

Power Protection System With AVR

***UPS***

**Model:** 350VA~1600VA

***LINE INTERACTIVE UPS***  
**USER'S MANUAL**

# Catalogue

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## 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°C 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 °C or below 0 °C) or high humidity (above 90%) ;
- Place with direct sunlight or near heater;
- Place with strenuous vibration;
- Outside

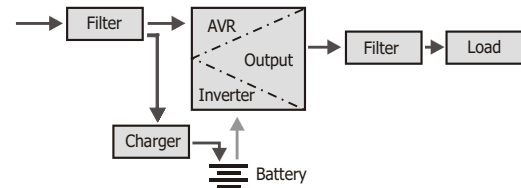
- Please use dry powder fire extinguisher in case of fire; it is forbidden to use fluid fire extinguisher because it will cause electric shock.

- The main 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 main socket outlet for safety reasons, the UPS marking or installation instructions shall so state; the same requirement for marking applies to any special equipment potential earth bonding to other connected UPS equipment or Class I loads.

## 2. Working Principle

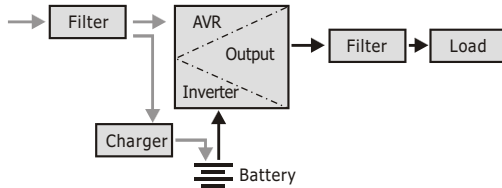
### 2.1 AC mode

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 supply power to the inverter and then pass filter and provide power for the equipment, ensuring the continuous power supply.



## 2.3 Battery and Charging:

1. When the UPS is connected to AC, the charger will charge the battery fully in about 10 hours, then the charge light out automatically.
2. When the battery is used up, please charge the battery immediately so that to prolong the life of the battery.

## 3. Main Features

### 3.1 Unattended Operation:

■ Please connect the UPS to AC and press the ON button on the front panel, the UPS is turned on and the AC outputs stabilized voltage.

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

■ When AC comes back, UPS will turn on automatically.

### 3.2 Protection:

■ Battery over discharge protection: when the battery discharges and the UPS is in inverter mode, the battery will check and monitor the working status of the battery; when the battery voltage drops to the limited lowest voltage, the inverter will turn off automatically and protect the battery; When AC comes back, UPS will turn on automatically.

### ■ Battery over-charge protection:

When in AC mode, UPS automatically enter the charge mode, battery testing system will automatically detect the battery state of charge. when battery full completely, the charge will be automatically closed system to ensure that the service life of batteries, energy conservation.

■ Short-circuit Protection: when UPS is in inverter mode and there is shock or short-circuit, UPS will output limited current, protecting the UPS (When in AC mode, the UPS will be protected first by input fuse and then transfers to the inverter working mode).

### 3.3 Interface Port (with function of intelligent monitoring of computer): (optional)

■ This series UPS can have DB9 or USB interface port, which can service for such systems as WINDOWS 98/NT/2000/ME/2003/XP/Vista etc. and keep files and monitor UPS to turn off automatically.

■ Automatically check AC normal or bad and the battery voltage and UPS data of the running.

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

■ The interface provides the function of predicating and setting the time of uninterruptible power supply and record the UPS and AC status, such as historical data.

■ Display the countdown time of turn off of the UPS.

■ The interface can set the time of self-testing of the UPS and timing turn on/off.

### 3.4 Three Kinds of Alarm Function (new model)

■ When AC fails, and the UPS supplies power, UPS will alarm once every 6 seconds and the beep stops about 40 seconds later.

■ When the battery is nearly used up, the UPS will alarm automatically and the beep frequency is once every 2 seconds.

■ When the battery is really used up, the UPS will alarm for a very long time 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 of the 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.

