

10A 12V MPPT Solar Charge Controller User Manual



SOLAR CHARGE CONTROLLER

SS-10A-MPPT22

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 via email if you are not comfortable installing the product. Prior to using and installing, please read the safety information provided in this user manual. Be sure to use the product as outlined in this user manual. Alterations or modifications carried out without appropriate authorization may invalidate the manufacturer's warranty.

SS SOLAR

1.0 Introduction

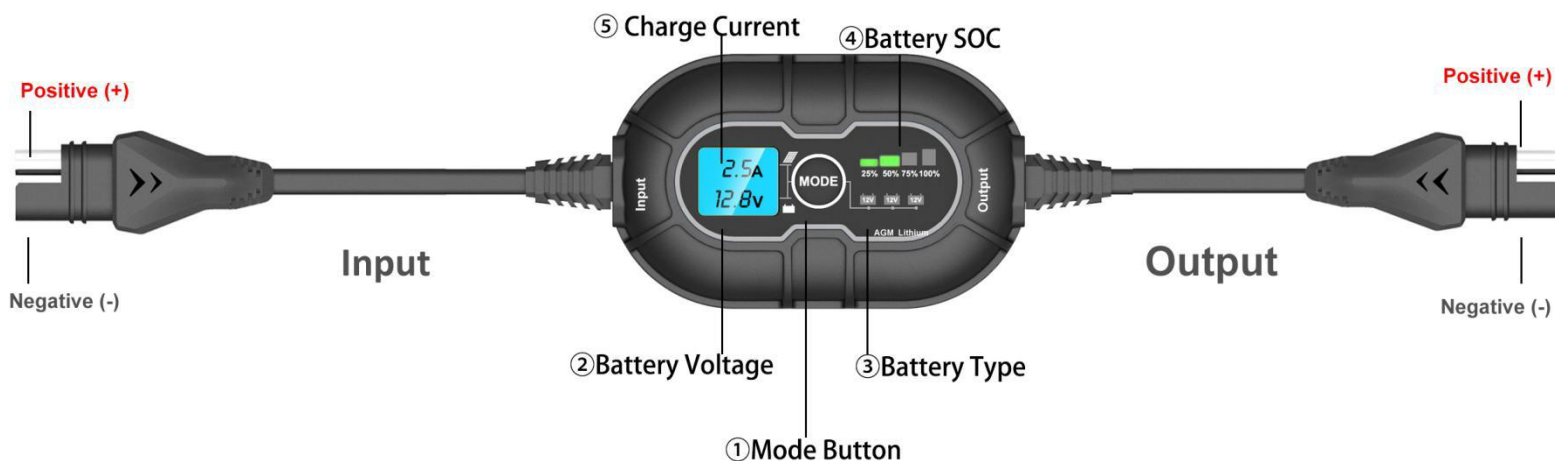
This manual provides safety and installation instructions for the solar charge controller. SS Solar assumes no responsibility for loss, damage or expense resulting from improper installation, handling, or use.

2.0 Safety Precautions

Before installing this product, read all safety instructions in this document.

- All installations must be performed in compliance with any applicable local codes.
- The batteries must be of the same type, make and age if you connect several batteries in parallel or series.
- Avoid exposing solar panel to partial sunlight or shadows, partial sunlight can cause hot spots on the solar panel.
- Ensure input voltage does not exceed 30 VDC to prevent permanent damage.
- The charge controller is powered by sunshine, minimum voltage for the solar panel is 15V.
- Designed for 12V batteries, do not use it for 6V or 24V batteries. (two 6V batteries can be used if connected in series; multiple 12V batteries can be used if connected in parallel)
- Do not attempt to recharge non-rechargeable batteries, converse with your battery dealer for more info before usage.
- Ensure the polarity is correct when connecting the charge controller to battery and solar panel.

3.0 Features



①**Mode button:** Push to cycle battery types

②**Battery Voltage:** Indicates battery voltage

③**Battery Type:** Illuminates solid Green when battery is selected

④**Battery SOC:** Indicates the connected battery(s) state-of-charge.

