

INF Series - Solar & Wind Hybrid Street Light Product Specification



Where there is wind, there is a stage.



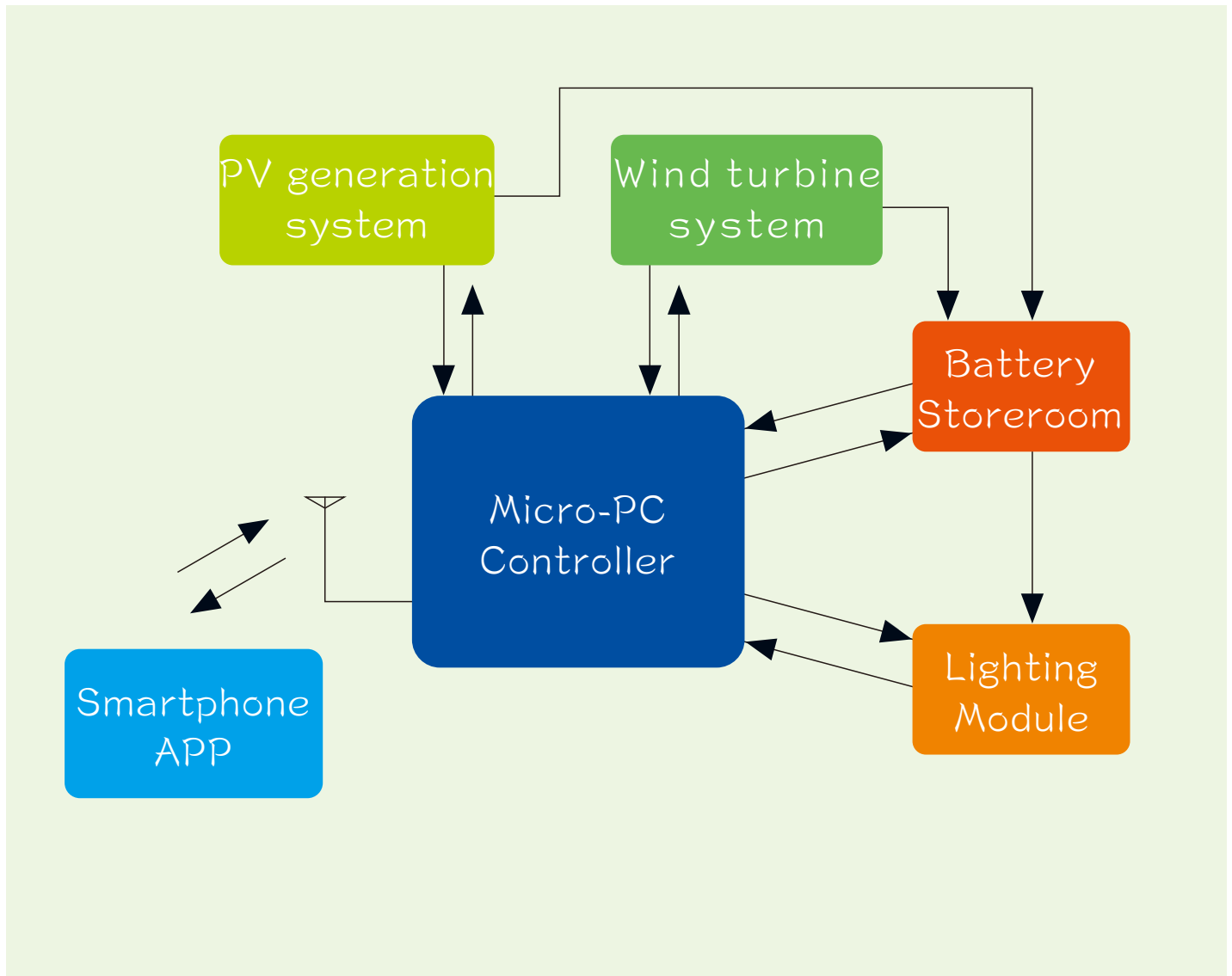
General Information

Based on smart solar street light, the INF series is a new model which can utilize the natural resources - wind energy & solar energy better.

With wind turbine system, this light can be charged daytime and nighttime whenever there is wind, which can widen the applications, also to meet the Philosophy of our company - Safety, Eco-friendly and Intelligence.

