

On Grid Wind Turbine Controller

User Manual

★ Read the user manual carefully before use



The Safety Matter

Please read this instruction book carefully before installation, running, maintenance or check-up.

As electronic product, it is all dangerous when touching the electricity part.



Warning: Dismantlement of the dump load in the use is forbidden. The dump load must be connected in accordance with the wiring diagram strictly. Otherwise the wind turbine will be damaged because loss of control and the controller will be damaged due to the over voltage!

Prohibit operating the fuse when it is on load. Please cut off all loads when checking, replacing and operating the fuse!



Attention :This device must request electrician to install.

Using Direction

- Make sure read this instruction book carefully before appliance.
- The equipment must be installed by professionals.
- To avoid personal injury, make sure it must be a good ground connection when installation.
- Not running in humidity or high temperature , volatile gases or flammable environment.
- When moving equipment ,please put down carefully.
- Open the package, please check controller and its attachment. If you find any missing parts or damaged parts in the process of transportation, please contact us in time , then you will get satisfactory service.
- If the controller is damaged, as not follow instructions of this manual to install the controller, our company shall have the right not to supply guarantee.

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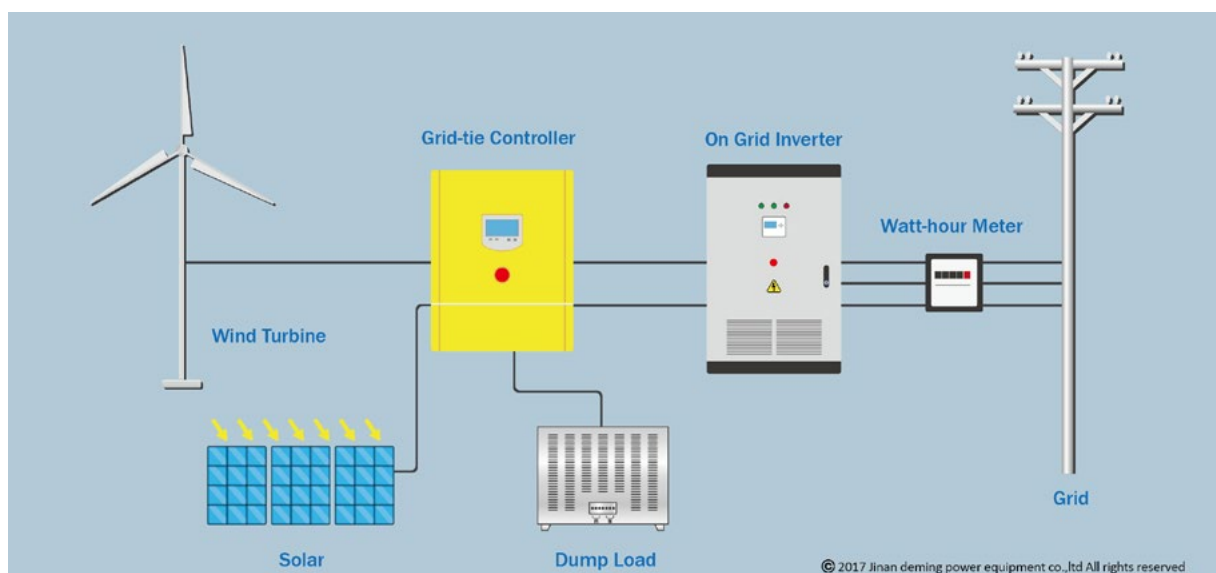
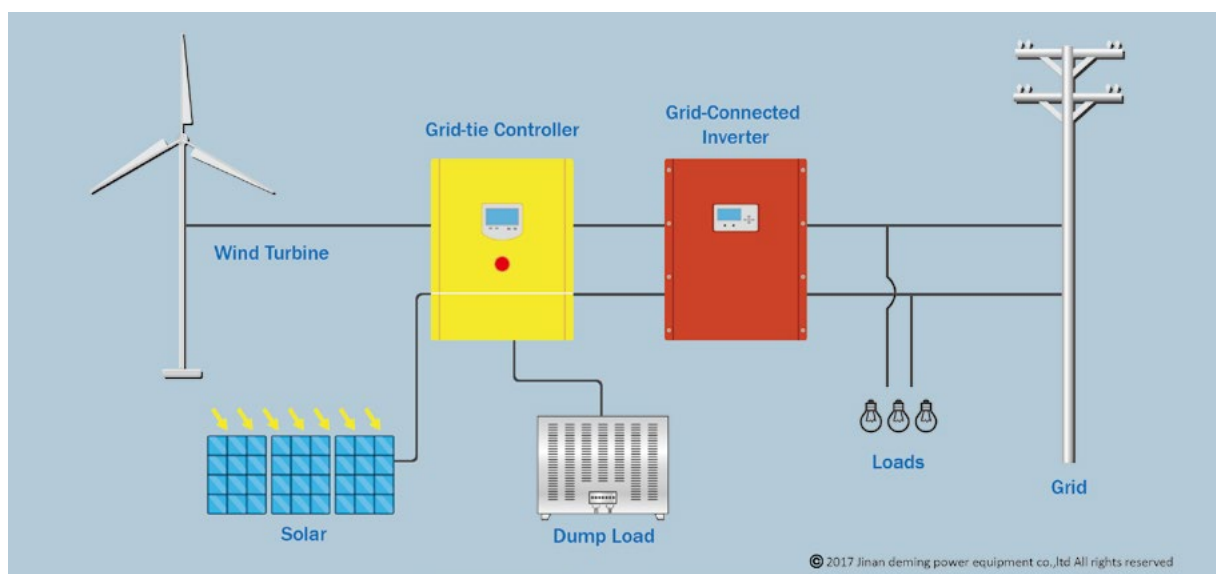
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Overview

