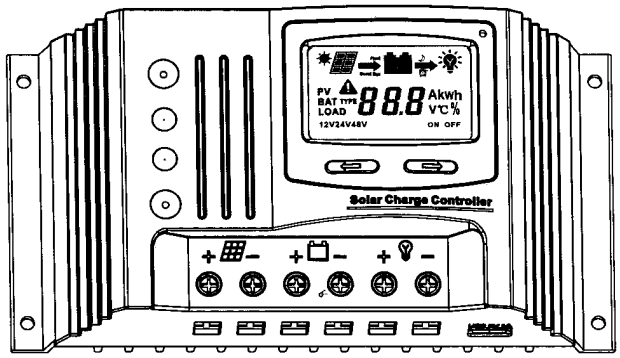
USER'S MANUAL



12V/24V 30A 40A
48V 30A 40A

Dear Users:
Thank you for selecting our product. Please read this manual carefully before you use this product.

This series product base on in series PWM mode, with full digital technology and LCD display, auto run mode with large application range, such as off-grid solar home system, traffic indicator, solar street lights, solar garden lights and so on. The intelligent charging process has been optimized for long battery life and improved system performance.

- 32bits CPU, sampling precision is higher, operation speed is faster
- 12V/24VDC Automatic Identification System Voltage
- 3 stages PWM charging: Bulk, Boost, Float
- Sealed, Gel, Flooded battery selection procedure
- Humanized LCD displaying, dynamic display operation data and working state.
- Built-in operation log, account system working state
- Multi load control mode: Normal mode, Sensor mode, Timer mode
- Temperature Compensation Function and Controller Over Temperature Protection Function
- Fullest digital protection functions: Overcharging, Over-discharging, Overload, Short Circuit, Reverse Connection, Controller Over-Temperature and so on.
- Max 16mm^2 connectors, colorful connector distinguish plus and minus poles.
- 5V 1A USB output

- It is better to install controller in the room. If install the controller outside, please keep the environment dry, avoid direct sunlight
- The controller will be hot in process of working, please keep the environment ventilation, away from flammable.
- The Voc of solar panels is high (especially 24V/48V system, please take care
- The battery had acidic electrolysis, please put on goggles during installation. If you accidentally exposed to electrolysis, please rinse with water.
- The battery has huge power, prohibit any conductor short circuit the positive and negative pole of battery. Suggest to adding a fuse between battery and controller. (Slow motion type, the action current of the fuse should be 1.5 times rated current of controller.)

★ The controller could detect the temperature of environment to adjust the voltage of charging, so that the controller should be closed to battery as near as possible.

★ Recommend system current density of cables less than 3A/mm²

★ Try to use multi strand copper wire in order to connecting with the terminal firmly. Loose power connection and/or corroded wires may result in resistive connections that melt wire insulation, burn surrounding materials or even cause fire.

★ The battery should be full charged each month. Or the battery will be destroyed

■ Controller Fixed

1) The controller should be installed well-ventilated place, avoid direct sunlight, high temperature and do not install in location where water can enter the controller.

2) Please select correct screw to fix the controller on the wall or other platform. Screw M4 or M5, Screw cap diameter less than 10mm.
3) Please reserve enough space between the wall and controller, to allow for cooling and cable connection.
4) The mounting holes distance is 189mm*85mm , diameter of hole is 5mm.
5) Aluminum fins for natural cooling, we strong suggest hanging installation, this is better for air flow cooling effect.

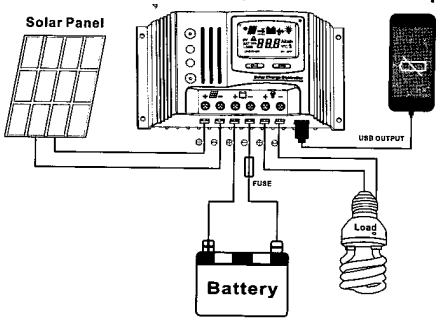
■ Controller Connection

★ All terminals are in tight status after factory, in order to well connected, please loose all terminals at first.

★ The following order of connection please do not free change, the controller have battery voltage auto selection function, or cause system voltage recognition fault.

★ Before connection, please confirm the voltage of system fit for our controller, the open circuit of solar panel and maximum power at the using range of controller.

In order to avoid fault installation, please refer to below procedure



1) As figure, first connected the battery to controller correct poles. In order to avoid short circuit, please screw the cable of battery to the controller in advance, then connected to battery poles secondly. If your connection is correct, the LCD displaying will show battery voltage and other technical data. If LCD no displaying, please check the fault. The length of cable between battery and controller as shorter as possible. Suggest to 30CM -100CM.

- **If short circuit happened on the terminals of controller, it will be result in fire or explode. Please be careful. (We strongly suggest to connecting a fuse at the battery side 1.5time of rated current of controller.)**
- **If the battery reverse connection, the output of controller also same with battery polarity, please do not connect any load with controller at that time, or the load and controller will be destroyed**

2) As figure, connected solar panels with controller correctly, if the connection is successful and sunshine is full, the LCD will show solar panel and an arrow from solar panel to battery will be light.

Warning: The solar panel will generate very high voltage under sunshine, cause injury or destroy controller, especially in 24V system