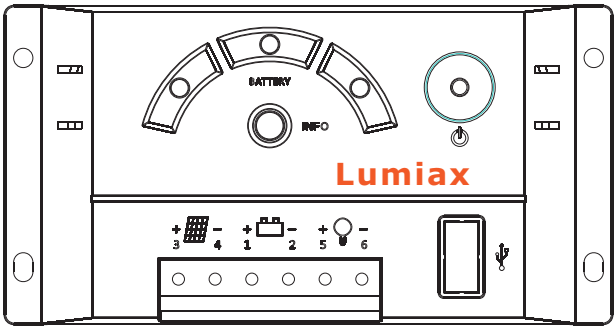
Lumiax
Magic your solar life

Shine™-EU series
Solar charge controller
5A



User Manual

User Manual_Shine-EU series_JA
CE, Rohs, ISO9001:2015
Subject to change without notice!

Solar charge controller

Dear Clients,

Thanks for selecting the **Shine™-E** 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-E 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, suitable for 12V system
- Load output can be controlled by switch
- Work mode optional: system, D2D
- Clear readable display of charge/discharge/error description
- Temperature compensation
- Gel, Liquid battery for selection
- Four stage charge way: fast, boost, equalization, float
- Full automatic electronic protect function
- USB interface

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.

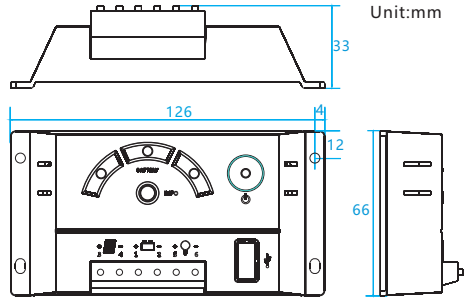
④Avoid touching or short circuiting wires or terminals. Be aware that the voltages on special terminals or wires can be as much as twice the battery voltage. Use isolated tools, stand on dry ground, and keep your hands dry.

⑤Keep children away from batteries and the charge controller.

2.2 Liability Exclusion

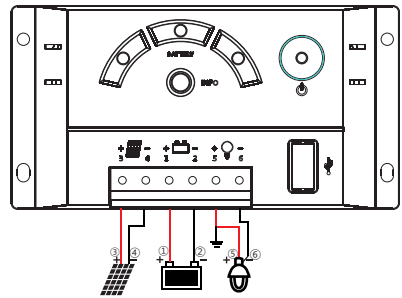
The manufacturer shall not be liable for damages, especially on the battery, caused by use other than as intended or as mentioned in this manual or if the recommendations of the battery manufacturer are neglected. The manufacturer shall not be liable if there has been service or repair carried out by 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: 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

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

As soon as the battery voltage at the time of start-up is within 10V to 15V, the controller works normal else the controller will display the error state.

Please refer to the section **6.2 Error description** for identification of reasons.

5.3Battery Type

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

7.LVD、USB interface

7.1 Low voltage protect

To protect the battery from being deeply discharged, the Shine-E series controller will automatically cut off the load when the battery voltage down to 11.0V.

In D2D mode, if the controller goes into low voltage protection, it will restore only when the battery being recharged and the voltage reaching the reconnect voltage(12.5V).

7.2 USB interface

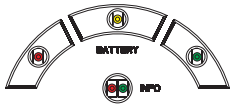
USB interface provides an output voltage 5V 1A of current, for charging mobile phones and other smart devices.

Only when the load is on, USB has an output!

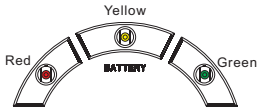
6.Display Functions

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, it is charging, otherwise it is discharging;
INFO Red On, indicating the failure of instructions, see the following **Error description.**

Error	Display	Reason	Remedy
Loads are not supplied	Red LED is on	Battery voltage is low	Load will reconnect as soon as battery is recharged
	Red LED is flashing(1s)	Over current/ short circuit of loads	Switch off all loads. Remove short circuit.
	Red LED is flashing(0.5s)	Over temperature	After temperature reduces, the load opens automatically.
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 on.	Battery voltage too high (>15.5V)	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	INFO red andgreen led are on.	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.Key Function

8.1 Load Switch

In system mode, by pressing the button can control the load output, once press the button, the load output will be changed between on and off.

8.2 Test Function

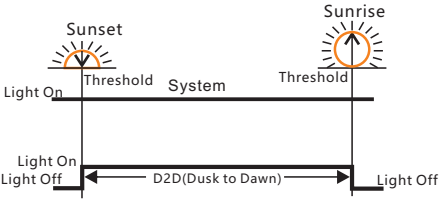
In D2D mode, during daytime the testing function can help the user to verify correct installation or for system trouble shooting.

Short pushing the button will light up the lamp which is connected to the load terminals. The lights will be on in the day for 1 minute intervals. Within 1 minute the lights can be turned off via pushing Button.

8.3Programming Function

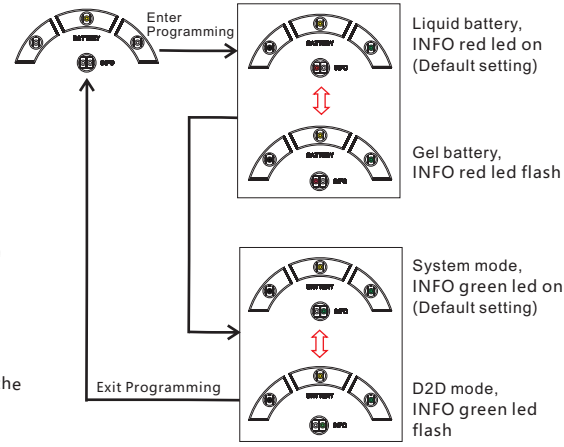
You enter the programming mode with a long push on the button, then the BATTERY Green and Yellow LED will be on, the different states of the INFO led indicator different battery types and work modes. The factory default setting is Liquid battery and System mode.

The programming menu structure is described on the follow.



Programming menu is shown below

Enter programming mode,
BATTERY Green and Yellow LED on



⇔ Short Push (<1s) ⟶ Long Push (>3s)

1. If programming success, INFO red and green led flash at the same time, the new set immediately effective.
2. After entering the programming mode without a graceful exit, the controller automatically exits programming mode after 3min, and the settings are not saved.

9.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.25V *3	Max. 20V	——
Under voltage	——	——	Switches off
Over temp.	switches off the load if the temperature exceeds the set value.		

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

*2 Battery must be protected by fuse, otherwise battery will be 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

10.Technical Data

Model	Shine0512-EU
System voltage	12V
Max solar or load current	5A
Fast voltage	14.0V (25℃)
Boost voltage	14.5V (25℃)
Equalization voltage	14.8V (25℃) (Liquid)
Float voltage	13.7V (25℃)
Load disconnect voltage	11.0V
Load reconnect voltage	12.5V
Work mode	System, D2D(Dusk to Dawn)
Battery type	Liquid, Gel
Temperature compensation	-4.17mV/K per cell (boost, equalization), -3.33mV/K per cell (float)
Max voltage at solar terminals	25V
Max voltage at battery terminals	20V
Over voltage protection	15.5V
Dimensions/Weight	126*66*33mm / 110g
Max. wire size	4mm²
Self consumption	6mA
Ambient temperature	-35℃ ~ +60 ℃
Protection level	IP22
USB interface	5V, 1A