USER’SMANUAL FOR E-SERISE

CE

Warnings:

- Please excuse from specification alternations without notice;
- It is required to comply with the local law, regulations or the permission From local government before installing WTGS;。
- Only under no wind weather should carry out the installation, maintenance And dismantling of WTGS;。
- Please make sure the construction for WTGS mechanical and electronic facilities should be done by professionals;。
- Color or figuration of pictures might be varied against physical goods;。
- It is forbidden to leave the wind turbine generator working under unloaded state (such as without connecting with batteries).。
- The safety signs involving the manual are as followed;


Danger-Improper operation might lead to hurt people badly.。


Attention-Improper operation might lead to damage products or hurt People。

Contents

1 Abstruct

The wind turbine generator system is the equipments which could produce electricity by the rotating of blades. The function of the controller is to rectify the output and protect the generator under severe environment. The E-series generator could be applied in the system of wind and solar hybrid, as the controller of it has a solar connector.

2 Where to use

This E-series generator could be both applied for home use and factory use, which is available for on-gird and off-grid, While on-gird by matching on-grid inverter and off-gird by matching batteries and off-grid inverter.

Not available for below:

1 No loading

2 Directly connecting with consumption

3 Parameter

PARAMETER	Model	E-1000	E-2000	E-3000
	Rated Voltage (DCV)	24/48	48/120	48/120
	Rated Current (DCA)	41/20	41/20	60/25
	Rated power (W)	1000	2000	3000
	Start-up wind speed (m/s)	2.5	2.5	2.5
	Rated wind speed(m/s)	12	12	12
	Security wind speed (m/s)	35	35	35
	Generator type	PMG	PMG	PMG
	Diameter (M)	2.7	3.2	3.7
	RPM(r/m)	400	400	220
	Blades material	GFRP	GFRP	GFRP
	Blades NO.	3	3	3

4 How to install the generator

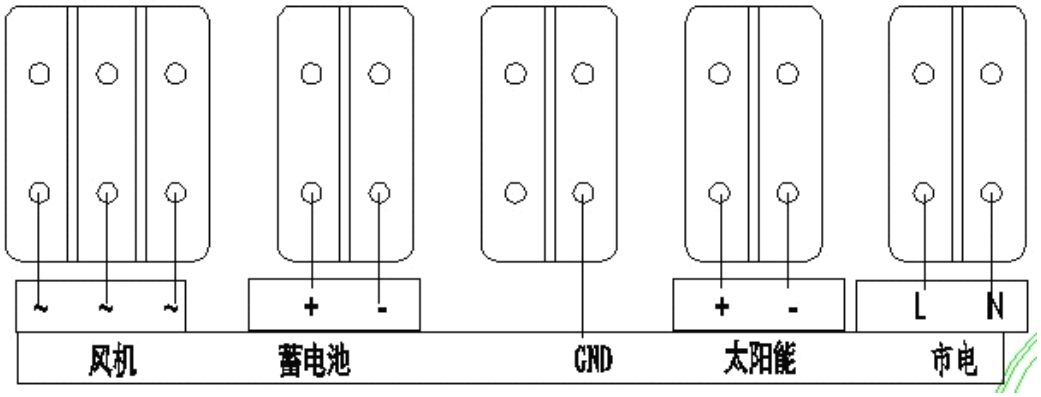
4.1 Site choosing

Wind turbine generator system should be installed at least 50m away from house or areas people gathering. It should be avoided to have trees or buildings nearby to affect the wind speed or wind direction. It is forbidden to install the wind turbine generator on soft lands, uneven ground or areas where the ground can be easily influenced by the climates. At the same time, the distance between generator and battery should be also considered, as the longer the distance, the less the wastage. And please use a thicker cable for long distance connection.

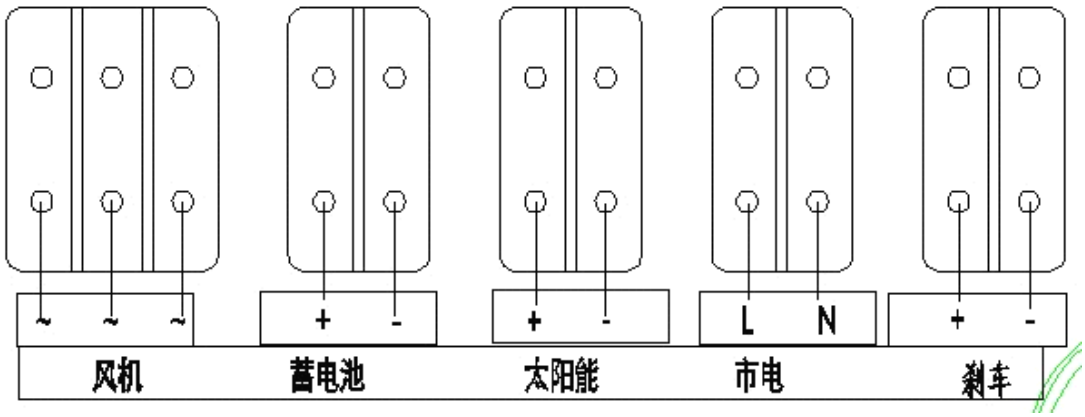
4.2 Assembly and connection

1、Instruction for connection below 3kw

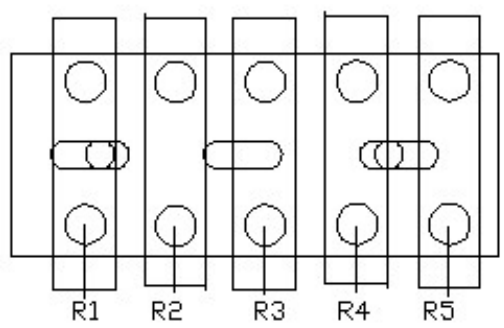
Note：Please, firstly connect the controller with battery, and then the generator



