

# Shine series

## Solar Charge Controller

3A/5A 12V



# User Manual

# Solar charge controller Shine03/05 User Manual

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 especially for solar home system, with better cost-effective.

It comes with a number of outstanding features, such as:

- Low cost and high reliability design
- 12V system voltage
- 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

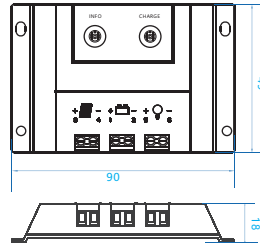
### 2.1 Safety

- ① The 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.
- ② Batteries store a large amount of energy. We strongly recommend connecting a fuse directly to the battery to protect any short circuit at the battery wiring.
- ③ Batteries can produce flammable gases. Avoid making sparks, using fire or any naked flame. Make sure that the battery room is ventilated.
- ④ Avoid 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.
- ⑤ Keep children away from batteries and the charge controller.

### 2.2 Liability Exclusion

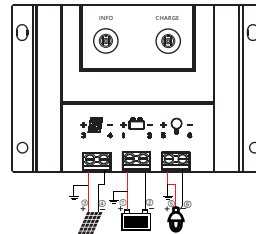
The manufacturer shall not be liable for damages, especially on the battery, caused by use other than as intended or as mentioned in this manual or if the recommendations of the battery manufacturer are neglected. The manufacturer shall not be liable if there has been service or repair carried out by 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: 1.5 mm<sup>2</sup>.
- Be aware that the positive terminal of Sshine 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.

## 5. Starting up the controller

### 5.1 Self Test

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

### 5.2 System Voltage

The controller is 12V 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.

If the battery voltage is not within the normal operating range at start-up, a status display according to the section **Error description** occur.

### 5.3 Battery Type

The controller applies to Liquid battery.

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## 6.LED indications



LED	Status	Function
Green	Slow flash(1s on/1s off)	float charging
	Flash(0.4s/0.4s)	Battery connected, day detected
	Fast flash(0.1s/0.1s)	Equal charging
	On	Battery connected, night detected
Red	Off	No faults detected
	Slow flash(1s on/1s off)	Under voltage
	On	Short circuit Over current Over temp.
Red Green	Off	No battery connected
	Lighted together (1second)	Controller start-up

## 7.Safety Features

	Solar terminal	Battery terminal	Load terminal
Reverse polarity	Protected	Protected	Protected *1
Short circuit	Protected	Protected *2	Switches off immediately
Over current	—	—	Switches off with delay
Reverse Current	Protected	—	—
Over voltage	Max.30V *3	Max. 25V	—
Under voltage	—	—	Switches off
Over temp.	switches off the load if the temperature reaches the set value.		

\*1.Controller can protect itself, but loads might be damaged.

\*2.Battery must be protected by fuse, or battery will be permanently damaged.

\*3.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.**

## 8.Technical Data

Model	Shine03	Shine05
System voltage	12V	
Max solar/Load current	3A	5A
Boost voltage	14.5V (25°C)	
Equalization voltage	14.8V (25°C)	
Float voltage	13.7V (25°C)	
Load disconnect voltage	11.0V	
Load reconnect voltage	12.5V	
Day/Night threshold	5.0V	
Battery type	Liquid	
Temperature compensation	-4.17mV/K per cell (boost, equalization) -3.33mV/K per cell (float)	
Max solar voltage	30V	
Max battery voltage	25V	
Over voltage protection	15.5V	
Dimensions/Weight	90 x49 x18 mm / 36g	
Own consumption	5mA	
Ambient temperature	-40 ~ +60 °C	