1.Product overview

(1) Operation principle



(2).Function introduction

Using the ARM32 MCU as the main control chip, the whole system can achieve the perfect combination of PV generation module, wind turbine module, BESS and LED lighting module, also can be controlled by smarphone APP remotely, to provide a better user experience.

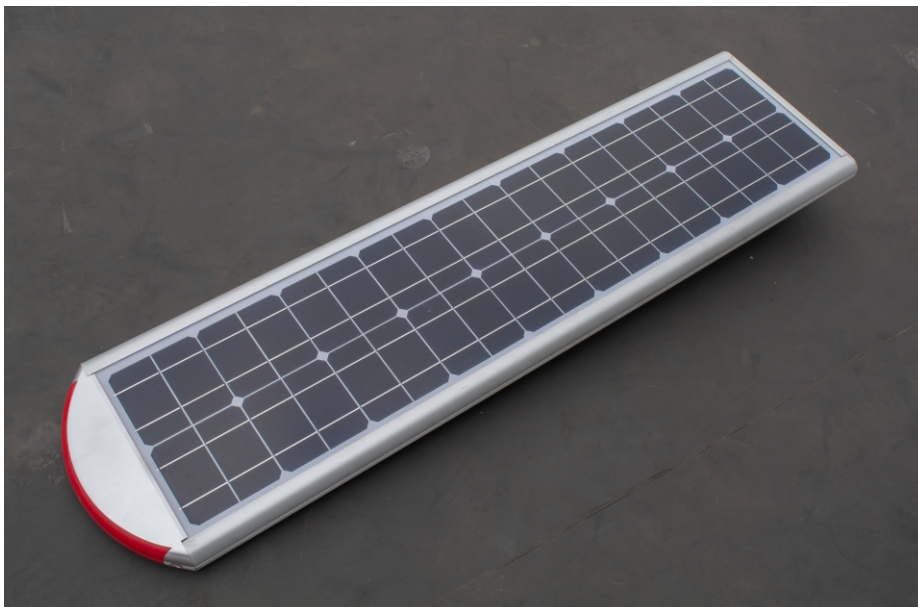
Features as below:

① Wind turbine module



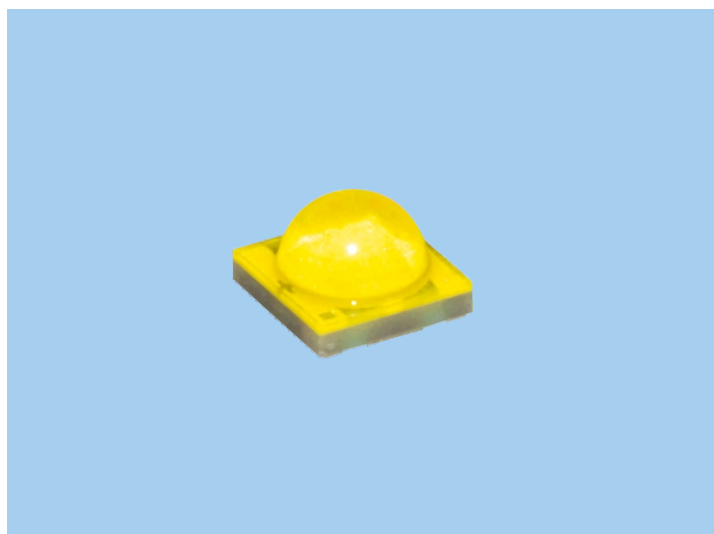
- ◆ Starts non loaded: Minimum speed is 2m/s to start the wind turbine.
- ◆ Electronic braking system: Braking system will turn on automatically when wind speed ≥ 35 m/s.
- ◆ Discharging while charging: At night, the wind turbine works to support the LED lighting and also charge the battery.
- ◆ Read the data: Read the data of wind turbine in real-time by smartphone APP.

