

25W

Solar Kit User Manual



Retain these instructions



CAUTION: Please carefully read these instructions prior to using this product. Failure to follow the precautions and warnings contained in these instructions may lead to product damage.

Important Safety Information

Thank you for choosing our product! Before using this product, please carefully read this manual and familiarize yourself with the product details.

This product is designed for use under specific conditions. If you are unsure of whether or not the product can be used in a certain way, please contact us at our email address, info@eco-worthy.com. We strongly discourage the alteration or modification of this product. If you need to alter or modify the product, please contact us for further information. We will not assume responsibility for any consequences that result from modification of the product.

WARNING

- Read and ensure that you understand all the contents of this manual. Failure to follow the instructions may lead to severe injury or property damage.

- The warnings, precautions, and instructions contained in this manual do not cover every possible scenario. When using this product, you should exercise common sense and take necessary precautions. Remain aware of your environment and ensure that you use this product in a safe and responsible manner.

- Users should not operate or assemble this product before reading the manual and becoming familiar with how the product operates.

- Please do not modify this product in any way. Unauthorized modification of this product may impact the product's functionality or safety, and could reduce the product's service life.
- Use an appropriate electrical load (less power than this product's power output). Do not attempt to forcefully increase this product's load. This product is designed for certain conventional uses. Following these conventions will enable the product to function safely and in accordance with expectations. Do not use this product in ways that fall beyond the scope of product design.

Products Description

ECO-WORTHY solar panels feature durable, high-efficiency solar cells, corrosion-resistant EVA and Transparent tempered module glass, which will protect the solar panel from various forms of damage and ensure to offer a long-lasting and stable power output.

This product is a 25W18V solar panel combination system, light weight and easy to carry. The system consists of a 25W polycrystalline solar panel, a 3A solar controller, a 2 meter cable, a U-shaped mounting bracket and a set of mounting accessories.

The controller in the kit is only suitable for solar, 12V batteries and battery packs. The battery is a liquid-filled or sealed lead-acid battery.

Features

- 1.Keep your battery topped off in all seasons with free solar energy
- 2.High-efficiency cell, high conversion efficiency
- 3.Intelligent Solar Charge Controller with 5V USB port and 12 VDC port. Widely used, can be used to charge mobile phones, tablets, light bulbs, camping electricity, etc.

4. Adjustable U-tilt mounting bracket: The solar panel mounting angle can be adjusted by the user. Easy to use, adjust the angle to increase the utilization of solar energy.
5. The solar panel has a 0.97 meter cable, the system is equipped with an alligator clip cable, and the outer layer of the cable is wrapped with anti-ultraviolet material. Waterproof, long service life.

Application

This product can be used in a variety of everyday scenarios to alleviate a host of troubles. For example, if you worried that your car's battery will drain while you are away on a trip or if you want to install a small outdoor fountain without connecting it to your home's electrical system, our product offers a quick and convenient solution.

In addition, this product can be used in trucks, yachts, small boats, or with small water pumps, LED lights, small batteries, micro DC fans, surveillance equipment, and all sorts of other devices.

Ideal for a variety of DC applications, including RVs, boats, 12-Volt battery charging and LED lights. Made with high-efficiency poly crystalline solar cells for years of service, this solar kit is easy to install and virtually maintenance free. An anodized aluminum frame and a sealed junction box make the panel weatherproof for outdoor use.

If you would like to use this product for another scenario but are not sure whether it will work for you, please contact us.

Technology Parameters

Electrical Data

Maximum Power	25W
Optimum Operating Voltage (Vmp)	17.9V
Optimum Operating Current (Imp)	1.4A
Open Circuit Voltage (Voc)	22.41V
Short Circuit Voltage (Isc)	1.54A
Cell Efficiency(nc)	17.5%
Module Efficiency(nm)	13%

