AWS Wind Controller - 120V

—Wind Power Grid-tied Controller&Inverter Integrated Machine

User Manual

Model

5kW

(Your Product may look slightly different.

Contents

1. Important Safety Warning

Before Using the machine, please read all instructions and cautionary markings on the unit and this manual. Store the manual where it can easily be accessed.

This manual includes all safety warnings, installation, and operation guidance of WWGI series controller&inverter integrated system.

- Before installing and using this machine, read all instructions and cautionary markings on the machine and all appropriate sections of this guide.
- Do not use the machine in the place where has flammability and explosive gas/articles. Beware of flames and sparks.
- Please Contact our after-sales person if the machine doesn't work.
- Do not change the electrical components and parts yourself, or we will not be responsible for the warranty items and related duties.
- Please disconnect the wind turbine and grid before install or maintain the machine. Besides, do not touch the machine in 5 mins after disconnection.
- Please ensure that there is no flammable, explosive gas or substance within 1 m of the dump load, because it causes a large volume of heat when it works.
- Please keep good ventilation and heat dissipation.
- Please install a circuit breaker outside the machine if conditions are allowed.
- Please use copper cable for line connection, and choose the right diameter of cable according to the actual current.
- To avoid a risk of fire and electric shock, make sure the existing wiring is in good condition and that the wire is connected tightly.
- Do not restart the machine immediately when it alarms. Please analyze the fault reasons and repair them at first.

2. Basic Information

2.1 Introduction and Features

WWGI series are wind power grid-tied controller&inverter integrated system with MPPT function. It looks concise and can be easily operated. Besides, it has LCD display which can show parameters in a direct way.

Features

- Controller&Inverter integrated machine (only for wind power generation)
- MPPT included, and 30 track points settable
- Complete protection functions.
- RS232/RS485/GPRS monitoring modes optional. (GPRS monitoring can be used on app as well)