② PV generation module



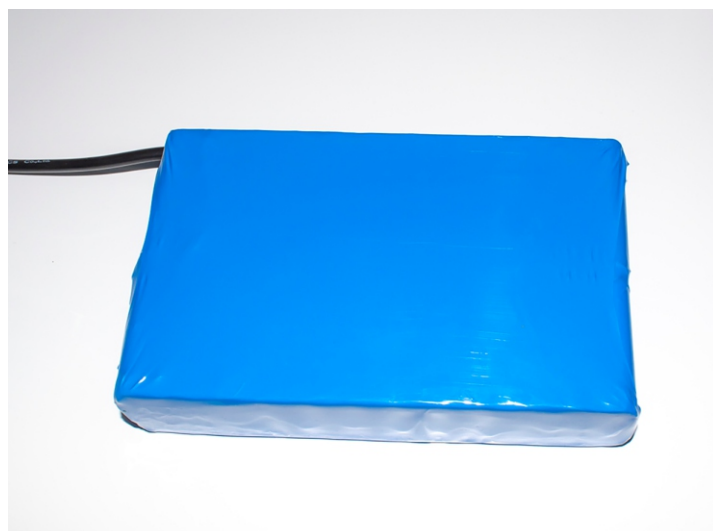
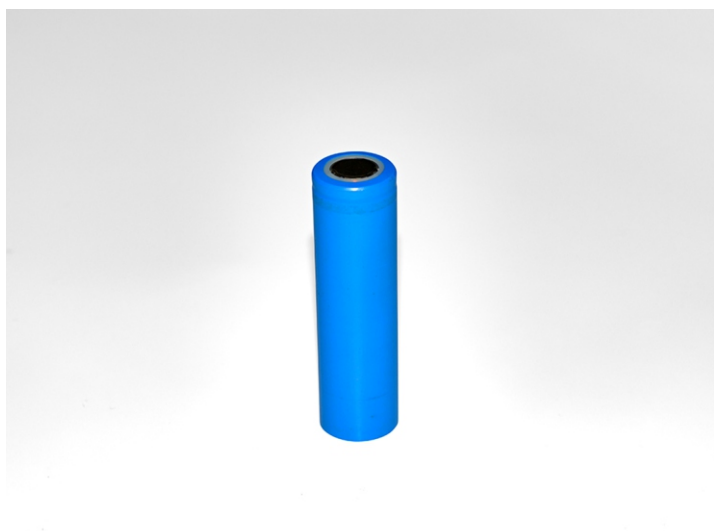
- ◆ Daytime and nighttime will be recognized according to the output voltage of solar panel. When nightfall, the LED lighting operates; when daytime, charge the battery.
- ◆ With MPPT technology, the battery will be charged max by the sunlight.
- ◆ Read the data: Read the data of PV module in real-time by smartphone APP.

③ LED lighting module



- ◆ Utilize high efficiency LED, with integrated optical lens.
- ◆ PWM adjustment, constant current output.
- ◆ PIR motion sensor: enter energy-saving mode when nobody to prolong backup days.
- ◆ With RED pathway indicator, for warning effect and decoration at night.
(Can adjust the brightness and time of switch-on/off by smartphone APP)

