User's Manual

Pure Sine Wave
Uninterruptible Power Supply
Charger Inverter

PSU-805 Series (500-1500VA)

(Version 1.0)

Before operating this product, please read these instructions carefully.

PLEASE READ AND KEEP THIS MANUAL

Thank you for selecting this desktop pure sine wave Uninterruptible Power Supply (UPS) / Inverter.

This manual is a guide to install and use the UPS. It includes important safety instructions for operation and correct installation of the UPS.

This symbol gives information regarding the points important for user's health and safety, UPS operation and the safety of your data.

This symbol gives information, warnings, and other suggestions.

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1. IMPORTANT SAFETY INSTRUCTIONS

- Before operating the UPS, make sure you carefully read all the instructions and warnings in this manual.
- In order to avoid any damage to the UPS, it is advised to transport it in its own packing.
- Place all the cables in a proper place so that they are not be stepped on or get caught into people's feet.
- Don't drop any foreign materials (like clips, nails etc...) into the cabinet.
- In emergencies (damage to the cabinet, front panel, or mains connections, splashing of liquid, dropping of any foreign materials into the cabinet), switch off the UPS, disconnect the UPS from mains power and from battery, then inform the authorized service center.
- Do not connect any appliances to the UPS, which exceed its power range.
- UPS may not work properly when input distortion or resistance is too high.

Earth cable should be chosen according to the current capacity. All units' earth connections, which are connected to UPS, should be done with earth cable. Without earth connection or unproved earth connected units are dangerous for user's health, and have high risk of electronic circuit board faults. Using earth cable with improper diameter could be dangerous for user's health and safety of the unit.

The UPS can only be repaired by the authorized technical service personnel. Any attempt to open and to repair by the user on his own could prove to be dangerous.

Placing magnetic storage media on the top of the UPS may result in data corruption.

Special Precautions: When the UPS input comes from a generator:
-Output power capacity must be higher than the UPS rating, otherwise the UPS and generator may not work properly;
-Output frequency of generator must be in range from 45 to 65Hz, and wave form must be sine wave, otherwise the UPS and generator may not work properly.

2. INTRODUCTION OF THE UPS

PSU-805 series UPS/Inverter are specifically designed to backup all the home and office electrical appliances when the mains power is failure. It's equipped with the latest line interactive technology, CPU-controlled SPWM technology, and full-protected modular circuit. It's a reliable backup power source for all kinds of loads.

FEATURES:

- **365x24 hours backup design (Long backup design)**
  High up to 15A charging current, recharge the large battery like 100AH or 200AH in short time.

- **Pure sine wave output**
  Applicable to all kinds of loads, especially good for the motorized loads.

- **Modular CPU controlled circuit**
  Offer accurate output and protection.

- **AVR (automatic voltage regulator) function**
  Best for places where the mains voltage is extremely unstable.

- **Heavy duty transformer and circuit**
  With the high efficiency heavy-duty transformer, and specially designed circuit, with strong loading ability.

- **Smart charging technology**
  Ensuring the battery is fully charged in short time without damage.

- **3-stage charging current selector**
  Allow the user to connect different battery, base on the requested backup time.

- **Full protection design**
  overload, overheat, battery over charge/discharge, surge, short circuit, and battery reverse connection protections.

- **Excellent performance for motor loading, like fan and small pumps**.

- **Generator compatible**

3. SPECIFICATIONS

Model No.	Rated Power	Battery Voltage	Charging Current	Machine Size (W x H x D mm)
PSU-805-500VA	500VA / 300W	12VDC	10A max	280x146x298
PSU-805-800VA	800VA / 480W	12VDC	12A max	280x146x298
PSU-805-1500VA	1500VA / 900W	24VDC	15A max	390x170x311

Input Voltage Range	150-270 V~
Input Frequency Range	50 Hz
Rated Output Voltage	230 V~
Output Voltage Precision	Battery mode: ±5%; Mains mode: ±10%
Output Frequency	Battery mode: 50 Hz -13%, +8% ; Mains mode: synchronized with input frequency
Output Waveform	Pure sine wave
Efficiency	Battery mode: 80% max; Mains mode: 95% max
Transfer Time	<4ms
Display	Graphic
Charging Current	3 stages selectable by user: Low (3A~5A); Medium (7A~9A); High (10A~15A)
Protection	Overload, overheat, over charge/discharge, short circuit, battery reverse connection
Buzzer Alarm	Battery mode, battery low voltage, overload, overheat, other errors
Generator Compatible	Yes
Safety Standard	CE (EMC+LVD), IEC62040
Operating Temperature	-10°C - +40°C
Operating Humidity	10-90%, non-condensing
Storage Temperature	-20°C - +45°C
Noise	<56dB, at 1m distance with full load
IP Level	IP20
Protection Class	I

4.INSTALLATION OF THE UPS

4.1. UNPACK AND CHECK

Open the package, you will find:

UPS.....1 set
User's Manual .....1 piece
Warranty Card.....1 piece
Battery Cable.....1 pair (optional accessories)

Check the rating label/plate to make sure the UPS is in accordance with your purchase order.

