Shine™ series
Solar charge controller
6A/10A

User Manual

Solar charge controller

Dear Clients,

Thanks for selecting the **Shine**™ series solar controller. Please take the time to read this user manual, this will help you to make full use of many advantages the controller can provide your solar system.

This manual gives important recommendations for installing and using and so on. Read it carefully in your own interest please.

1.Description of Function

Shine series solar controller is specifically designed to meet the needs of solar home systems. It provides the best cost-effective.
It comes with a number of outstanding features, such as:

- Low cost and high reliability design
- 12V/24V automatic recognition
- Clear readable display of charge/discharge and error description
- Temperature compensation
- Four stage charge way: fast, boost, equalization, float
- Full automatic electronic protect function

2.Safety instructions and waiver of liability

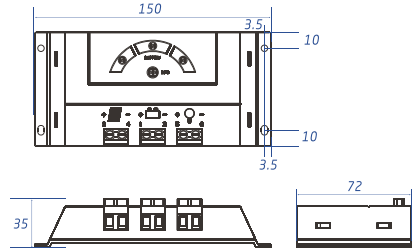
2.1 Safety

①The solar charge controller may only be used in PV systems in accordance with this user manual and the specifications of other modules manufacturers. No energy source other than a solar generator may be connected to the solar charge controller.
②Batteries store a large amount of energy, never short circuit a battery under all circumstances. We strongly recommend connecting a fuse directly to the battery to protect any short circuit at the battery wiring.
③Batteries can produce flammable gases. Avoid making sparks, using fire or any naked flame. Make sure that the battery room is ventilated.
④Avoid touching or short circuiting wires or terminals. Be aware that the voltages on special terminals or wires can be as much as twice the battery voltage. Use isolated tools, stand on dry ground, and keep your hands dry.
⑤Keep children away from batteries and the charge controller.

2.2 Liability Exclusion

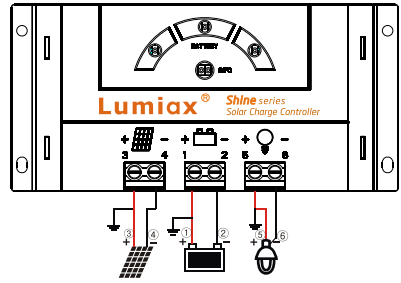
The manufacturer shall not be liable for damages, especially on the battery, caused by use other than as intended or as mentioned in this manual or if the recommendations of the battery manufacturer are neglected. The manufacturer shall not be liable if there has been service or repair carried out by any unauthorized person, unusual use, wrong installation, or bad system design.

3、Dimensions



4、Installation

The following diagrams provide an overview of the connections and the proper order.



- To avoid any voltage on the wires, first connect the wire to the controller, then to the battery, panel or load.
- Make sure the wire length between battery and controller is as short as possible.
- Recommended minimum wire size: Shine06: 1.5 mm²; Shine10: 2.5mm².
- Be aware that the positive terminal of Shine are connected together and therefore have the same electrical potential. If any grounding is required, always do this on the positive wires.
- Connecting capacitive load may trigger short circuit protection.

Remark: If the device is used in a vehicle which has the battery negative on the chassis, loads connected to the controller must not have an electric connection to the car body, otherwise the Low Voltage disconnect and electronic fuse functions of the controller are short circuited.

5.Starting up the controller

5.1Self Test

As soon as the controller is supplied with battery, it starts a self test routine. Then the display changes to normal operation.

5.2System Voltage

The controller adjusts itself automatically to 12V or 24V system voltage. As soon as the battery voltage at the time of start-up is within 10V to 16V, the controller implies a 12V system, else if the battery voltage is within 20V to 30V, the controller implies a 24V system.

If the battery voltage is not within the normal operating rang(ca.10 to 16V or ca.20 to 30V)at start-up, a status display according to the section **7.2 Error description** occur.