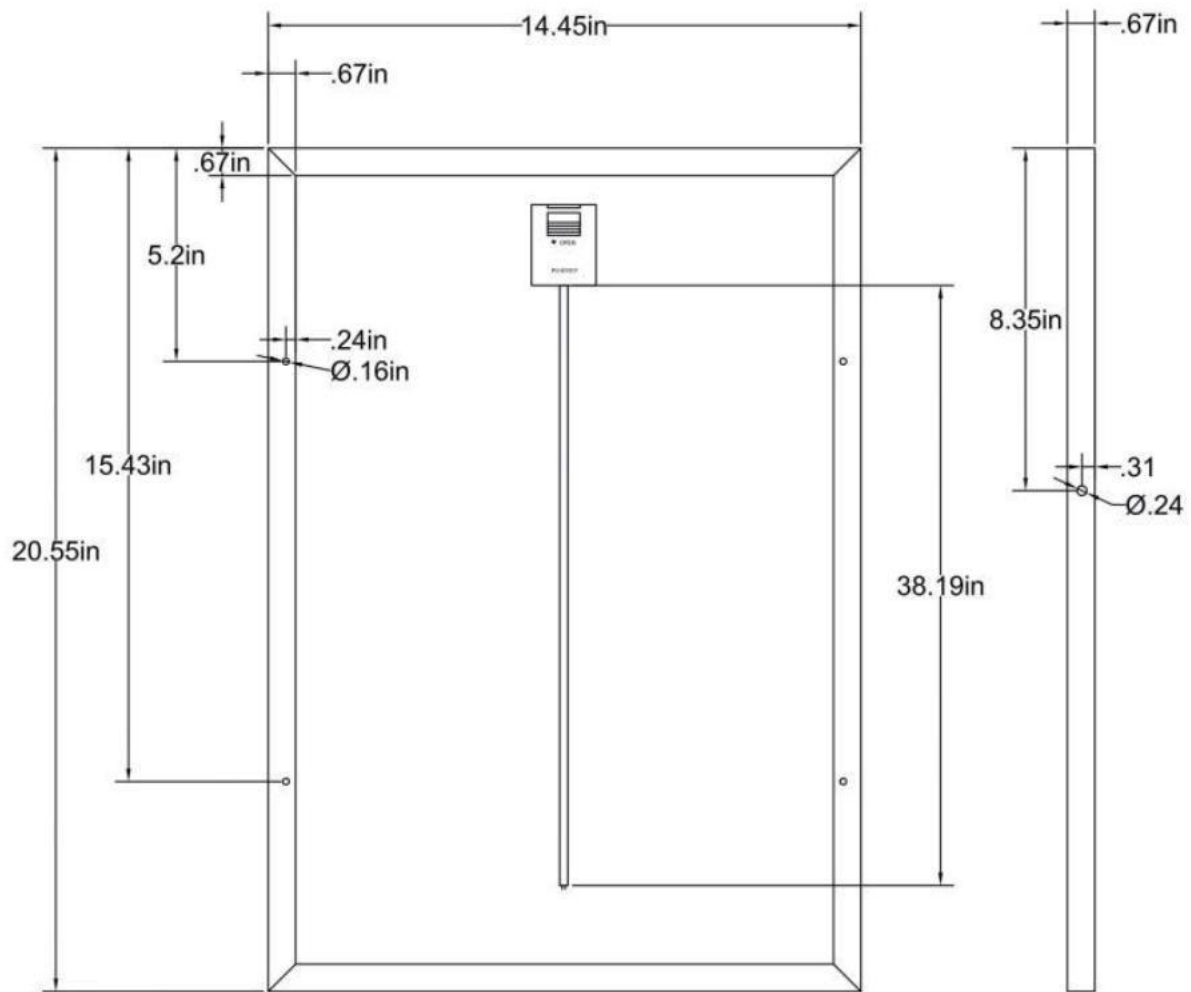
Mechanical Data

Solar Cell Type	Poly-Crystalline (3*2 in)
Number of Cells	36 (4 x 9)
Dimensions	20.6*14.4*0.67in (522*367*17 mm)
Weight	4.4 lb (2 kg)
Front Glass	Tempered Glass 0.13 in (3.2 mm)
Frame	Anodized Aluminium Alloy
Output Cables	38in cable
Fire Rating	Class C

Thermal Characteristics

Isc Temperature Coefficient	+0.05%/°C
Voc Temperature Coefficient	-0.38%/°C
Pm Temperature Coefficient	-0.47%/°C
Operating Module Temperature	-40°C ~+80°C

