User Manual

Off-Grid Pure Sine Wave Inverter

WI100-240-CN01

Please Read This User Manual Carefully Prior to Installation and Operation of This Product.

2012 V1.0

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Notice

1) **Battery reverse connection is forbidden.**
2) **Connection to utility is forbidden, the inverter must be separately wiring.**
3) Battery virtual connection or damage is one main factor of malfunction. Please check battery voltage and connection status weekly, clear rust on positive, negative terminal in time; use lead terminal if available.
4) If the apparatus alarms, should identify the reasons and repair before re-use. Immediate restarting shall be forbidden.
5) In order to ensure the safe and normal work, the total power of load should not exceed the rated output capacity. If the load is inductive load, such as refrigerator, generator, washer, water pump, etc, user should use inverter capacity 5 ~ 6 times as load power and load should be switched on one by one. **Do not switch them on frequently.**
6) If the malfunction is not easy to eliminate or reason unclear, please write down the phenomenon in detailed record, and contact manufacturer for help in time.
7) **Three-phase inverter can not connect to single-phase load.**

Installation Environment

1) The inverter should be put indoor where is well-ventilated.
2) Avoid exposing the apparatus under direct sunshine, exposure, rain, moist, acid mist and dust.
3) Allow at least 20 inches (0.5 m) distance from battery.
4) Ambient Temperature is -20～+55℃; Ambient Humidity is 35～85%RH, no condensing.
5) If the apparatus is used in the area of altitude higher than 1000m, output power should be lower 5% for usage accordingly with every 1000m increasing.
6) **Do not install the equipment in a compartment with flammable liquids, such as gasoline, or explosive vapors. Be ware of flame and spark.**

1. Product Introduction

Off-grid pure sine wave inverter is intelligent equipment which can transform the direct current to stable alternating current. The apparatus is used to supply for Traffic inconvenience, the harsh environment of the mountain area, a pasturing area, border, islands and other areas without electricity.

The apparatus has decent appearance, easy operation, and visual indication of LCD, with the perfect protection function, high charging efficiency, and low no-load loss.

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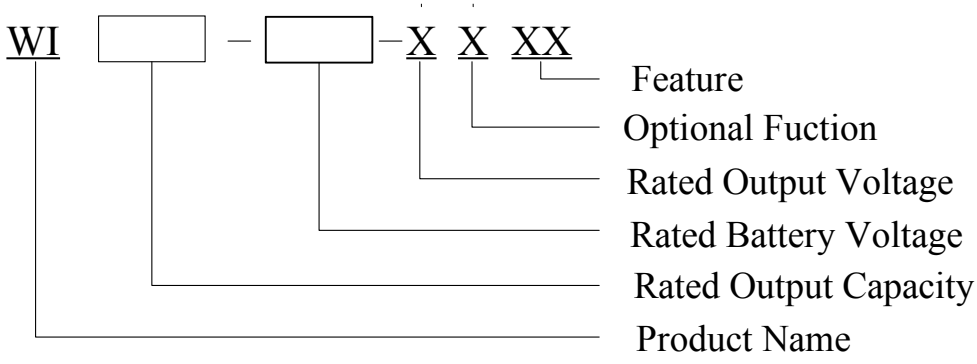
2. Model Specification



Rated Output Capacity		Rated Battery Voltage		Rated Output Voltage		Optional functions		Feature	
03	300VA	**12**	12V	**1**	110V Single-phase	**N**	Normal	**01**	50Hz
05	500VA	**24**	24V	**2**	120V Single-phase	**M**	By-pass	**02**	60Hz
06	600VA	**48**	48V	**3**	220V Single-phase			**03**	Dry contact+50Hz
10	1KVA	**96**	96V	**4**	230V Single-phase			**04**	Dry contact +60Hz
20	2KVA	**120**	120V	**5**	240V Single-phase			**11**	Horizontal Type 50Hz
30	3KVA	**220**	220V	**A**	220V Three-phase			**12**	Horizontal Type 60Hz
50	5KVA	**240**	240V	**B**	240V Three-phase			**XX**	Others
100	10KVA			**C**	380V Three-phase				
150	15KVA			**D**	400V Three-phase				
200	20KVA			**E**	415V Three-phase				
300	30KVA								

E.G.**:** WI100-240-CN01 indicates rated output capacity 10kVA, rated battery voltage 240V, and rated output voltage 380V, three-phase, normal optional function, output frequency 50Hz.

3. Performance Description

✧ **Reliability：** Intelligentized, modularized, simple structure design with powerful function and stable performance; the high-quality components and the strict production process make the inverter suitable for severe environment. It also has reliable performance and long lifespan.

✧ **Pure Sine Wave Output:** Compared with square wave and modified sine wave, the inverter has stronger load capacity. The apparatus can drive inductive load and any other AC load within the required power.

