

## Product Specification

**Product Name: SP-150W Solar Panel**

**Model: OL-150W-ETFE-4Z**

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### 一: Product Introduction

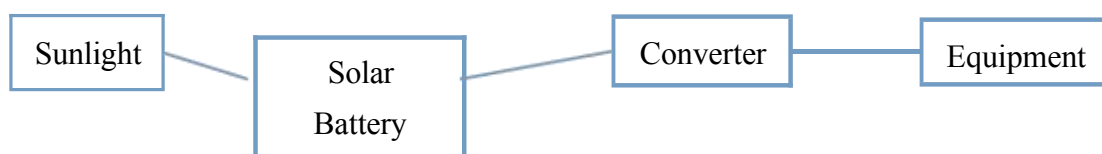
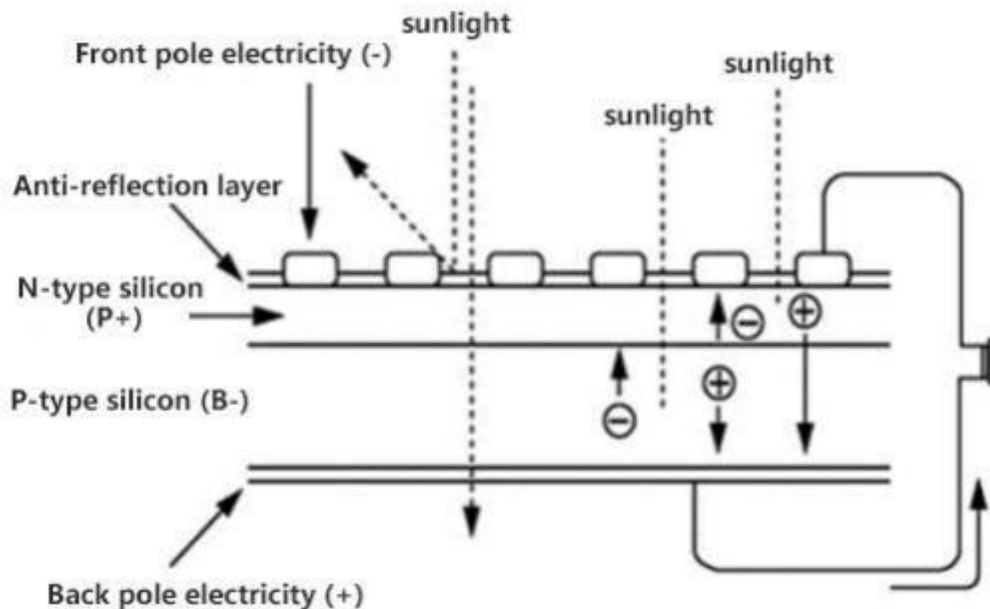
**OL-150W-ETFE-4Z** is a solar product that directly converts light energy into electrical energy with an LED display. When receiving solar light, there is no need to store solar energy in the battery. The output port is 5V/18V, which can directly charge iPad, iPhone, Android and other devices. At the same time, it can also be stored in the battery to charge the 12V energy storage system.

### 二: Instructions

Firstly turn on the product, let the solar panels face the direction of sunlight, and then connect the device that needs to be charged to the USB output port of the product through the charging cable.

### 三: Working Principle Of Solar Panels

The solar radiant energy is converted into electric energy through the solar panel. It uses the photoelectric effect inside the solar panel. When the sun shines on a kind of semiconductor called the "P-N junction" in the solar panel, the wavelength is extremely high. Short light is easily absorbed inside the semiconductor and collides with the "valence electrons" in silicon atoms to make the "valence electrons" gain energy and become free electrons to escape the crystal lattice, thereby generating electron flow.



#### 四： Product Basic Performance Test

1: Test conditions and measuring instruments and equipment:

- a、 Test light intensity: 1000W/m<sup>2</sup> or simulated light source 38,000 to 40,000 LUX
- b、 Unless otherwise specified, the tests in this specification shall be carried out under the standard atmospheric conditions of the test:
- c、 Temperature: 25℃
- d、 Relative humidity: 10%~90%
- e、 Air quality: AM1.5
- f、 The accuracy of the instrument for measuring voltage should be no less than 0.5, and the internal resistance should be no less than 10KΩ/V
- g、 The accuracy of the instrument measuring current should not be less than 0.5
- h、 The accuracy of the temperature measuring instrument should not be lower than ±1℃

2: Measuring Instruments

Multimeter Fluke15B, electronic load, timer, DC power supply, analog light source (halogen lamp), oscilloscope

3: Performance Schedule:

	Item	Standard	Description
Solar panels	Solar energy convention rate	≥22%	Composed of 4PCS 38W/9V solar panels
	Total power of solar panel/W	≥150	
	Solar panel open circuit voltage/V	≥20	
	Solar panel working voltage/V	≥18	
	Solar panel short-circuit	≥9	
	Solar panel working current/A	≥8.3	
	Brand	/	OUTLUX