2.2 Product Structure

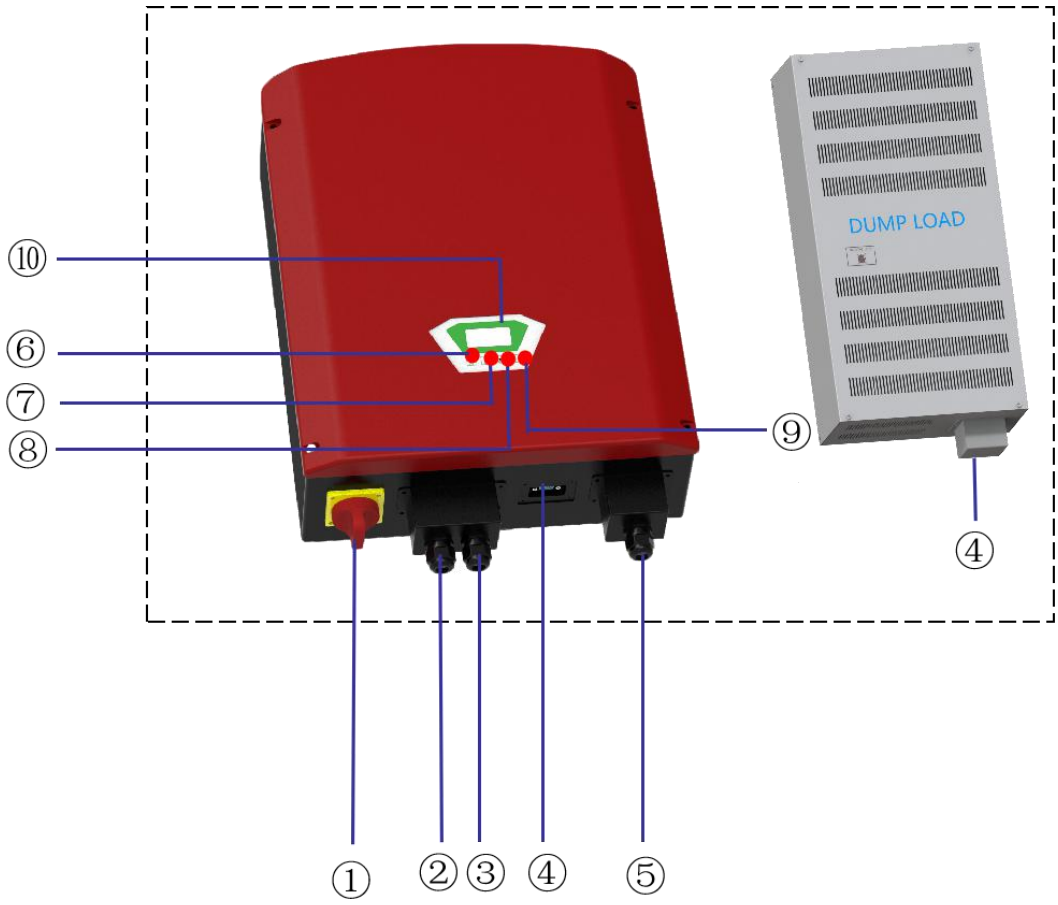


Chart1. Product Overview

①	Wind turbine brake button	⑥	Inverter indicator light
②	Wind turbine terminal	⑦	Fault indicator light
③	Communication device terminal(Optional)	⑧	Unload indicator light
④	Dump load connection terminal	⑨	Scan button
⑤	Grid connection terminal	⑩	LCD Display

3. Product Installation

3.1 Installation Notes

- The machine should be kept indoors and well ventilated;
- Environment temperature: -20～+40℃; Humidity: <=95%，no condensing
- Altitude should not be more than 4000m (＞1000 m derating according to the GB/T3859.2 regulations).
- Avoid using the machine in direct sunlight, sun exposure, rain, humidity, acid fog, and dust.
- Choose the vertical surface of the wall or solid, and the wall or solid should be able to withstand the weight of the machine
- Only the Grid and wind turbine which the machine matched well can be connected.

