

# Power Quality Solutions

ชูปอทิก กรุ๊ป

บริษัท ชูปอทิก จำกัด

บริษัท เอ็นเนอร์ยี เวฟ จำกัด

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**CHUPHOTIC GROUP**

**CHUPHOTIC CO.,LTD.**

**ENERGY WAVE CO.,LTD.**

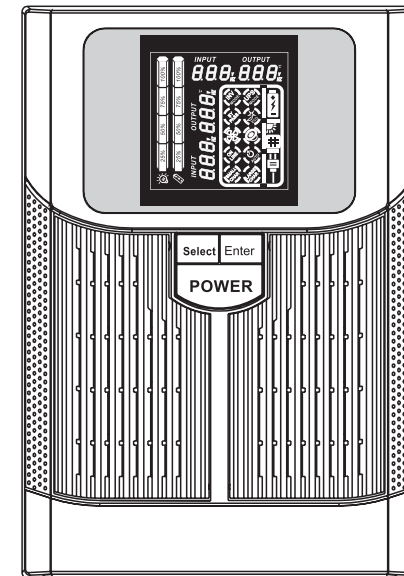
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# User's Manual



เครื่องสำรองไฟฟ้า พร้อมระบบปรับแรงดันอัตโนมัติ

## MERCURY Diamond Smart

Line Interactive UPS with Stabilizer

Pure Sine Wave UPS



www.chuphotic.com

## 1. SAFETY INSTRUCTION

THIS MANUAL CONTAINS IMPORTANT SAFETY INSTRUCTIONS. KEEP THIS MANUAL HANDY FOR FUTURE REFERENCE.

### 1.1 Inspect items inside box:

- Use r's Manual & Warranty Card
- UPS & Packaging Material
- Mains Power Cord
- Program & Communication(Optional)

### CAUTION :



### 1.2 Before Installation & Operation

Examine the packing carton for damage. Notify your dealer immediately if damage is observed. Store the packing in a safe place for possible future trans-shipment of the UPS.

### 1.3 Safety Instruction

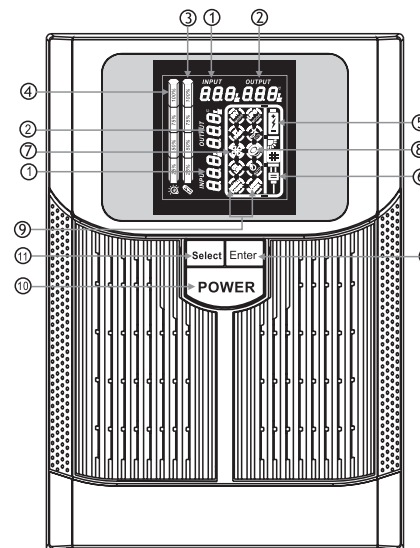
- Even UPS disconnected to city power, its sockets may with 220v voltage.
- Can not fire the battery or batteries, it may explode and injure people.
- Do not open or mutilate the battery pack, relesed electrolyte with strong toxicity and corrosion which is harmful to human body.
- Please avoid the battery to short circuit of plus and minuspole, it will cause electric shock or get fire.
- Please do not open the battery pack by yourself; it can cause danger of electric shock.
- Please do not touch the battery connectors. Battery loop and input voltage loop is unsegreated, it is high voltage risk between the battery connectors and ground.
- Ensure safety operation, if is inadvisable to use for electric equipment such as air blower, electric heater.

### Attention :

If you have any problems with the UPS, please consult the distributor, do not repair by yourself in case risk by it he high voltage inside UPS.

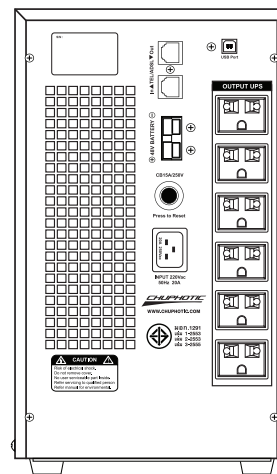
## 2. DESCRIPTION OF APPEARANCE

### 2.1 DISPLAY PANEL :

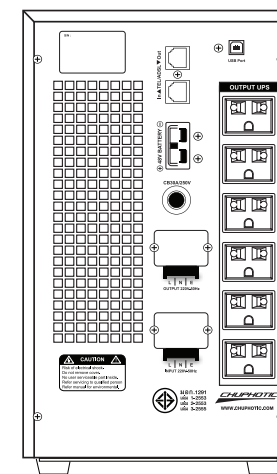


- ① AC Input Voltage / Input frequency
- ② Output Voltage / UPS's internal temperature
- ③ Battery Capacity
- ④ Load Level
- ⑤ UPS is working in battery mode
- ⑥ UPS is working in AC mode
- ⑦ Fan Failure
- ⑧ UPS will alarm in DC mode
- ⑨ Charging current mode
- ⑩ Turn on / Turn off / Silence function
- ⑪ Choosing the charging current
- ⑫ "OK" button for confirming the charging current

