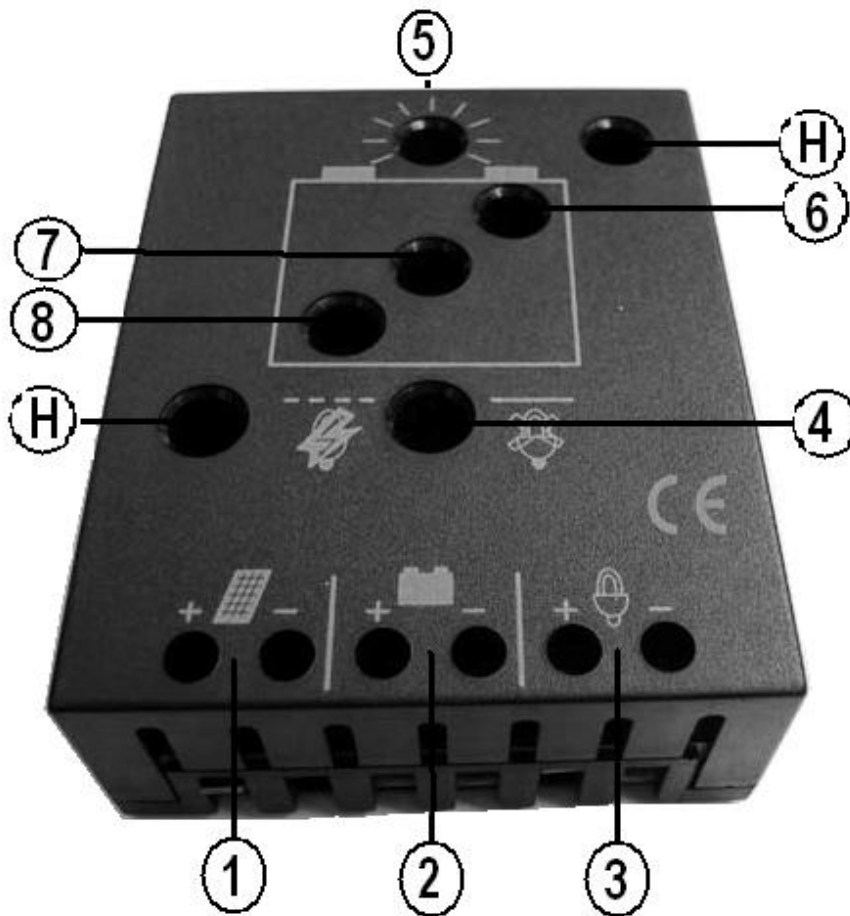


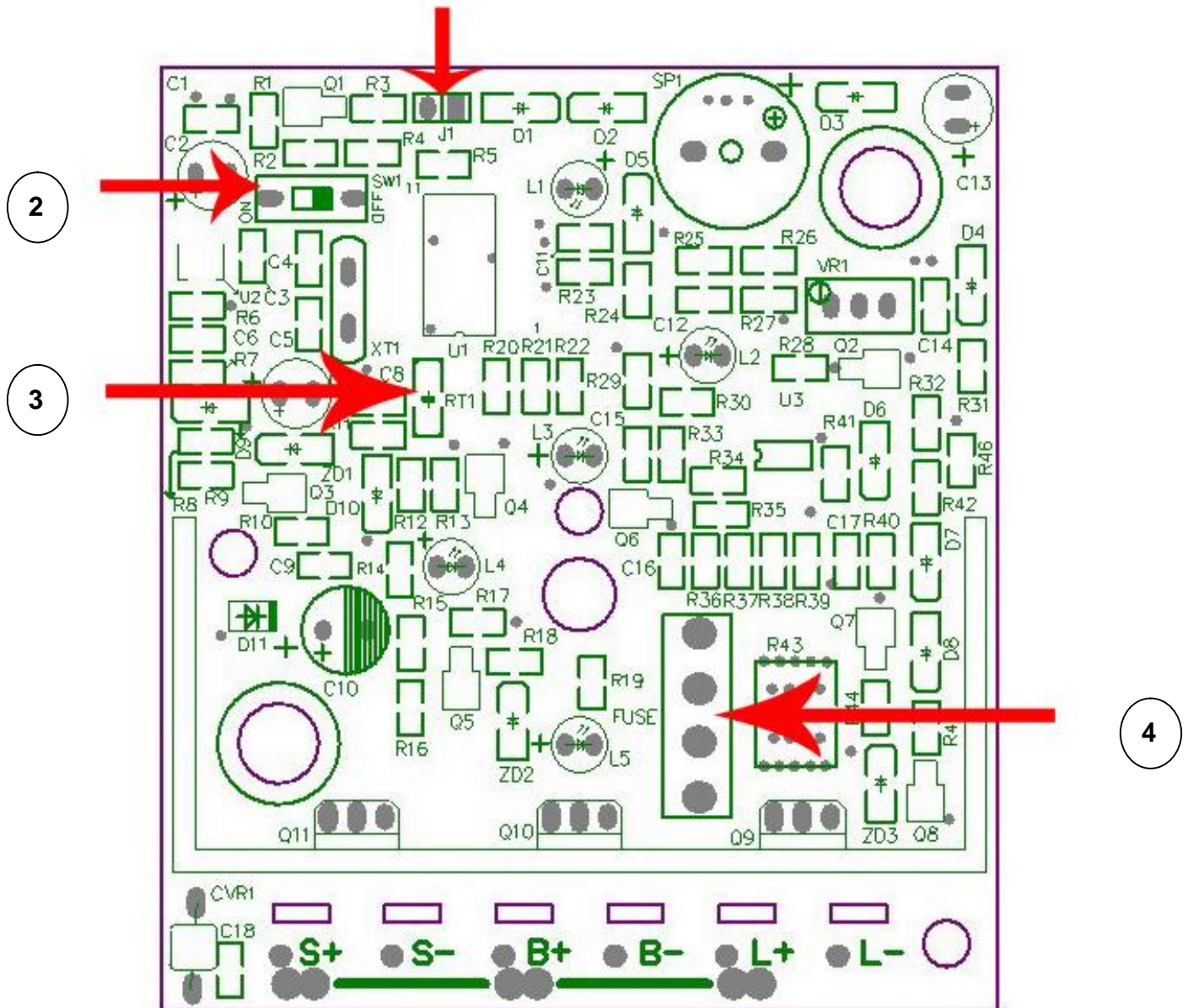
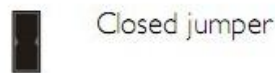
# 5A, 8A,10A,15A,20A,30A solar charge controller Specification

