Remote Power

SDY Series

SDY3048 SDY4048 SDY5048 SDY6048

Solar Charge Controller

USER MANUAL

Beijing Remote Power Renewable Energy Technology Company
Add:3/F,Huayuan Road
Haidian District
Beijing,China

www.remotepowersolar.com

Contents

1.0 Features

Control: Micro Controller Unit utilizing dedicated software and SCM for precise control.

Charging mode: Pulse Width Modulated control, allows for high efficiency boost, recovery and float charging. Temperature compensation ensures that these parameters are adjusted for maximum battery condition and hence, prolonged battery life.

High accuracy discharging control: Over-discharging control voltage modified by the battery discharging rate curve.

LED indication on system condition: Indicating LED's, monitor battery charging levels as well as battery state. LED monitoring of load conditions such as over load and short circuit as well as load on/off, are also provided.

No adjustable hardware part: Controller accuracy, stability and reliability is assured by the use of flash memory for all control parameters and set-points.

Battery type: lead-acid batteries, gel batteries and lithium iron phosphate batteries .

High performance: Automatically maintain the storage batteries monthly to increase the batteries lifetime

Alarms: Buzzer alarms automatically when the system working abnormally.

LCD: With segment LCD data display，friendly man-machine interface，easy to operate.

Circuit Protection: equipped with perfect electric protection measures to keep the controller and components from damages due to over charge, over-discharge, short circuit, overload, over voltage and electrode reverse.

Standard: industrial class chips to ensure normal operation under extremely adverse environment with temperature range of ±50 ℃.

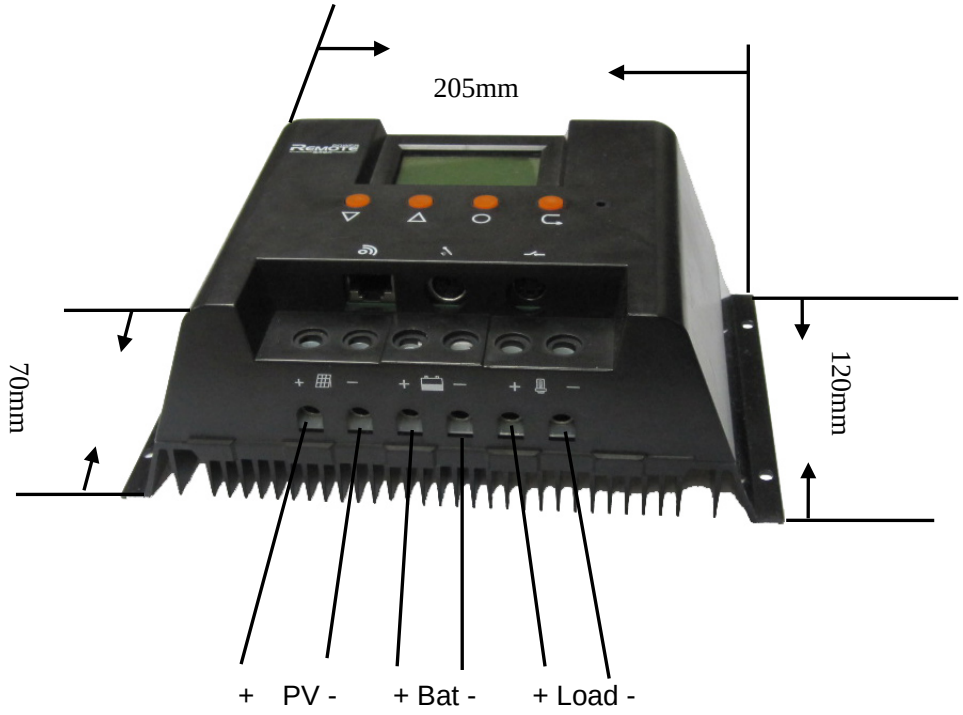
2.0 Installation & Operation

Attention: Connect battery first,be care of Positive(+) and Negative(-)

2.1 Controller Size

Mount the controller in a suitable place.

Controller Dimensions: 205×120×70(mm)



2.2 Connect Information

Prepare wire. Choose the plastic Copper wire. Current density no more than 4A/mm2. Cut the
suitable length of wire and make it as shout as possible. Peel off 5mm the plastic at the end of wire.

2.3 Battery Connection

Connect battery Positive and Negative to the controller first to power on the controller.Make sure correct polarity of terminals.

The controller has protection of reverse polarity,so even not connect correctly for positive and negative,the controller will not be burned.

