



GOLAND CENTURY

光澜世纪

**6KVA SINE WAVE INVERTER**

**USER'S MANUAL**

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# SINE WAVE INVERTER

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## 1. WELCOME

Thank you for purchasing a **GOLAND CENTURY Inverter**. The **GOLAND CENTURY Inverter can produce** pure sine wave output, which will be suitable for applying wide range of appliances.

Your **GOLAND CENTURY Inverter** will serve you well if proper care is taken during installation and operation. Consult this user manual for installation procedures and operating rules.

Your **GOLAND CENTURY Inverter** contains potentially hazardous electronic equipment inside which may result in death or injury. We recommend service and maintenance to be carried out by qualified electrical personnel only. All service and maintenance during the warranty period must be carried out by a GOLAND CENTURY approved Agent or your warranty agreement will be null-in-void and you may be liable for charges to the repair of your unit.

Contact us for information on dealers, agents and distributors in your area.

The GOLAND CENTURY Team

## 2. NOTICE

- WARNING: THE INVERTER GENERATES HIGH VOLTAGES AND CURRENTS. INCORRECT USE MAY CAUSE ELECTRICAL SHOCK AND DEATH.
- The inverter contains sophisticated electronic equipment. Installation should be referred to a qualified electrical technician. Any queries should be referred to the appropriate service provider.
- Any work performed on the inverter and the installation of the inverter must comply with local and national electrical regulations.
- All precautions relating to the installation and operation of main voltage equipment must be observed when installing the inverter. This includes considerations to insulation of cabling, access to bare conductors, grounding, and protection from moisture etc.
- Please be extremely caution when working with the batteries. Lead acid batteries produce explosive and corrosive gas. Inadvertent shorting of the battery terminals can cause serious damage and injury from flash and acid burns. Always wear eye protection and protective clothing when working near the batteries. Insulate all tools used for battery connection.
- Never smoke or allow a spark in the vicinity of the batteries. Remove any metal items on clothes or body when working with the batteries to reduce the risk of a spark or short circuit.
- Do not operate the inverter with any panels or covers removed. Do not operate the inverter if it is not properly installed.
- After being disconnected, the inverter may still contain high voltages in the capacitors. Ensure that these have been fully discharged before working on the inverter.
- Do not use the inverter outside the permissible ambient conditions.

## 3. PRODUCT BRIEF

GOLAND CENTURY Inverter      Model: IMP6000VA

Power: 6000VA

Input: 48VDC

Output: 230VAC single-phase

## 4. STANDARD FEATURES

This **GOLAND CENTURY Inverter** is equipped with the Following features:

- Sine wave output - less than 5 total harmonic distortion
- Robust construction
- Automatic operation
- Battery low protection
- Electronic reset-able after overload protection
- High short-term overload capability – 150% for 10 seconds, 200% for 5 seconds
- High efficiency - typical 90%
- Low stand-by consumption-typical 4W/KW or 0.4% of full load
- Corrosion resistant epoxy-coated housing
- Silent operation
- Galvanic isolation between battery and output
- Maintenance free
- Starts fluorescent lights, dimmers, SCR controlled appliances
- Supplies the heavy starting current required by the following appliances: fridges, motors, pumps, power tools
- LCD display and keyboard for setting changes.

## 5. APPLICATIONS

**Due to the many features the inverter incorporates, it is the ideal solution for the following application:**

- Remote housing
- Boating
- Remote education
- Medical
- Mobile application - off-road, etc.
- Recreation
- Sophisticated electrical equipment

Other, e.g. Telecommunications applications, field service, testing

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## 6. EQUIPMENT DESCRIPTION

All **GOLAND CENTURY Inverters** are housed in an epoxy coated box with an aluminum radiator and a removable steel cover. The box is specifically designed to be dust and vermin proof, whilst providing adequate heat dissipation. LEDs on the front panel indicate: Power, Over temperature, Over Voltage, Over load, Voltage Low and Short Circuit. A reset button is for resetting after overload conditions.

The inverter uses high frequency pulse-width modulated technology and the latest field-effect devices. This system allows the inverter to run with high efficiency and to operate silently. The use of toroidal iron cores and ferrite magnetic cores guaranteed the stable performance and reliable quality of inverter. Each inverter is fitted with color-coded battery leads, two output plugs for immediate convenience and an output terminal block for ease of connection to the complete installation. All functions are microprocessor controlled using the latest DSP technology.

An LCD screen enables viewing of many parameters and a keyboard to facilitate customers changing their settings.

### (a) Parts Description:

The following parts of the inverter should be identified:

- Free standing steel casing
- Removable cover
- 8mm DC input studs
- 6mm AC output studs
- LCD and keypad on top cover
- Input and output circuit breakers on the front cover

### (b) Explanation of Features

#### Battery Low Protection

A lead-acid battery will suffer permanent damage if it is allowed to remain in a fully discharged state for even a short period of time. GOLAND CENTURY inverters incorporate a battery-low shut-down circuit which switches off the inverter when the battery voltage falls below a certain level. The inverter will automatically restart when the battery level returns to normal.