Make sure the main body of the UPS is not damaged! If any damage, do not switch it on or try to repair it by yourself! Contact the seller or authorized dealer immediately!

Please keep the package for future carriage!

4.2. PLACEMENT

This UPS is for indoor use only!

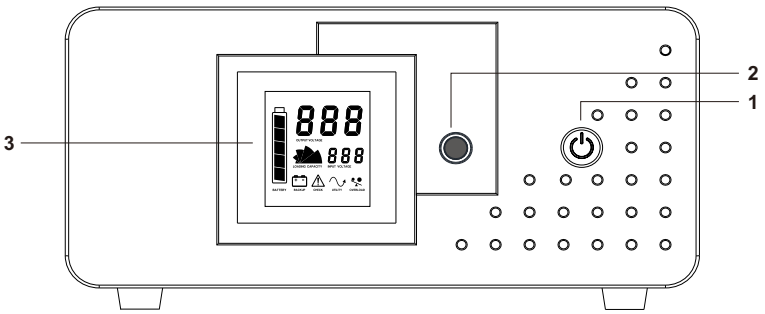
Install the UPS in a cool, dry, clean place.
Install the UPS in a well-ventilated area, keep 50 cm at least between UPS and the wall.
Keep away from unstable base or sources of excessive vibration.
Keep away from windows, dust, moisture and cold places.
Keep away from fire, heat sources.
Keep away from corrosive gas or fluid.
Operating temperature: -10˚C~ +40˚C.
Operating humidity: 10-90% (non-condensing)
Operating altitude: <1000m

The designed working altitude of this UPS is below 1000m. If the installation place is over 1000m altitude,the load capacity will accordingly decrease, show as below table.

Altitude (m)	1000	1500	2000	2500	3000	3500	4000	4500	5000
% of Load	100%	95%	91%	86%	82%	78%	74%	70%	67%

