Solar Battery Charger & Maintainer
User Manual



SUN ENERGISE

SOLAR BATTERY CHARGER

Built in MPPT Charge Controller

SE-5W

Please read all of the installation instructions carefully before installing the product. Improper installation will void manufacturer's warranty. The installation instructions are written as guidelines to assist in installing the system. Please contact us with the email if you are not comfortable installing the product. Prior to using and installing the solar battery charger, please read the safety information provided in this user manual. Be sure to use the product as outlined in this user manual. Altercation or modifications carried out without appropriate authorization may invalidate the user's right to operate the equipment.

WARNING: Failure to read and follow these warnings and instructions may result in property damage , so pls pay close attention and exhibit the utmost care.

As we all know, batteries naturally drain power and if allowed to go flat, may never regain their full power. This product is a solar powered battery maintainer and charger for 12V batteries and helps manage battery drain in all season. The solar charger converts light energy from the sun into 12 volt DC electricity which is then transported to the rechargeable batteries through lead wire and connector of choice, replace the self-discharge of a battery in storage, so that the battery doesn't "go dead". It Can be used for cars, 4WD's, trucks, motorcycle, marine, boats, farm equipment, gate opener or any application where a 12v battery is used.

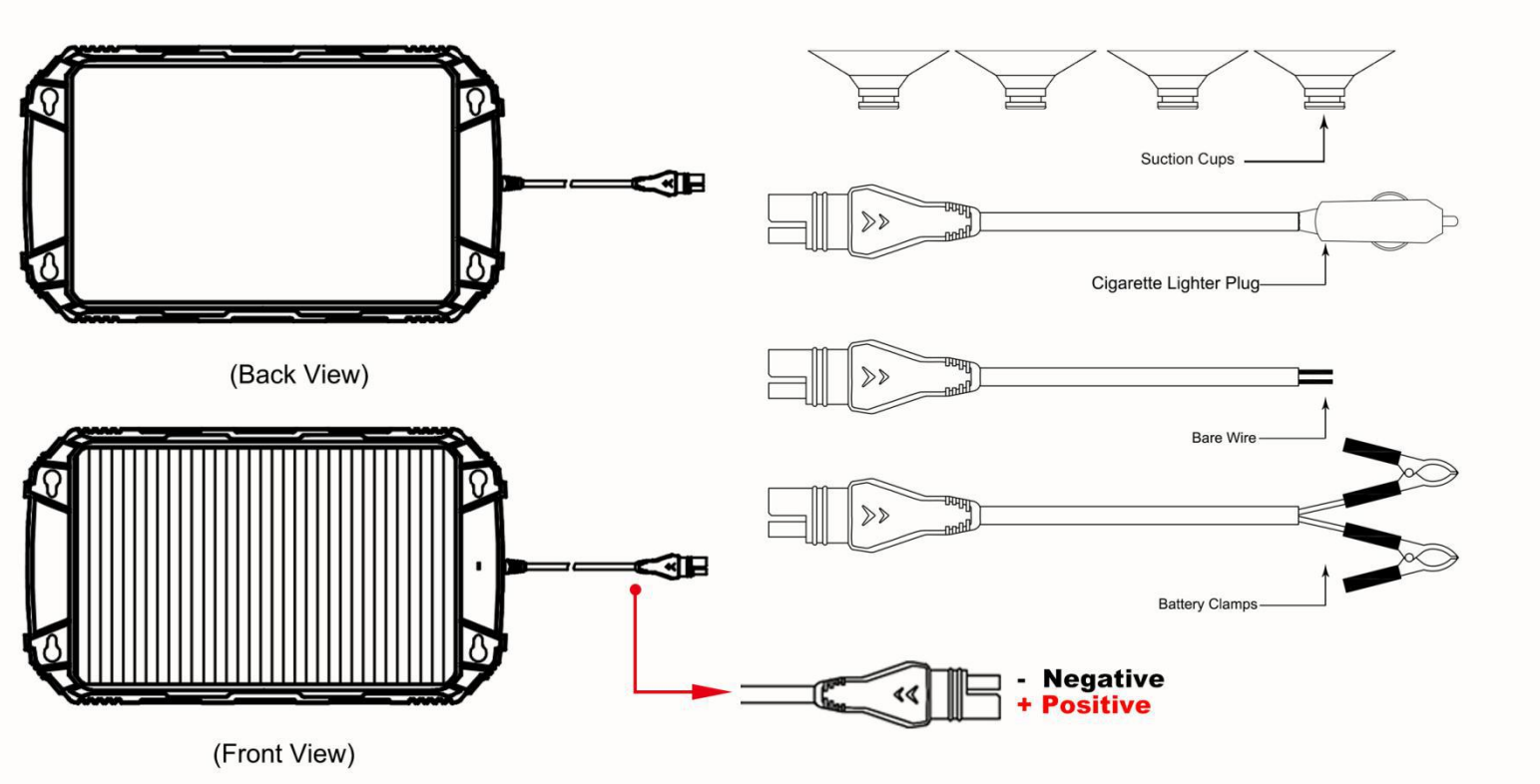
The high efficient solar panel allows to absorb a wider spectrum of the sun light, as long as there is sufficient sunlight available, the charger will generate an electrical current to charge battery. The solar charger is built with MPPT(Max Power Point Tracker) technology to intelligently manage the charging and fully protect your battery. The MPPT technology help to generate 20%-30% more power than the traditional PWM technology. And the indicator help to better understanding the charging statue in all days.