#### Electronic Overload Protection

The inverter is capable of supplying 1.5 times its rated output power for 10 seconds. This enables it to handle motor starting currents and other surges that occur when equipment is switched on. Overloads in excess of the above, short circuits and lesser overloads of longer duration will cause the inverter to switch off.

After overload, the inverter will not operate until the reset button has been pushed. On pressing the reset the inverter will start up again. Please check first why your inverter is overloaded and remove the excess load before re-initializing the inverter.

The length of time for which the inverter will run before it switches off is dependent on the severity of the overload. This provides another feature; the ability to run intermittent loads in excess of the rated output of the inverter (e.g. for running kitchen appliances or power tools). For further details see the specifications.

#### Galvanic Isolation

Galvanic isolation in the inverter achieves maximum resistance between the battery and the main output. This eliminates the chance of problems occurring where there is an existing connection between the battery and earth.

## **Incorrect Battery Voltage Protection**

If during charging of the battery, the battery voltage rises to an unacceptable level the inverter will switch off to protect the electronic components. It will automatically restart once the voltage has returned to normal.

If the inverter is connected to a battery of too high voltage, the inverter will switch off. Please note that this only operates to within reason.

## **7. INSTALLATION**

### **(a) Site Selection**

The Inverter is for interior use only. Exposure to moisture, dust, corrosive gasses or direct sunlight can damage the inverter.

The high cost of heavy duty cabling required for connecting the batteries and the inverter ordinarily dictates that the inverter to be sited close to the batteries (see also section on cabling).

Choose a location that is as cool as possible.

To ensure optimum performance the inverter should be installed in a well ventilated area. The following should be avoided: installation in close proximity to a generator or similar heat-emitting device.

### **(b) Mounting**

The inverter has been designed as a freestanding device but can be custom made to your specification.

### **(c) Cabling**

When installing the battery cables, please ensure that the correct cable thickness is observed.

Incorrect cable thickness will result in a loss of efficiency and a tendency for the inverter to cut out under heavy loads. Please, also be aware, that the appropriate insulation requirements for the cabling must be observed.

### **(d) Connecting**

The inverter may be used together with other devices such as generators, battery chargers, timers, solar panels, wind generators etc. However, it is essential that the correct procedures are followed in connecting up these devices. These installations are only to be done by a qualified technician.

PLEASE NOTE THAT INVERTERS MUST BE CONNECTED TO THE BATTERIES FIRST AND THEREAFTER TO THE SOLAR REGULATOR OR OTHER DEVICES.

### **(e) Connecting and Starting**

The load voltage is delivered by the output studs and must be connected with the brown wire as live and the blue as neutral. Please note that both wires can shock.

Ensure that all connections are tightened.

Before connecting the batteries / supply voltage, make certain that the input breaker is off.

Connect the batteries or supply voltage as follows: Red to positive and Black to negative.

Ensure that the connections to the batteries and the load are secure and correctly insulated. Ensure that the inverter is correctly installed with other devices (see Section on Connecting).

Switch on the input breaker.

The inverter will now begin to run.

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Switch on the output breaker to deliver power to the load

## **(f) Key board operating for settings**

Press + and - to scroll displays options and to read the various parameters.

Press Menu to enter the menu and then + and - to scroll through menu options.

Press enter on an option to enter that menu.

Change values by pressing + or - to increase or decrease the value, pressing enter accepts the new value. Once all the values have been changed the LCD will display the message.

Press reset to update settings.

Pressing reset now will restart the inverter with the new settings.

## **8. TROUBLE SHOOTING**

### **(a) Overload**

The inverter can be overloaded if a high overload current trips the electronic overload sensor causing the Error LED to come on, and the LED will show Error! Overload. This must be reset by pushing the RESET BUTTON. Ensure that the load causing the inverter to be overloaded is disconnected before restarting.

All other Errors will also cause the Error LED to come on and the display will show Error! These Errors can be:

Over Temperature - Caused when the radiator temperature rises above 80°C;

Over voltage - Caused when the battery voltage rises above the Battery high setting;

Overload - As above;

Voltage Low - Caused when the battery voltage falls below the battery low setting;

Short Circuit - Caused when the AC output is subjected to a dead short or a massive overload.

Remove the cause of the errors before pressing reset.

## **9. SERVICE AND WARRANTY**

Service is available from GOLAND CENTURY's network of agents.

GOLAND CENTURY manufacturers the inverters and supplies a one year limited warranty.

## 10. SPECIFICATIONS

<b>Input voltage range</b>	40.8V to 67.4V
<b>Output voltage</b>	230VAC±5%
<b>Number of output Phases</b>	One
<b>Output Frequency</b>	50Hz±1%
<b>Waveform</b>	Pure Sine Wave
<b>Nominal Apparent Power</b>	6000VA
<b>Operating Ambient Temperature</b>	-5°C to 50°C
<b>Efficiency (between 2500W and 5000W)</b>	>90%
<b>No Load Loss</b>	<85W
<b>Standby Current</b>	1,2amps
<b>Overload Profiles</b>	150% for 10 seconds 200% for 5 seconds
<b>Output Overload Protection</b>	√
<b>Input Overload Protection</b>	√
<b>Insulating transformer</b>	√
<b>Dimensions</b>	L420×D460×H460
<b>Weight</b>	68KG

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