Our company is a high-tech enterprise which specializes in research and development, production, sales and service for renewable energy equipment in wind and solar power. Our Company is a permanent member of China Wind Energy Association and participates in the formulation of international standards for wind turbine.

Our main products include off-grid wind charge controller, on grid wind charge controller, wind solar hybrid controller, solar charge controller, PV combiner box, wind solar hybrid system, solar power system, on grid inverter and off grid inverter, etc.

We have got five National Invention Patents for Core Technologies, Six Utility Model Patents and two Software Copyright. Our products strictly follow international quality control system and we have got ISO:9001 and CE Certificates. Our senior engineer has more than 30 years experience in wind and solar power, and we have professional technical team and sales team. Welcome to choose us as your supplier.



Product Characteristics

- The product is manufactured according to the JB/T6939.1-2004 industrial standard and GB/T 19115.1-2003 national standard, and also with users' technical requirements.
- Big LCD Display. The graphics visually show the working status of controller. Abundant data display: real-time wind turbine voltage, current; solar panels voltage, current, dc output voltage, current, accumulative total generating electricity (The main-board is with battery, in the case of power off, history data can be stored for 30 days.)
- Two sets of control systems: PWM constant voltage system and three phase brake system.
- PWM constant voltage control is 120% of the rated power of the wind turbine. In case exceeding of PWM's capacity, the brake will automatically start immediately. After 10-20 minutes, the brake will stop and the wind turbine will re-start to resume power supply to ensure the safe running of overall wind turbine generation system.
- When strong or super-strong wind, the controller can conduct DC constant voltage output to ensure the inverter safe running.
- When disconnected grid-connected inverter, the controller can conduct DC constant voltage output and wait for inverter resume to work.
- When grid power is off, the inverter stops output to grid power, three-phase dump load of controller will automatically start, and wind turbine will be on braking status. When grid power resumes, the controller will stop three-phase dump load, wind turbine will resume to run, and inverter will resume to supply grid power.
- The inside of controller is equipped with surge arrester. Limit instantaneous over voltage into wind generator within the controller or system bearable voltage range, or conduct the strong lightning current into earth to protect the equipment from lightning shock damage.
- The controller is equipped with emergency stop switch; in case of emergency, press down the emergency stop button in the front panel to cut off all power supply of the controller and the wind turbine will immediately brake. (Please do not press this button in non-emergency situations.)
- The controller is equipped with manual brake switch. when using this switch, the wind turbine will carry out brake forcibly.

- ▲ Adopt Modbus communication protocol. It is convenient for customers to develop again.(optional)
- ▲ Adjust controller technical parameters, through RS485 interface. It is convenient for professional customers to adjust different wind turbines.(optional)
- ▲ Support WIFI and GPRS. Customer can monitor the working status of grid-tie wind power system in real time through PC or mobile terminal, or check historical working status. Mobile terminal is compatible with Android and OS. (optional)
- ▲ Solar panel control system can be added according to customers' demand.(optional)
- ▲ For different wind turbines type, the controller can be equipped with mechanical yawing, furlled empennage, mechanical or hydraulic, pneumatic, electric magnetic and other brake functions.(optional)



On Grid Wind Turbine Controller



Dump load

Operation Steps



The controller shall be strictly operated by professional personnel in accordance with operation steps and wiring diagram :