Main Features:

- High efficiency amorphous solar cells, work great in all days ;
- Built in innovative MPPT technology with high tracking efficiency up to 95%, 20%-30% more than traditional PWM,
- Smart three-stage charging algorithm is improved to better charge and maintain battery;
- LED work status indicator, battery power indicator, error warning indicator, the status is clear;
- IP 65 waterproof design to prevent components from oxidizing into water, no worry to place it outside in all seasons;
- Full protections-over charge, over discharge, reverse charge and short circuit protection to your battery.
- Plug & play SAE connector, easy to connect and disconnect.
- Durable ABS frame and tempered glass, well built for years use.

Pls ensure that you fully read the instruction before installing the product, and retain them for future reference.

Connect:



How to use it:
This product is designed to charge or maintain 12v battery in motorcycles, cars, caravans and boats, etc.(If you wanna charge 2 6 volt batteries at same time, make sure they are connected in series; for 12V batteries, make sure they are in parallel; if you are not familiar with the series or parallel set up, contact us!)

Step-1. Face the front side of the solar panel to the sun, make sure there is no shadow cast on the solar panel. Place the long side of the solar panel at the south to north direction.

Step-2. Tilt the solar panel at a suitable angle. The right angle should be same as your local latitude.

Step-3. If permanent installation is required, use the four suction cups . The suction cups can be used on clean surface like glass, insert the cups into the hole of solar charger, push the solar charger to the glass surface until air out and the solar charger is secure.

Step-4. This solar battery charger comes with three different cable kits listed as above. Choose the right one according to your applications. When using battery clamp cable, please make sure you connect to the correct battery terminals. Please note that the black lead indicates negative (-) and the red lead indicates positive (+). When using the cigarette lighter plug, push into the female cigarette socket, and make sure that both ends are secure and aligned correctly.

Note: In some makes of vehicle, the cigarette lighter may not operate when the ignition is turned off.

Status Indication

	Light Color	The content status	Indicator Flash Frequency	Function
LED Indicator	Green	Slow Flash	1Hz	Sunshine is effective(Not Active yet)
		Off	/	No output
	Red	Slow Flash	1-2Hz (Trickle & Float 1Hz, Bulk 2Hz)	Working to charge battery(Activated)
	Green	Always Bright	/	Battery is fully charged
	Red	Always Bright	/	Errors-Reversed connect/short circuit

Warm Tips:

1. When use other band SAE cables to the solar charger, beware of the polarity might be reversed.
2. The performance will be dramatically reduced if there is any shadow or cloudy days, make sure the solar charger get max sun exposure in whole day.