3.2 Installation and Wiring

3.2.1 Installation place choosing

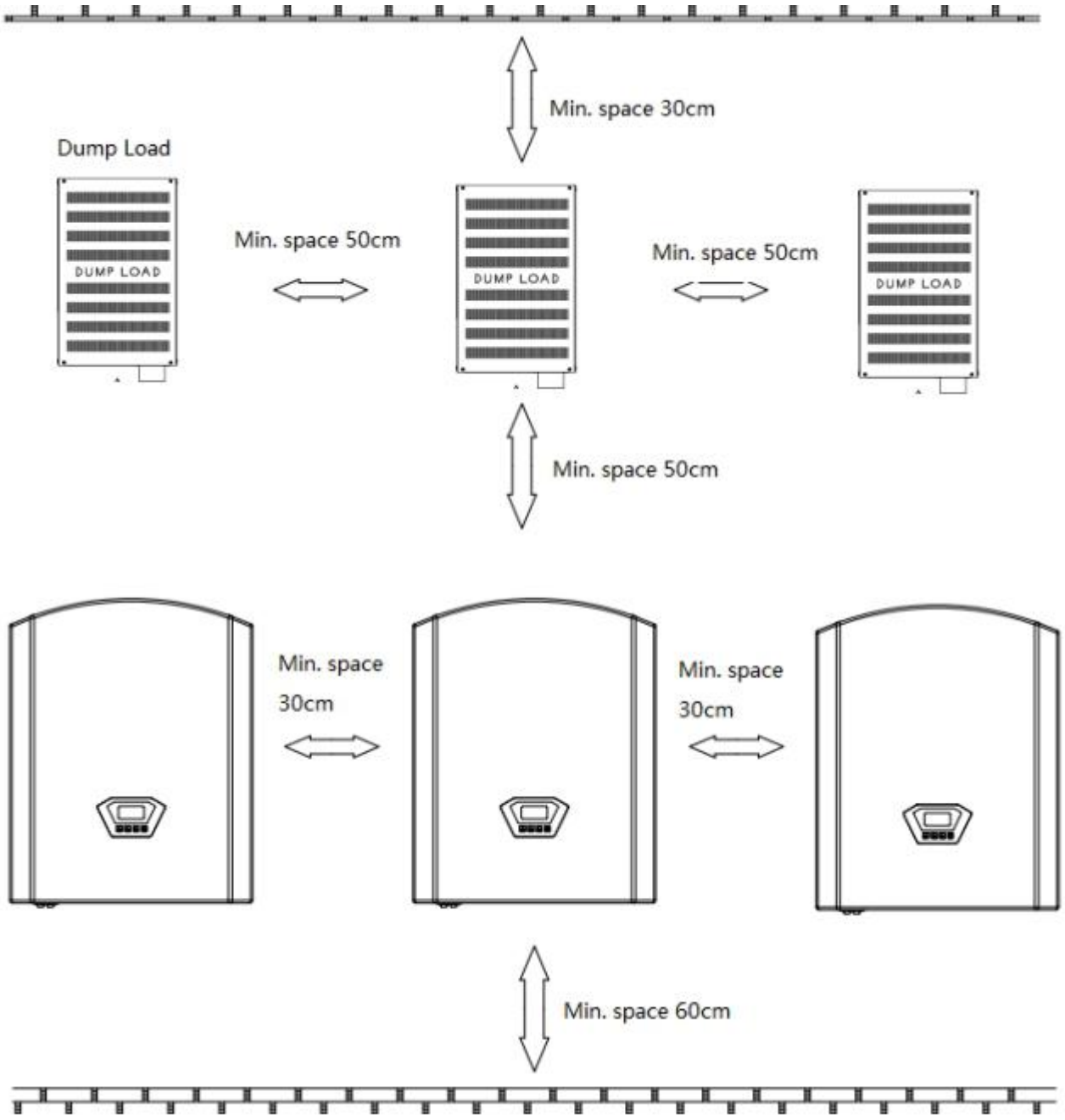


Chart 2: Installation Overview

3.2.2 Installation Steps

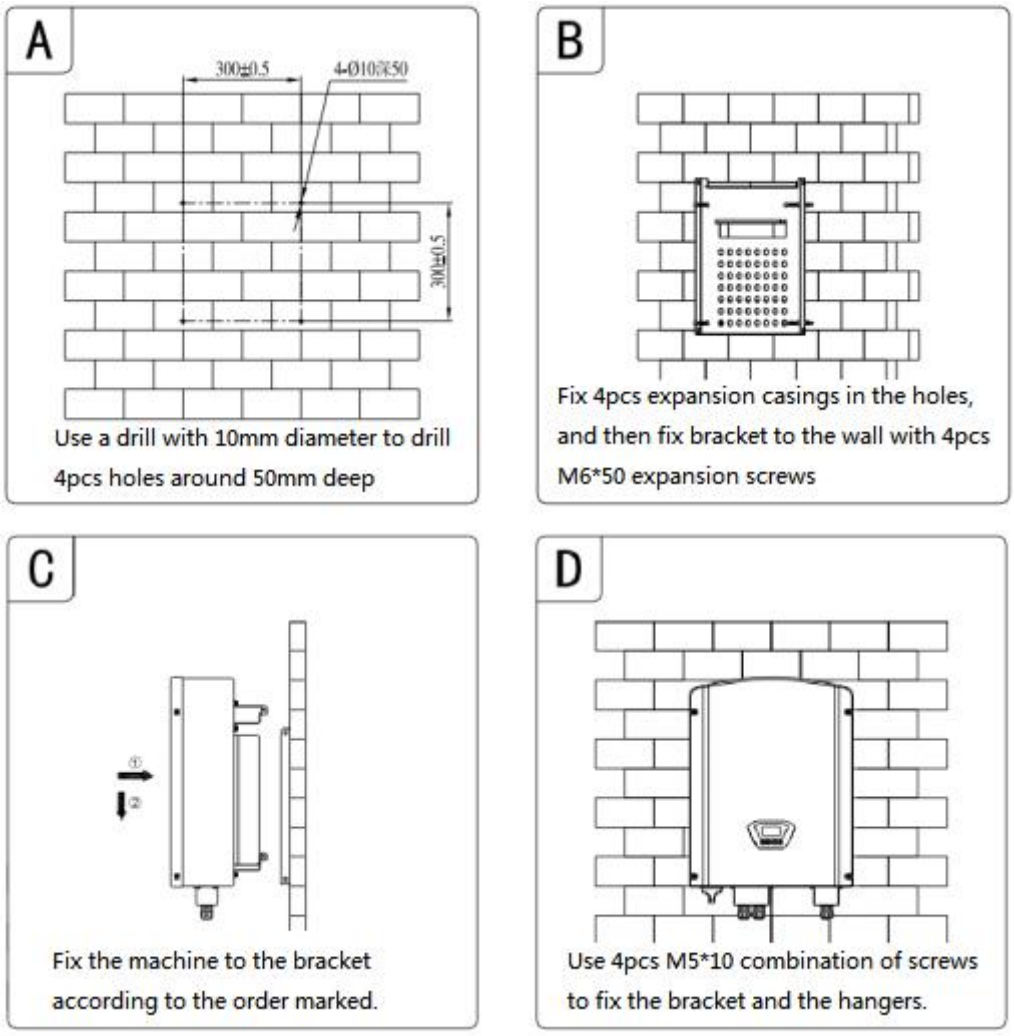


Chart 3: Installation Steps

3.2.3 Dump Load Installation Steps

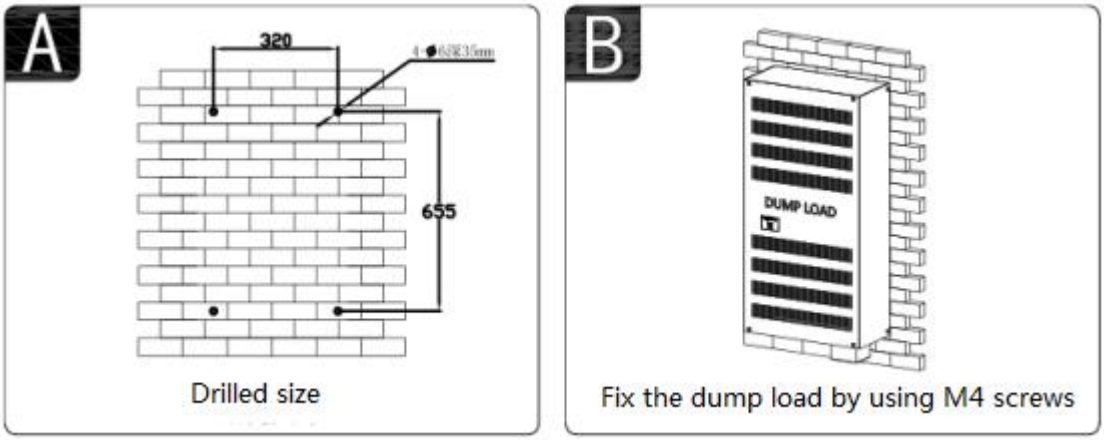


Chart 4: Dump Load Installation Steps

3.2.4 Electrical Connection

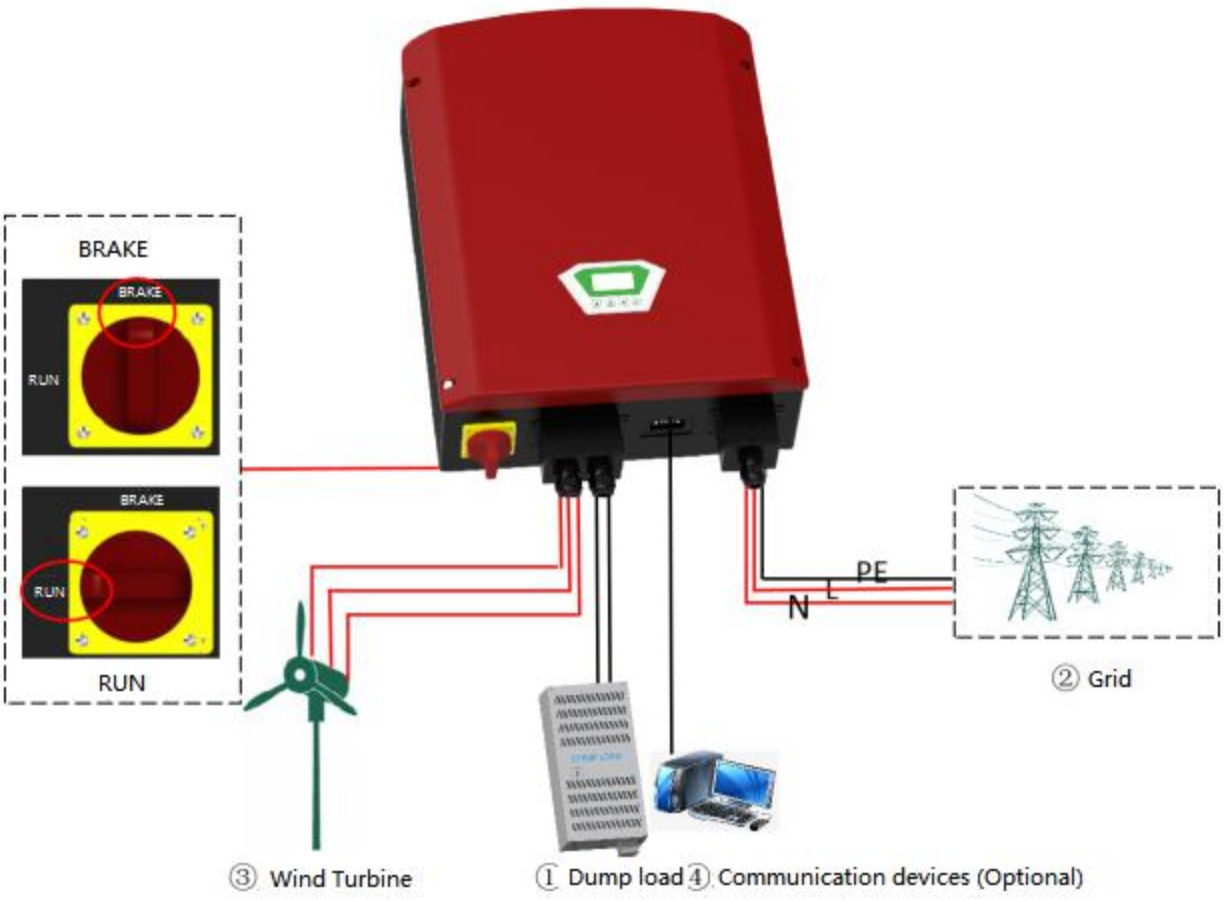


Chart 5: System Overview

Please connect those parts according to as marked at the controller.

1. Connect two output lines of dump load to the unload terminals “R” “R” of the machine.

2. Connect “N” “L” and earth wire to the terminals “N” “L” and “PE” on the machine relatively.

3. When wind turbine is still or running in a low speed, connects its output line to the “WIND INPUT” terminal on the machine.