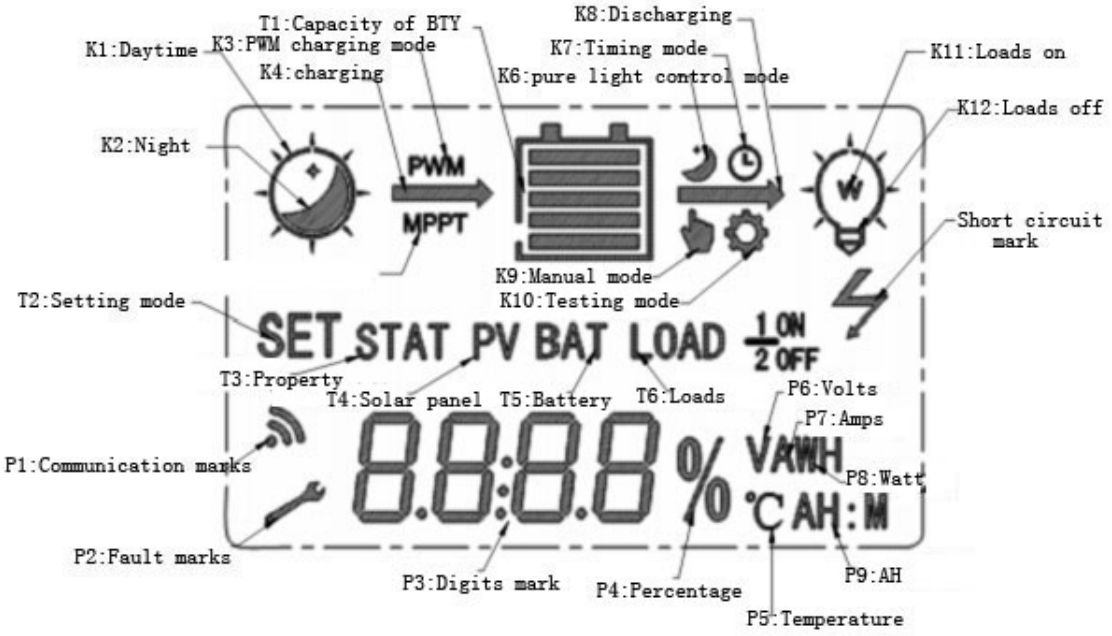
2.4 PV Connection

Connect the solar panel to the controller terminals,be careful of Positive and Negative.when the sun is available in the daytime,the PV indicator will be green color,otherwise NOT,then you need to check the connection is correctly or NOT.

2.5 Load Connection

After connected with battery and PV,then connected the Load cable,also be careful of Positive and Negative,if not connect correctly,it is easily to burn down the electrical appliances.

2.6 Display Function:



Segment code LCD display annotation table：

PV panels Solar photovoltaic panels equal to PV Panels below:

K1:daytime	The voltage of solar panels is too high
K2: night	The voltage of solar panels is too low
K3:PWM charging mode	The solar photovoltaic panels will charge the storage battery in the manner of PWM(pulse width modulation)
K4: charging	The solar panels are charging the storage battery
K6：Pure sun rays control	The solar charge controller starts to operate when the voltage is lower than that stipulated in the controller .(When night comes it has 10 minutes delay for the system to operate if the voltage of the solar panel reach the point stipulated in the controller)
K7：Timer mode	The controller will turn on and turn off the load according to a predetermined time which has already been programmed in it.

K8：Discharging	Indicates that the batteries are releasing electricity to the loads.
K9：Manual mode	Controllers only turn on and turn off the loads according to manual operation.
K10：Testing mode	As night comes, the controller will turn on the loads when the voltage of the solar panels become lower than that stipulated in the controllers.
K11：Load on	The loads have been turned on
K12：Load off	When K11 is turned off load is shut down
T1：Storage battery	Indicate the status of the battery.5 lattices means the battery is full, 0 lattice means the battery is in the status of over discharge.
T2:Setting mode	The relevant parameters could be adjusted in this mode.
T3：Property	
T4：Solar panels	The content on the LCD display is the parameters of solar panels.
T5：Storage batteries	The content on the LCD display is the parameters of storage batteries.
T6：Loads	The content on the LCD display is the parameters of loads.
Symbol of short circuit	Indicate that the short circuit has happened and the controller has cut down all circuits. When fault is excluded ,press the reset button the controller will continue to work
P1：Mark of communication	Indicate that the controller and the control terminal have been connected.
P2：Mark of fault	Indicate that a fault or warning has happened. Press the reset button when fault is excluded.
P3 : Digital display	Display digits, with name flag and unit flag to display relevant parameters.
P4：Percent sign	Indicate that the digits displayed on the LCD is a percentage.
P5：Centigrade Sign	The temperature detected by the temperature sensor.
P6 : V-volt	The unit of the digits displayed on the LCD is volt.
P7 : A-ampere	The unit of the digits displayed on the LCD is ampere.
P8 : W-watt	The unit of the digits displayed on the LCD is watt.
P9：AH ampere-hour	The unit of the digits displayed on the LCD is ampere-hour.

