

SOLAR SMART PRODUCT TECHNICAL MANUAL

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1. Product Introduction

The Solar intelligent outdoor public products, mainly using the photovoltaic clean energy conversion into electric energy, through the intelligent control system, the electric energy stored in the battery, according to the needs of each electrical appliance, through the intelligent control input to different electrical appliances. Solar intelligent outdoor leisure products has the following characteristics:

1, to create a new concept of low carbon, environmental protection, energy conservation, it copies with the international and national environmental protection spirit.

2, Conform to the new trend of the development of the times, create fifth public infrastructure to solve the problem of electricity consumption, the promotion of wireless urban engineering, let this idea become reality, without the cable and network interface restrictions, to solve the audience group of leisure time when the mobile phone, computer, iPad and other electricity, get the time to charge the pain point. To build a new theme for the people, the people and the people.

3, Building a new theme of "wireless city", using photovoltaic clean energy for outdoor intelligent products to broaden the new prospects, Solar intelligent public chair as the carrier, in leisure outdoor can achieve the consistent utilization of mobile phone, iPad, computer and other unlimited electricity; lighting WIFI, intelligent security prevention and control, environmental monitoring, large data collection and so on households The application of low power products.

4, No need to set up pipelines, keep the original status of the construction site, save construction costs, and save the cost of operation electricity.

5, The unique style and appearance design make the scene harmonious notes. The city's bright landscape has promoted the image of the city.

2. Placement And Working Environment

1. Placing Requirements

- (1) Avoid placing the product in the sun shading of trees and buildings;
- (2) Ambient temperature: -30°C to +60°C;
- (3) Relative humidity is less than 90%, it is not easy to freeze frost;
- (4) Far away from corrosive substances;
- (5) If it is idle for a long time, it needs to be charged and discharged once a month.

2. Working environment

- (1) The working temperature is -20°C to +60°C, which should be suitable in a relatively cold environment. When the battery capacity is increased;
- (2) Relative humidity: 10% ~ 90%RH.

3. Product Parameter

Photovoltaic Power Supply Board.....	80W <input type="checkbox"/> 120W <input type="checkbox"/> 150W <input type="checkbox"/> 200W <input type="checkbox"/> Other <input type="checkbox"/>
Battery Capacity.....	12V/55Ah <input type="checkbox"/> 12V/100Ah <input type="checkbox"/> 12V/120Ah <input type="checkbox"/>
Rated Charge Power.....	12V/24V10A <input type="checkbox"/> 12V/24V15A <input type="checkbox"/> 12V/24V20A <input type="checkbox"/>
USB Charger.....	5V/2.1A
Wireless Charge.....	5V/2A
WIFI.....	2.4GHz/150MBPS
Audio Equipment.....	12V/0.84A 45Hz-18KHz
Bluetooth Pronunciation Module.....	5V ~ 12V/50MA ~ 500MA/50Hz
Working Temperature.....	-40°C ~ +60°C

4. Schematic Diagram Of Product Structure



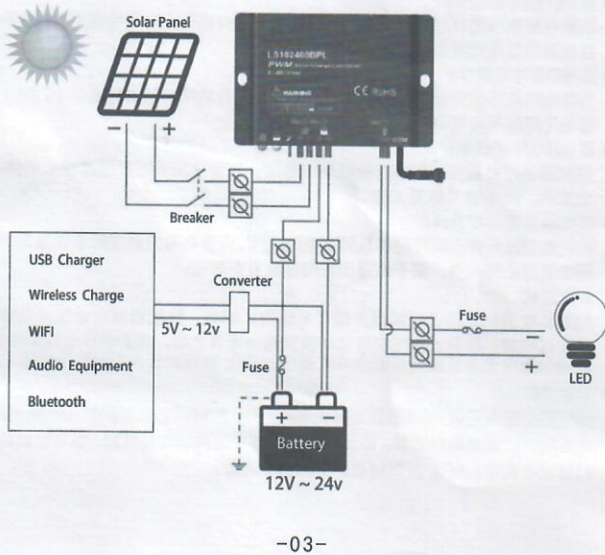
Product Image

5. Working Principle

The working principle of Solar intelligent outdoor public chair system, using photoelectricity Solar cells should be converted to Solar cells. Converted into electrical energy, stored in battery by intelligent controller. The intelligent controller is used to control the opening of LED lamp and LED light box. Close, USB port and wireless charger charge and WIFI function use.

