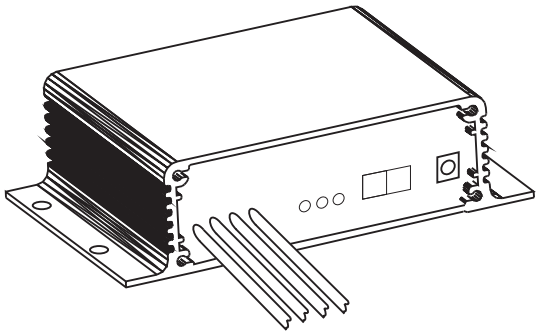
OLYS



SBC User Manual

Half power Solar Charge Controller specially for LED lamp

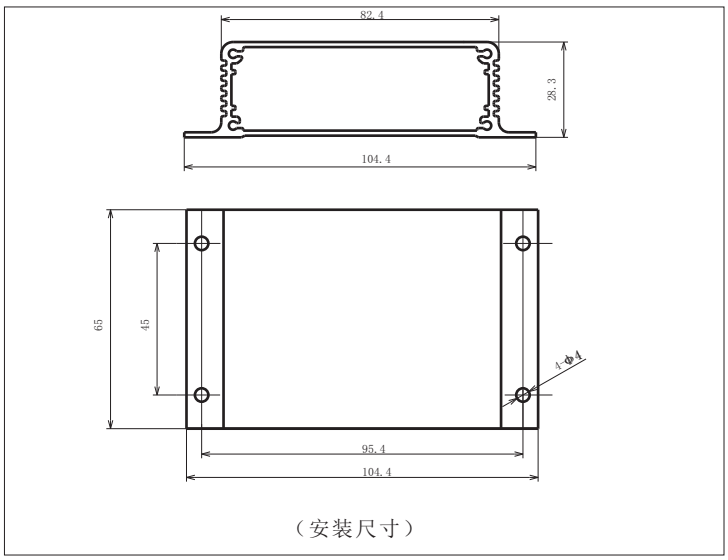
Function

- Supply for 12V or 24V system.
- Supply constant current source for LED lamp less than 50W
- Can set up rated output power for LED lamp, and even you can set the work time for corresponding rated output power. Hence it would prolong the life of your LED lamp.
- Work mode: pure light control, light control the load on & timer setting the load off, normal control, test mode.
- Utilizes PWM charge mode for maximum efficiency, and with temperature compensation function.
- PCB be whole potted, can work on severe environment.

Safety Instructions

1.Solar modules produce current whenever light strikes them. Even at a small light level, the full voltage can be present. Therefore, work carefully and pay attention to the corresponding safety precautions. Cover the modules with something to block the light while connecting the system.
2. Please make sure the voltage from solar modules is same as the input voltage of battery.
3.Don't touch even bare wire ends.
4.It was recommended to connect the polarity + of battery to one fuse, and then connect the battery to the controller. The current of fuse should be chosen 2-3 times of rated current. Note the plus and minus polarity must be correct connect.
5.Don't use technical tools that are defective or broken.
6.Restriction of ventilation can lead to overheating of the controller and thus failure. Do not cover any ventilating slots or cooling ribs.
7.The controller must not be installed and used in moist damp areas or in rooms in which there are flammable gas mixtures.
8.Keep children away from any and all electronics.

Installation



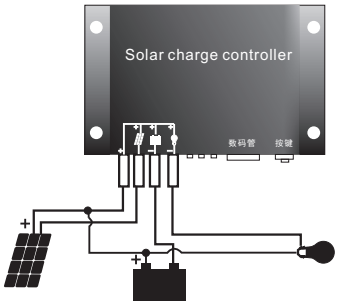
（安装尺寸）

It was recommend to connect the controller in a way that the shortest cable possible to the battery, solar PV module, and the loads. The line loss and drops in voltage should be kept to a minimum

.

- This controller only for solar PV system, not use for wind power system, hybrid power system, diesel fuel system, etc.

Connecting



1. It is absolutely necessary to adhere to all our safety instructions. To guarantee a faultless working of the controller, it is necessary to follow the chronological sequence described in following:

1)Connecting the battery bank to the controller

. Lay both battery cables(B+, B-) between the controller and battery bank in parallel.

. Connect the battery cable to the controller's battery connection terminals.

. Pay attention to the right polarity

. Now the controller should start operaton, the LED2 light on

2)Connecting the Solar PV Module Array to the controller

. Insert the module array's M+ and M- bare wires into the controller's PV terminals (labelled with a symbol of a slanted PV module) and tighten the screws securely. Pay attention to the right polarity.

. It is important to connect only solar PV modules as charging energy source. NO grid-operated battery charger or DC power devices, diesel sets, or wind generators should be connected.

3)Connecting the loads

. Protect each load circuit by a safety fuse

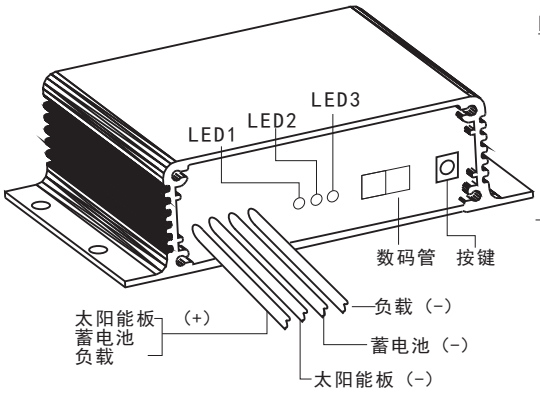
. Disconnect all loads before joining the load cables in order to prevent spark development which may damage sensitive loads.