✧ **LCD Display:** The LCD display battery voltage, AC output voltage and status parameters.(**Remark:** If inverter output capacity ≤1kVA, AC output voltage will not display)

✧ **High Efficiency Transformer Isolation:** Power frequency toroidal transformer, which ensures high efficiency and

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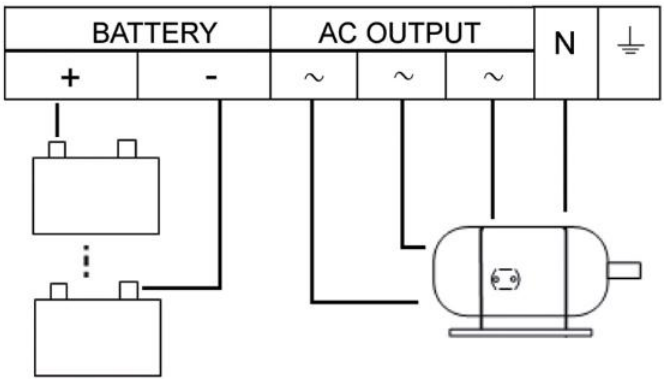
low no-load loss of the inverter.

✧ **Perfect Protection Function:** Battery over voltage, over discharge, anti-reverse protection; output over load, short circuit, over temperature protection; lightning protection etc.

✧ **Optional by-pass function:** When the battery is over discharge, the inverter will intelligently switch to Utility grid to drive load.

✧ **Optional light control and time control function:** According to illumination intensity, the inverter can control output without manual operation. This function is available with our matched controller.

4. Installation Flow



Step 1. Check the package and then check the controller for damage after unpacking. Damaged inverter cannot be installed in the system.

（**Note: Wire connection diagram, please refer to Appendix.**）

Step 2. Make sure the "IVT SWITCH" in the position of "OFF".

Step 3. Connect battery to "BATTERY" terminals with copper wire. **Though the inverter has anti-reverse connection protection function, but wrong polarity of battery shall be forbidden!**

(**Note:** Copper wire diameter, please refer to Appendix I.)

Step 4. Connect load to "AC OUTPUT" socket or terminals.

Step 5. Turn on "IVT switch" if necessary and AC load works, the green "IVT" LED light will turn on. Then the inverters work and supply alternating current to the "AC OUTPUT".

Step 6. If the inverter has the by-pass function, connect Utility grid to "AC INPUT" socket or terminals of the inverter. When battery is over discharge, the inverter will intelligently switch to utility grid and supply power for driving load.

Step 7. Check all the connections to be correct and firm.

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5. Technical Data

Product Model	**WI100-240-CN01**
Rated Output Capacity	10kVA
Rated Battery Voltage	$240V_{DC}$
Over Voltage Shutoff	$340V_{DC}$
Over Voltage Recovery	$330V_{DC}$
Under Voltage Shutoff	$216V_{DC}$
Under Voltage Recovery	$240V_{DC}$
No-load Loss	≤1.0A
Output Wave	Pure sine Wave
Display Mode	LCD
Cooling	Fan
Rated Output Voltage	$380V_{AC}$
Wave Distortion	≤4%
Output Frequency	50±0.5Hz
Dynamic Response	5%
Power Factor	≥0.8
Over-load Capacity	120% 1min,150% 10s
Invert Efficiency	90% Max
Isolating Mode	Toroidal Transformer
Noise (1m)	≤40dB
Insulating Strength	1500VAC,1min
Protection Functions	Input over voltage protection, Battery under voltage protection, Battery anti-reverse connection protection, Output overload protection, Output short circuit protection, Over temperature protection.
Ambient Temperature	-20～+55℃
Working Altitude	≤4000m
Ambient Humidity	0~90%,Without Condensation
Dimensions (Lx W x H)	500×500×750mm
Net Weight	110kg
In order to serve our customers better, our company can adjust parameter configuration according to customer's requirement.	

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6. Troubleshooting

Problem	Possible Cause	Solution
LCD has no display	Battery wire connection loose	Check connection, reconnect battery cables firmly.
	Battery voltage is lower than inverter working voltage	1. Check battery voltage until battery voltage reaches to inverter working voltage.
		2. Check battery connection, please reconnect correctly or increase battery banks.
	Fuse is burnt	Open box, then change fuse.
	LCD wiring connection loose	Open inverter box, reconnect LCD wiring.
Input over voltage protection	Battery is over voltage	LCD display “HIGH BATTERY”, please disconnect all the wirings first and then re-connect them.
Battery over discharge protection	Battery is under-voltage	LCD displays “LOW BATTERY”. After battery voltage rises up to the ‘over discharge recovery voltage’, the inverter will recover automatically.
Over load protection	Load power exceeds inverter rated output capacity	LCD displays “OVER LOAD” constantly. Turn off the inverter and check the load, deduce some loads, then restart the inverter again.
Load short-circuit	Short-circuit on the AC LOAD	LCD displays “OVER LOAD” flashing. Turn off the inverter, check load and wiring, remove the short-circuit hazard or damaged load, then restart the inverter again.
Over temperature protection	Improper installation	Installation should be in well-ventilated areas.
	The vents are blocked.	Make the area around fan-cover clean.
	Something wrong with the fan	Contact manufacturer.
No AC output	Inverter switch is in “OFF” position.	Turn on the inverter.
	LCD displays HIGH BATTERY, LOWBATTERY,OVERLOAD, HIGH TEMPERATURE	Please refer to the above corresponding solution.

7. Guarantee and Liability

One year warranty is available for our product from the date of delivery. If the product is out of warranty or damaged by transportation, inappropriate operation, human factors, force majeure, no guarantee is made.

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Appendix

Appendix I Copper Wire Over Current Capacity

Wire Diameter(mm^2)	Over current Capacity (A)	Wire Diameter(mm^2)	Over current Capacity (A)
4	≤20	16	≤90
6	≤30	25	≤125
10	≤50		