⑤**Charge Current:** Indicates solar charge current.

Input & Output: male SAE plug is positive(+) and female SAE plug is negative (-)

4.0 How to Install

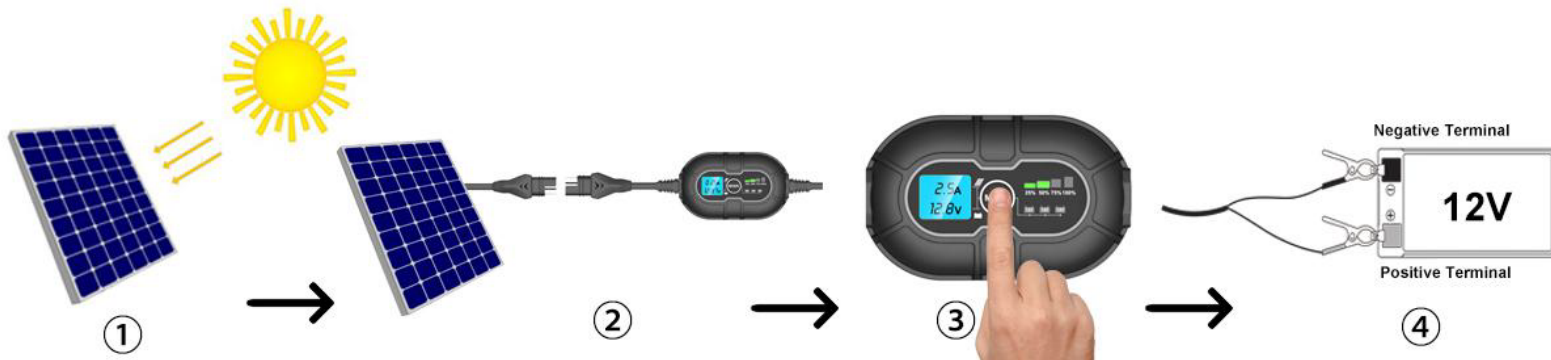
The charge controller has 3 modes: 12V, 12V AGM, 12V Lithium, It is important to understand the differences and purpose of each charge mode. Always check with battery manufacturer to confirm the right charge mode for your specific battery. Do not operate the charger until you confirm the appropriate charge mode for your battery. Below is a brief description of the charge mode:

Mode	Explanation
12V	For charging 12-volt Wet Cell, Gel Cell, Enhanced Flooded, Maintenance-Free and Calcium batteries. When selected, the 12V LED will illuminate
12V AGM	For charging 12-volt AGM batteries. When selected, the 12V AGM LED will illuminate.
12V Lithium	For charging 12-volt lithium-ion batteries, including lithium iron phosphate. When selected, the 12V Lithium LED will illuminate.

Caution*****Use **12V Lithium** mode with extreme care, this mode should only be used with 12 volt lithium batteries that have a built-in battery management system(BMS). Lithium-ion batteries are made and constructed in different ways and some may or may not contain a battery management system(BMS). Consult the lithium battery manufacturer before charging. Some lithium-ion battery may be unstable and unsuitable for charging.

4.1 Connecting to Solar Panel and Battery.

Do not connect the charge controller until all other connections are made. Identify the correct polarity of the solar panel and battery terminals. The male SAE connector is positive and female SAE connector is negative, the positive battery terminal is typically marked by these letters or symbol (POS,P,+). The negative battery terminal is typically marked by these letters or symbol (NEG,N,-). Do not make any connections to the carburetor, fuel lines, or thin, sheet metal parts.