1. Before operation, keep the Grid Power Switch in the state of OFF, the Manual Brake of wind turbine in the state of STOP, PWM dump load breaker in the state of OFF, then install and wire the controller.
2. PWM dump load terminal of dump load is connected with PWM dump load terminal of controller, and three-phase dump load terminal of dump load is connected with three-phase dump load terminal of controller.
3. Connect the three phase wires from generator with three phase wires terminals of controller.
4. Grid power is connected with the Grid power terminal of controller.
5. The grid-tie inverter is connected with DC output "+" "-" terminals of controller.
6. Connect the grounding wire with the controller grounding terminal; Connect the grounding terminal of dump load with the grounding wire. Grounding connection must be reliable and well.
7. Optional connection: RS485 communication cable connection RS485 terminal is connected with two wires (A and B). These two wires should be also connected to RS485/232 converter terminals, then connected with the supervising computer.
8. Follow operation steps to start the controller.
 - (1) Place the PWM breaker in the state of ON and connect well;
 - (2) Place the Grid power switch in the state of ON;
 - (3) Place the Manual Brake of wind turbine in the state of RUN.

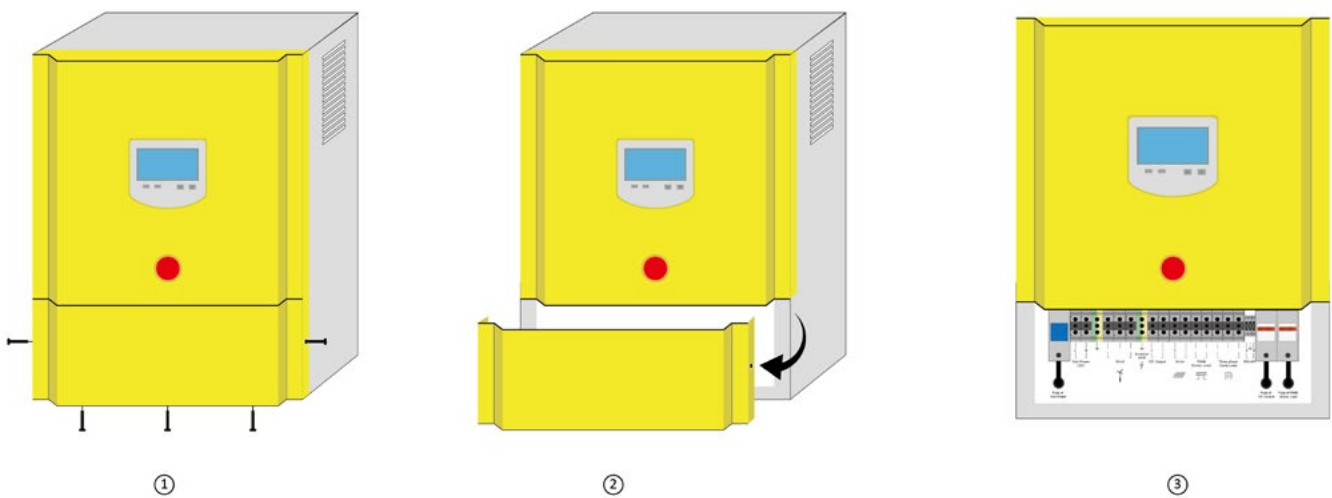
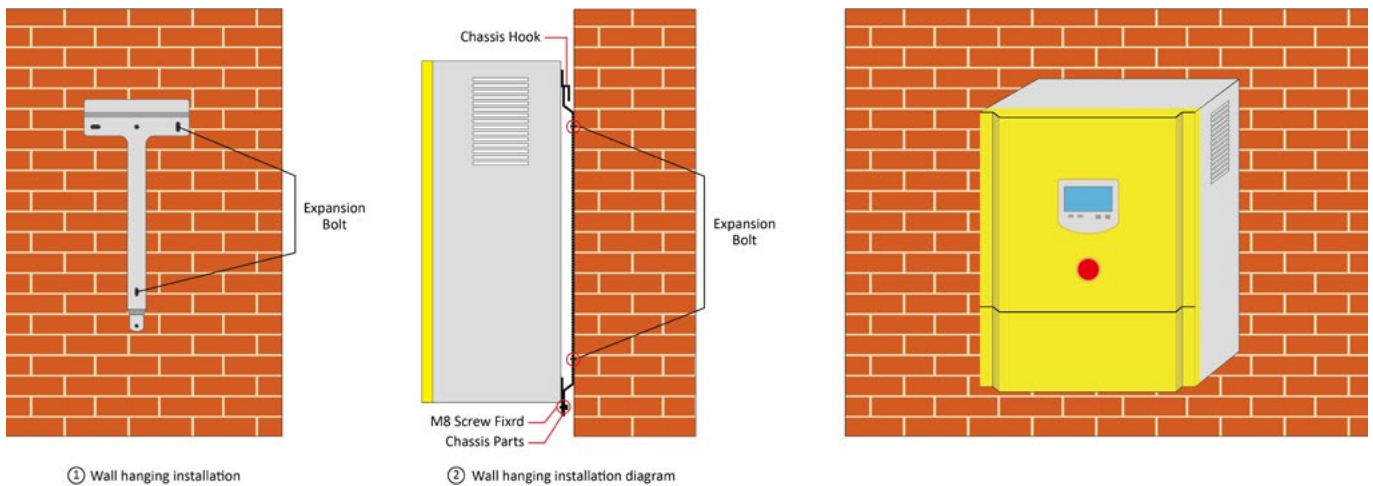