## 1) Solar Charge Controller Case



Hole Nos.	Description
1	Solar Module Terminals> Connect solar modules.
2	Battery Terminals > Connect batteries
3	Load Terminals > Connect loads.
4	Load LED indication: a) RED Light not ON indicates LOAD connected. b) RED Light Blinking shows over load or short circuit c) RED Light constant showing Low voltage cut off
5	Green LED lighting indication CHARGING
<b>6.9.8 Battery capacity status LED indicators:</b>	
6	Top LED light glowing means battery over 75% capacities. If LED blinking then battery over voltage and load shall be cut off to save system. <b>OVER CHARGE Protection</b>
7	Middle LED light glowing means battery 25-75% capacity
8	Bottom LED light glowing means battery 10-25% capacity. If LED Blinking then battery Lower than 10% capacity,
H	Holes for screws for fixing the Solar charge controller to wall or any other place.

## 2) PCB Layout



- a) 1 **Speaker enable Jumper (J1)**
  - a) Closed the jumper (**J1**), speaker will be effected (working)
  - b) Open Jumper(**J1**), Speaker will not be effected (not working).
- b) 2 **Streetlight dark to down function choosing (SW1)**
  - a) Push **SW1** switch to "ON" position, streetlight will be effected (working);
  - b) Push **SW1** switch to "OFF" position, streetlight will not be effected (not working).
- c) 3 **Temperature Sensor RT1**  
Measure ambient temperature and make temperature compensation for charging and discharging.
- d) 4 **Protection Fuse (FUSE)**  
If large current short circuit and Electronics Fuse is not enough and effective to protect all parts, then **FUSE** will be broken to avoid causing large damage.

All 24V system voltage point are double times of 12V battery system, in below specification sheet, we normally take 12V system as example (such as when Controller low voltage cut off load output, if reconnect the load, the battery voltage point should over 12.8V for 12V system or 25.6V for 24V system).

### 3) Solar Charge Controller Starting

#### a) SOLAR charge controller Self-testing

If the controller start to work (the energy could be from battery or solar panel), the controller self-testing program will effect in the first time, after that controller will goes into normal working.

#### b) System voltage

controller will automatically identify 12V or 24V system voltage when controller firstly starting.

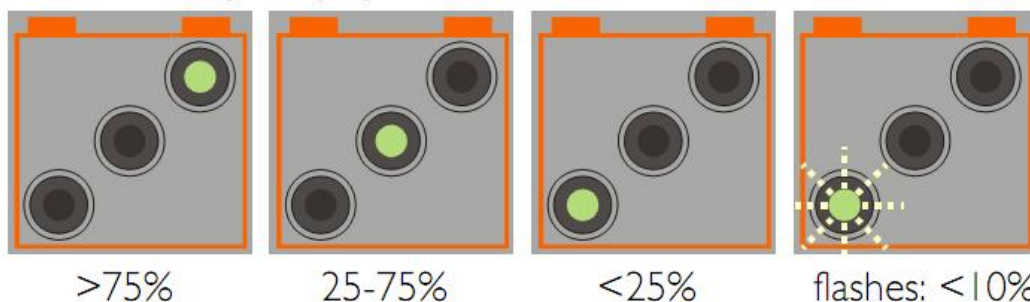
- 1) Starting voltage is over 20V, then the controller will identify to 24V system;
- 2) Starting voltage is lower than 20V, it will identify to 12V system.