2、5KW 及以上控制柜内接线柱说明

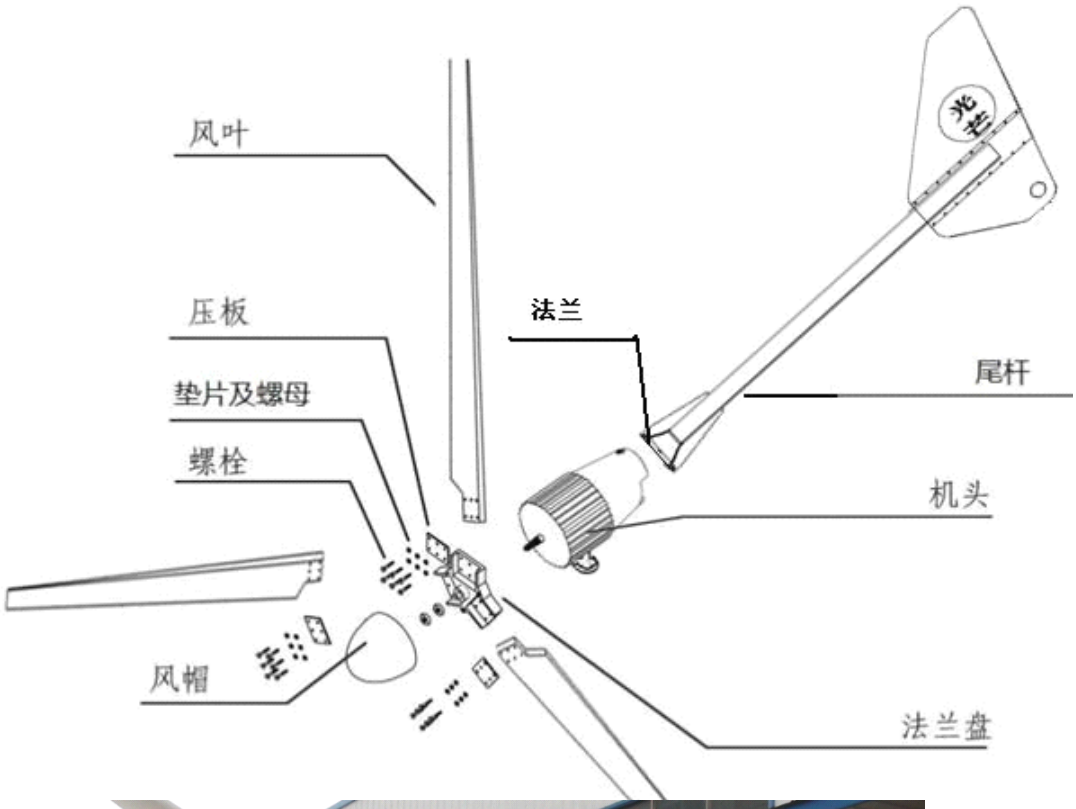


3、Instruction for connection above 5kw



Note：From R1 to R5 is the connector of dump loader.

4.3 Diagram for generator



4.4 Assembly generator

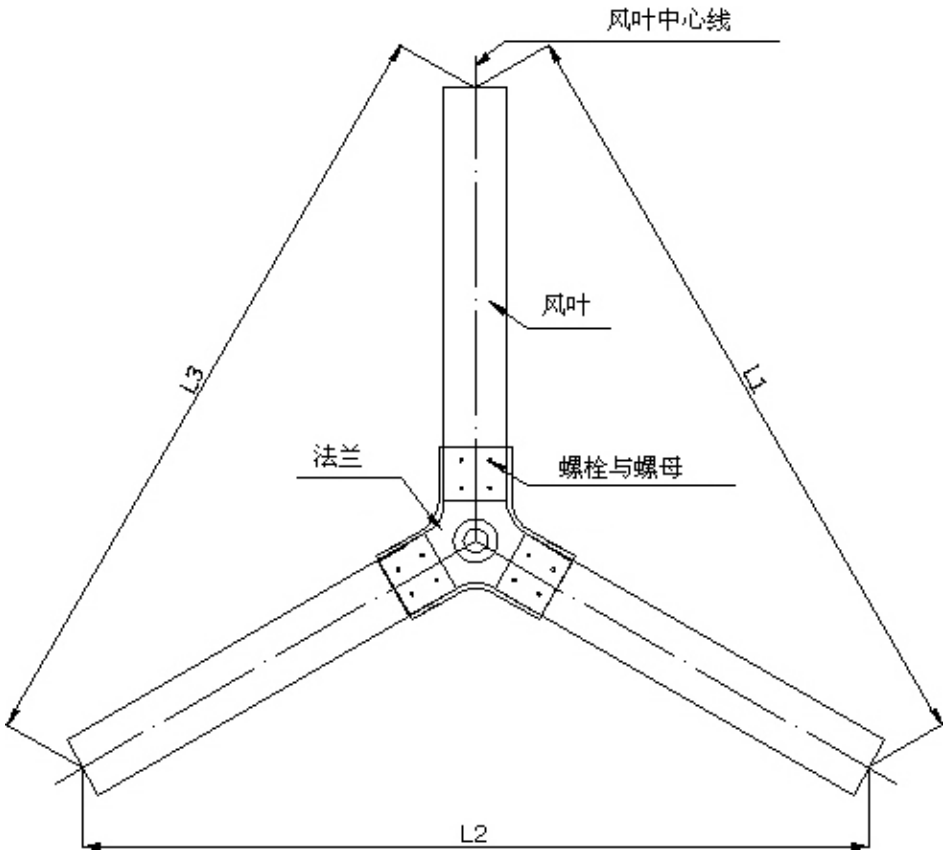
1. Connect the cable to the bottom of generator, and then make the cable go through the pole center.

2 Connect the generator with the pole by screw

3 blades

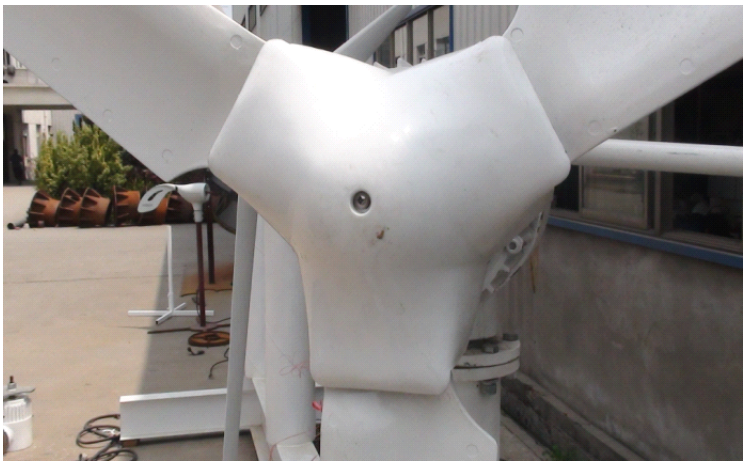
(1) The flange has been assembled on the motor shaft before delivery

(2) Please note the concave part of blades should face the wind, and tight the blade with flap by screw. Balance is very important, and do not tight the screw before assembling all blades. For finding balance, please make a same distance for every apex, and then tighten the screw. (as below)。