Emergency switch's working principle:

When on grid wind power generation system is in danger, it can cut off the controller power supply by pressing the Emergency switch, and wind generator stops running immediately to protect the personal and system security. This Emergency switch only can be operated in emergency state, because it is very easy to cause irreversible damage to wind generator and controller by the emergency braking way. In normal working state of the system ,it is strictly forbidden to operate the Emergency switch.

When the system runs normally, if you want to stop the wind power system running, please place the Manual Brake of wind generator in the state of STOP first, when the wind generator runs slowly, please disconnect the grid power switch.

Installation Diagram



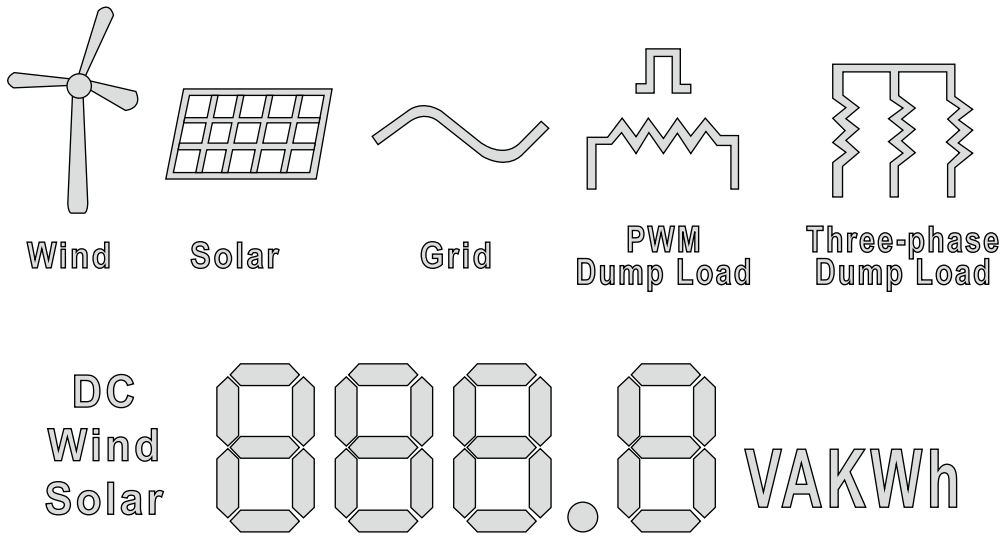
LCD Operation And Display

1. Operation Explanation

Press the LCD button to wake up the screen, each press, parameters will change.

2. Display Explanation

LCD Screen Complete Content.



Including all contents displayed

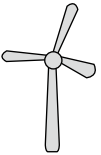
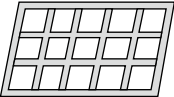

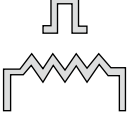
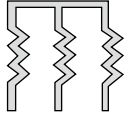
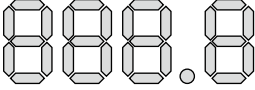
IMAGE	EXPLANATION
 <p>Wind</p>	<p>Wind Turbine The wind turbine image display shows wind turbine running normally.</p>
 <p>Solar</p>	<p>Solar Panel The solar panels image display shows solar panels working normally.</p>
 <p>Grid</p>	<p>Grid power Grid power indicator. If the grid power is running, the indicator is on, if there is no grid power, the indicator is off.</p>

