Solar Battery Charger & Maintainer
User Manual



SUN ENERGISE

SOLAR BATTERY CHARGER

Built in MPPT Charge Controller

SE-M-10W

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.

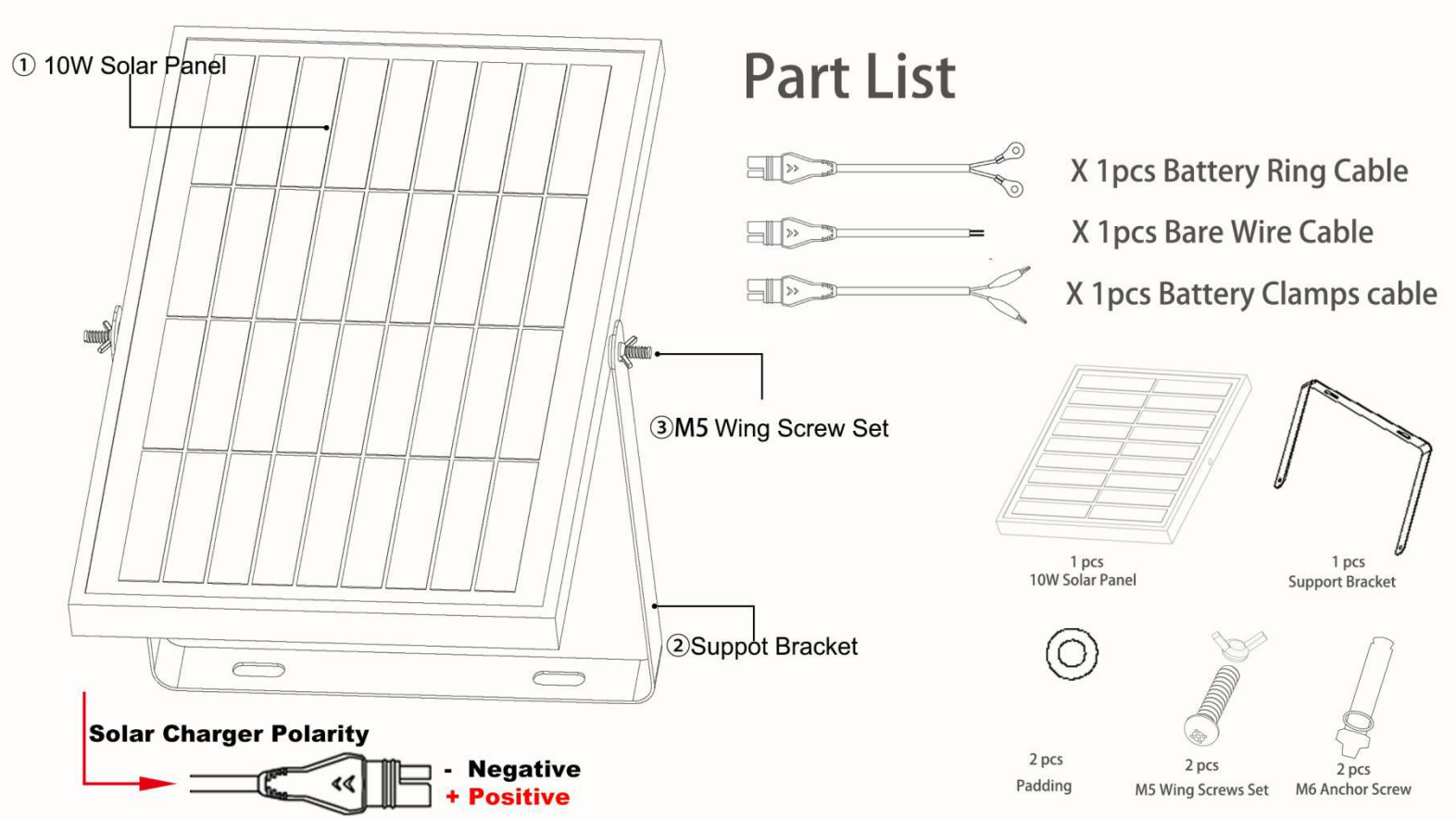
The high efficient solar panel allows to absorb a wider spectrum of the sun light, as long as there is sufficient sunlight available, the charger will generate an electrical current to charge battery. The solar charger is built with MPPT(Max Power Point Tracker) technology to intelligently manage the 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 mono crystalline solar cells, work great in all days ;
- Built in innovative MPPT technology with high tracking efficiency up to 90%, 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.
- Adjustable angle design to make solar panel get maximum sun exposure and generate more power.
- Durable aluminium frame and tempered glass, well built for years use.

