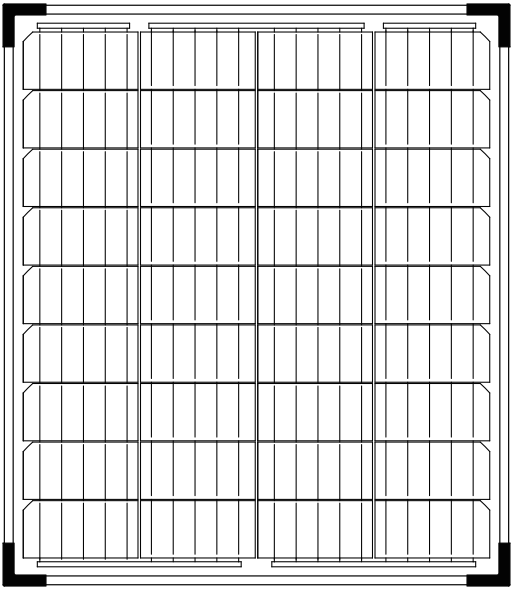
callsun

30W Intelligent Solar Battery Trickle Maintainer



USER MANUAL V 1.0

Model: CALLSUN-SG30WBC

CE FCC RoHS

30W Intelligent
Solar Battery Trickle Maintainer

Thank you for purchasing the Intelligent Solar Battery Trickle Maintainer (hereinafter referred to as the "Trickle Maintainer"). Before using the Trickle Maintainer, please carefully read this manual. Once you use this product, it will be deemed that you fully acknowledge and accept all the contents of this manual. Please strictly follow the instructions in this manual when using this product and pay close attention to the precautions.

We are not responsible for any direct or indirect losses or injuries caused by improper use of the Trickle Maintainer, including but not limited to short-circuiting the product, overheating, inserting foreign objects, disassembly, throwing, heavy pressure, cutting, etc.

**Please confirm in advance whether the parameters of this Trickle Maintainer match the input specifications of your battery. Failure to meet these specifications may result in damage to the products.*

**This Trickle Maintainer is designed specifically for trickle charging and maintaining 12V batteries. It is not compatible with other voltage (e.g. 3.2V, 3.7V, 5V, 24V, 48V) batteries or dead batteries.*

⚠ Product Use Precautions

1. Do not short-circuit.
2. Do not reverse polarity.
3. Never attempt to disassemble, insert foreign objects, damage, puncture, crush or modify the unit, as this may lead to unforeseen risk.
4. Avoid dropping, placing heavy objects on, or subjecting this unit to strong impacts.
5. To avoid damage to the solar panel surface, keep this Trickle Maintainer away from small metal objects (e.g. Coins, hair-pins, keys, etc.).
6. Keep the product away from oil, flammable gases, corrosive substances, combustible materials and other hazardous materials.
7. Do not bend the solar panel. Handle with care during use to prevent collisions with the solar panel. Avoid touching it with sharp objects and refrain from forcefully striking the product.
8. Do not step on, stand on, or jump on the surface of the solar panel. Heavy or sharp objects may scratch the solar panel, causing small cracks and affecting output power or posing a risk of injury.
9. Stop using it immediately if it begins to smoke, emits a strange smell, battery leaks or distorts in any way.
10. In the event of a fire, use a dry powder fire extinguisher for proper firefighting.
11. Do not pull the power cable hard to avoid the power cable from breaking or falling off.

Product Maintenance

After long-term use, dust may adhere to the surface of the panel, blocking sunlight and reducing the silicon chip's ability to absorb sunlight. Regularly clean the solar panel by gently wiping it with a damp cloth. Do not use corrosive liquids to clean the solar panel, and avoid using high-pressure water jets, as excessive pressure might damage the solar panel.

Product Highlights

1. Adopting high-performance, high-quality monocrystalline silicon solar cells achieves an outstanding conversion efficiency.
2. The controller equiped with intelligent chip, achieving a high conversion efficiency.
3. Low-iron tempered glass surface and corrosion-resistant aluminum frame, make this solar panel waterproof and rustproof.
4. It features safety functions such as reverse charging protection, reverse connection protection, overcharge protection, overvoltage protection, overcurrent protection, short circuit protection, overtemperature protection.