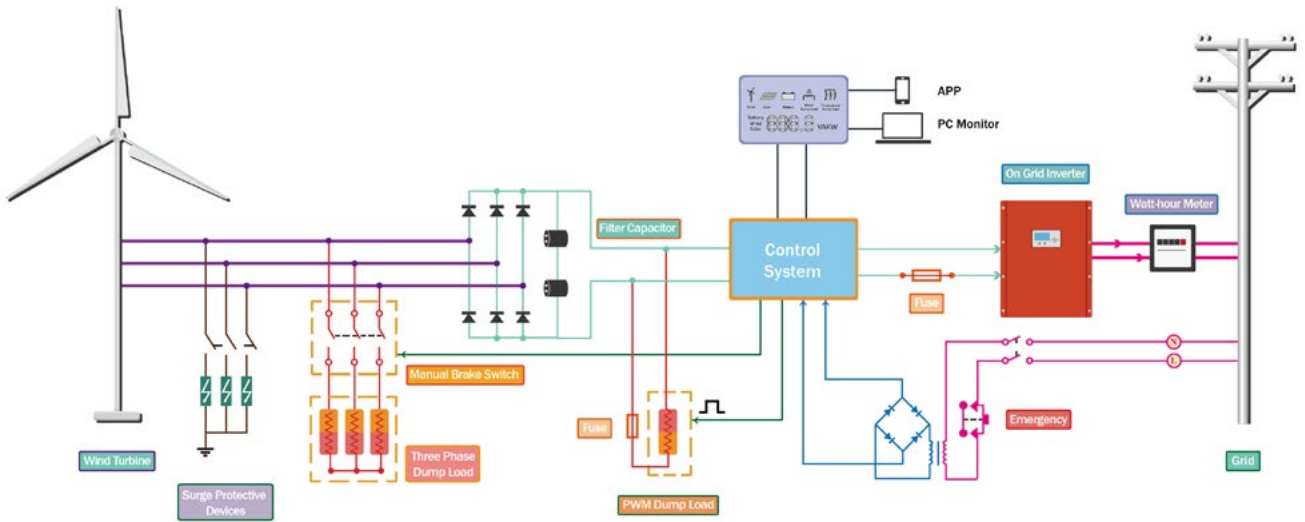
IMAGE	EXPLANATION
 <p>PWM Dump Load</p>	<p>PWM Dump Load PWM voltage stabilizing indicator. When wind turbine voltage is higher than PWM Dump Load voltage, the image the indicator is on and the controller will output stable voltage.</p>
 <p>Three-phase Dump Load</p>	<p>Three-phase Dump Load When there is strong wind and the voltage generated by the wind turbine is higher than three phase dump load voltage, the indicator is on.</p>
	<p>LCD display in digital form shows the parameters value.</p>
<p>Fuse burn</p>	<p>Fuse burn indicator is on, when fuse burn, remind users to replace the fuse.</p>

3.LCD Display Parameters Browse

(1) At the begging, LCD displays DC voltage:DC XXX.XV.

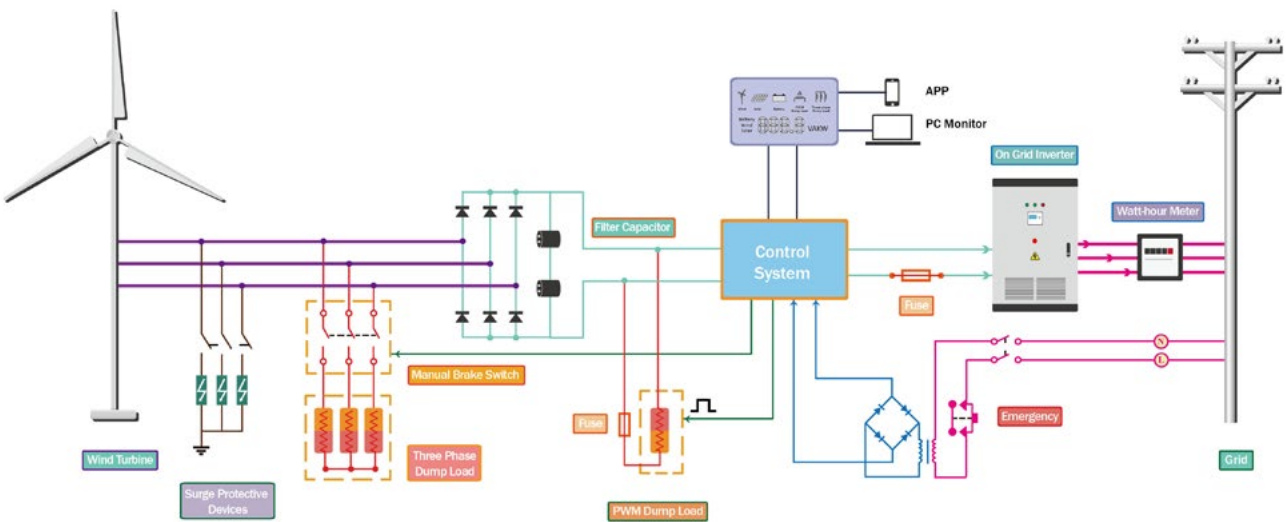
(2) Press the LCD button, enter browse mode, all parameters will be displayed in order:
DC voltage → DC current → DC power → Wind turbine voltage → Wind turbine charge current → Wind turbine power → Solar panel voltage → Solar panel charge current → Solar panel power → DC voltage.