- 1) Expose the solar panel to full sun without shade.
- 2) Connect solar panel to charge controller, the LED screen will illuminate and display selected battery mode voltage.
2-1) If the LED screen and indicators don't illuminate, the polarity of your solar panel probably doesn't match charge controller.
(Please note: This MPPT charge controller has standard polarity, you need a polarity apdater/reverser if your solar panel polarity doesn't match the charge controller.)
- 3) Press mode button to toggle to the appropriate battery types, the mode LED will illuminate the selected charge mode.
- 4) Connect the charge controller to battery terminals, Wait 5-10s, the charge controller will enter charging mode once it recognizes the battery. The SOC,battery voltage, charge current will illuminate indicating the charging process has started.

4.2 Understanding Charge LEDs.

LED	SOC	Explanation
	25% Green LED	The 25% Charge LED will slowly pulse on/off when the battery is less than 25% fully charged. When the battery is 25% charged, the Green Charge LED will be solid.
	50% Green LED	The 50% Charge LED will slowly pulse on/off when the battery is less than 50% fully charged. When the battery is 50% charged, the Green Charge LED will be solid.
	75% Green LED	The 75% Charge LED will slowly pulse on/off when the battery is less than 75% fully charged. When the battery is 75% charged, the Green Charge LED will be solid.
	100% Green LED	Pulsing Green LED-Bulk charge complete, optimizing battery for extended life. Solid Green LED - When the battery is 100% charged, the Charge LED will be solid green.
	Maintenance Green LED	After the battery is fully charged, the charger will continue monitoring the battery, and provide ongoing maintenance and optimization. The 100% Charge LED will pulse on/off slowly during these cycles.The charger can be left connected to the battery indenfitely.

5.0 Technical Parameters

Electrical Parameter	Battery Parameters
Rated Current	10A
Battery system Voltage	12V
PV Input Voltage	15V-30V
Starting Voltage	15V
Max PV Input	120W
Electronics Protections	Reversed battery polarity, Reverse PV polarity, PV over voltage, battery over-voltage, PV

	over-current, Battery over-current.		
Battery Type	Wet Cell, Gel Cell, Flooded, Maintenance-free, AGM, Lithium-ion, Lithium Iron		
Controller Terminals	1.5mm ² /16AWG		
SOC	25%-50%-75%-100%		
Standby Current	0mA(No discharge from battery)		
Operation Temperature	-40 °C-80°C		
Temp Compensation	-3mV/°C/2V		
Storage Humidity	10%-90%, No condensation		
Dimension	87*54*26mm		
Protection Level	IP65		
Weight	0.35kg		
Electrical Parameters	Battery Parameters		
Battery types	Wet, Gel Cell/Flooded/ Maintenance-free	AGM	Lithium
Boost Charge Voltage	14.4V	14.6V	14.6V
Float Charge Voltage	13.8V	13.8V	/
Boost Charge Recovery	13.0V	13.0V	13.0V
Boost Duration	2 Hours	2 Hours	2 Hours

6.0 Status Troubleshooting

Description	Explanation	Troubleshooting
LED screen doesn't illuminate	sunshine is not effective	The charge controller is powered by sunshine, if the sunlight is weak, the charge controller will not light up. Simply expose the solar panel to FULL SUN, see if the LED screen comes on
	No solar Input	Check solar panel output voltage, the voltage of the solar panel in full sun should be 20V+.
		Check if the polarity is correct, a polarity adapter is required if the polarity of solar panel doesn't match charge controller.
Input and output wrongly connected	Connect solar panel to charge controller thru INPUT instead of output, led screen will not illuminate when wrongly connected.	
LED screen illuminates, no charge current and battery percentage	No battery is recognized	Check if the polarity is correct when connecting charge controller to battery terminals
		Check if the fuse is blown or not
		Check if the battery connection is loose
LED screen turn on/off frequently	sunshine is not stable	check if the solar panel is receiving enough sunlight

7.0 Warranty

Thank you for purchasing this charge controller, should you experience any defect due to the manufacturer of the product, you are entitled to get a replacement or refund. If you have any questions, feel free to send us an email at SolarSupport@SSCG1.com, we will get back to you within 24h.

www.SSCG1.com
SS Solar Team