4. Connect communication device to the relative communication port if there is a communication device.

5. Check all the connection to make sure they are connected rightly and tightly.

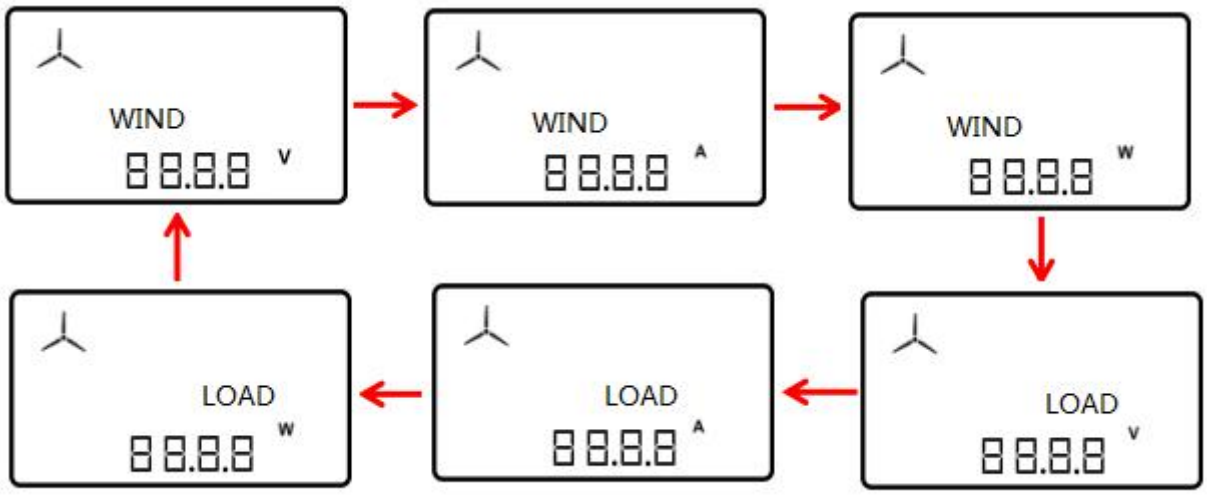
Note：

1. Please measure the voltage and frequency of the grid before connect the system to the grid.
2. AC terminal “N” and “L” cannot be connected to the earth wire terminal, or the machine will be damaged permanently.
3. The switch should be at “BRAKE” status while installation, and changed to “RUN” status when it works.

4. Operation Interface Introduction

4.1 LCD Display

After the power is connected, the whole screen is in a browsing status. It shows battery voltage, and can be changed to the following information by pressing related buttons.



4.2 LCD Information Define

Name	Icon	Statement	
Wind Turbine		Rotate means wind turbine works normally	
		Brake by hand	
LCD display		Show system status and related parameters.	
Inverter indicator light		on	By-stand state, and be waiting for connecting to the grid.
		blinking	Grid is connected normally and successfully. Blink frequency in 2s can be used to analyse the current grid-connected power. If the power is less than 10%, it blinks once. Every time the power is increased 10%, it blinks one moreuntil 10 times for full power.
		off	Grid is not connected or grid state is abnormal.
Fault indicator light		blinking	Has something wrong. You can analyse the fault based on the flickering frequency.
		off	Normal operation.
Unload indicator light		on	Dump load (the color will be deepen with dump load degree.)
		off	No dump load

Browse button		Change to next parameter when it was pressed shortly. Enter to brake status when it was pressed for 5s Recover when it was pressed for another 5s.