④ Battery energy storage system

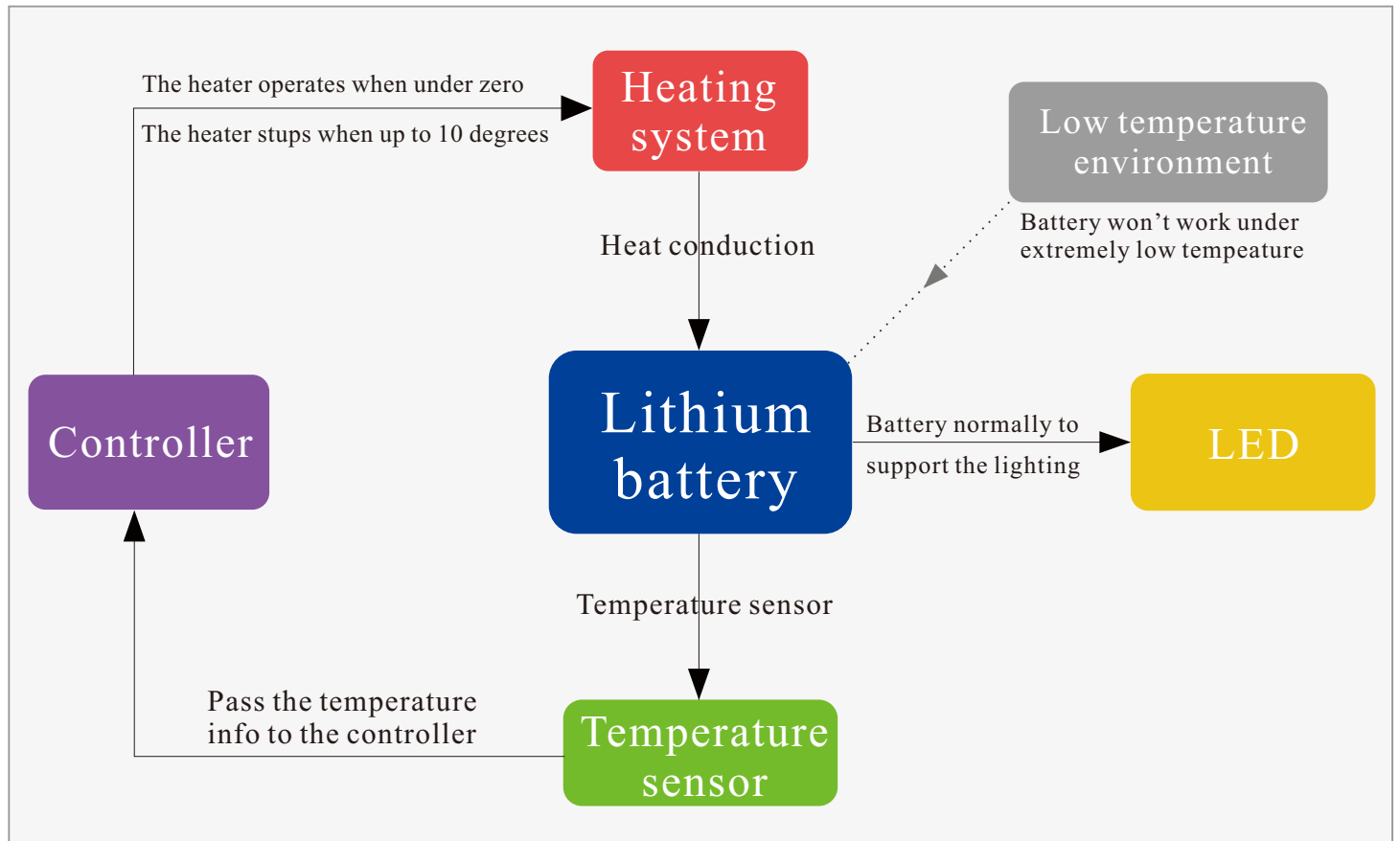


The storage of lithium battery pack can be customized:

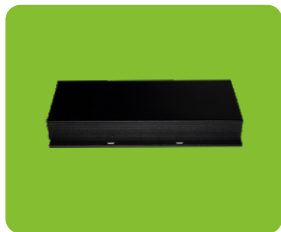
- ◆ Inside there is a cell baffle to protect the battery, NTC temperature sensor and heater band.
- ◆ Real-time detection of the voltage and current to avoid the overcharging, overdischarging and overcurrent.
- ◆ Real-time detection of battery temperature to start the battery heating when extremely low temperature, and stop heating when up to 10 degrees.