The controller support a variety of battery, for example sealed, gel, flooded and lithium battery. User can view and modify the working status and parameters. It can be widely used on solar home system, traffic signal, solar street light, solar garden lamp, etc. The features are listed below.

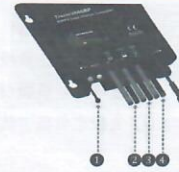
6. Diagram Of Wire Connection



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7. Controller Specification

- ① Temperature Sensor
- ② PV Positive and Negative Wires
- ③ Battery Positive and Negative Wires
- ④ Load Positive and Negative Wires



● Connection Order

1) Connect components to the charge controller in the sequence as shown above and pay much attention to the "+" and "-". Please don't insert the fuse or turn on the breaker during the installation. When disconnecting the system, the order will be reserved.

2) After power on the controller, check the battery LED indicator on the controller, it will be green. If it's not green, please refer to chapter 11.

3) Connect a fuse in series through battery positive (+) in the circuit and the battery circuit fuse must be 1.25 to 2 times to the rated current. The installed distance is within 150mm.

● Load self-test function

The load is ON when the controller power on 10s. After 10s it will restore to set working mode.

8. LED Indicators

Indicator	Color	Status	Instruction
PV	Green	On Solid	PV connection normal but low voltage (irradiance) from PV, no charging
	Green	OFF	No PV voltage (night time) or PV connection problem
	Green	Slowly Flashing (1Hz)	In charging
	Green	Fast Flashing (4Hz)	PV Over voltage
BATT	Green	On Solid	Normal
	Green	Slowly Flashing (1Hz)	Full
	Green	Fast Flashing (4Hz)	Over voltage
	Orange	On Solid	Under voltage
	Red	On Solid	Over discharged
	Red	Fast Flashing (4Hz)	Battery Overheating Low temperature
Charging (green) and battery indicator (orange) flashing simultaneously			System voltage error**

**When the battery type is Lithium Battery, the controller do not recognize the system voltage automatically.

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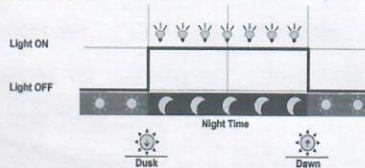
9. Features

- **PV Over Current**
The controller will limit battery charging current to the Maximum Battery Current rating. Therefore an over-sized solar array will not operate at peak power.
- **PV Short Circuit**
When PV short circuit is powered on or PV input is short circuit on low-power, the controller will stop charging. Clear it to resume normal operation.
- ⚡ **WARNING: The controller may be damaged, when PV input is short circuit on high-power.**
- **PV Reverse Polarity**
Fully protection against PV reverse polarity, correct the wire connection to resume normal operation.
- ⚡ **WARNING: Controller will be damaged when the PV array straight polarity and the actual operation power of the PV array is 1.5 times greater than the rated charge power!**
- **Battery Reverse Polarity**
Fully protection against battery reverse polarity, correct the wire connection to resume normal operation.
- **Battery Over Voltage**
When the battery voltage reaches to the set point of Over Voltage Disconnect Voltage, the controller will stop charging the battery to protect the battery from being over charged to break down.
- **Battery Over Discharge**
When the battery voltage reaches to the set point of Low Voltage Disconnect Voltage, the controller will stop discharging the battery to protect the battery from being over discharged to break down.
- **Battery Overheating**
The controller detects the environment temperature through the external temperature sensor. If the environment temperature exceeds 65°C, the controller will automatically start the overheating protection to stop working, and recover below 55°C.
- **Lithium battery Low Temperature**
The temperature sensor is less than the low temperature value, Lithium battery stop charging/discharging. It is higher than the low temperature value, Lithium battery start charging/discharging.
- **Load Overload**
If the load current exceeds the maximum load current rating 1.05 times, the controller will disconnect the load. Overloading must be cleared up through reducing the load and restarting controller.
- **Load Short Circuit**
Load will be switched off when load short circuit (≥ 4 times rated current) happens. Controller will automatically attempt to reconnect load for 5 times. If short circuit protection still exist after controller's 5 times attempts, user have to clear short circuit, then restart the controller or wait for one night-day cycle (night time > 3 hours).
- **Temperature sensor break down**
If the temperature sensor short-circuited or damaged, the controller will be charging or discharging at the default temperature 25°C to prevent the battery damaged from overcharging or over discharged.
- **High Voltage Transients**
The controller is protected against small high voltage transients. In lightning prone areas, additional external suppression is recommended.