. Connect the main load cables to the controller's load terminals(labelled with a round light bulb) and securely tighten the screws. Pay attention to the right polarity!

Connect any urgent loads that must never be disconnected by the controller(e.g. emergency light, radio link) directly to the battery! Note that there is increased risk of damaging discharge to the battery since the controller no longer controls these loads. Protect these direct loads by installation of safety fuses.

Finally, secure all cables within the controller's immediate surrounding by strain reliefs. All other components must also have their wiring be strain-relieved.

Display functiong in normal operation



LED1(green) states

LED ON: nomal charge
LED fast flashing: system overvoltage
LED OFF: Solar array does not supply electricity

LED2 states

Green LED on: voltage of battery nomal
Green LED slow fashing: full chargeed battery
Orange LED on: undervoltage of battery
Red LED on: undervoltage pretection of battery

LED3(red) states

LED ON: Normal operation
LED slow flshing: overload
LED fast flashing: short circuit of load

Setting swich +LED

Setting load work mode
see "Operation"

Tips

. The controller with PWM charge modes, stage of charging: float charge, boost charge and equal charge, regulates the charge process as well as it switches the loads on-off in order to make full use of the battery and to extend its life.

. when load's work current 1.25 times more than its rated current, the controller switch off load after 60 seconds.

When load's work current 1.5 times more than its rated current, the controller switch off load after 5 seconds.

When loads shortcuit, the controller switch off load at once.

Load work mode setting

〈—〉 work mode definition

adjustable output power:

full output power: the loads working with its rated power fully all time during preset working time.

Half power output: the loads turn to working with half power while preset working time of fully output power to the end.

Pure Light control mode: light control on + light control off, while sundown the voltage of solar array would less than 5V, the controller switches on load after 10 minutes; while sunrise the voltage of solar array would go up to 6V, the controller switches off load after 10 minutes.

Light control on + time control off: while sundown the voltage of solar array would less than 5V, the controller switch the load on after 10 minutes; and switch the load off while the preset working time to the end.

General control mode: work as general system controller, without light control /time control function.

Testing mode: while cover the modules with something to block the light, the controller switches on load at once.

while light strikes on solar modules, the controller switches the load off at once

〈二〉 Operation

Long press “Setting switch” key about 5 seconds, LED flashing. There are numerically display different work mode/half power working time/load power. The display values can be changed while pressing once the “Setting switch” Key. After having enter your required work mode/half power working time/load power, stop for while, it would saved after the LED stop flashing. You need to preset programme of work mode/half power working time/load power separately.

	LED display	Instruction
Work mode	00	Pure Light control mode
	01～17	Light control on + time control off (01-17 means Hours light is turned on after sundown, e.g. 01 means the light is turned on 1 hour after sundown, 02 means the light is turned on 2 hours after sundown..
	18	Testing mode
	19	General control mode
Half power working time	20	full output
	21～29	Start half power output working after 1-9 hours (e.g. 21 means the load start half power output working after one hours full output working.. 22 means the load start half power output working after two hours full output working.
load power	30	13W(12V/24V)
	31	15W(12V/24V)
	32	18W(12V/24V)
	33	20W(12V/24V)
	34	25W(12V/24V)
	35	30W(12V/24V)
	36	35W(12V/24V)
	37	40W(12V/24V)
	38	45W(12V/24V)
	39	50W(12V/24V)

e. g:
the load power is 13W,
select LED numerically display “30';

Troubleshooting

Trouble	Remedy
Measure the PV array voltage is within normal limits, but LED1 charging light indicator not light on	Check that all wire connections in the system are correct and tight.
LED1 Green Light flashing	Measure the PV voltage and the battery voltage at the sunlight terminals. If the voltage at the terminals is the same(within a few tenths of volts) the PV array is charging the battery. If the PV voltage is close to the open circuit voltage of the panels and the battery voltage is low, the controller is not charging the batteries and may be damaged.
Load indicator LED3 Red light on, but load not operating properly	Check the wire connections between the load and the controller are correct and tight.
Load indicator LED3 Red light Flashing quickly, but load not working.	The load short circuit.
Load indicator LED3 Red light Flashing slowly, but load not working	Please check whether it was overload.
Load indicatior LED2 Red light on, but load not working.	The load has been disconnected due to low battery voltage. Please charging the battery.

Technical Data

Item No:	SBC50
Rated charging current:	10A
Rated load power:	≤50W
System voltage:	12V or 24V
Overload、Short circuit protection	Stand 1.25 times rated current 60 seconds, Stand 1.5 times rated current 5 seconds.
No load current:	≤6 mA
Over-voltage protection	17V(12V), 34V/24V ;
Work temperature:	-35℃ to +55℃
Boost charging voltage:	14.6V(12V), 29.2V/(24V)
Equal charging voltage:	14.4V(12V), 28.8/(24V)
Float charging voltage:	13.7V(12V), 27.4V/(24V)
Temperature compensation:	-3mv/℃/2V
Low Voltage disconnect:	11.1V(12V) ; 22.2/24V ;