for help.

7.2 Battery Maintenance

The UPS contains sealed lead-acid maintenance-free battery. The bad environment, the high discharge frequency, the high temperature, etc will dramatically reduce the use life of battery. The use life of battery will also reduce even it is not used. It is suggested to discharge the battery once every 3 months when AC is normal. The following is the steps of how to check the battery: when the battery is near the end of its life, the battery will end in bad performance. So, please remember the following steps of checking and maintenance:

1）Connect the UPS to AC and turn on the UPS, charge the battery for at least 10 hours, noting the load status.

2）Keep the load at that status and record the total power capacity of the load and then remove the input plug of the UPS(simulate AC failure), and the battery of the UPS will discharge until turn off automatically and record the discharge time. Please keep the record of the discharge time for later check.

3)The battery service life is about 2 to 3 years in no rmal cond itions. But in such condition as: high temperature or high discharge frequency, the battery service life will reduce to about 0.5 to 1 year.

4)With the operating time passed, the capability of battery will be weakened(the discharge time will decrease).When the discharge time is 80% of the initial discharge time, the performance of the battery will be weakened faster and accordingly, the checking frequency of the battery should change from once every half year to once every month.

5)Servicing of batteries should be performed or supervised by personnel knowledgea ble about batteries and required precautions. When replacing batteries, replace with the same type and number of batteries or battery packs.

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

CAUTION: Do not open or mutilate batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.

7.3 Handling of abnormity

The UPS can serve and provide protection to users' equipment, but if there is something abnormal, please turn to local UPS dealer for help, avoiding unnecessary damage to the UPS.

When the UPS hasthe following problems, pleasefollow the Steps belowand if the problem still can not besolved, Please contact thelocal dealer.

Phenomenon	Trouble Shooting
Battery fails to supply power.	Check whether the battery isn't charged charge enough? Check whether the UPS is not turned on correctly?
UPS doesn't turn to AC(the input plug of the UPS has been plugged into the AC socket and AC isnormal, and the "on" button has been pressed, but theAC indicating light is not bright and the alarm beeps.	Check whether the fuse is broken? The fuse is placed on the UPS back panel. After disconnecting the AC plug, put out the fuse and check whether the fuse is broken, if so, please replace it with a new fuse.
When AC fails, the computer doesn't work.	Please turn on theUPS and charge the battery for at least10 hours, when AC is normal and then turnon the UPS.
AC output is normal, but the alarm beeps.	AC is over voltage or low voltage.

8. Packing List:

1.UPS: one piece;
2.Users' manual: one copy;
3.Fuse tube: two pieces;
4.Battery connector(only for long backup model): onepiece;
5.Others: according to customers' requirements.