	Encapsulation	Laminated	ETFE
USB port output characteristics	USB1 port set no-load voltage/V	5.0-5.25	/
	USB1 port set load output voltage/V	4.65V-5.25	3A
	USB1 port output overcurrent protection/A	4±0.2	/
	USB1port output ripple/mV	<250	2.4A output
	USB1port short circuit protection	Yes	/
	Short-circuit	Yes	Remove load, automatic
	D+ /V	2.7±0.2	no load
	D- /V	2.7±0.2	
	USB/QC3.0 port set no-load voltage /5V	5.0-5.25	/
	USB/QC3.0 port sets 5V load output	4.75V-5.25	3A
	USB/QC3.0 port set output voltage 9V	9.0-9.35	/
	USB/QC3.0 port output 9V	8.75-9.35	2A
	USB/QC3.0 port sets the output	12-12.35	/
	The USB/QC3.0 port outputs 12v	11.7-12.35	1.5A
	USB/QC3.0 port output ripple /mV	<120	2A output
	USB2 port short circuit protection	Yes	/
	Short-circuit recovery	Yes	Remove load, automatic recovery

	Type- C port sets no-load voltage /5V	5.0-5.35	/	
	Type-c port sets 5V load output voltage /V	4.65-5.35	3A	
	Type-c port sets the output voltage at no-load 9V	9.0-9.5	/	
	Type-c port output 9V	8.65-9.35	2A	
	Type-c port sets the output voltage at no load 12v	12.0-12.35	/	
	Type-c port output 12V	11.65-12.35	1.5A	
	Type-c Output ripple /mV	<120	1.5A	
	Type-c short-circuit protection	Yes	/	
	Short Circuit	Yes		
Overall characteristics	Weight	6.1 Kg	/	
	Size/M	combined	540*508*50	/
		Expanded	1955*508*16	/
	Product conversion rate/%	≥85	/	
	Built-in battery	No	/	

	Dual USB outputs at the same time	YES	When the total output current exceeds the overcurrent protection value, the USB port with high output current is automatically closed.
	18V output (optional)	YES	MC4、5521DC、7909DC、Anderson
	Automatic restart function	YES	Output current (mA) $\leq 170+30$
	Short circuit/over-current protection release	Remove load release	/
	Automatic restart time (s)	10±2	/
	Working temperature(°C)	-10-70	/
	LED indicator	The LED is on when the output is normal	/

#### 4. product diagram:



**Remarks:**

- 1) **Constant resistance mode test using electronic load meter when the product is loaded**
- 2) **When the solar light is insufficient, it may cause the USB port to be unable to charge, which is determined according to the light conditions**
- 3) **Product USB output port with intelligent identification IC and line loss voltage compensation, improve product compatibility and actual charging current.**
- 4) **The product is not suitable for low-current charging products (standard charging current is below 200mA), and it is prone to keep shutting down and restarting. Although the USB output port has an identification IC, it is not guaranteed to be compatible with 100% of the devices on the market, with mainstream smart devices on the market Mainly**
- 5) **The combination of solar panels and light and the surface temperature of solar panels will affect the actual output power of solar product**

**6) When the device is fully charged or due to insufficient light intensity, the USB output port may be continuously turned on/off, which is within the normal working range of the product**

#### **五: Reliability, Safety Performance**

S/N	Test Item	Standard Requirements	Remark
1	Aging test	Under natural light, fully loaded and loaded for one week, there is no problem in function	
2	Charging test	In natural light, ipad, iphone, android phones can be charged and fully charged	
3	Drop test	The bare metal 1 meter height cement floor has six sides, once on each side	
4	Alcohol resistance test of the sprayed layer	Dip a cotton cloth with alcohol, wrap it on a 500g French dock, and wipe 100 times at a speed of 30-40 times per second (one back and forth), without revealing the substrate or removing the paint	

#### **六: Structure Performance Index**

1: Material and surface treatment:

2: Assembly process:     Sewing    

3: Appearance

There must be no defects such as damage, cracks, cloak, serious misalignment, etc;

The color is correct, the surface treatment is good, and there should be no obvious color difference between the upper and lower shells;

The printing position, content, and color must be correct

#### **七: Accessories**

As customers requirements

#### **八: Warranty And Product Liability**



The shelf life is 12 months from the date of manufacture. is not responsible for accidents caused by failure to operate in accordance with this specification. When there are some changes in this specification, the company will notify the purchaser

### **九: Revision Of Product Specification**

When the company revises this product specification, it will notify and obtain customer consent

### **十: Precautions Of Solar Panels**

- 1、 Do not squeeze the solar panel forcefully, otherwise the solar panel will be easily damaged
- 2、 Do not put the product into water or get it wet
- 3、 When suitable for use, try to make the solar panel and the solar light have a vertical irradiation, so as to improve the solar panel's absorption of solar light
- 4、 Please keep the surface of the solar panel clean, otherwise it will easily affect the solar panel's absorption of solar energy
- 5、 Try to ensure that the light on each solar panel is even
- 6、 Do not discard discarded solar panels.