Note: L1=L2=L3 (with tolerance ±5mm)。Tighten the screw after finding balance。

4、Assemble the nose cone by screw



5、Connect the tail with the generator with screw

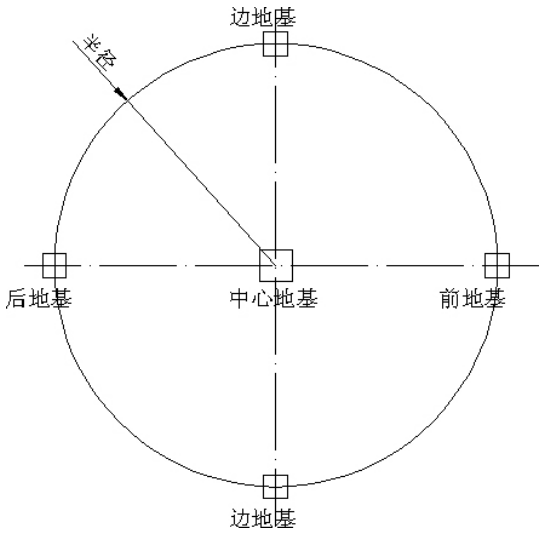
6Please connect cable from the tower to the controller. Note, controller should be firstly connect with battery

5 How to install guy cable tower

5.1Foundation sizing

Please install the generator only under no wind weather.

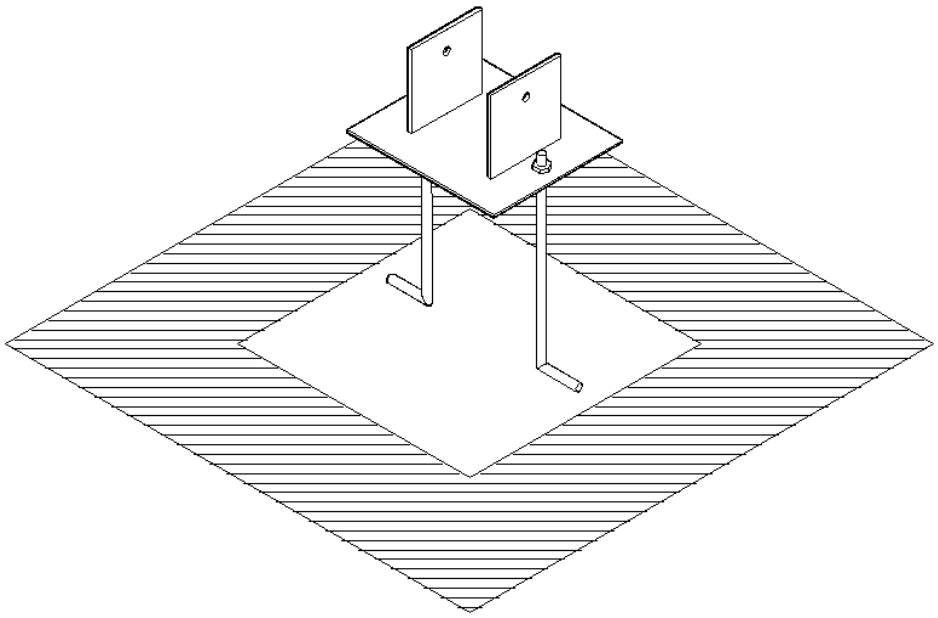
To make the foundation in an open area,



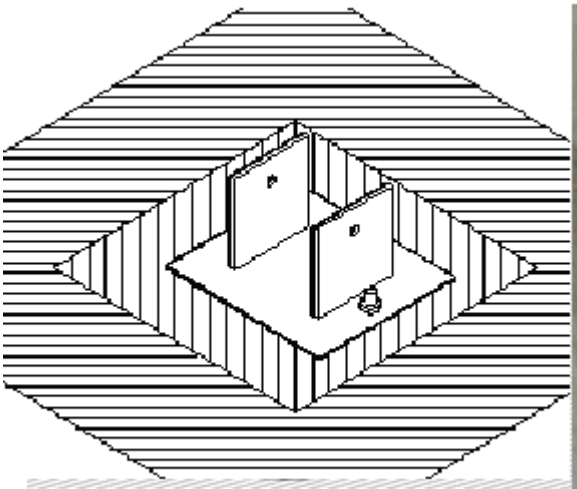
Model		1KW Guy cable tower	2KW Guy cable tower	3KW Guy cable tower	5KW Guy cable tower
Foundation	Radius(m)	3	4	4	6
	Center foundation(m)	0.6*0.6*0.8	0.6*0.6*0.8	0.9*0.9*1.2	
	Edge foundation (m)	0.5*0.5*0.7	0.6*0.6*0.7	0.8*0.8*0.9	

5.2 For making basement

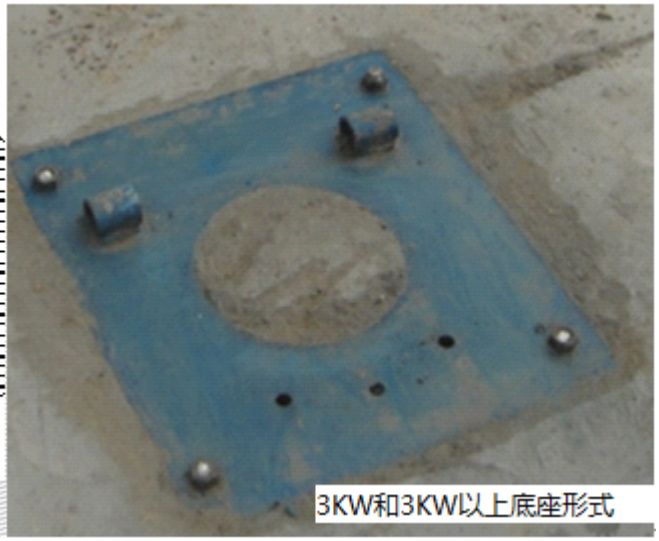
Please dig the basement according to the designed size. Then put the anchor in the basement. Please assemble the plate as below. For generator below 2kw, there are two pins needed to fit in the edge foundation; For above 3kw, there needs to be three screw tooth hole forwards to the front side.