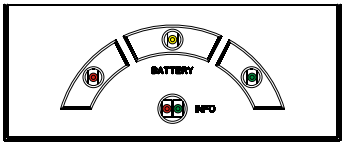
5.3Battery Type

The Shine series controller applies to Liquid and Gel battery, the factory default setting is suitable for liquid battery.

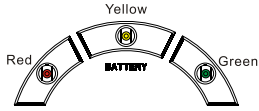
6.Display Functions

The controller is equipped with 5 LEDS.

In normal operation, the controller shows charge or discharge status, battery capacity and load status.



6.1 Battery Capacity display :



Red On, Energy of Battery <25%
Yellow On, Energy of Battery 25~75%
Green On, Energy of Battery >75%

The percentage corresponds to the available energy until low voltage disconnect in relation to a fully charged battery.

6.2 Charge & Error display (INFO) :

INFO Green On, is charging, else is discharge ;
INFO Red On, is Error Status, according to the section **7.2 Error description.**

7.Safety Features and Error description

7.1 Safety features

	Solar terminal	Battery terminal	Load terminal
Reverse polarity	Protected *1	Protected *1	Protected *2
Short circuit	Protected	Protected *3	Switches off immediately
Over current	——	——	Switches off with delay
Reverse Current	Protected	——	——
Over voltage	Max.55V *4	Max. 40V	——
Under voltage	——	——	Switches off
Over temp.	switches off the load if the temperature reaches the set value.		

*1 Controller can not protect itself in a 24V system when polarity of battery or solar is reversed.
*2 Controller can protect itself, but loads might be damaged.
*3 Battery must be protected by fuse, or battery will be permanently damaged.
*4 The solar panel voltage should not exceed this limit for a long time as voltage protection is done by a varistor.

Warning: The combination of different error conditions may cause damage to the controller. Always remove the error before you continue connecting the controller.

7.2 Error description

Error	Display	Reason	Remedy
Loads are not supplied	Red LED is on	Battery is low	Load will reconnect as soon as battery is recharged
	Red LED is flashing	Over current/ short circuit of loads	Switch off all loads. Remove short circuit.
Battery is empty after a short time	Red LED is on	Battery has low capacity	Change battery
Battery is not being charged during the day	Green LED is off	Solar array faulty or wrong polarity	Remove faulty connection/ reverse polarity
Over voltage protection	Red(INFO) and Green(Bat.) LED are lighted	Battery voltage too high (>15.5V/31V)	Check if other sources overcharge the battery. If not, controller is damaged.
		Battery wires or battery fuse damaged, battery has high resistance	Check battery wires, fuse and battery.
Does not recognize the system voltage	All LED Lighted	The battery voltage is not within the normal operating rang at start-up	Charge or discharge the battery to make the voltage within the normal range

8.Low Voltage Disconnect Function

The controller uses state of charge to protect the battery form being deeply discharged, Shine series controller is disconnect at 11.0V/22.0V.

Note:

1. If the controller goes into low voltage protection, it will restore only when the battery being recharged and the voltage reaching the reconnect voltage.
2. Around oblique line value separately on behalf of 12V and 24V system's value.

9.Technical Data

Model	**Shine06**	**Shine10**
System voltage	12V/24V automatic recognition	
Max solar current or load current	6A	10A
Fast voltage	14.0V/28.0V (25℃)	
Boost voltage	14.5V/29.0V (25℃)	
Equalization voltage	14.8V/29.6V (25℃) (Liquid)	
Float voltage	13.7V/27.4V (25℃)	
Load disconnect voltage	11.0V/22.0V	
Load reconnect voltage	12.5V/25.0V	
Battery type	Liquid, Gel	
Temperature compensation	-4.17mV/K per cell (boost, equalization) , -3.33mV/K per cell (float)	
Max solar voltage	55V	
Max battery voltage	40V	
Over voltage protection	15.5V/ 31.0V	
Dimensions/Weight	150x72x35mm / 130g	
Wire size	06A: 1.5 mm^2; 10A: 2.5mm^2	
Own consumption	4mA	
Ambient temperature	-40℃ ~ +60 ℃	
Degree of protection	IP22	