Technical Parameters

Technical Parameters	
Rated Power Output	5W
Power Tolerance	±5%
Operating Power Voltage	18V
Operating Power Current	0.27A
Open Circuit Voltage(Voc)	21.6V
Short Circuit Current(Isc)	0.33A
Trickle Charging Current	0.2A
Floating Charging Voltage	13.8V
Overcharge Protection Voltage	14.4V
Current Temperature Coefficient	0.1 %/° C
Voltage Temperature Coefficient	-0.37 %/° C
Power Temperature Coefficient	-0.45 %/° C
Operating Temperature	-40℃- 85℃
Max.Snow/Wind load	2400 Pa
Cable Diameter/Length	18AWG/3m
Waterproof Grade	IP65
Measurements	**mm

Package List

1 X 5W Amorphous solar charger
1 X Battery Clamp Cable
1 X Cigarette Lighter Cable
1 X Bare Wire Cable
4 X Suction Cups
1 X User Manual

Note:

•The parameters are tested under International Stander Test Condition(STC: Temperature: 25C, Irradiance: 1000 W/m2, Air mass 1.5 (AM1.5))
•The main factors affect the performance of the solar charger are Temperature, Sunlight strength, and Atmosphere in your real life.
•It is designed for 12V battery, do not use it on 6V, 24V or 36V battery.

How to Test (Important)

Unlike regular solar panel, the solar charger was built-in intelligent MPPT charge controller chip and improved 3-stages charging algorithm, **there is no way to test any output including current or voltage when it is inactive!!!** However, you can add multimeter in line to test charge current while the solar charger is working to charge battery (LED Blinks Red), like the way to test electrical charger.

Step-1 Set Multimeter

Set the multimeter to DC 10A test mode, plug black multimeter lead to the port labeled "COM" and red lead to the port labeled "10A" or "20A", the fuse might be blow if choosing "mA or uA" port, then rotary switch to "DC 10A or 20A" position, see Img-a. If you are not familiar with the configuration, tell us your multimeter brand and model.

Step-2 Connect solar charger

Connect the solar charger to battery terminals with included clamp , red is positive and black is negative. The solar charger will be activated to work if it detects the battery, and the LED indicator will starts to blink red immediately. If the LED indicator is solid red, reverse the cables to battery terminals. If the LED indicator keeps blinking green, it means the solar charger failed to detects the battery, contact our support team.

Step-3 Add multimeter in line

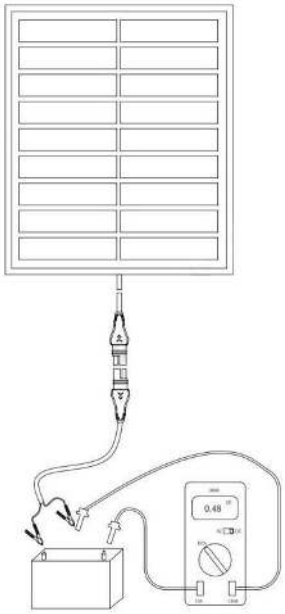
Disconnect one of solar charger clamps from battery terminal, attach one of multimeter probe to the clamp, and another probe to the battery terminal, see the Img-b. Once completing setting, check if the LED indicator of solar charger blink red? If yes, the multimeter will display the charge current; otherwise, the setting must got wrong or the multimeter fuse was blow.

Step-4 Adjustable the solar charger

Make sure no shade on the solar charger, adjust the angle of the solar charger to sunshine, the charge current reading will bounce.



Img.a



Img.b

Warranty:

Thank you for purchasing the solar battery charger , should you experience any defects due to the manufacture of this product, we will provide you with extended 12 months warranty. You are entitled to a replacement or refund for a major failure. If you have any question, feel free to contact us by email **support@sunenergise.com**, we will get back to you within 12H and MAKE IT RIGHT!!

If you wanna to be an partner/distributor, Pls sent us email to **sales@sunenergise.co**m, our team will get back to you.

We provide lifetime technical supports to our customers, so for any technical problem, just sent email to:
technical@sunenergise.com

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SUN ENERGISE TEAM