Placing the concrete after making the basement ready (C25), as below,

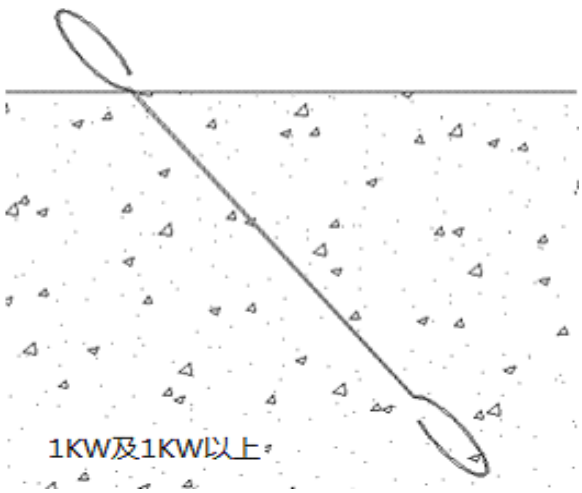


2KW和2KW以下塔架底座形式



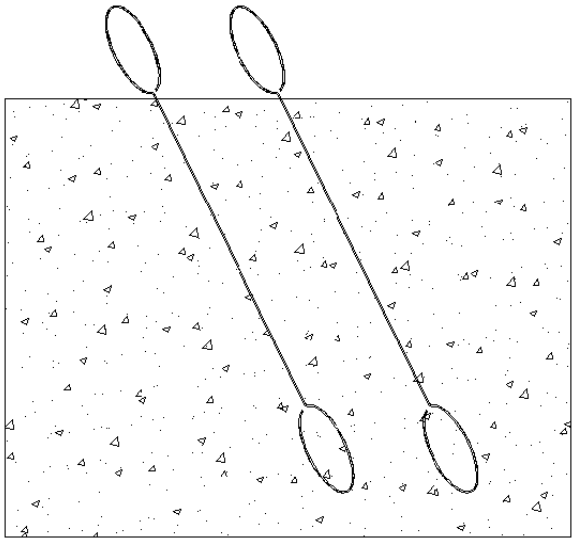
3KW和3KW以上底座形式

Put the edge anchor into the edge basement, and please check the distance between the hook of basement and the center, including the basic level of basement, and then placing concrete. Do as below,



1KW及1KW以上

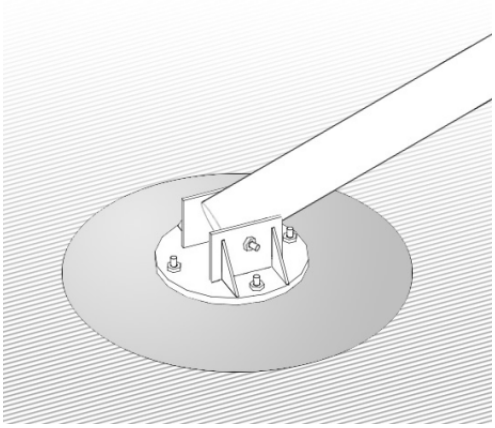
For the 2kw, 3kw and 5kw, it would need two guy cables for installation, and the picture of edge basements is as below,



To keep the balance of the tension between each cable, the height of the basement need to be same with the base of the tower. Otherwise, the unbalance would cause trouble for the tower.

5.3 Assemble the tower

1. 【2kw and below 2kw】Put the tower into the base, and insert the pins in to the hole for it with screwing the pin shaft nut. As below,



【3KW to 5KW】Connect the two section of subsidiary pole together, and insert it into the main tower, as below,

Connect 4 pieces of steel wire to the end of the subsidiary pole, and then connect the steel wire which corresponding to the edge basement with the U-shape spend orchid, as below,

The steel which corresponding to the front basement need to connect with the chain block, as below,

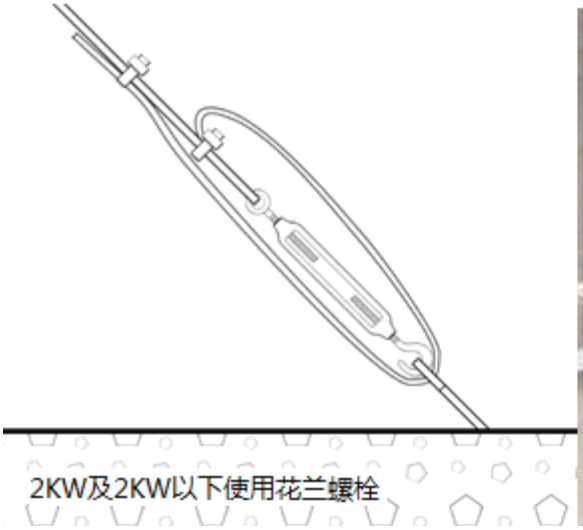
Erect the subsidiary pole, and fix the steel wire to the edge basement, as below,

Aim the pin hole of tower to the basement, and insert the pin with smearing grease, as below

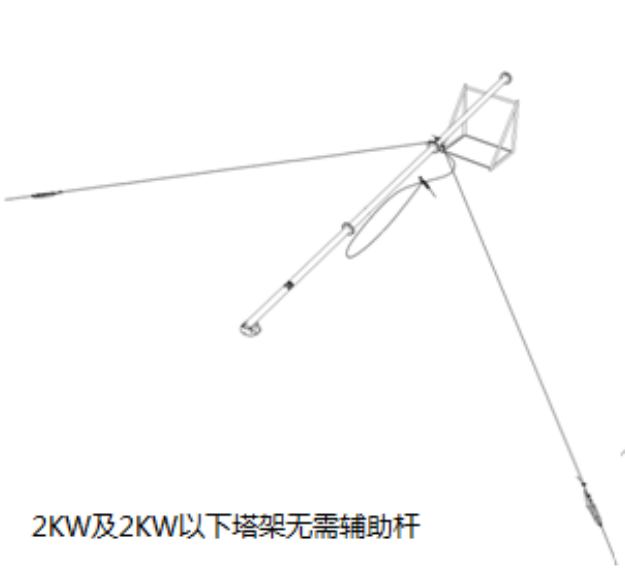
2. Connect each section of the pole by screw as below,

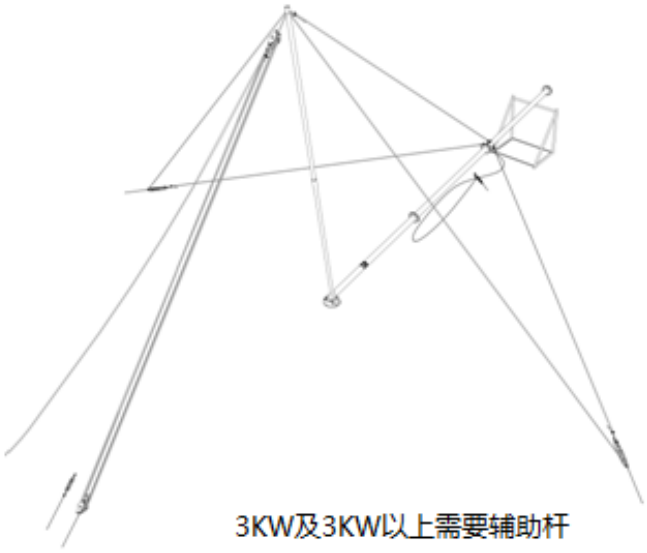
3. To connect the steel wire after connecting the tower as below picture. For safety, you could twine the tower with the steel wire for a circle before fixing the wire with the fixture. There need to be two fixtures for each steel wire, and 10-20 cm need to be left in the end of the wire.