### 2.2 REAR PANEL :



MD2000S / MD3000S / MD2000SL / MD3000SL



MD5000S / MD5000SL

### 3. OPERATION MODE

#### 3.1 Autocharging

Connected to the AC and the UPS will be charged automatically, and the UPS socket is no output voltage. When battery is not fully charged, battery capacity indicator with circle increasing percentage pattern, it shows battery is charging.

When battery is full of charge, battery capacity indicator shows 100% percentage pattern.

#### 3.2 AC Mode

- 3.2.1 When the UPS is connected to AC and after pressing the “POWER” button for 3 seconds, then the UPS is working in the AC Mode.
- 3.2.2 It should be showed the AC input voltage and the UPS output voltage accordingly.
- 3.2.3 The percentage of the battery capacity is consistent with the indication of the UPS charging situation.
- 3.2.4 When more loads are connected, it shows that the percentage of the load level will be increased correspondingly. When it is overloaded to 100%, indicator continued flickers with long beeps. We should remove the unnecessary load until stopping alarm.
- 3.2.5 The UPS will be turned off and no output by pressing the “POWER” button for 3 seconds. But the UPS is still under charging, if you want to turn off the UPS completely, please disconnect UPS to AC.

#### 3.3 DC Mode

- 3.3.1 No AC input, the UPS will turn on by pressing the “POWER” button for 3 seconds, now the UPS is in DC Mode.
- 3.3.2 The buzzer will beep every 30 seconds. The UPS will be silenced by pressing the power switch shortly. When press the switch again, the beep recover.
- 3.3.3 When battery's capacity decreased, it shows that the percentage of battery capacity level will be increased correspondingly. When the battery is not enough, indicator continued flickers with beeps every second.  
We should save the documents then turn off the UPS, or connect the UPS to AC.
- 3.3.4 The UPS will be turned off by pressing the “POWER” button for 3 seconds.

### 3. OPERATION MODE

#### 3.4 Self-testing while switching on / Manual Self-testing

- 3.4.1 Before turning on the UPS, the red/yellow/green led will be bright twice by turns. then the UPS will be ready for operation.
- 3.4.2 User need to check the UPS ready for operation, Press the botton two time quickly then UPS self test, UPS transfer AC to Backup and Backup to AC.

#### 3.5 UPS INDICATORS AND CONTROLS



##### ON / OFF SWITCH

- Turn ON this button to supply power to the UPS outlets. To switch off power to the UPS outlets
- Turn OFF the switch. This switch is situated on the front panel of the UPS.



##### AC NORMAL INDICATOR (Green LED continuous)

The UPS is supplying conditioned utility power to its outlets.



##### LOW BATTERY INDICATION (Red LED continuous bright)

The buzzer beeps fast whenever the battery is near the end of its runtime. Promptly save your data and exit all applications and shutdown the operating system.



##### OVERLOAD INDICATION



The Yellow LED flashes, with continuous beeping. UPS protects itself at this time. Please move some load.



##### FEATURE



UPS BATTERY



OVERLOAD PROTECTION



AUTOMATIC VOLTAGE REGULATION



AC SURGE PROTECTION



##### BACKUP INDICATOR (Red LED continuous bright)



The buzzer beeps every 8 seconds. The battery is powering the UPS outlets. The expected runtime for a typical personal computer (PC) is about 10 to 40 minutes.

## 4. MAINTENANCE

This UPS series only requires minimal maintenance. The battery of standard UPS is sealed, maintenance free type, which need charging frequently to remain its expected life. Once it is connected with utility power, whether UPS is ON or OFF, it keeps charging the batteries and also offers overcharging and over discharging protection.

- If UPS will not be using over a long period of time, please charge it once every 4 to 6 months.
- Under normal conditions, battery's life are 3 to 5 years. If the battery is found in poor performance, earlier replacement should be made and must be operated by
- Do not replace the battery individually. Whole set of batteries should be replaced following the instructions from battery supplier.
- Normally, the batteries should be charged and discharged once every 4 to 6 months. Charging begins automatically after the UPS shut down by discharging, charging time for standard UPS should be at least 12 hours.
- In the regions of hot climates, the battery should be charged and discharged every 2 months, charging time for standard UPS should be at least 12 hours.