Specifications

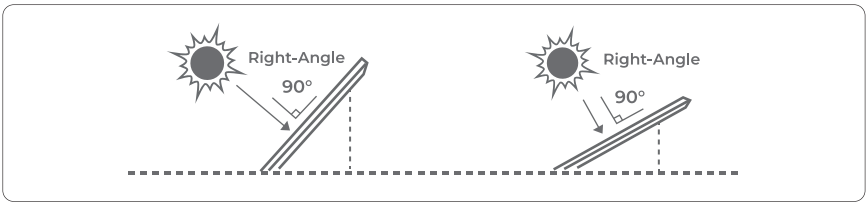
Model	CALLSUN-SG30WBC
Cell Type	Monocrystalline Silicon
Glass	1.6mm Tempered Glass
Frame	Anodized Aluminum Alloy
Solar Panel Max Power (at STC)	30W
Maximum Power Voltage (Vmp)	20.16V
Maximum Power Current (Imp)	1.49A
Open-circuit Voltage (Voc)	24.3V
Short-circuit Current (Isc)	1.57A
Compatible with	12V $LiFePO_4$, Lithium Ion, AGM, SLA, GEL, FLD, EFB, MF batteries.
Charging Principle	• When the battery voltage is below 13 volts, boosting charging occurs. • Charging stops if the instantaneous voltage exceeds 14.7 volts. • When the average battery voltage falls within the range of 13.5 to 14.2 volts, trickle charging is activated. • An intelligent chip employs an algorithm to maintain the battery voltage within the range of 13.7 to 14.1 volts using a small current. The specific voltage values may vary for different batteries.
Operating Temperature Range	14°F ~ 158°F (-10°C ~ 70°C)
Solar Panel Max. Wind Load (Pa)	2400
Solar Panel Max. Snow Load (Pa)	5400

IP Rating	IP68
Trickle Maintainer Dimensions (mm)	403× 463 × 20 ± 2

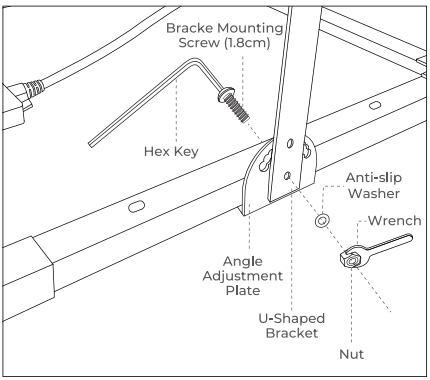
* STC (Standard Test Conditions): Refers to the solar panel's surface temperature of 25 ° C, air mass of 1.5, and solar irradiance of 1000 W/m².

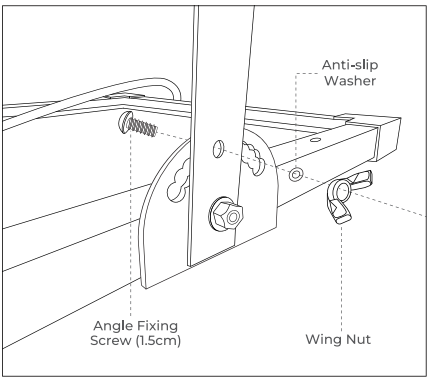
Usage Method

1. Place the solar panel in direct sunlight. Adjust the solar panel to ensure that the light source is perpendicular to the panel's surface, achieving optimal charging efficiency.



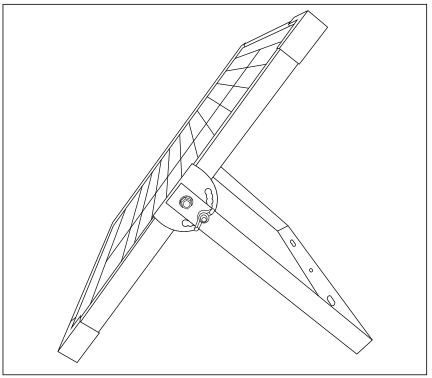
2. The solar panel must be exposed to direct sunlight with no obstructions on its surface. Please use it under clear sunlight without clouds, trees, or buildings blocking the sunlight.
3. Mounting Diagram
   Notice Before Mounting:
   ❶ When performing steps 1 and 2, do not tighten the screws too much initially. After the installation is complete and the angle is adjusted correctly, tighten them securely.
   ❷ If step 4 is included, step 2 can be done after step 4.
   ❸ If step 4 is not included, step 2 can be performed after step 3.