4. Besides aiming the steel wire for front basement, the ends of all other steel wire need to connect with the corresponding basement. And you could fix all wires after the installation of the tower as below,

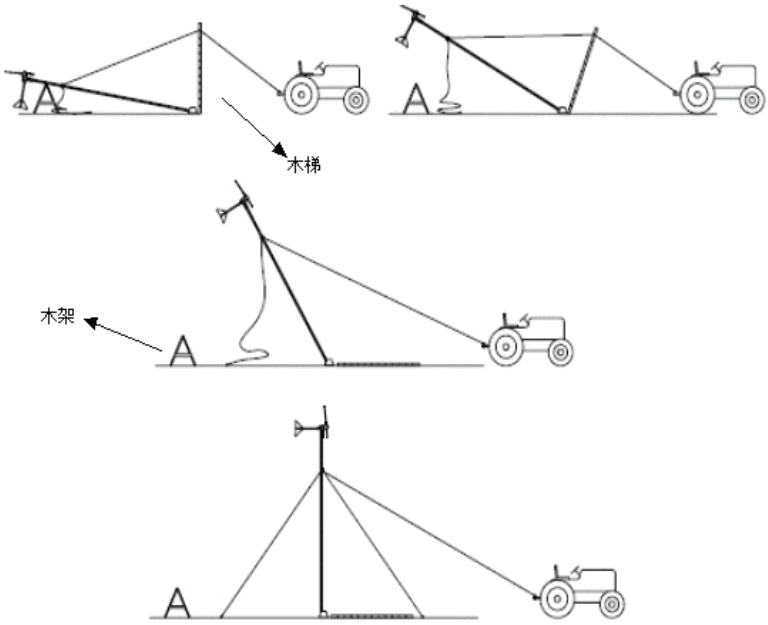


5. Put the tower on a wooden yoke, height of 1m to 1.5m, as below,





6. Generator installation (In the manual for generator part)
7. You could erect the tower with a winch, tractor and crane. Please note, when using a winch and tractor, there need to be a yoke for generator below 2kw, including 2kw. Pay attention to the tension of each steel wire in the process of erecting in case of any unbalance.



8. 【3KW and above 3KW】Please installing the bolts to the three hole at the bottom of the tower after the erecting of the tower.
9. To check the length of 4 pieces of steel wire, and fix it with fixture. Note, please leave a proper radian for the steel wire.
10. 【3KW and above3KW】You need to take the subsidiary pole away and release the steel wire after installation.

5.4 Lay down the tower

For laying down the tower, a no wind weather is needed, as well as a yoke, which is the same when for installing.

1. Break the connection to stop the generator, which could be checked in the user's manual.
2. 【If using a crane】The harness should be tied to the generator by professional people. And then , release the screw and steel wire to lay down the generator slowly to the yoke.
3. 【If using a tractor or winch】First, release the steel wire of the basement, and then connect the steel wire to tractor or winch according to the installing manner by reversing it. Finally, lay down the tower on the yoke slowly.

6 Batter Configuration

Battery should be placed in a dry building with constant temperature and 通风. By calculating the output

of generator, you could decide the number of the battery and the connection, series and parallel. Then please design a cage for placing the battery, controller and inverter. To avoid electromagnetic interference, after connect the battery, please smear the end of wire with grease or anti-corrosion material. The connecting wire between battery and controller should be no less than 3M. You could check the parameter for choosing the battery.

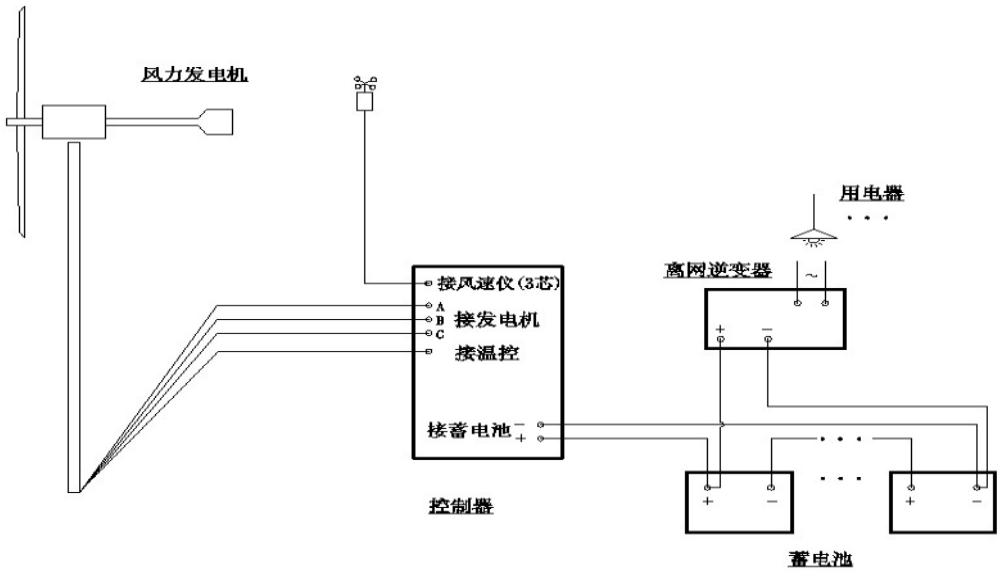
Series connecting is to connect the anode of one battery to the cathode of another battery as below,

Parallel connecting is to connect the battery anode with anode, cathode with cathode as below,

※Please check the notification, using instruction and maintenance with BATTERY INSTRUCTION.