### Attention :

- Please turn off the UPS and cut off the utility power before replacing the batteries.
- Before disposing the batteries, remove conductive metals such as necklace, wrist watches and rings.
- Please use the screwdriver with insulated handle. Do not put the tools or other conductive substances on the batteries.
- When connecting the battery cable, occurrence of spark in the joints is normal phenomenon, which harmless for UPS and personal safety.
- Do not short the positive and negative of the battery electrode or joint reversely.

## 5. SPECIFICATIONS

Model	MD2000S	MD3000S	MD5000S	MD2000SL	MD3000SL	MD5000SL
Power Rate (VA / W)	2000/1600	3000/2400	5000/3500	2000/1600	3000/2400	5000/3500
Input Voltage	220Vac -25/+25% (165-275Vac) 50Hz±10%					
Output Voltage(AVR)	220Vac ±10% (198-242Vac)					
Output Voltage(Backup)	220Vac ± 3% (213-226Vac) 50Hz ± 0.5Hz					
Output Wave Form	Pure Sine Wave THDv <3%					
UPS Battery Type	12V7.5Ahx4	12V9.4Ahx4	12V9.4Ahx8	External Battery		
Max Charging Current	2A	3A		5A	10A	
Backup Time	5-30 min (Depended on Load)					
Charging Time	90% in 5-8 Hours					
Protection System	Over / Under voltage, Over load, Short circuit, Low battery shutdown Fault and Battery Replacement					
Transfer Time	4-10 ms					
LCD Display	AC, Output, Battery, Load level, Battery level, Low battery and Fault					
Audible Alarm	Backup mode, Low battery, Overload, Fault					
Interface & Software	USB port & Cable with Power Manager software					
AC Line Surge Protector	1,000W in 100µS / 165 Joules in 2 ms					
Comm. Surge TVSS	TEL / FAX / ADSL : RJ11 / RJ45					
Standard Certification	ISO9001/14001, TIS.1291 1-2553, 2-2553, 3-2555, CE : IEC62040					
Environment	0-45°C / RH 0-40% Non Condensing					
Dimenions (WxHxD)mm.	95x375x325					
Weight kg.	23	24	45	19	20	27



## 6. TROUBLE SHOOTING

The trouble shooting chart covers most of the difficulties that you may encounter under normal working conditions. If the UPS fails to operate properly, please review the following steps before calling the service center.

1. Is the UPS plugged into a correct working outlet?
2. Is the line voltage within the rating specified?
3. Is the fuse or breaker / circuit protector on back panel open?

Please submit the following information when you call for service.

1. Model No. & Series No.
2. Date of problem.
3. Full description of problem

TROUBLE SHOOTING CHART		
SYMPTOMS	POSSIBLE CAUSES	ACTIONS TO TAKE
<b>UPS can not be turned ON</b>	UPS is not connecting to AC and overloaded	Please connect to AC and reduce the load
	The input Fuse is burn or Breaker is off	Replace the Fuse or Reset the breaker, remove some load and check if the load is short-circuit or faulty
	AC Input voltage is too low	Please check the AC Input Voltage
	The UPS is failure	Please send to the agency to repair
<b>None Input voltage with a beep every 8 seconds</b>	UPS suddenly turns to Battery mode in spite of utility line present	Save the data promptly and Shut down the operating system
<b>LDC Battery flashing continuous with a beep every 1 second</b>	Backup time less than 1 minute (low battery)	Close load and recharge immediately
	Battery problem	Replace the new battery
<b>Back-up time less than specified</b>	Use more load over	Recharge the battery for atleast 12 hours and retest the backup time
	Battery is not fully charged	
	Use UPS > 2 year	Replace the new battery
	Charging unit fault	Please send to the agency to repair

## 7. INSTALLTION

- 7.1 Put the UPS in ventilated area, kept it away from water, combustible gas and corrosive.
- 7.2 Keep UPS upright and all the vent holes on panels opened.
- 7.3 Keep temperature around UPS in degree of 0°C to 40°C.
- 7.4 If transfer the UPS from hot space to cold space, condensation of water trop will happen, please ensure the inside and outside of UPS are totally dry, otherwise it will cause short circuit and damage the UPS.
- 7.5 Please put the UPS near to the utility power input sockets, in order to cut off the utility power in emergency situation.

### CAUTION AND WARNING



- Product contains voltages, which are potentially hazardous.
- Qualified service personnel should perform all repairs.
- Do not try to open the cover and to service the system yourself, on user serviceable parts inside.
- Refer servicing to qualified service personnel only and warranty Condition
- Product has its own internal energy source (battery).
- Outlet receptacles may be Hot even when the product is not connected to an AC supply.
- In case of fire risky, please change the Fuse with the same kind and same rate or Reset breaker.
- Product is intended for indoor use only.
- Kindly note to avoid excessive heat, dust, humidity