4.3. FAMILIAR WITH THE UPS

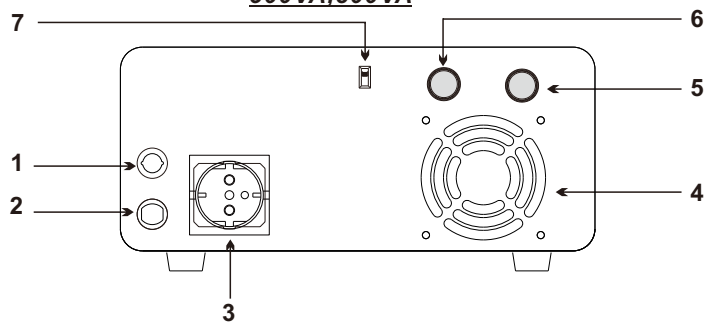
A. Front Side of the UPS



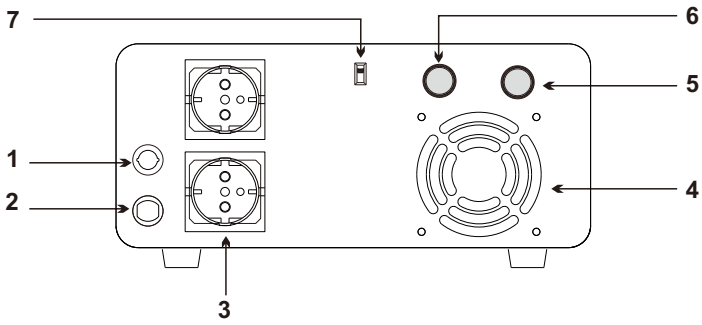
1: INVERTER ON/OFF SWITCH
2: TEMPORARY MUTE BUTTON
3: LCD DISPLAY

B. Back Side of the UPS

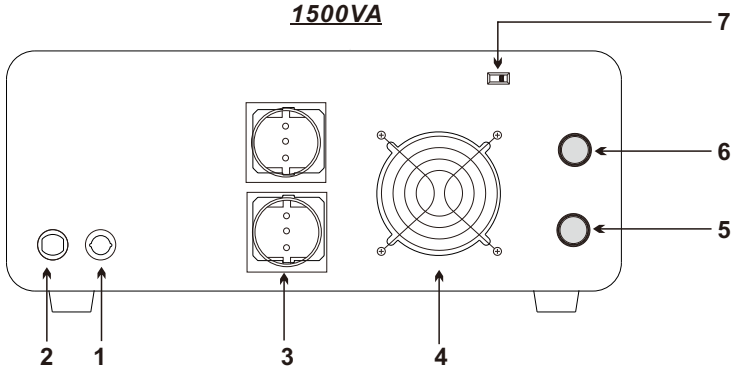
500VA,800VA



500VA,800VA

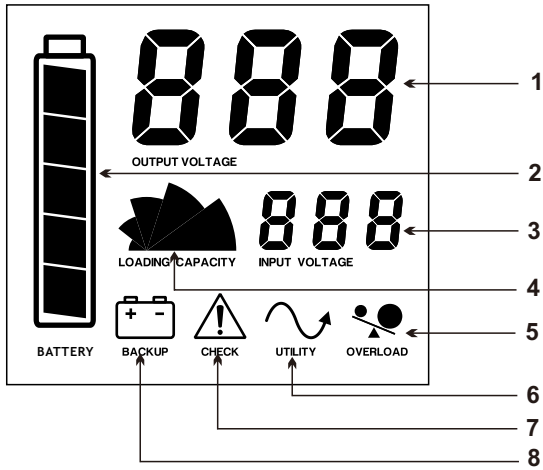


1500VA



1: INPUT CIRCUIT BREAKER
2: AC INPUT CABLE
3: OUTPUT SOCKET
4: COOLING FAN
5: BATTERY TERMINAL "-"
6: BATTERY TERMINAL "+"
7: CHARGING CURRENT SELECTOR

C. Details of Display



6: MAINS MODE
8: BATTERY MODE
5: OVERLOAD
7: ERROR
3: INPUT VOLTAGE
1: OUTPUT VOLTAGE
4: LOAD RATE
2: BATTERY CAPACITY

%	20%	40%	60%	80%	100%
Battery Capacity					
Load Rate					

4.4. CONNECT TO BATTERY

A. Make sure using the correct battery cable. The over current capability of the battery cable should not be less than the maximum discharging current. Please refer to the below table.

Model No.	Battery Cable
PSU-805-500VA (300W, 12VDC)	10AWG / 5.26mm²
PSU-805-800VA (480W, 12VDC)	8AWG / 8.37mm²
PSU-805-1500VA (900W, 24VDC)	8AWG / 8.37mm²

B. Make sure the battery voltage is correct, you can find the battery voltage which is marked where near the two battery terminals / cables.

C. Disconnect the UPS from mains power completely.

D. Connect the negative ***(-)*** of battery to the ***BATTERY TERMINAL "-"*** of UPS, and positive ***(+)*** to the ***BATTERY TERMINAL "+"***.

This UPS is designed for long time backup, the connected battery should be at least 20AH due to the initial charging current is at least 3A. Smaller battery could be damaged easily.

4.5. CONNECT TO MAINS POWER AND TO LOAD

A. Plug the UPS into the wall socket.

B. Make sure the appliance is turned off before connection.

C. Plug the appliance into the *OUTPUT SOCKET* of the UPS.
If there are two or more appliances are connected, make sure the total maximum capacity of connected appliances does not exceed the rated capacity of UPS.

5. OPERATION OF THE UPS

5.1. TURN ON THE UPS

Press and hold the INVERTER ON/OFF SWITCH till the UPS give one beeping sound, the UPS is switched on and delivers output.

Then switch on the connected appliances one by one. If there are two or many appliances connected, please turn on the biggest one at the first, the smallest one at the last, according to their rated power.

5.2. TURN OFF THE UPS

Turn off the appliances on by one, then press ***INVERTER ON/OFF SWITCH*** till the UPS give one beeping sound again, the output is turned off.

Even if the output of UPS is turned off, the UPS is still working to charge the battery, the UPS is not totally switched off. To switch it off completely, unplug the UPS from the mains power.

5.3. CHARGING CURRENT SELECTOR

It's recommended to select the charging current as below:

Battery Capacity	Level	Charging Current
20AH to 50AH	L	Low (3A~5A)
60AH to 100AH	M	Medium (7A~9A)
100AH to 200AH	H	High (10A~15A)

Wrong selection of the charging current may lead to the damage of battery in charging process!