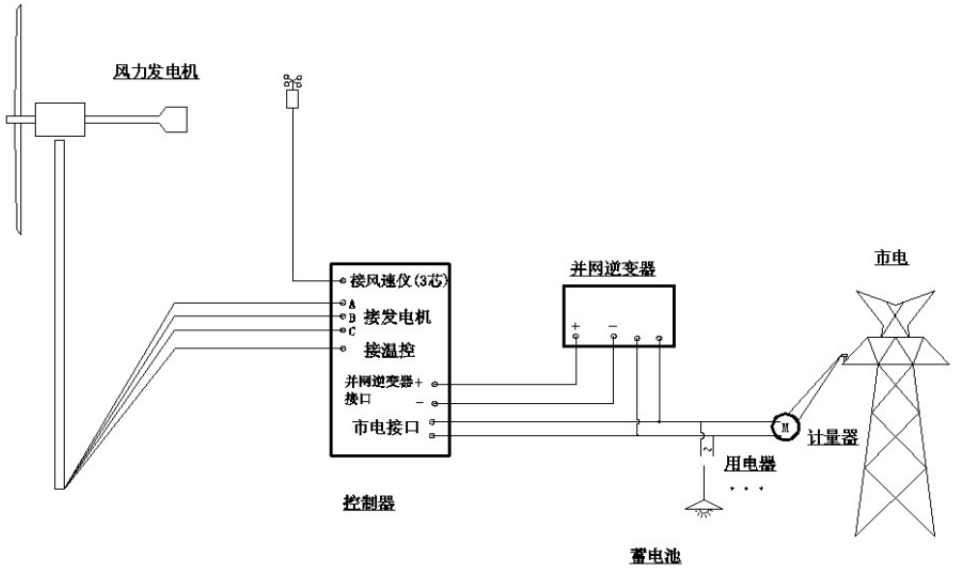
7 Wiring diagram

7.1 OFF GRID (Picture as below)



`Please make sure that the output voltage, voltage of battery and the input voltage of battery should be same. Do not misconnect the end of battery, which would burn the generator, battery and inverter out.

7.2 ON-GRID (Picture as below)



Every model of E-series could be applied for on-grid system with the permission of local government, and on-gird inverter and on-grid controller should be purchased by your own part.

Please turn off the main supply before connection

8 Instruction for controller

8.1 Interface

The interface uses a 485 model to connect with the controller, which is applied with customized KNN LCD to display the data of voltage, current, power, and wind speed. Wish a built-in 4M chips, it could store thousands of historical data. With an buzzer, it would alarm you when the wind speed and voltage overrun.

8.2 Software for PC

1、Use the software for intelligent controller by starting from double clicking, which could display the running status of generator, and set the brake in the controller.

2、Operation for software

8.3 Instruction for controller

1 Summary

Brake：The brake system would act to stop the generator for protection when the wind speed, voltage, temperature overrun.

Dump loader ： The dump loading system would act when the voltage overrun, which could release the electricity.

2 Parameter setting

Parameter	Instructions
Voltage unloading 1 upper limit	Dump loader 1 acting when over this voltage
Voltage unloading 1 lower limit	Dump loader 1 acting when below this voltage
Voltage unloading 2 upper limit	Dump loader 1,2 acting when over this voltage
Voltage unloading 2 lower limit	Dump loader 1,2 acting when below this voltage
Upper limit for voltage brake	When the voltage is over this value, the dumploader1, 2 would act, and then the brake, after that the dump loader 1, 2 would stop action.
Lower limit for voltage brake	When the voltage is below this value for a while, the brake would stop action.
Upper limit for wind speed	When the wind speed is over this value, the dumploader1, 2 would act, and then the brake, after that the dump loader 1, 2 would stop action.
Lower limit for wind speed	When the wind speed is below this value for a

	while, the brake would stop action.
The protection time before brake t1	The acting time of dump loader before brake
The protection time after brake t2	The acting time of dump loader after brake
Brake duration	The acting time for braking

8.4、Interface

Screen for interface

Switch

Monitoring

Setting

Option

+

-

1、Parameter

Item	Parameter	Instruction
Parameter	Voltage	Voltage of Battery
	Current of generator	The current for generating power by wind turbine
	Current of solar panel	The current for generating power by solar panel
	Wind speed	Wind speed
	Rotating speed	Rotating speed of wind turbine
	Temperature	The inner temperature of wind turbine
	Power	Instantaneous generation power
	Generating capacity	Cumulative generating capacity
State	Dump loader 1	The state for dump loader 1
	Dump loader 2	The state for dump loader 2
	Dump loader 3	The state for dump

		loader 3
	Brake	The state for brake
	Over temperature	Signal of over temperature has been detected
	Communications abnormal	Warning for communication failure
	Utility abnormal	Warning for utility failure
	On-grid	Working method

2、Standard Keys:

The interface is very easy to use, and there are totally six button on it.

Switch: Manual switch machine

Monitoring: To check the simulated data

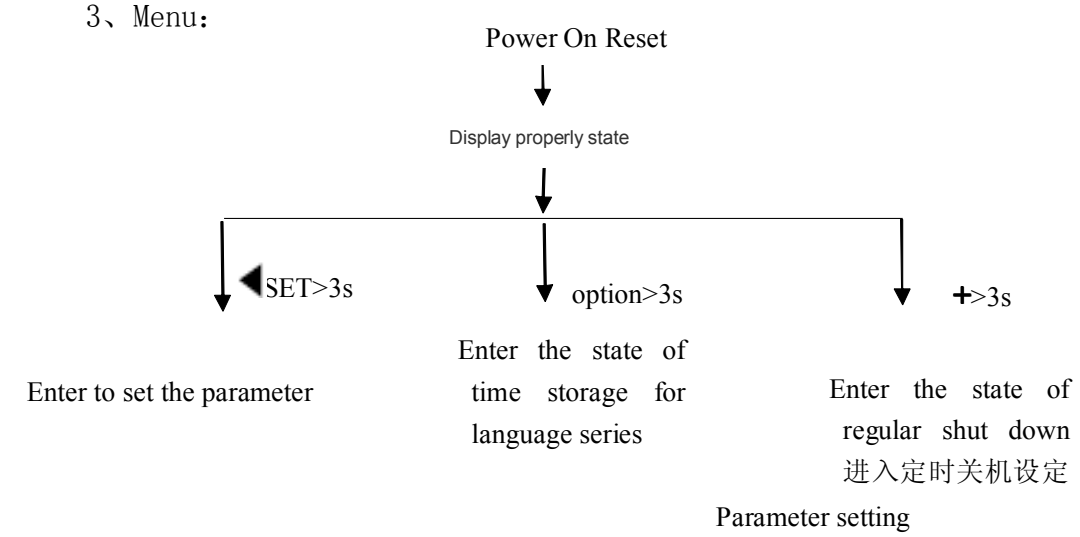
Setting: To save the configuration by a long press of 'setting'