3.0 Work Mode Setting

Attention:

First set the controller battery capacity the same as the battery capacity that you are using.(e.g. If you are using 12V 200AH battery,first make controller battery setting capacity to 200 AH to realize synchronization)

SDY series have three basic status:

①Display status ,②Setting status, ③ Statistic status.

3.1 Display status:

·Display the voltage of the solar panels, charging current, charging voltage, the voltage of the storage batteries, discharging current and the voltage of the loads etc. The digital display scrolls automatically once every three seconds.

·Press arrow keys could switch the content displayed on the LCD .

·Press Enter key, the controller will enter the setting status.

·Press reset button

When the controller is in the protection status, when press the reset button , it will reset the protection state of the controller.

In other cases, when press the reset button the controller will enter the statistic status.

3.2 Setting status:

·Press the arrow keys to modify the setting values .

·Press setting key to modify the other kind setting values.

·Press and hold the setting key for 5 seconds to save the parameters then return to the real-time data display.

·When press the reset button the parameters will not be saved , then return to the real-time data display .

·Parameters can be configured in the setting status:

Type of storage batteries：lead-acid batteries、gel batteries、lithium and iron phosphate batteries.

The standard voltage of storage batteries：12V/24V/36/48V/AUTO

The volume of batteries：0-5000AH

Charging mode：PWM

Light control voltage:

Direct input，for example 5.00;

Then maximum 20V，minimum 3V，step length 0.1V;

These settings are for 12V system , for 24V system the parameters above should multiply(×) 2 , for 48V system the parameters should multiply(×)4

Discharging mode:

Manual mode  ： Could turn on and turn off the loads manually or achieve remote control.

Timer mode  ： Could modify lighting time and the time lights are turned off.

Pure light control mode  ：There is delay of 10 minutes when light control begins.

Testing mode  ：There is no 10 minute delay stipulated in the pure light control mode.

Light control mode plus timer mode  ：The lights can be turned on and turned off by light control, the lighting time after lights are turned on and before the lights are turned off can be set, it is called dual-period control.

Manual control mode plus timer control mode  ：The loads can be turned on and turned off manually, the lighting time after the loads are turned on can be set.

3.3 Statistic status:

Press arrow keys  to switch the contents on the LCD.

Press reset key  to turn to real-time data display.

Press setting key 

When the discharging mode to the loads is manual mode, will turn on and turn off the load manually.

In other cases , will turn to real-time data display.

Noted: After 10 seconds without pressing any buttons at any state the contents on the LCD will turn to real-time data display

4.0 Specification

Models	SDY3048 SDY4048 SDY5048 SDY6048			
		Parameters	Accuracy	Notes
Storage battery pack	voltage	0~48V	0.01V	
	Nominal voltage	12V/24V/36V/48V		
	Capacity	0-5000AH		The default is 2500AH
	Temperature	-55 ℃~125℃	0.06 ℃	
	Types	1 lead-acid battery、2 gel battery、3 lithium iron phosphate battery		The default is lead-acid battery
Solar panels	Light control voltage	The default voltage is 12V	0.1V	Judging daytime/night
	Charging current	0~60A	0.01A	
	Charging mode	PWM/MPPT		The default charging mode is PWM
	Strong charge mode	Monthly/Manually		
Loads	current	0~60A		
	Discharging mode	Manual mode/timer mode/pure light control mode/testing mode/light control plus 10 minutes delay mode/		The default mode is testing mode
System time		24-hour	Manually	According to the type of the storage batteries
Charging mode		Boost charging	Manually	According to the type of the storage batteries
		Direct charging	Manually	According to the type of the storage batteries
		Float charging	Manually	According to the type of the storage batteries
		Fast charging mode	Monthly/ Manually	
		Battery over-temperature protection	Automatically	55 ℃

www.remotepowersolar.com

Email:support@repowersolar.com

Add:3/F,HuaYuan Road,HaiDian District,Beijing,10088,China

Tel:+86-10-82670382 Fax:+86-10-82257376