(Also can monitor the battery data by smartphone APP)

Battery heating technology under extremely low temperature

In low temperature, especially in winter, the battery will be heated to work normally with the help of smart controller, temperature sensor and heater band.



(Technology Schematic)



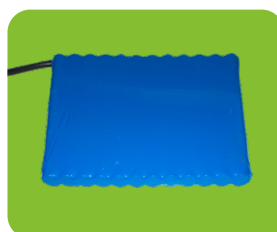
Controller



Temperature sensor



Heating system



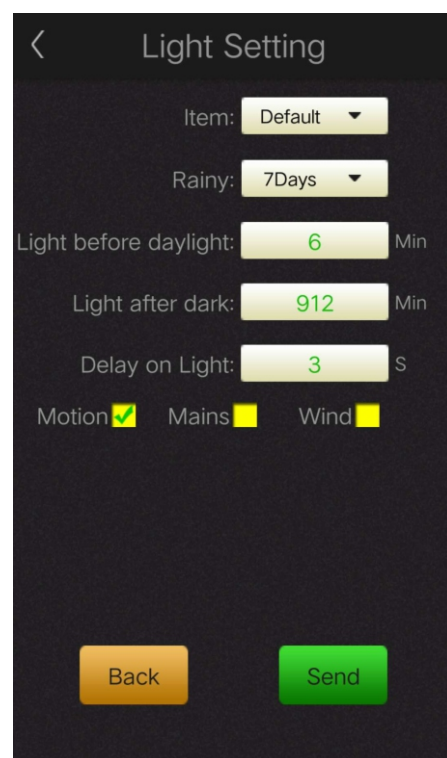
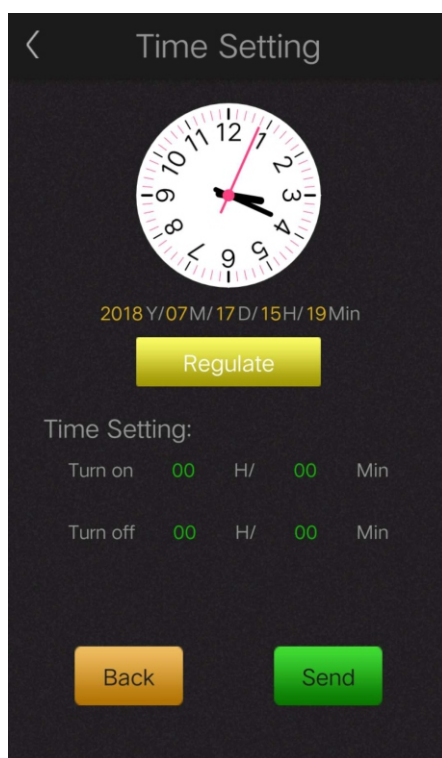
Lithium battery