: Shifting Option

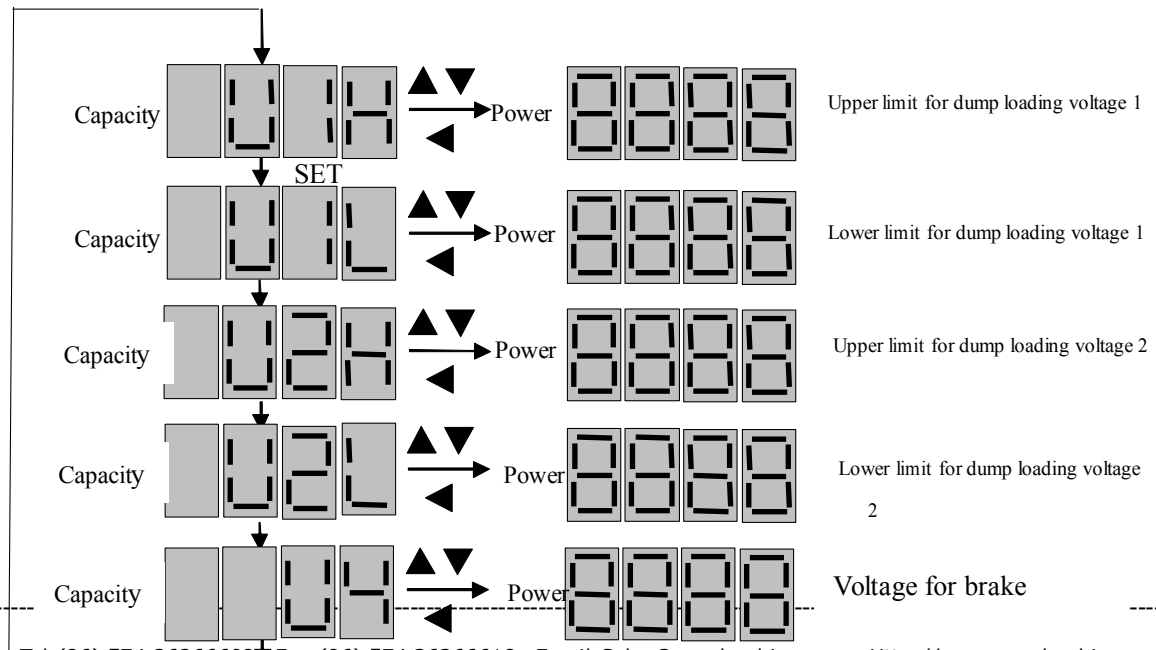
▲ : Revising parameter, +

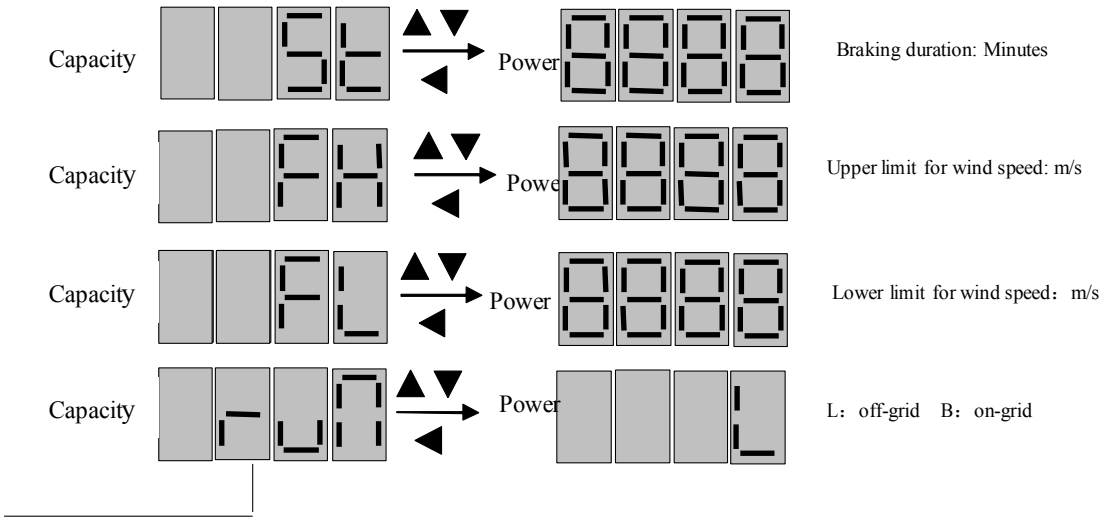
▼ : Revising parameter, -

3、Menu:

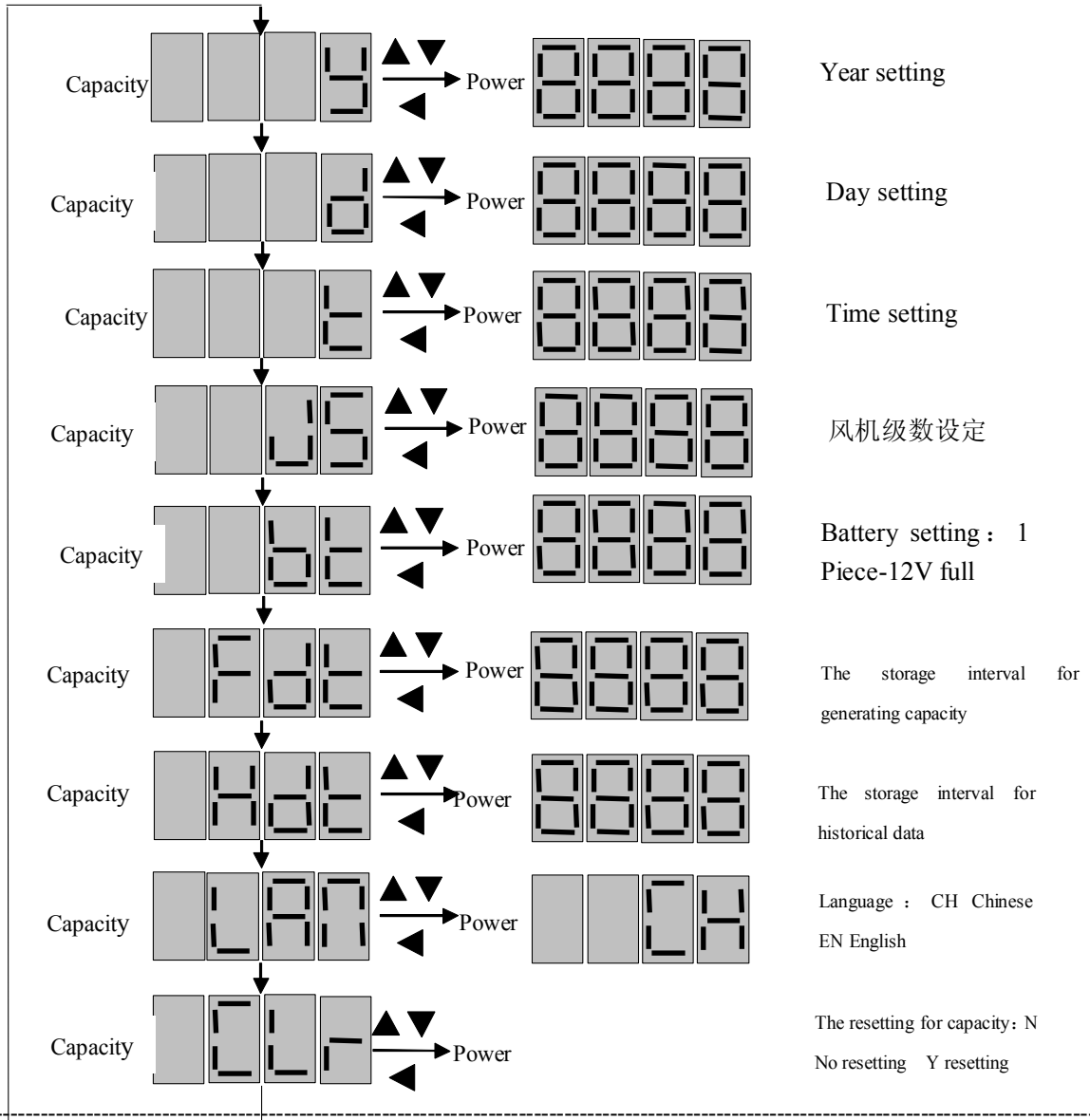


Parameter setting

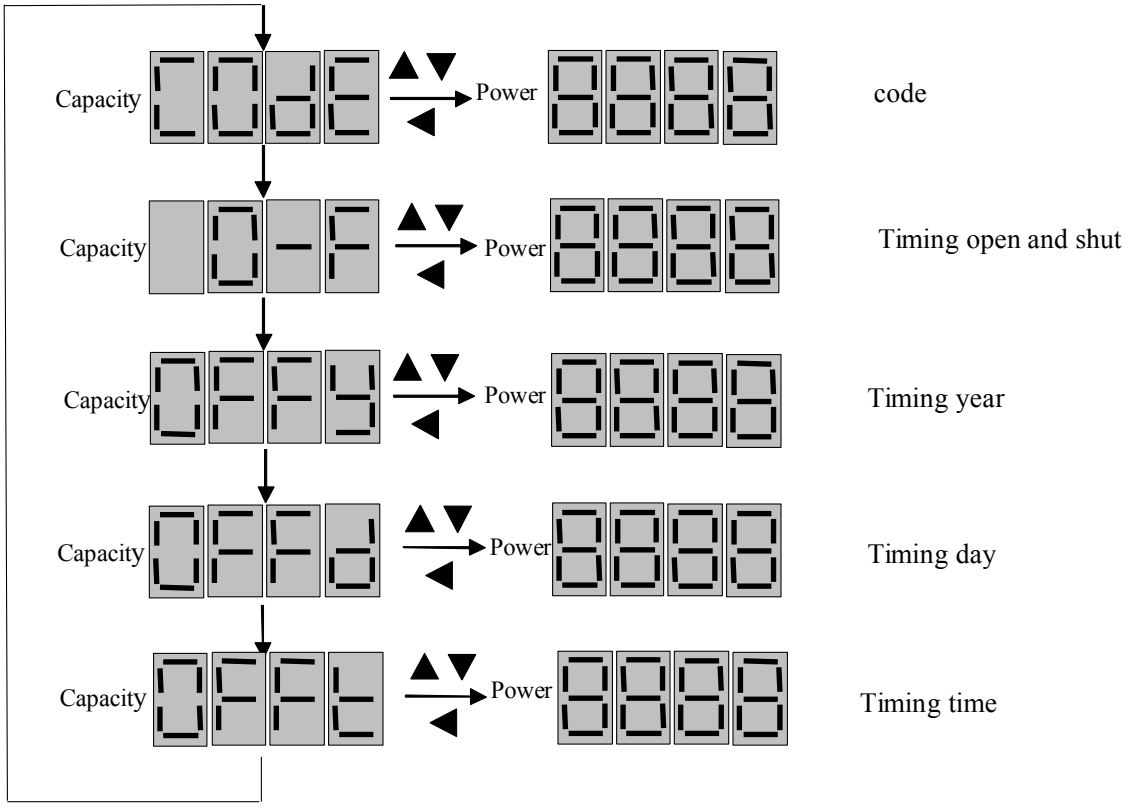




Time storage for language series



Regular shut down



8.5 Environment for using controller

Requirement for power supply	Power supply1	12VDC
	Power supply 2	5VDC
	The power supply should be separated from each other	
Requirement for environment	Working temperature	-35 to 50 C°
	Storage	-40C° to 90C°

	temperature	

9 Maintenance

Please check and maintain the generator at a certain time as the environment for generator might be very scurviness. Please lay down the tower before storm coming in case of any trouble.

Maintenance plan:

al ber	Item	After storm	Every Moth	Every Year	Every 5 year
	Check blades: look for cracks or abnormal bends. If you locate any damage caused by storms or weather, replace the blades as using damaged or unbalanced blades will compromise the efficiency and lifetime of windmill.	√			√
	Replace lubricant			√	
	Check to see if nuts and bolts have remained tight on mill and tower	√			√
	Check electric power cables for corrosion and damage. If you detect any abnormal corrosion, replace cables.	√		√	
	Please repaint the tower if the painting failed by reason of climate.			√	
	To check if every control system working well		√		
	Please check the electrolyte level of the battery. And please add if not enough by following the instruction.		√		

10 Trouble removal

(1) Why the **Electrical equipment failure after connecting with the system?**

○ Please check the remaining power the battery, and the electrical equipment would not work if the power is not enough. If the power is enough, please check if the connection between battery and inverter is correct.

(2) Why cannot charge the battery?

○ To check if the blades rotate, and the generator would not work if the wind speed is so low or so high. If the rotating of blade is Ok, please disconnect the battery and inverter from the generator, and then check the output of generator by voltmeter. If the output is OK, please check the battery follow the instruction to see if the battery damaged. If the voltmeter is zero, please check if it' s the problem of generator' s cable.

(3) Why the blade do not move or move slowly with a normal wind speed?

○ The rotating of blade would be abnormal if the output line is short-circuited. And please check the generator' s cable with disconnecting the battery and inverter from the generator.

(4) If we could extend the using of electrical equipment by adding the capacity of battery?

○ It would be a waste of battery and do harm to the battery, if add the capacity of battery without professional suggestion because it would put the battery always in the state of lacking power.

Please contact with our engineer by e-mail or mobile if you can 'not solve the problem.

*** Color may be different from physical products of picture.**

*** Please give a kind understanding if the manual has been modified without prior notification.**

*** Two years warranty would be offered from the date of purchasing (Non-artificial and Force majeure)**