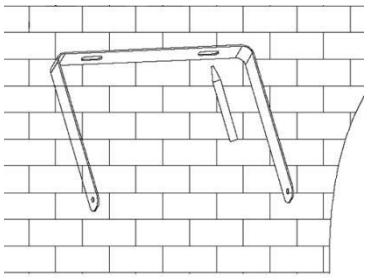
Pls ensure that you fully read the instruction before installing the product, and retain them for future reference.

Connect:

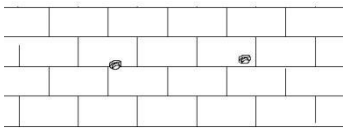


HOW TO INSTALL:

Step1-Use a pencil or pen to mark the holes on the mount surface, and drill the holes in the marked location. The location should allow the solar panel to be protected from accidental damages, sturdy enough to support the weight of solar panel and mounting brackets. Make sure that the holes are sized appropriately to avoid loose screws. Insert the anchor screws into the holes,fix and tighten the screws.

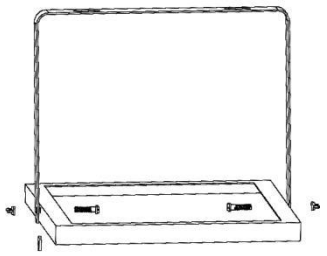


IMG-1



IMG-2

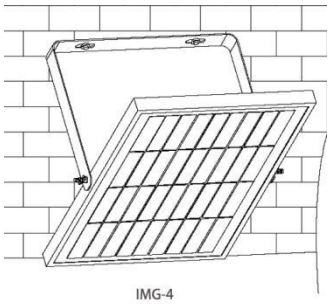
Step2-Attach the support bracket to the solar panel frame, make sure the hole match each other, insert the M5 male screw from inside solar panel to brackets, secure them with M5 female screw, the padding should be added between the solar panel and screw to increase tightness.



IMG-3

Step3-Attach the solar panel and bracket to the surface, secure them with the anchor screws. Make sure the support bracket and anchor screws are 100% tightly secured.

Step4-Adjust the solar panel to desired direction, fasten the solar panel with M5 female screws.



IMG-4

Step5-This solar battery charger comes with three different cable kits as listed above. Choose the right one according to your applications, and attach to battery terminals. 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 use other band SAE cables or multiple SAE cables to the solar charger, beware of the polarity might got reversed!!!

Status Indication

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

Note: The performance will be dramatically reduced if there is any shade on solar panel or cloudy day, make sure the solar charger get max sunshine exposure.

Technical Parameters:

Technical Parameters	
Rated Power Output	10W
Power Tolerance	±5%
Operating Power Voltage	18V
Operating Power Current	0.56A
Open Circuit Voltage(Voc)	21.6V
Short Circuit Current(Isc)	0.59A
Trickle Charging Current	0.2A
Floating Charging Voltage	13V
Overcharge Protection Voltage	14.4V
Current Temperature Coefficient	0.05 %/° 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
Solar Panel Measurements	235*350*17mm

Package List:

1 X 10W Mono solar charger
1 X Battery Clamp Cable
1 X Battery Rings Cable
1 X Bare Wire Cable
1 X Support Bracket; 2 X M5 Wing Screw Sets; 2 X Rubber Padding; 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

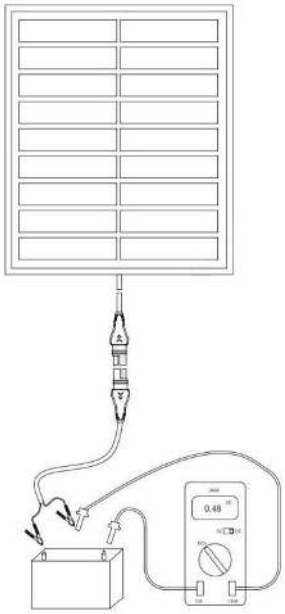
Disconnect one of solar charger clamps from battery terminal, attach one of multimeter probe to the clamp, and another probe to the battery terminal, see the Img-b. Once completing setting, check if the LED indicator of solar charger blink red? If yes, the multimeter will display the charge current;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

www.sunenergise.com
SUN ENERGISE TEAM