LED

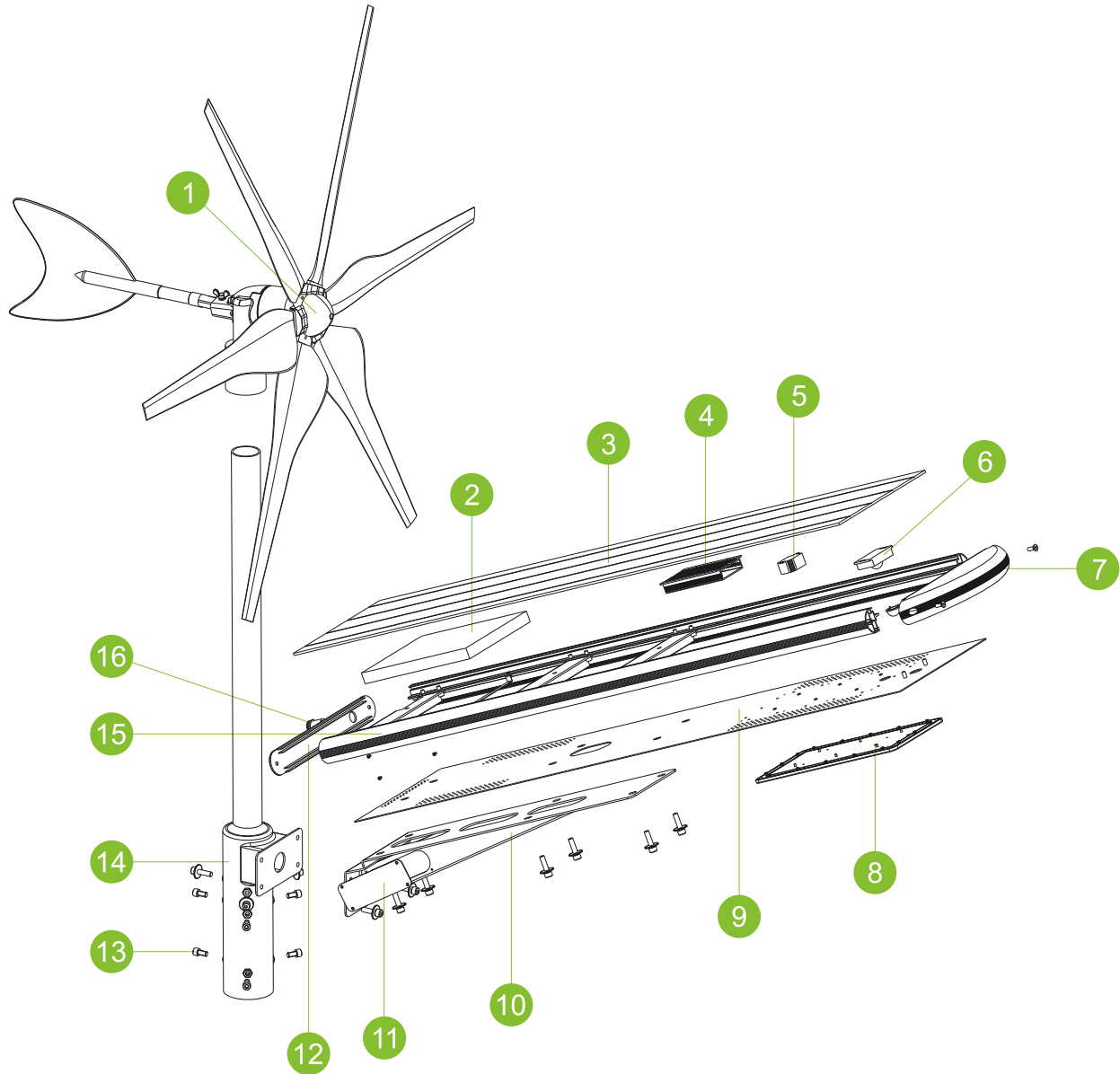
⑤ Bluetooth communication module

Support troubleshooting, read light data and control the light switch on/off by smartphone bluetooth APP.



2. Structure introduction

(1) Structure and composition



- | | | | | |
|------------------|----------------------|-----------------|-----------------------|---------------------|
| 1. Wind turbine | 2. Battery storeroom | 3. Solar panel | 4. Controller | 5. Bluetooth module |
| 6. PIR sensor | 7. Pathway indicator | 8. LED lighting | 9. panel | 10. Bracket |
| 11. Window plate | 12. Back baffle | 13. Screws | 14. Connecting socket | |
| 15. Frame | 16. Switch | | | |

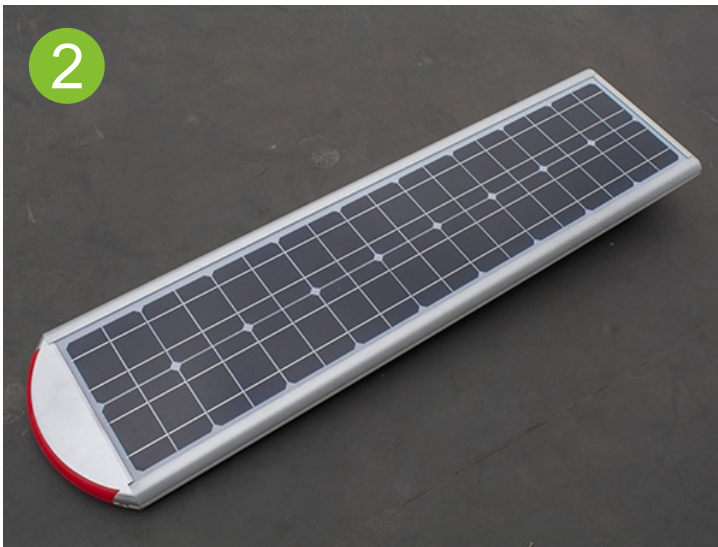
(2) Structure details

Three parts mainly included: wind turbine, integrated solar street light, socket connecting the solar light and wind turbine;
Integrated solar street light includes solar panel, panel, frame, LED lighting module, raffles, controller, PIR sensor, bluetooth module, lithium battery and switch;
The integrated solar street light connect with bracket by screws, wind turbine connect with connecting socket by screws, then connect the bracket with connecting socket.

(3) Components



(Wind turbine)



(Integrated solar street light)



(Connecting socket)

3.Applications

Especially for high latitude area, alpine region and area lack of sunlight but with rich wind energy.



4. Technical parameters

Electrical Characteristic

Rated Power	100W
Solar Panel Power	18V 65W
Wind turbine	24V300W
Battery Capacity	532.8WH
Charge Time	6-8H
Discharge Time	>36H
Operating TemperatureC	-40°C ~ +60°C
Switch Threshold	15 LUX
Max Sensing Distance	12m

LED Parameters

LED Beads	84units(SMD-5050 LED)
Lumen Flux (LM)	13000-15000LM
Luminous Efficiency (LM/W)	130-150 LM/W
Light Distribution	Batwing Type
Color Temperature (CCT)	3000-6500K