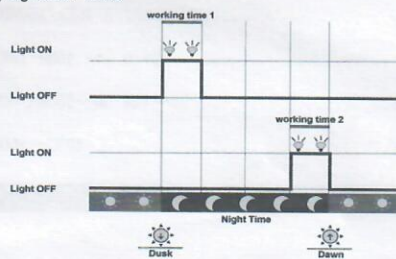
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10. Load Working Mode

- 1) Manual Mode (Default ON)
- 2) Light ON/OFF



- 3) Light ON+ Timer



- 4) Real-time Control

Control the load ON/OFF time through setting real-time clock.



NOTE: In the mode of Light ON/OFF and Light ON/Timer, the Load is turned on after 10Min. delay.

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11. Troubleshooting

Faults	Possible reasons	Troubleshooting
LED Charging indicator turn off during daytime when sunshine falls on PV modules properly	PV array disconnection	Confirm that PV and battery wire connections are correct and tight
No LED indicator	Battery voltage maybe less than 8.5V	Measure battery voltage with the multi-meter. Min.8.5V can start up the controller
Battery LED indicator green fast Flashing	Battery over voltage	Check if battery voltage is higher than OVD, and disconnect the PV
Battery LED indicator red	Battery over discharged	When the battery voltage is restored to or above LVR point (low voltage reconnect voltage), the load will recover
Battery LED indicator red flashing	Battery Overheating	The controller will automatically turn the system off. But while the temperature decline to be below 50 °C, the controller will resume.
Load is not output	Load Overload ^①	①Please reduce the number of electric equipments. ②Restart the controller. ③wait for one night-day cycle (night time>3 hours).
	Load Short Circuit ^①	①Check carefully loads connection, clear the fault. ②Restart the controller. ③wait for one night-day cycle (night time>3 hours).
Equipment without electricity	1. The intelligent controller does not work 2. Bad line loose contact	1, reconnect the PV power board and power storage An inter - pool line 2, restart the intelligent controller
The LED lamp and the LED advertisement light box are not bright Or the timing is not bright.	1, the timing switch is opened at the end of the switch 2, line loosening	1, set the timing switch well 2, check the change of the line port
USB does not charge	1, USB port contact bad	1, change the USB socket

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Wifi is not connected to the network	1, whether the Wifi device is equipped with a SIM card 2, is there enough flow in SIM	1, check the Wifi device end to install the SIM card 2, the Wifi client sets the traffic data
Bluetooth module horn has no sound	1, module dead machine	1, restart the Bluetooth voice module connection
The time of use of equipment is short	1, the photovoltaic power supply board has the shield	1, clean photovoltaic power board

①When it is overload or short circuit, the load have 5 times auto -recovery output function, which each times delay respectively 5s, 10s, 15s, 20s, 25s.

12. Disclaimer

This warranty does not apply under the following conditions:

- Damage from improper use or use in an unsuitable environment.
- PV or load current, voltage or power exceeding the rated value of controller.
- The controller is working temperature exceed the limit working environment temperature.
- User disassembly or attempted repair the controller without permission.
- The controller is damaged due to natural elements such as lighting.
- The controller is damaged during transportation and shipment.
- Man-made damage

13. Warranty Card

PRODUCT GUARANTEE CARD	
Model: _____	
NO: _____	
Date: _____	
UserName: _____	
ADD: _____	Tel: _____ Zip Code: _____
After-sales service WEIYIN WIRELESS CITY	
During the warranty period, if the user fails to use normal use, the company promises to maintain a free warranty for one year, and maintain the warranty for life. In case of any of the following situations, no free maintenance shall be provided: 1. Damage caused by natural disasters such as	
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