4.3 Fault Code

In a display cycle, the fault can be analyzed by observing blink frequency of fault indicator light.

Fault code	Indicator state	Statement
1	Blink once	Grid is not normally connected. Grid voltage or frequency is abnormal
2	Blink twice	Inverting circuit soft over current protection
3	Blink 3 times	Bus overvoltage protection
4	Blink 4 times	over temperature protection
5	Blink 5 times	IPM protection for the inverting side
6	Blink 6 times	rectifing circuit soft over current protection
7	Blink7 times	IPM protection for rectifing side
8	Blink 8 times	Wind voltage is higher than bus voltage fault protection point.

5. Trouble Shooting

Fault code	Analysis	Possible solutions
1	Grid is not normally connected. Grid voltage or frequency is abnormal	Check the details from the monitoring software.
2	Inverting circuit soft over current protection	Check the wiring connection on the AC side circuit after ensuring the machine is disconnected with any power supply.

3	Bus overvoltage protection	Please connect Win Power
4	over temperature protection	once the inverting module temperature recovers to normal, the machine will clear the fault itself.
5	IPM protection for the inverting side	Wait for 5mins, test after the fault is recovered automatically. If not, please contact Win Power.
6	Rectifying circuit soft over current protection	Wait for 5mins, test after the fault is recovered automatically. If not, please contact Win Power.
7	IPM protection for rectifying side	Wait for 5mins, test after the fault is recovered automatically. If not, please contact Win Power.
8	Wind voltage is higher than bus voltage fault protection point.	Wait for 5mins, test after the fault is recovered automatically. If not, please contact Win Power.

6. Technical Parameters

Model	WWGI50
Wind Turbine Input	
Rated input power	5kW
Rated input voltage	240Vac
Input voltage range	0~320Vac
Start charge voltage	60Vac（factory default，60Vac~320Vac settable）
Rated input current	12Aac
Brake by hand	Keep press the button for 5s to unload completely, and then recover by hand.
Brake by overcurrent	15Aac(factory default, 0-15Aacsettable) . it dumps load completely when overcurrent, and will recover after 10 mins automatically.
Brake by over wind speed (optional)	18m/s（0-30m/s settable），Unload completely when reached the set wind speed, and recover automatically after working 10mins.
Brake by over rotational Speed (optional)	500r/min（factory default，0~1000r/min settable）Unload completely when reached the set rotational speed, and recover automatically after working 10mins.

AC Output	
Grid Type	Single Phase
Rated output power	5KW
Rated Grid voltage	220Vac
Grid voltage range	180~260Vac
Rated Grid frequency	50Hz
Work frequency range	47~52Hz
Rated Grid output current	22.7A
Rated power factor	> 0.99
THDi	< 3%
Protection Functions	
AC output overvoltage/ undervoltage protection	YES
AC output overfrequency /underfrequency protection	YES
AC short circuit protection	YES
Surge protection	YES
Anti-islanding protection	YES
Over-temperature protection	YES
Lightning protection	YES
General Parameters	
Rectifier mode	PWM rectifier
Display mode	LCD

Display information	Wind turbine voltage/current/power; Inverter voltage/current/power; Fault state.
Monitoring mode(optional)	RS232/RS485/GPRS
Monitoring contents	Real-time display: Wind turbine voltage/current/power; Inverter voltage/current/power
Efficiency	> 96%
Isolation mode	No transformer
Ambient temperature	-20℃ ~ +40℃
Humidity	0~90%, No condensing
Noise	≤65dB
Cooling mode	Natural cooling
Installation mode	Wall-mounted
Cover protection class	IP54
Product dimension(W*H*D)	416×536×250mm
Product net weight	26kg
Dump load dimension(W*H*D)	470*410*230mm
Dump load net weight	17kg
Note: Part of parameters can be adjusted according to customer's specific demand.	

7. Dump On/Off

Under 125V DC: Wind Turbine Works in normal operation

Between 125-135V: DC Controller will ramp to control power

At 135V DC: 100% Dumping

Under 125V DC: No Dumping

8. Warranty

The product shall be in warranty for one year from production. Please take contract as the final one if it has special terms on warranty.