Schematic Diagram



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Wind Turbine Single Phase On Grid System



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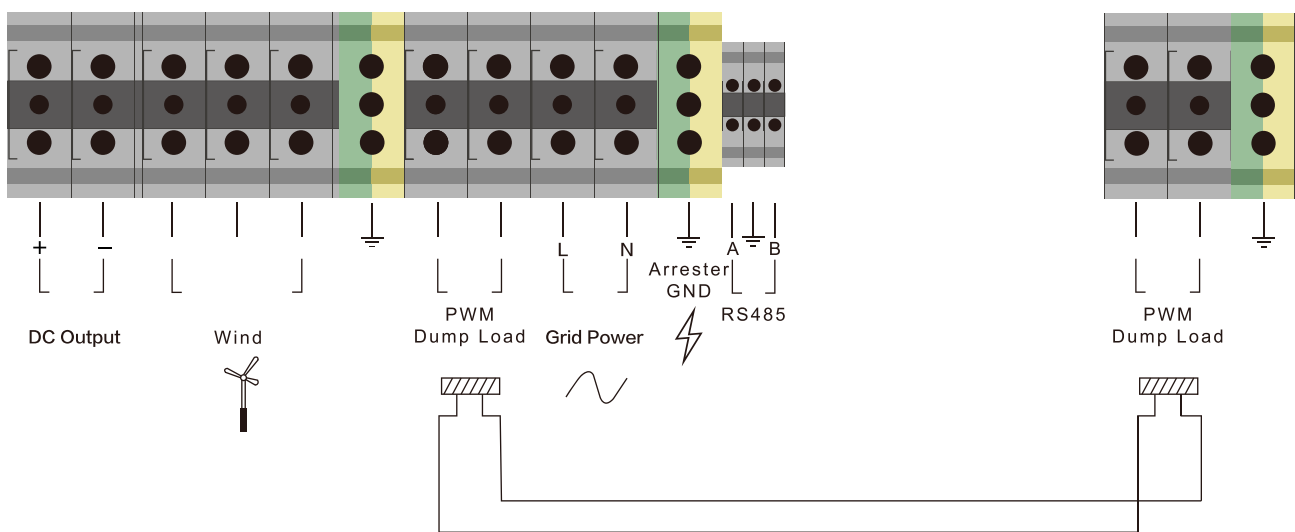
Wind Turbine Three Phase On Grid System

Wiring Diagram

The connection wires adopt insulated copper cables. You can select cables according to 5A/mm² current density (for reference only). When connecting wires, ensure all wires reliable. Prevent terminal block and burned from overheating by large current phenomenon.