Battery Heating Specification

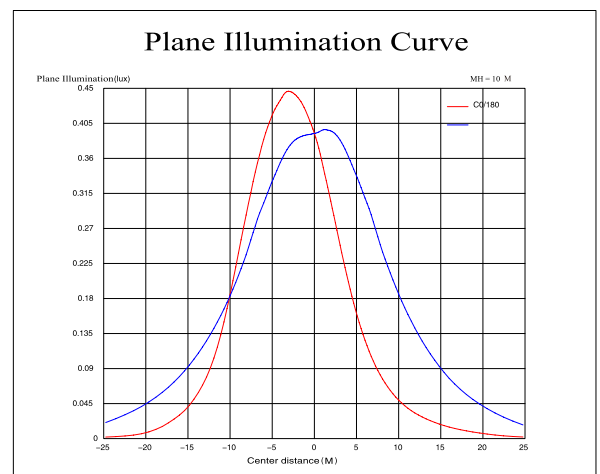
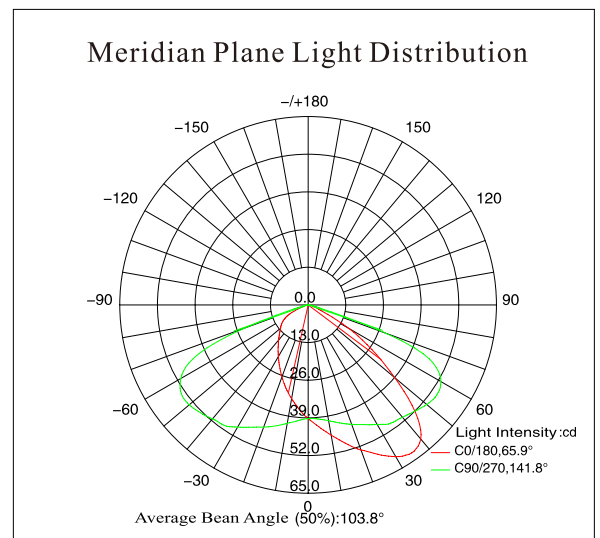
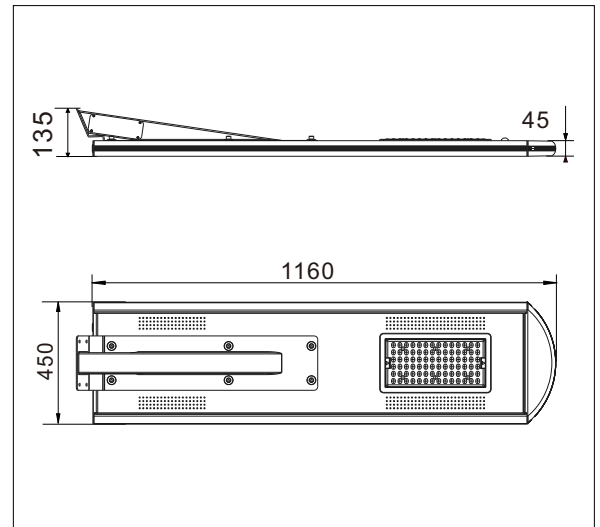
Voltage	9-12V
Power	10W
Temperature range	0-10°C
Temperature Threshold	<0°C or >10°C

Mechanical Specification

Light Body Size	1160x450x45 MM
Wind Turbine Size	φ1140MM
Net Weight	28.2KG
Installation Height	9-11M
Pole Install Distance	35-40M

Packing Dimension

Quantity/Carton	1set/2carton
Carton Size(Lamp)	1300x520x250MM
Carton Size(Wind Turbine)	585x380x220MM
Gross Weight(Lamp)	32.2KG
Gross Weight(Wind Turbine)	6.7KG

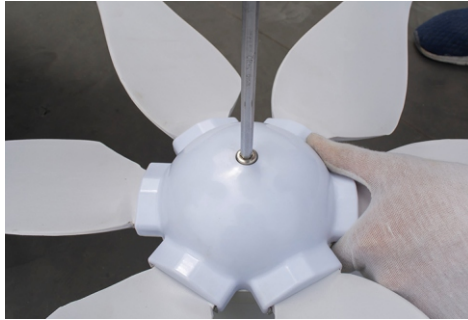


5. Installation Manual

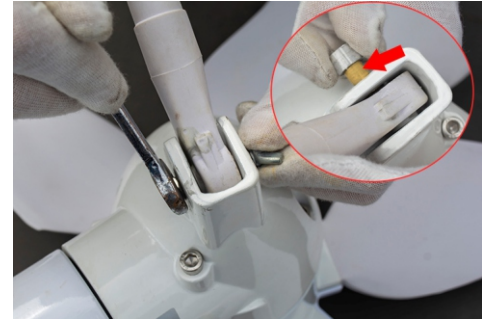
Please don't install when gale weather; Please keep the blade rotating area 100% safe;
Please keep the solar panel can 100% got sunlight. Installation steps are as below:



1. Let the blade cover with "Number Mark" face down, and fix it on flade plate with screws



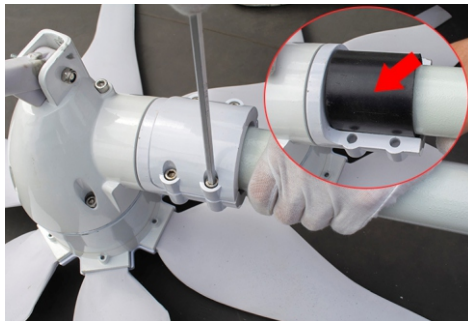
2. Put the fairing cap on the blade plate and fix it with screws



3. Remember to insert the copper tube before assembling the tail



4. Insert the wind turbine cables into the connecting socket



5. Wrap the top of the socket with non-slip mat, and insert into the wind turbine



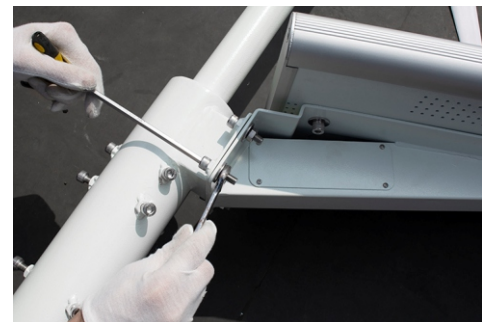
6. Take the wind turbine cables out through the round hole



7. Fasten the three longest screws on the connecting socket



8. Insert the light pole into the connecting socket and fix it with screws



9. Fix the light on the socket by screws and insert the wind turbine cables into bracket



10. Open the window plate, connect the cables and connector



11. Put the connected parts in and lock up the window plate



12. Check all the screws fasten, and make the light pole upright, installation finish

6. Troubleshooting

Fault Symptoms	Possibility	Suggestion
Light off at nighttime	The Solar Panel is being over exposure under light sources	Remove the light sources or adjust the installation angle
	The LED panel/beads damaged	Repair or replace the LED panel/beads
	The output source open/short	Verify if the cables connection is correct
	The battery pack abnormal	1. Examine the cables connection 2. Examine if the battery pack is insufficient charged due to bad weather, which could automatically recover in sunny day
	The solar panel damaged or blocked from any obstacles	Replace the damaged components Clear obstructions or clean the panel
	The controller malfunctioned	Repair or replace the controller if damaged
Light on at daytime	The controller malfunctioned	Verify if the cables connection is correct
	The solar panel abnormal	1. Examine the cables connection 2. Clear obstructions or clean the panel 3. Replace the panel if damaged
	The cable incorrect connect	Verify the cables connection
Bluetooth disconnect	The mobile is far away the lamp	Approach the lamp
	The Bluetooth module malfunctioned	Replace the Bluetooth module
	The APP version is out-of-date	Contact assistance for correct APP version
	The cable incorrect connect	Verify the cables connection
Wind turbine don't rotate	Fully charged, enter braking automatically	Will restore normally
	Main shaft or rotor damage	Replace them
Wind turbine shaking	Blade bent or screws loose	Replace the blade, fasten the screws
	Blade plate shaft bent	Adjust or replace the shaft

7. Maintenance and Warranty

(1) Maintenance

After the first month and later every 6 monthes:

- ◆ Clean up the solar panel to avoid the hot-spot phenomenon, which may affect the charging efficiency.
- ◆ Check the light head and pole connected firmly.
- ◆ Check the blade, replace the damaged or unbalanced, or it will lead serious result. Don't replace the blade by piece as the blades group are under balance test integratedly.
- ◆ Check the blade screws and blade plate screws fasten.
- ◆ Check the fairing cap unbroken and connected in right way.
- ◆ Clean up the dirty on the blade.
- ◆ Check the all the connected parts fasten and without corrosion.
- ◆ We advise you replace the blades every 5 years.

(2) Warranty

Product Warranty: 3 years warranty

Disclaimer Declaration:

- ◆ We shall not be responsible or liable for failure to perform all or any portion of this specification due to earthquake, flood, thunder or other natural hazards, and fire disaster which not caused by our product.
- ◆ We shall not be responsible for damage and loss casued by any unforeseen events such as theft, traffic accidents.
- ◆ We shall not be responsible for loss which not complied with this product manual we shall not be responsible for loss which caused by use in conjunction with irrelevant our products.