Module Diagram



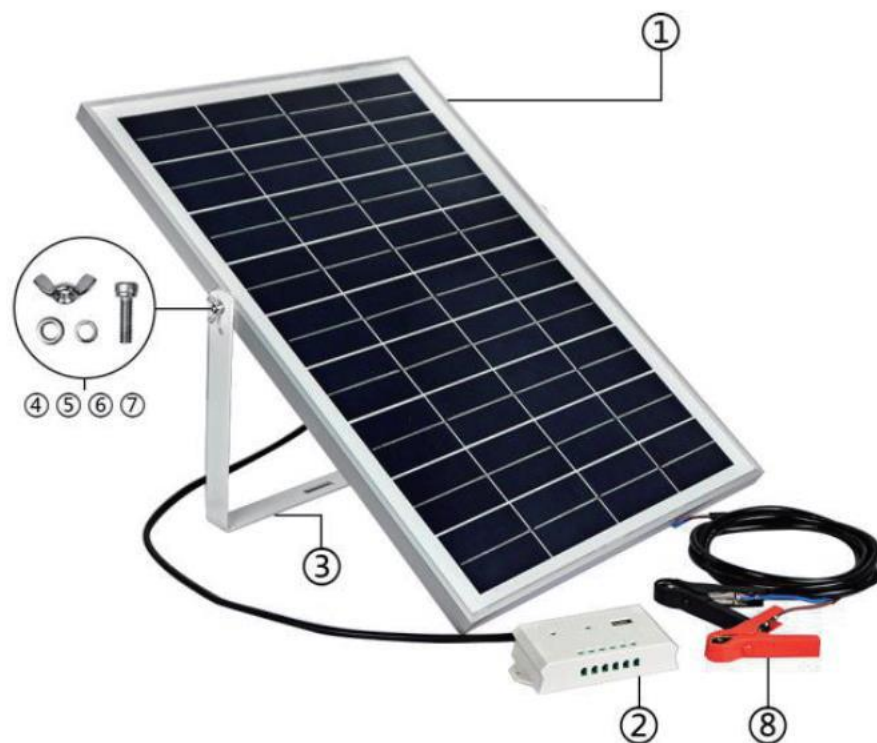
1. Solar power standard testing conditions: solar radiation $1000\text{W}/\text{m}^2$, temperature 25°C , air mass AM1.5.
2. If used in conditions that fall outside of the standard testing conditions, the solar panel's electrical output capacity may change in a non-linear way.
3. Because of the scattered nature of the silicone crystal's parameters, electrical properties may change under weak light conditions.
4. The solar panel's ability to produce electricity is closely connected to the strength of the sunlight, temperature of the environment, installation angle, and other factors.

Note: Please refer to the controller manual for detailed parameters and usage of the solar controller !

Product Installation Method

Note: Please check if the following accessories are complete before installation.

- ① 25W Solar Panel ② Solar Controller ③ U Mounting Bracket
- ④ M5*15 Screw*2 ⑤ M5 Butterfly Nut*2 ⑥ M5 Flat Pad*2
- ⑦ M5 Spring Washer ⑧ 2m anti-UV cable. ⑨ DC load (self-provided)
- ⑩ 12V battery (self-provided)



This product can be installed in different places: Fasten it to the floor, wall, roof or pole with fasteners.