#### Note:

If starting the controller, if the battery voltage is not at the normal condition (about 11-15.5V for 12V system, about 22V-31V for 24V system). Then the controller will cut off the load.

### 4) Battery Status LED Indicators

#### State of charge display



The percentage corresponds to the available energy until Low Voltage Disconnect in relation to a fully charged battery.

- a) Battery Voltage > 12.5V , Top LED light (>75%);
- b) Battery Voltage 12.0V-12.5V, Middle LED light ( 25-75%);
- c) Battery Voltage 11.5V-12.0V, Bottom LED light (10-25%);
- e) Battery Voltage <11.5V, Bottom LED blinking;
- f) Battery Voltage > 15.5V, Top LED blinking and controller cut off load output.

## 5) Load Status Display LED

### Load status display

In case of deep discharge or overload/short-circuit of load, the load output is switched off. This is indicated by:



Normal operation



Low voltage disconnect



Overload or Short-circuit of load

### Note:

When low voltage disconnect, Load reconnect's battery voltage is 12.8V for 12V system or 25.6V for 24V system.

## 6) Charge LED Display

### Charge display



Solar array supplies electricity

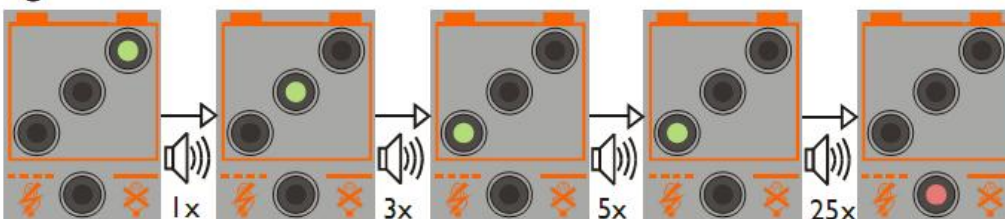


Solar array does not supply electricity

## 7) Speaker Alarm Warning Function

### Acoustic signals

A change in the state of charge (SOC) to a lower status is indicated by an acoustic signal.



The loads are disconnected approx. 1 minute after a series of 25 signals.

## 8) Streetlight (Dark to Down) Function Setting

### How to set

- a) Open the controller case and find **SW1** position (See PCB board layout position 2)
- b) Push **SW1** switch to "ON" position, streetlight will be effected (working);
- c) Push **SW1** switch to "OFF" position, streetlight will not be effected (not working).








### Streetlight Function Technical Data:

- a) When battery voltage is over 11.2V (not in load cut off, over load or short circuit conditions) and solar panel voltage lower than 2.5V and keep 10 minutes, then there has output in the load; When solar panel voltage rise more than 3V (dawn time), then it will cut off load output.
- b) If 24V system, the solar panel voltage low than 5V and keep for 10 minutes, then start timer function. And solar panel voltage rise more than 6V, then it means darn for 24V system.

## 9) More Other Details Technical Data

Nominal Voltage	12V/24V automatic recognition
Boost Voltage	14.5V/29.0V (25°C), 2 hours
Equalization Voltage	14.8V/29.6V (25°C), 2 hours
Float Voltage	13.7V/27.4V (25°C)
Low voltage Disconnection Function	11.4V-11.9/ 22.8-23.8V controlled by state of charge 11.0V/22.0V controlled by voltage
Load reconnect Voltage	12.8V / 25.6V
Temperature Compensation	-4mV/cell*K
Max solar panel current	5 / 8 / 10 / 15 / 20 / 30A according to Model No. @ 50°C
Max. load current	5 / 8 / 10 / 15 / 20 / 30A according to Model No. @ 50°C
Dimension	80 x 100 x 32 MM (w X h X d)
Weight	180 gr
Max. wire Size	16m m <sup>2</sup> (AWG#6)
Self Consumption	4mA
Ambient Temperature range	-25°C to +50°C
Case Protection	IP20

## 10) Error Description

Error Description			
Error	Display	Reason	Remedy
Loads are not supplied		Battery is low	Load will reconnect as soon as battery is recharged.
		Overcurrent/ Short circuit of loads	Switch off all loads. Remove short circuit. Controller will switch on load automatically after max 1 minute.
		Battery voltage too high (>15.5 / 31.0 V)	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, fuses and battery.
Battery is empty after a short time		Battery has low capacity	Change battery
Battery is not being charged during the day		Solar array faulty or wrong polarity	Remove faulty connection/reverse polarity
Battery wrong polarity	 Permanent sound	Battery is connected with reverse polarity	Remove reverse polarity