



**GOLAND CENTURY**

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**光澜世纪**

**IMP400P**

**USER'S MANUAL**

## I . FEATURES

Portable Sine Wave Inverter is a new product developed for various kinds of loads. It is small in size, reliable, and efficient. With its output pure sine wave, it's ideal for those appliances which can't work properly under square wave power. Therefore it not only can be connected to regular lights, TV, stereo systems, laptops and cooking facilities, but also pumps, fridges, fans, and High Pressure Sodium Lamp, etc

The product can be vastly applied to various uses, such as home, office, vehicles, mine industries, floodlighting systems and small scale telecommunication stations.

The product possesses independent intellectual properties and acquired ISO9001: 2000 certificate.

## II . TECHNICAL SPECIFICATIONS

1. Input Voltage: DC 10.5-14.5V.
2. Output Voltage: AC 220V±10%
3. Output Wave: Sine Wave (THD≤2%)
4. Output Frequency: 50HZ±2%
5. Output Power: 400W
6. Peak Power: 800W/0.3s
7. Half-load Efficiency: 88%
8. Zero-load Current: 0.7A
9. Working Temperature: -10°C - ±40°C
10. Protect Parameters:
  - Over Voltage Protection: 15V
  - Low Voltage Protection: 10.5V
  - Overheat Protection: 80°C
  - Overload Protection: 450W
11. Size: 200×128×56mm
12. Weight: 1.32 kg

## III. OPERATION

1. Turn the switch on the product panel to position OFF.
2. Find two clips in Accessory bag and firmly fix two wires of clip to the INPUT posts on the rear panel of inverter in accordance with the matched color. You also can connect the wires of Lighter in automobiles to the Inverter (Connecting MUST BE in accordance with colors).
3. Correctly and firmly fix the **RED** clip of Inverter on the “+” post of battery; and as such the **BLACK** clip to the “-” post of battery. You also can connect the plug of lighter in automobile to the outlet. (Mistaken connecting may burn the fuse inside the inverter or even the inverter itself.)
4. Put plug of your load into the appropriate outlet of inverter (**when connecting by clips, the nominal power of load should not be bigger than the nominal power of inverter; when connecting by lighter plug, the power of loads should not be more than 150W**).
5. Switch on the load first, and then switch on the inverter (voltage will be more stable in this operation order). If the green light of inverter lights up, you can tell the inverter is working properly.
6. Switch off operation: just turn the switch of inverter to position OFF (If you just switch off the load and leave the inverter on, the inverter will consume power about 4-8W).

## IV. PROTECTING FUNCTION

1. **Overload Protection:** If the total power of connected loads is bigger than the inverter's rated limits, the inverter will automatically stop working in 5 seconds. The protection light (red) will light up; and the protection mode will be locked. Reduce the loads and switch off the inverter for half a minute, then the inverter can resume working.
2. **Short Circuit Protection:** If short circuit problem happens to the loads in process of working, inverter will automatically protect itself. The condition is same to overload protection. Please figure out and solve the problem before resume working
3. **Overheat Protection:** The inner temperature of inverter will increase in following conditions: too many loads connected, working for long time, ambience temperature is high and ventilation is poor. When the inner temperature reaches 80℃, the Warning Light will light up and inverter will stop working and lock the protection mode. We recommend you reduce the number of loads, improve the ventilation and cool down the inverter, and then resume the inverter working.
4. **Low Voltage Protection:** When the voltage of battery steps down to 10.5V, the inverter will alarm and stop working. Please switch off the inverter and charge the battery before resume working.
5. **Over Voltage Protection:** When input voltage is higher than 15V, the inverter will refuse working even if you switch it on. It will resume working only if the input voltage is lower than 15V.
6. **Reverse Connection Protection:** When input power is mistakenly connected, the inside fuse of inverter will be burnt. You're recommended disconnect inverter and input power immediately, carefully open the inverter cover and change the proper fuse, and correct the connection between inverter and battery and then switch on the inverter again.

**Although the product has the function of Reverse Connection Protection, the arc discharge still can cause big electrical sparkle which many severely damage the equipment and users.**

## V . NOTICE

We paid great attention to the safety of user and equipment during designing this product. However, the mistaken operation still may cause safety problems. You're strongly recommended to follow the rules as below during the operation, installation and maintenance for the sake of your safety and benefits:

1. The positive and negative terminals of inverter and battery must be correctly connected; otherwise the fuse of inverter may be burnt.
2. Make sure the battery voltage is suitable to the product. The products must not be connected to 24V or 36V battery. Please check the connection between inverter and battery is correct and firm. Mistaken connection and poor contact may cause the inverter damage.
3. If you are using the outlet of lighter in automobile, you must choose the inverter which power is less than 125W; should you have the requirement that choosing the inverter bigger than 125W, please change the wires between lighter outlet and battery of automobile, and change the fuse accordingly as well.
4. Avoid changing the connect wire of inverter without consulting our technical support.
5. The inverter should be switched off and disconnected when it's not in use to reduce the zero-load losses.
6. Do not put any objects and splash any liquid into the inverter; do not touch the AC plug with wet hand. Children and incompetence persons are not supposed to operate this product. We suggest you not using the product in ambience where is very humid, dusty, hot and of drastic temperature difference. Do not use the product in inflammable and explosive environment, such as the room stocking the vehicle batteries.
7. Keep sound ventilation at radiating holes on the two sides of inverter; do not put the product close to the heaters or boilers; do not put anything heavy above the product; and prevent the product from sunlight beat.
8. The product is a stand alone inverter which is strictly forbidden connected to any other power supply. It is strongly forbidden to stick the power grid plug into the outlet of this product!
9. Prevent the product from damp and rain, which may cause the product damage or shock.
10. Do not repair the product by yourself. There are no parts could be repaired by oneself. Opening the cover of product may cause the user severely shocked or other possible danger; and also may cause the product lose the services after sale this company promised.

## VI. TROUBLE SHOOTING

Besides the protection mode applied when there is overheat, overload or low voltage, following reasons also can cause the product can not work properly, please check step by step:

### 1. No output

**Reason 1:** Too many loads connected to the inverter.

**Solution:** Reduce the number of loads to make sure the power of loads is less than the rated power of inverter.

**Reason 2:** Overheat protection is applied due to overheat of product.

**Solution:** Cool down the product and restart it 15 minutes later.

**Reason 3:** The fuse is burnt.

**Solution:** Change the same kind of fuse.

**Reason 4:** To drive the loads like TV, washing machine and fridge which need big starting power.

**Solution:** Connect the loads and inverter first, and then switch on the inverter; if it still can not start up, switch it off for 2 seconds and restart.

### 2. Product keeps alarming

**Reason 1:** Wires are not properly connected.

**Solution:** Double check the connection and correct the mistakes.

**Reason 2:** Battery voltage is low.

**Solution:** Change the battery.

**Reason 3:** Battery is too old.

**Solution:** Change the battery.

The models and specifications in this manual are just for reference. The content is subjected to modification from time to time without prior notification.

## VII. HOW TO CHOOSE THE BATTERY AND INVERTER

### 1. How to choose the battery?

Must choose the battery or DC power supply which output voltage is in accordance with the input voltage of inverter. The battery should provide enough working current (no less than the rated current of inverter). For example: 400W/12V inverter's output current should be higher than 35A. If you choose using the DC power supply, the THD should be better than 1%, output wave < 10mV; For the battery, you're recommended to choose the lighting battery (wet deep circulatory style ), which can still discharge when its capacity is lower than 50%.

The battery lasting time can be calculated:

Usage time (hour) = (Battery capacity Ah × Inverter input voltage) / power of inverter loads

### 2. How to choose the inverter?

Most electrical appliances are marked with rated power and current, which are less than the rated power of inverter. However, some appliances such as fridges, TV and motors only can be started by big power which is several times than their rated power. If the appliances can not be started properly, you can switch off the inverter for a while and try again. If the problem can not be solved by this way, you probably need a bigger power inverter.

The required power of inverter can be calculated:

The total power of loads is equal to the rated power of inverter, for example: if you need use a laptop (100W), a bulb (100W) and a 21 inch TV (150W) at the same time, you can calculate the total power of loads is 350W. Then you need an inverter which net output is at least 400W. However, if the loads you are going to drive are all inductive (such as fridges and TV), the power of inverter you need choose should be 1.5 to 2 times bigger than the total power of all loads.

#### **Tips:**

1. You're suggested to keep the engine of your vehicle running if the total power of loads you are going to drive is more than 300W and you're intending to use them continuously for more than 45 minutes, hence to avoid running out the battery of your vehicle.
2. The places of using this product must be free of conductive, explosive dust and the air which may erode the metal or insulating materials.
3. Keep the ambience of inverter dry, clean and at least 1 meter away from inflammable objects.  
Working condition: The green LED is on when inverter is working properly; the inverter will alarm and stop working when over voltage protection is applied; the inverter will alarm when battery's voltage is low; when overheat protection is applied, the red LED is on and the inverter will stop working; when short circuit and overload protection mode is applied, the red LED is on and the inverter will stop working.

## VIII. SERVICES AFTER SALE

Goland Century Co., Ltd. warrants this hardware product against defects in materials and workmanship for a period of one (1) year from the date of original purchase. Please contact the local dealers for maintenance and repair issue.

This limited warranty does not apply to damage caused by accident, abuse, misuse, misapplication, refit and inappropriate repairing.

## IX. ACCESSORIES

1. Goland Century IMP400P Sine Wave Inverter: one (1) set
2. Connecting Wire: one (1) pair
3. Manual of product: one (1)
4. Fuse: two (2)

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**GOLAND CENTURY TECHNOLOGY CO., LTD, SHENZHEN**

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Tel: +86 755 26827242      Fax: +86 755 26827243  
Room 311, Material Building, Houhai Street, Nanshan District, Shenzhen, China  
www.szgoland.net;      Email: sales@szgoland.net