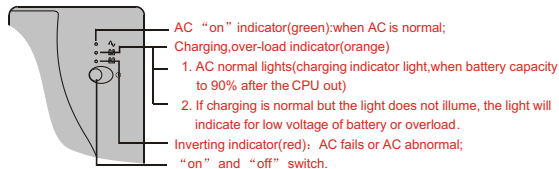
#### 4. Specifications

| MODEL                     | 350VA   | 500VA /525VA    | 600VA /650VA    | 700VA /750VA    | 800VA /850VA    | 1000VA /1200VA  | 1500VA /1600VA  |
|---------------------------|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Battery                   | NP4AH/12V<br>×1   | NP7AH/12V<br>×1 | NP7AH/12V<br>×1 | NP7AH/12V<br>×1 | NP8AH/12V<br>×1 | NP7AH/12V<br>×2 | NP8AH/12V<br>×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 currenxy 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)                                       |                 |                 |                 |                 |                 |                 |

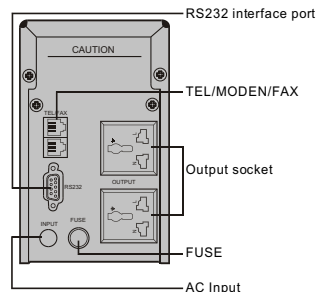
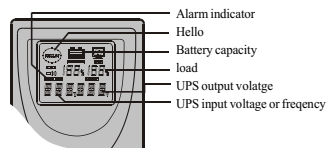
**Remark: Output and input voltage and frequency can be set according to customers' requirements.**

## 5. Introduction

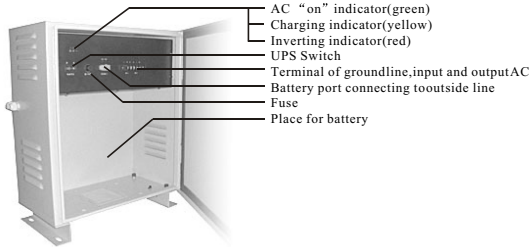
### 5.1 Off-line UPS LED



### 5.2 Off-line UPS LCD



### 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      |

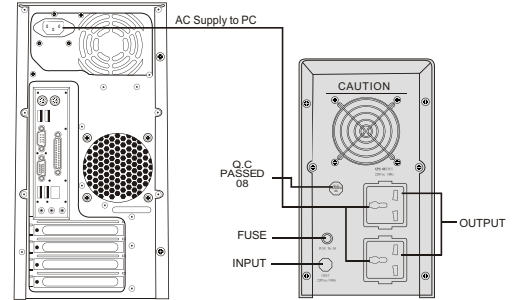
## 6. Installation and Operation

### 6.1 Installation for Standard UPS

- 1) Shut down the load (for example PC), pull out power cord.
- 2) Put UPS on the proper position (following the manual)
- 3) Connect load (for example PC) to the UPS
- 4) Put the plug to the AC power socket (make sure GND is 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.



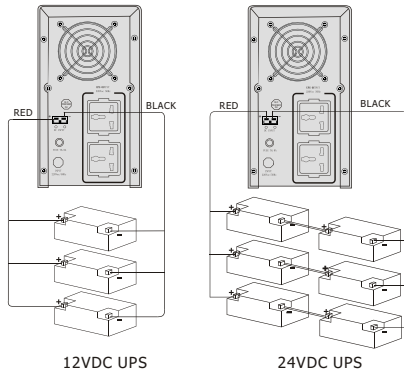
- 5) Connect to AC: press the panel switch turning on the UPS, the green LED and yellow LED light, then you can turn on your computer etc.
- 6) Battery mode: press the panel switch turning on the UPS, the red LED lights, then you can turn on your computer etc.
- 7) Normally turning UPS: press the panel switch turning on the UPS.
- 8) Normally turning off UPS: press the panel switch turning off the UPS.

#### Remark:

- 1) Generally speaking, don't turn off the UPS and keep battery charging.
- 2) Once AC fails, UPS will turn to battery mode, please save important documents in time.

### 6.2 Installation of Long Back-up UPS.

- 1) Installation batteries: connect the red cable to the anode and black cable to the cathode, (pay attention to 24VDC ups, for 2 batteries connecting in series)
- 2) when the connection is right, you'd better connect with UPS before testing the voltage 24VDC.



## 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 normal conditions. 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 knowledgeable 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 abnormality

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 has the following problems, please follow the Steps below and if the problem still can not be solved, Please contact the local dealer.

| Phenomenon   | Trouble Shooting   |
|--|--|
| Battery fails to supply power.   | Check whether the battery isn't charged enough?<br>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 is normal, and the "on" button has been pressed, but the AC indicating light is not bright and the alarm beeps. | Check whether the fuse is broken?<br>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 the UPS and charge the battery for at least 10 hours, when AC is normal and then turn on 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): one piece;
5. Others: according to customers' requirements.