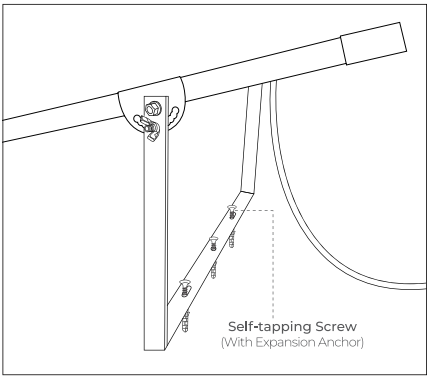


Step 1 :
Use bracket mounting screw (1.8cm) , snti-slip washer, and nut to attach the angle adjustment plate and u-shaped bracket to the solar panel. Repeat on the other side. (A hex key and wrench can be used for assistance.)

Step 2 :
Choose the right hole for optimal sun light, then use the angle fixing screw (1.5cm) , snti-slip washer, and wing nut to secure the angle. Repeat on the other side.

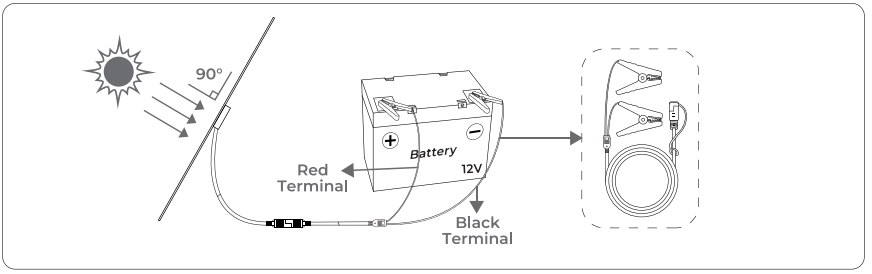


Step 3:
Choose a suitable location to place the solar panel for it to begin functioning properly.

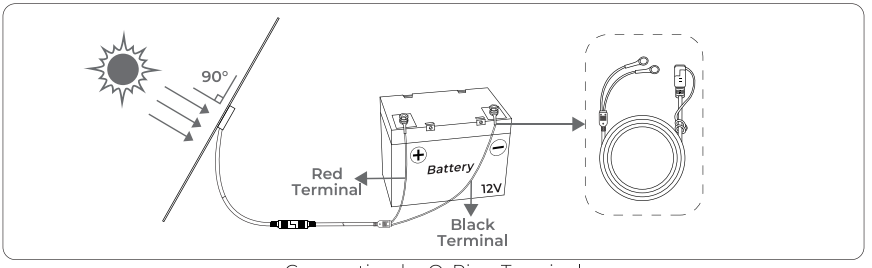


Step 4 :
(If needed) Use self-tapping screws (with expansion anchors) to securely mount the solar panel and bracket at the selected location.

4. Connect the Trickle Maintainer to 12V battery with SAE cable. You can choose different connecting methods, such as O-Ring terminal, alligator clip. The red wire and terminal indicate the positive electrode; please connect them to the positive terminal of the battery. The black wire and terminal indicate the negative electrode; please connect them to the negative terminal of the battery.



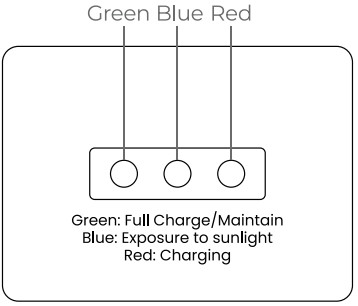
Connecting by Alligator Clip



Connecting by O-Ring Terminal

5. When the solar panel receives sunlight and generates output, the controller indicator light will illuminate.

Light States Indications					
Status	**Blue Light**	**Red Lignt**	**Green Light**	**Connecting Battery**	**Indicates**
1	On	Off	Off	No	Sunlight input detected
2	On	Off	Off	Yes	Battery voltage exceeds 14.7 volts, charging is paused
3	On	On	Off	Yes	Charging in progress
4	On	On, flashing, or off	On	Yes	Stable trickle charging
5	Off	Off	Off	No/Yes	Insufficient sunlight



Light States Indications

【Status 1】Only blue light on before connecting battery, indicates sunlight input detected.

【Status 2】Only blue light on when connecting battery, indicates battery voltage exceeds 14.7 volts.

【Status 3】Blue and red light on, indicates charging in progress.

【Status 4】Blue and green light on, indicates stable trickle charging. In this state, the red light may be on, flashing, or off.

【Status 5】All light off, indicates insufficient sunlight.

Frequently Asked Questions

Q: Is it waterproof?
A: The solar panel of the device is rated IP68 for waterproof performance.

