SOLAR CHARGE CONTROLLER

USER MANUAL

Charge and discharge protection:

When the battery charge is full, the System LED will be green and flash slowly. When the voltage of the battery is undervoltage, the System LED will glow orange. If it continues to fall to over-discharge status, the System LED will glow red and simultaneously turn off output. In case of short circuits or overload, the controller will shut down output until the following sunrise . The Load Led will flash fast if short circuits occur. in case of overload, the System LED will glow red and flash slowly.When charging,PV LED will flash. When Output is on,Load LED will be on.

Start Point setting :

Press button for ten seconds until PV State LED begins to flash, and System State LED and Load State LED will be out.Pressing button again will save current PV voltage as start point to memory.

Light on/off control mode:

The load will work all night. When PV output voltage drop under start point voltage,load will be open after ten minute. Closing load has ten minute delay also.

Light on/time delay off mode:

The start process is the same as in the 'Light on/off control' mode, but the load will be shut off at the set time (see table to select time).

Common control mode:

.Open or close load by pressing button.

Test mode: Be used to test ON/OFF of load easily .Work mode will be switch to test mode when press button for 15 seconds until Load State LED begins to flash. Press key again to exit test mode.

System Led Description:

LED Color	System Status	LED Color	System Status
Green	Normal	Orange	Undervoltage
Green Flash	Battery Full	Red	Overdischarge
Green Flash fast	Battery overvoltage	Red Flash Fast	Overtemperature
Red Flash	Overload	Orange Flash Fast	Fuse fusing

Parameter setting:

Press the key and hold for approx. 5 seconds until three LED begins to flash simultaneously . Press the button again,three LED will denote current work mode.Continue to press the button, three State LED will be shown as table below.

Press the button and hold for approx. 5 seconds will save setting into EEPROM. No button press for 15 seconds will return normal status. Press theif it is A2, light on/off control mode is cancel. A2 type,if want to set time B,firtly change woke mode to light on/off control mode and save it.then,you can adjust second load on time.

● LED light ○ LED off

○ ○ ○	Light on/time delay off mode	
○ ○ ●	Light on/off control mode(A2 Time B Setting)	
○ ● ○	Common control mode	
	Time(Timing mode)	Bat. Cap.(Common control)
○ ● ●	4 Hours	17AH
● ○ ○	5 Hours	40AH
● ○ ●	6 Hours	80AH
● ● ○	8 Hours	150AH
● ● ●	10 Hours	200AH

Note:use customized communication device to connect computer,and use customized software to set parameter by friendly interface.

Problems & Troubleshooting

Problems	Solutions
The PV LED if off when sunlight falls on PV panel.	Check if the solar panel's cables are connected properly.
System LED is green or yellow but no power output.	Check the load's cables are connected to the system properly.
System LED flashes red but there is no power output, or LOAD LED flash fast.	Check output circuit of load for short circuit or overload. Re-connect the Bat. again to reset the system or wait until the next day.
System LED is red but there is no power output.	The Bat. is over-discharged. Wait until the system has recharged the battery.

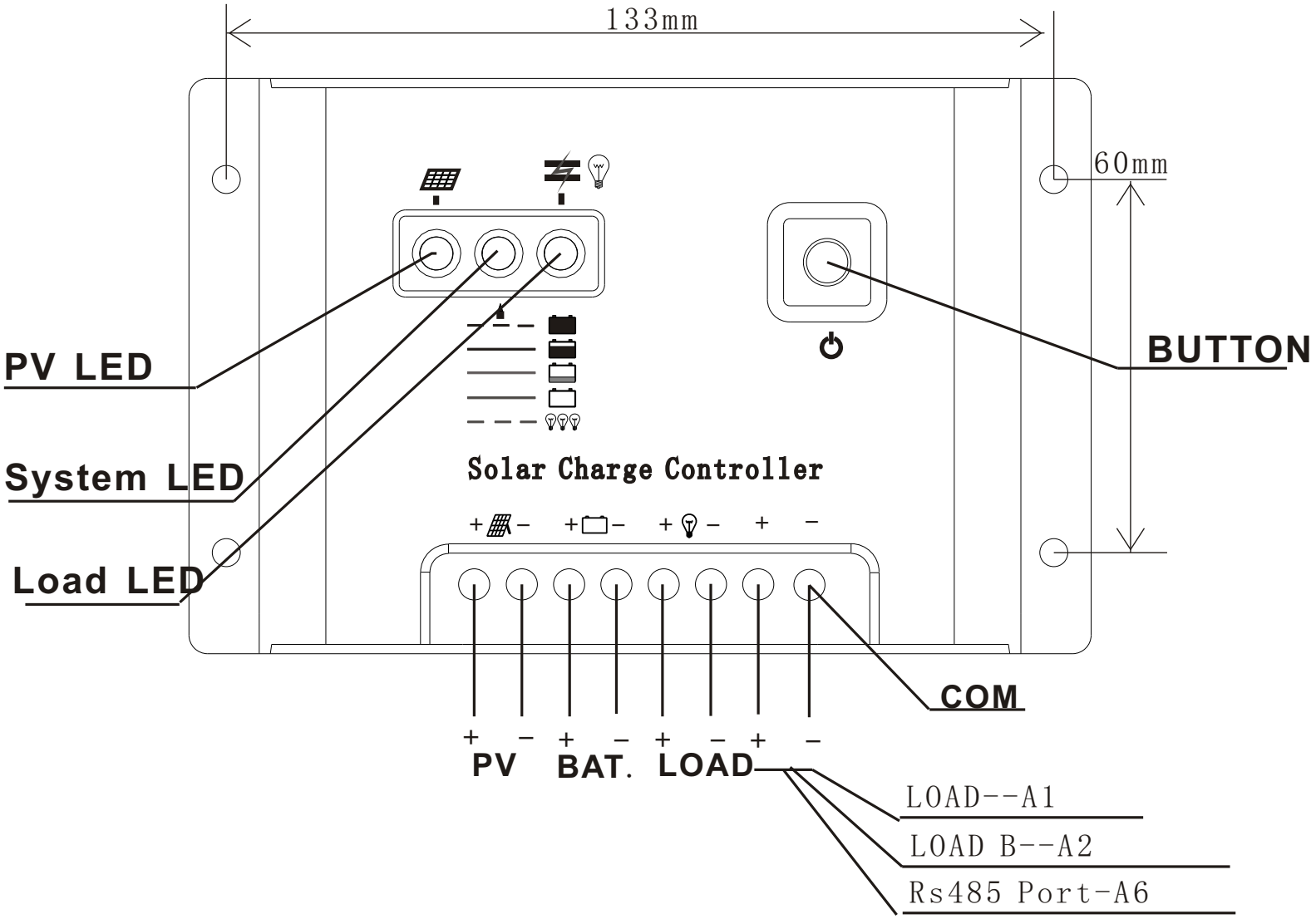
Features:

1. Automatic boost, recovery and float charging capacities for extended battery life (use temperature compensation).
2. Over-discharging control voltage modified by the battery discharging rate curve.
3. Protected against overload, internal and external short circuits, reverse connection, thunder and lightning, and PV panel reverse current.
4. Clear LED display for reliable reporting of the system's condition.
5. Industry standard production ensures durability and efficiency. Comfortably operate within a wide temperature range.
6. Uses EEPROM memory to save all work.
7. Control point instead of adjustable resistance to protect the control work point from temperature and vibration fluctuations.
8. PWM high efficiency charging is recommended for optimal operation.
9. System parameter can be set by computer through serial comnication.

Installation:

1. Prepare wire. Choose a plastic coated copper wire .Cut the wire to the shortest length possible, then peel 5mm of plastic from end.
2. Connect exposed end of wire to battery port of controller, and then with the battery, paying careful attention to the +/- poles of the connection (if the poles are reversed, the controller won't be damaged but it won't work).
3. Repeat wire preparation and connect wire to solar panel port of controller, and then to solar panel. If connection is correct and the PV panel is exposed to sunlight, the charging indicator will glow green.
4. Repeat wire preparation and connect the load to the load port of controller, again taking care to correctly connect the +/- poles.

Caution: If the system voltage is above 24V, avoid touching any conductor with bare hands during installation in case of electrical shock.



Note:

A6 controller,A and B port of RS485 interface must be connected by A-A and B-B.

****A1 ,A2 controller can be connect to computer by COM port when controller is not installed.**

****COM port only receive TTL level.**

****If system voltage is 36V or 48V,please connet PV to controller correctly.reverse connect may break controller.**

****If bat voltage is lower than 10V,controller may be out of work.**

****D1 type +,- port must connect DC by Power Transformer.**

Specifications

TYPE	A1	A2	A6	D1
Rated charge current	☐5A	☐10A	☐15A	☐20A
Rated load current	☐5A	☐10A	☐15A	☐20A
Load protection	1.25 times of rated load current 60 sec, 1.5 times of rated load current 5 sec, overload protectionwill be triggered. Over 3 times of rated load current. short circuit protection will be triggered.			
Quiescent current	<5mA			
Work temperature	-35℃ to +50℃			
Work voltage	☐12V	☐ 24V	☐36V	☐48V
Over voltage protection	17.0V	34.0V	51.0V	68.0V
Boost charge voltage	14.8V	29.6V	44.4V	59.2V
Direct charge voltage	14.4V	28.8V	43.2V	57.6V
Float charge voltage	13.7V	27.4V	41.1V	54.8V
Lower voltage indicate	12.0V	24.0V	36.0V	48.0V
Over discharge voltage	11.1V	22.2V	33.3V	44.4V
Over discharge return voltage	12.6V	25.2V	37.8V	50.4V
Temp compensation	-3mv/℃/2V			
Real clock	☐ Real clock			
Comunication	☐Off Line		☐Real Time	
Load	☐ Two Shunt load output	☐ Two Independent load output	☐ One load	
	Direct current or preset frequency output			
Dimension	145*92*29mm			
Weight	150g~250g			