On grid wind turbine controller

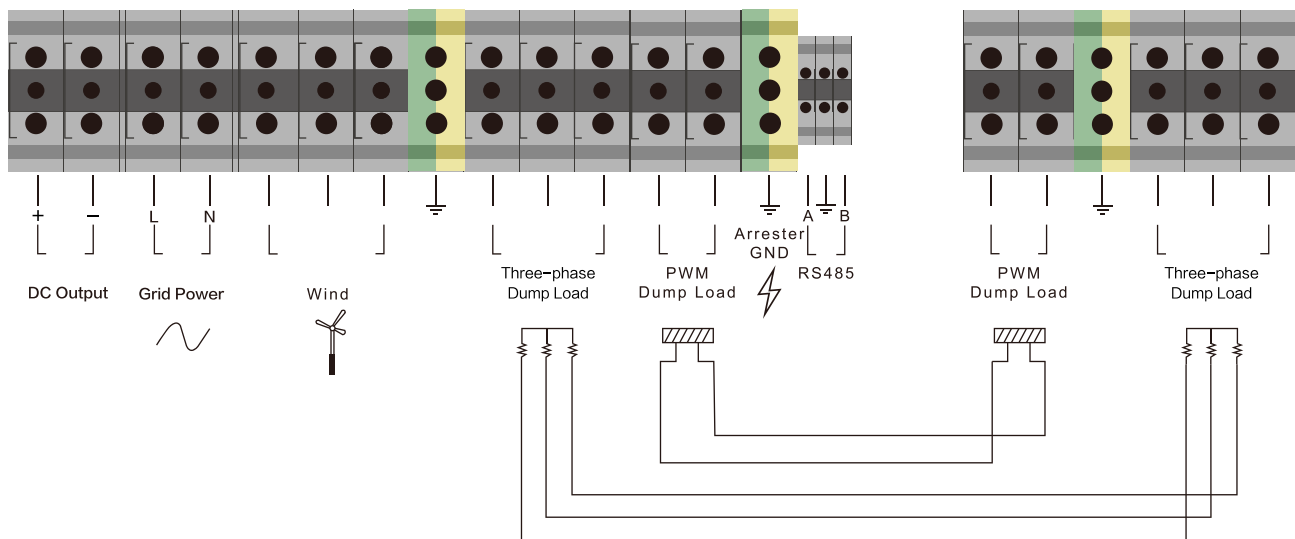
Dump load



1-5KW On Grid Wind Turbine Controller

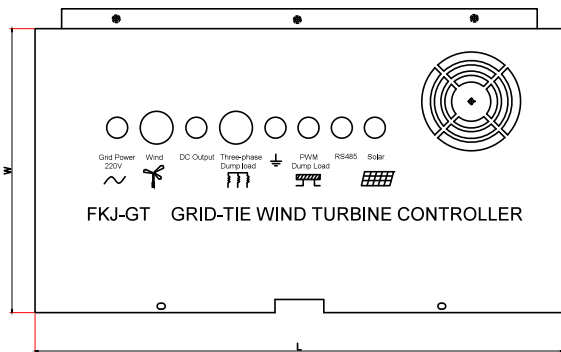
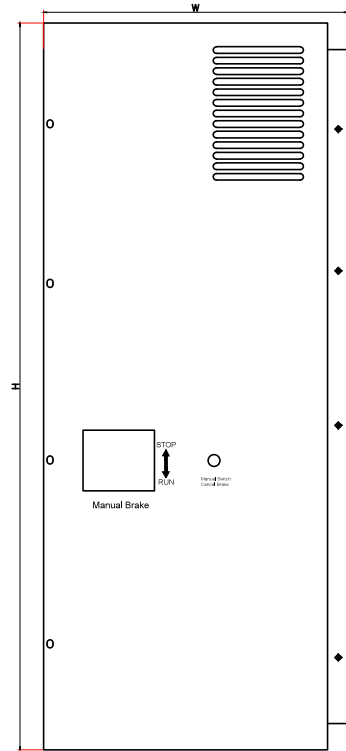
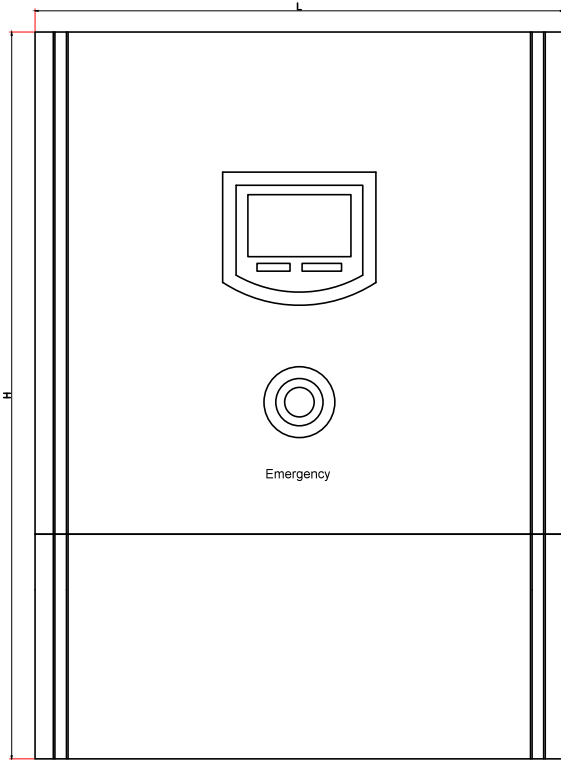
On grid wind turbine controller

Dump load



10-30KW On Grid Wind Turbine Controller

Case Dimensions



Case Dimensions

Model	L	H	W
1-5KW On Grid Wind Charge Controller	360 mm	480 mm	230 mm
10-15KW On Grid Wind Charge Controller	400 mm	550 mm	230 mm
20-30KW On Grid Wind Charge Controller	500 mm	620 mm	230 mm
50-100KW On Grid Control Cabinet	640 mm	1200 mm	500 mm

Attentions



1. The working power of wind controller is from Grid power. In the use, the controller will stop working and the wind turbine will be in brake state, when the grid power is off or cut down.