5.4. MUTE BUZZER BEEPING

• Temporary Mute Button

At battery mode, press and hold the ***TEMPORARY MUTE BUTTON*** for 1~2 seconds, the UPS will be muted. When mains power restore, the UPS will work at mains mode, if mains power is failure again, the ***MUTE FUNCTION*** will be disabled, the UPS will beep till press this button again.

• Permanent Mute Button

Press up the ***PERMANENT MUTE BUTTON***, the UPS won't give beeping at any cases. Press it down to cancel the "mute mode".

6. MAINTENANCE OF BATTERY

With correct using and maintenance, the life of the battery can last for three to six years, depending on the times of discharging and temperature. So regular check and maintenance are very necessary.

• Charge the battery every three months if you don't use the UPS for a long time. The charging time should be at least 12 hours.
• If the UPS works continuously in mains mode for more than fours months, please discharge the battery with 50% of rated load, so as to keep the battery be active.
• For more details, please refer to the specification of the battery.

7. ALARM AND PROTECTION

7.1. BATTERY MODE ALARM

The UPS will beep once (4 continous sound) every 30 seconds when working at battery mode.

7.2. BATTERY LOW VOLTAGE ALARM AND SHUT DOWN

The UPS will beep once per second when battery is in low level. When the battery is near empty, it will beep rapidly for 20 seconds and then shut down automatically.

7.3. OVERHEAT ALARM AND PROTECTION

When the temperature of transformer winding/heat sink is exceeding the limit.

Mains Mode: UPS will beep once per second only, the output won't be cut off.

Battery Mode: the output will be cut off immediately,the UPS will beep rapidly for around 20 seconds, then shut down automatically.

7.4. SHORT CIRCUIT

Mains Mode: the circuit breaker will cut off the input power automatically once a short circuit happens.

Battery Mode: UPS will cut off output immediately, and beep rapidly for around 20 seconds, then shut down automatically.

7.5. OVERLOAD ALARM PROTECTION

Mains Mode: UPS will beep once per second, until the overload is removed.

Battery Mode:

- when load is is >120%, the UPS will beep once every second for 30 seconds, then shut down automatically.
- when load is >150%, the output of UPS will cut off immediately, and start to beep rapidly for 20 seconds, then shut down automatically.

8.MAINTENANCES OF THE UPS

This UPS is basically maintenance free! while regular maintenance can extend the life of the UPS by the following steps:

8.1. REGULAR INSPECTION

- Disconnect the UPS from the mains power and battery completely.
- Use cotton cloth and detergent to clean the body and ventilation holes.

8.2. EXTRAORDINARY INSPECTION

- When malfunction occurs, or the UPS is abnormal, please measure and check the parameters, refer to the authorized dealer if needed.
- In thunder and lightning or rainy season, Extraordinary Inspection should be executed to prevent malfunction.
- Maintenance must not be operated when UPS is working.

9. TROUBLE SHOOTING

Malfunction	Cause	Solution
1. UPS goes into battery mode, but there is mains power	The input voltage or input frequency is out of range.	Wait till the input voltage or input requency is normal
2. Can't turn on UPS when there is mains power.	Press time is too short.	Press and hold the power switch till the UPS give a beeping sound.
	Others.	Contact the dealer / manufacturer.
3. Can't turn on UPS at battery mode.	Press time is too short.	Press and hold the power switch till the UPS give a beeping sound.
	Battery is empty.	Charge the battery.
	Fuse for battery reverse burnt.	Contact the dealer / manufacturer.
	Others.	Contact the dealer / manufacturer.
4. Can't charge the battery.	Battery is faulty.	Replace the battery.
	Charger is faulty.	Contact the dealer / manufacturer.
5. Short backup time.	Short charging time.	Charge battery at least 10 hours.
	Battery is faulty.	Replace the battery.
6. "Overload" symbol appears, or "Overload" LED is ON, and UPS is beeping.	UPS is overloaded	Remove the non-critical load
7. "Error" symbol appears, or "Overload" LED is ON (not due to overload, and UPS is beeping.	UPS is overheating	Remove the non-critical load
	Ventilation holes are blocked	Clean the ventilation holes
	Ambient temperature is too high	Cut off the output and input, and wait for at least 30 minutes, then restart it.
	Load is short circuit	Remove load and restart the UPS, if it's still not ok,contact the dealer/ manufacturer
	Cooling fan is dead	Replace it
8. Input circuit breaker tripps off	UPS is short circuit	Contact the dealer/manufacturer
9. Others	Others	Contact the dealer/manufacturer