Q: Will there be overcharging issues with prolonged solar charging?
A: Please do not worry that such actions will damage your battery, as this product is equipped with an intelligent controller to prevent short circuits and overcurrent.

Q: Why is my battery charging slowly or not charging?
A: 1. Please check the environment and weather. Electricity generation may be reduced or disrupted during cloudy or rainy conditions.
2. Confirm that the solar panel is oriented towards direct sunlight. Adjust its position to ensure sufficient sunlight exposure on the surface.
3. Please check if the output cable is properly connecting or if there are any defects or loose connections. Try reconnecting the output cable.
4. Please inspect the surface of the solar panel for any obstructions. Remove any obstacles if present.

Q: What's the difference between the nominal output power of the solar panel and the actual charging power?

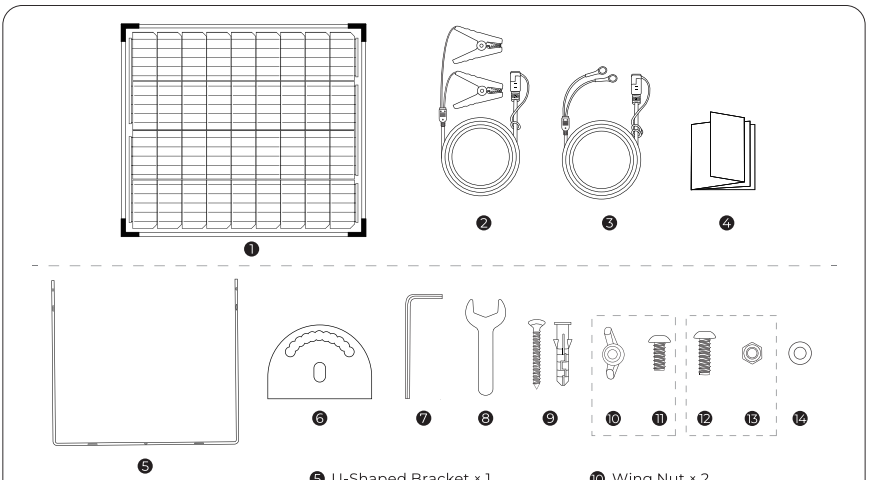
A: 1. The nominal output power is measured under STC (Standard Test Conditions), which involve a surface temperature of 25 °C, air mass of 1.5, and solar intensity of 1000W/m² — a globally recognized standard for ground solar panel testing. This is an idealized testing environment and may significantly differ from actual usage conditions.

2. Nominal output power is directly proportional to the power and quantity of solar cells used in the solar panel. Therefore, different models of solar panels may have different nominal output powers, and there is no direct one-to-one relationship with actual charging power.

3. Actual charging power is influenced by multiple factors, sunlight intensity, the orientation and angle of the solar panel, environmental temperature, air mass, charging protocols, and the maximum charging power supported by the connected devices.

In summary, nominal output power represents the theoretical maximum output of the solar panel under ideal conditions, as measured in the standardized STC environment. Actual charging power, on the other hand, is influenced by various practical factors and may be lower than the nominal output power.

Packing List



❶ Intelligent Solar Battery Trickle Maintainer × 1
❷ Alligator Clip Cable × 1
❸ O-Ring Terminal Cable × 1
❹ User Manual × 1
❺ U-Shaped Bracket × 1
❻ Angle Adjustment Plate × 2
❼ Hex Key × 1
❽ Wrench × 1
❾ Self-tapping Screw (With Expansion Anchors) × 3
❿ Wing Nut × 2
⓫ Angle Fixing Screw (1.5cm) × 2
⓬ Bracket Mounting Screw (1.8cm) × 2
⓭ Nut × 2
⓮ Anti-slip Washer × 4

Warranty Policy

We provide a 1-year warranty service for this product. Within one year from the date of purchase, if your solar panel experiences faults under normal usage, you can apply for warranty with your purchase receipt.

The following situations are not covered by the warranty:

1. Cosmetic flaws are caused during use.
2. Product malfunctions resulting from self-disassembly, repairs, or human-induced causes.
3. Damages caused by uncontrollable factors such as natural disasters, thunderstorms, accidents, and the like.

Warranty Application Process:

1. Please contact our customer service team, providing the purchase receipt and a detailed description of the issue.
2. Our customer service team will assist you in submitting the necessary information and documents.
3. After confirmation, we will provide you with an appropriate warranty solution.

If you have any questions or need assistance, please feel free to reach out to us via the following email: ***callsun-service@outlook.com***

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