2. In the use process of controller, when the output voltage is higher than the working voltage of three phase dump load, the wind turbine will brake. At this time, please carefully find out the reasons for over-voltage. Please use manual switch to make wind turbine in the braking state, when eliminating the fault. After the fault is eliminated, then start wind turbine running again.



3. The PWM dump load wire of controller should be firmly connected with the PWM dump load wire of dump load. It is strictly prohibited to miss connection and disassemble in use! Otherwise, over-high voltage will cause personal safety accidents!! Damage to the controller or cause wind turbine to be out of control.



4. Owing to the dump load equipped with the controller can produce high temperature in working. The surface temperature of dump load can reach about 200 degrees, please pay attention to safety. Please put it in the place with better ventilation and heat dispersion, 2 meters away from the controller, where the man or livestock not easy to touch it, it is forbidden to cover it with other objects or use it under flammable or explosive gas environment, in case of fire.



5. When connecting or arranging the inverter or DC voltage output wires, the grid power switch must be put in the OFF state, the wind turbine switch must be placed in the STOP state, and DC fuse should be in open circuit state or taken out. Prevent capacitor discharge from injuring the personnel.



6. The controller should be operated by the professionals for your safety. It should be grounded well, in case of electric shock. The ground resistance should be less than 1Ω and the connecting wire should be more than 10^2mm .



7. Emergency switch's working principle:When on grid wind power generation system is in danger, it can cut off the controller power supply by pressing the Emergency switch, and wind generator stops running immediately to protect the personal and system security. This Emergency switch only can be operated in emergency state, because it is very easy to cause irreversible damage to wind generator and controller by the emergency braking way. In normal working state of the system ,it is strictly forbidden to operate the Emergency switch.

When the system runs normally, if you want to stop the wind power system running, please place the Manual Brake of wind generator in the state of STOP first, when the wind generator runs slowly, please disconnect the grid power switch.



8. Prohibit operating the fuse when it is on load. Please cut off all loads when checking, replacing and operating the fuse.

Guarantee

There is 1 year of free maintenance period. The warranty period is from the sales date. Once you find the controller failure, please inform our company in time. When you contact with us, please provide the model, detailed description of problems,battery group, load..., they are important for us.

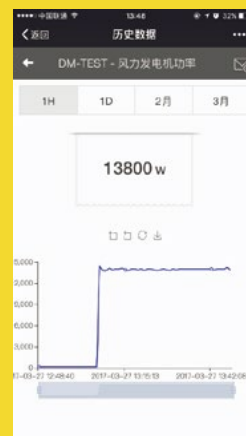
However, either of the following circumstances result in damage to the controller is not out of the warranty:

- (1) Repair damaged parts without our permit.**
- (2) Revise or add without permit.**
- (3) Wrong operation or use.**
- (4) Maintenance or clean not according to the request of operation manual.**
- (5) Abnormal environmental conditions exceed specifications, caused damage.**
- (6) Damage it deliberately.**
- (7) The damage caused by irresistible natural disaster.**

DeMing APP

DeMing APP is intelligent terminal for hybrid wind solar power, PV power station monitoring and management person. It helps users to master power station running status at anytime and anywhere, realize remote data monitoring of hybrid wind solar power and PV power station, ensure convenient management and monitoring timeliness. System displays hybrid wind solar power station and PV power station running data by visual table, includes power station power generation, benefit, CO2 emission reduction benefit, equipment running status, equipment real-time data, history data query, power generation comparison, equipment performance comparison. As fashion and intelligent application, it can let user demonstrate his hybrid wind solarpower station and PV power station at any occasion, user has intuitive feeling, enhance user confidence.

- Various data output interface, support Android, iphone, ipad, windows, macOS
- Delicate and precise data, easy to operate, download and install, Wechat binded, real-time monitoring, data synchronization
- 24-hour monitoring
- Low maintenance cost
- Power station information sharing function



Optional Parts



1.RS485 to WIFI



2.RS485 to GPRS



3.RS485 to Ethernet



4.RS485 to USB



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