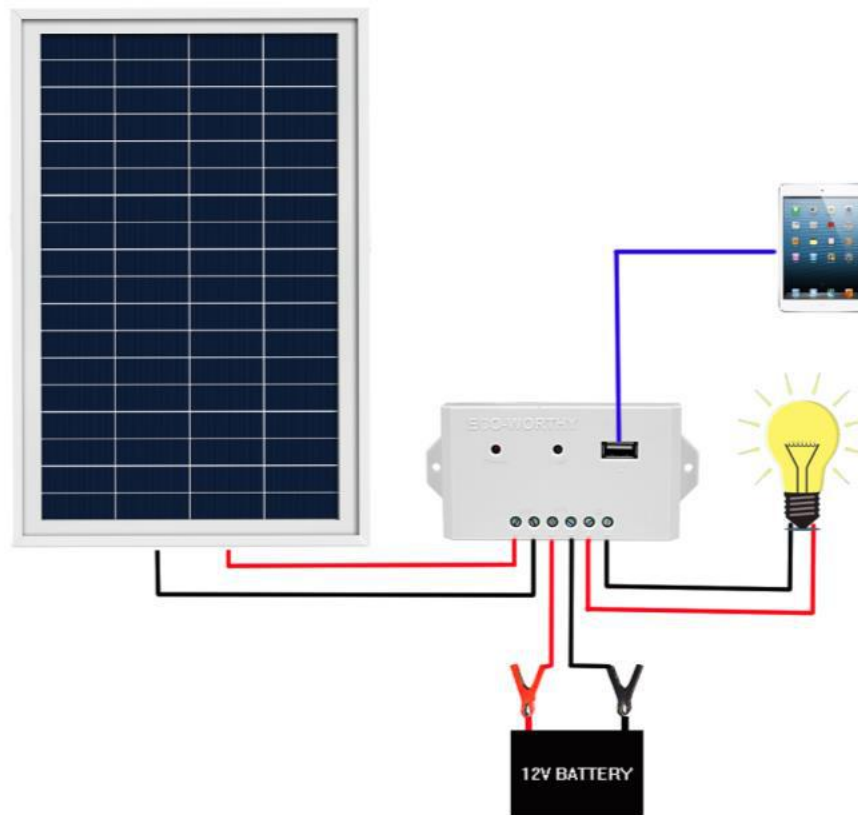


Wiring the Solar Panel

Step 1: Connect the battery and controller with a configuration cable.

Step 2: Connect the solar panel to the controller.

Step 3: Connect the load you want to use.



Tips for use

The solar array generate maximum amount of energy output when the angle of the sun is perpendicular to the solar array. Since the actual optimal angle of positioning the solar array varies due to the earth's rotation and revolution, it is advised that to tilt the solar array up for 30-45 degree from the earth, which is a well-balanced solution when using without a solar tracker.

While connected, do not create a short circuit between the positive and negative poles, or connect to them in reverse. Use the red and black crocodile clips to charge and maintain the 12v battery. The red clip is positive (+) and the black clip is negative (-).

This product can only charge products with a rated voltage not exceeding 12V. If the rated voltage of the product is large, it will not be able to charge it.

Before using this solar panel, remove its protective wrapping.

When using this product, avoid scratching the surface with hard objects, do not allow the product to come into contact with corrosive chemicals, and do not subject the solar panel to uneven pressure that may cause the panel to crack and affect its performance.

Product Testing

After receiving the product, you can test the performance of the product using the following methods.

Required tools: multimeter.

1. Adjust the multimeter's setting to 200V, connect the red probe to the positive side of the solar panel output cable, and connect the black probe to the negative side of the output cable. Check the value displayed on the multimeter. This value should be between $20 \pm 2V$ (this may vary depending on weather conditions).Figure.1.
2. Set the multimeter to current test mode. Connect the red probe to the positive side of the solar panel output cable and the black probe to the negative side of the output cable. Check the value displayed on the multimeter and compare it to the value of the short-circuit current printed on the label on the back of the solar panel. These two values should be close under good lighting and temperature conditions.Figure.2.

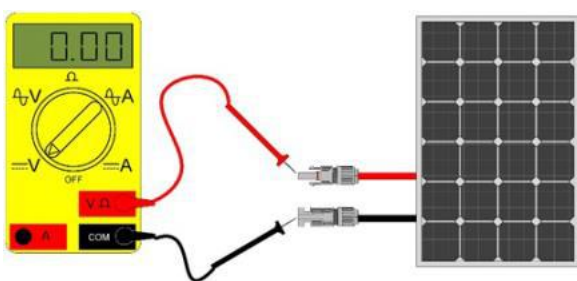


Figure.1.

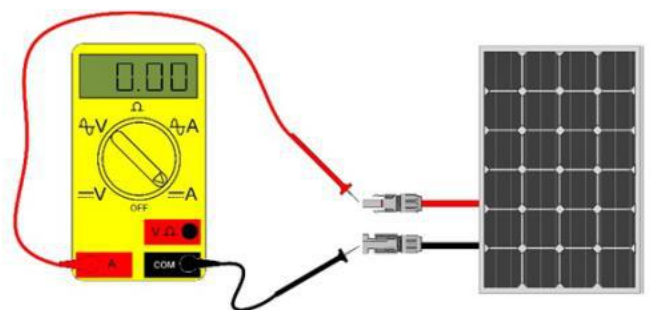


Figure.2.

ECO-WORTHY

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