

User's Manual

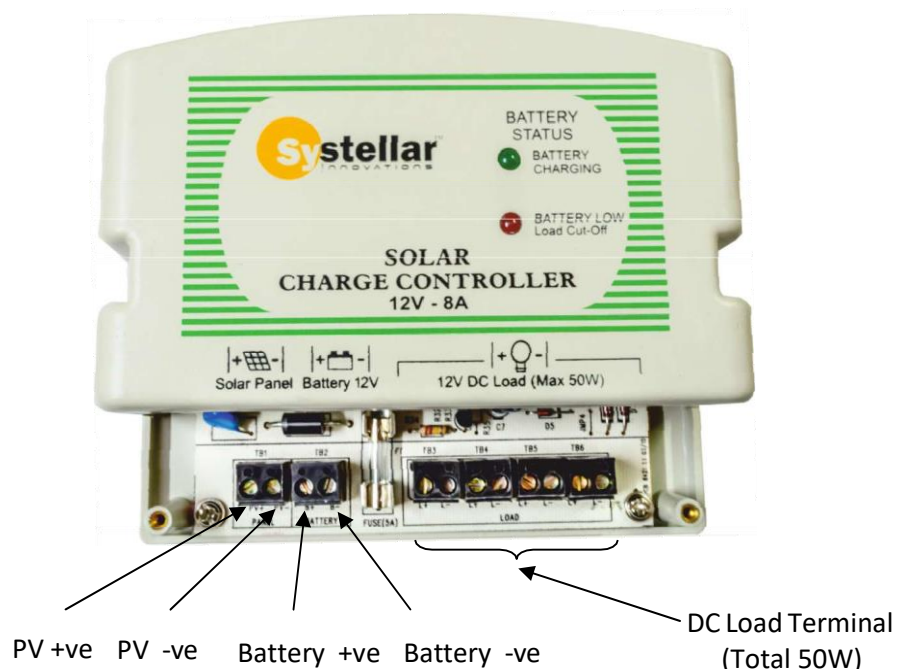
Model: CC-HLS-12V-8A

Introduction:

Congratulations on purchasing the Systellar Home Lighting System. Please read this manual carefully before installing and operating the charge controller.

PWM charge controller CC-HLS model 12V-8A is an advanced charge controller for a 12V battery bank charging current up to 8 Amps. The charge controller can work with Solar Photo Voltaic Panels with wide power and voltage range. **Four** DC load terminals are provided in CC-HLS that can drive a 12V DC load of a maximum of 50 Watt total (maximum current 4.5 Amp)

The battery type (Flat plate flooded / Tubular flooded / SMF) is selectable using jumpers on the electronics board. This can be accessed by opening the front cover of the product. A three-stage battery charging algorithm is implemented which can charge the battery with precise current and voltage to achieve fast battery charging while ensuring long battery life.



Front Panel connector:

Installing the Charge Controller:

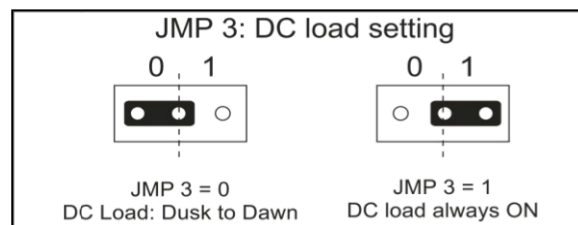
1. Install the Charge Controller indoors near the battery bank on a wall. Ensure that the place is away from rainwater, heat sources, and chemical fumes.
2. Connect the battery using a minimum of 1.5 mm² copper wires. Keep cable length minimum, to avoid power loss in the cable. For better results, use a twisted pair of wires for solar panel and battery connections. Kindly observe correct polarity while making connections.
3. As soon as the battery cables are connected, the Charge Controller will start working and the green LED will start blinking.
4. Check solar panel open circuit voltage. The maximum open circuit voltage should be less than **35 volts**. For a 12V battery, a solar panel with **V_{oc} 19V to 24V** should be used. More than 1 solar panel may be connected in parallel to each other, but ensuring that current from solar panels does not exceed 8A.
5. Once solar panel connections are made, if it is daytime, the battery charging will start after about 5 seconds.

LED Display:

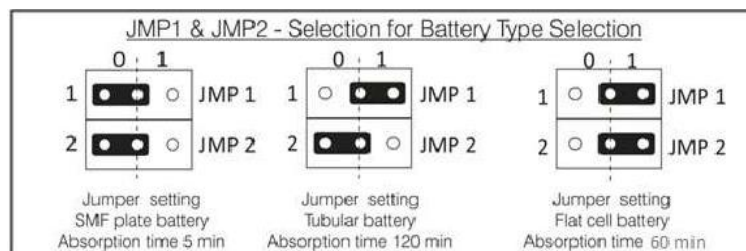
S No	LED blinking pattern	Conditions
1	Green led blinks for 50 msec every 2 Seconds	Battery connected, Night time or Charging current is less than 1 Amp
2	Green led blinks for 0.5 seconds On, 0.5 second Off	Charging current more than 1 Amp
3	Green led blinks two times for 50 msec each every two seconds	Dusk/Dawn Verification
4	Green led solid On	The battery is almost fully charged
5	Red LED blinks every 2 seconds	Battery discharged (Battery voltage less than 10.5V)
6	Red led continuously On	Fuse blown (Replace with 5A glass capsule fuse)

Jumper settings:

DC Load Selection Setting (JMP3)



Battery type selection (JMP1 & JMP2)



Technical specifications:

Parameters	Values
Battery bank voltage	12 V
Maximum charging current:	8 Ampere
Maximum solar panel voltage (V_{oc})	35 Volts
Battery charging stages:	Bulk, absorption, & trickle charging
Charging current control method	PWM at approx. 160 Hz
Max Load current	5Amp (protected by fuse)
Low battery indication voltage	V_{batt} less than 10.5V
Low battery restores voltage	V_{batt} more than 12V
Trickle voltage	13.5V (all battery type)
End of Charging Voltage	14.4V (all battery type)

Note: For product enhancement, product parameters can be changed without notice

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