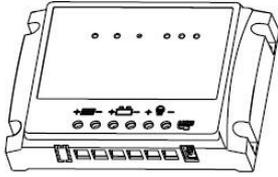


CPS/CPY Series Solar Charge Controller

User's Manual



CPS

CPY

I . Product Overview

1. Use single-chip microcomputer control, has the advantages of intelligent, strong adaptability, reliable function.
2. Adopts the MPPT technology, can work in the maximum power point of the I-V curves, the efficiency is up to 99%.
3. With high precision temperature detection and compensation circuit, longer battery life.
4. 12V/24V auto work, three stage of battery display, can intuitively understand of the working status of the controller.
5. Delicate structure design and highly precise circuit design, allowing the space of the controller to be maximize.
6. With over charging, over discharging, overload, short circuit and reverse polarity protection.
7. With USB 5V output, can charge different digital products.

II .Installation Instructions

Please first connect the battery, and then connect the solar panel and the load in order.

The controller has reverse polarity protection internally, but if the connection error still may damage your controller.

Please make sure the voltage and current are within the rated range of controller

III. MPPT Charging Introduction

The full name of MPPT "Maximum Power Point Tracking", is an advanced way of charging. The MPPT controller not only can real-time detect the power of solar panels, but also can track the highest voltage current value (VI), which make the system with the highest efficiency for battery charging. Compared with the conventional PWM controller, the MPPT controller can make solar panels with maximum power, so it can provide maximum charging current. Generally speaking, the charging efficiency of MPPT controller is 15%~20% higher than PWM mode.

Because the peak voltage of solar panels (V_{pp}) is around 17V and the battery voltage is around 12V, when the common controller charging, the voltage of solar panels is around 12V, which can't reach the maximum power. MPPT controller can overcome this problem, it can adjust the input voltage and current of the solar panels constantly in order to achieve the maximum input power.

At the same time, because of the different environmental temperature and light conditions, the maximum power point tracking often change. According to different conditions, the MPPT controller can adjust the parameters constantly in order to achieve the system near the maximum working point at any time.

IV. Indicator

Solar: solar indicator, when the solar indicator is constant ON, it means the controller is in the state of charging. When the solar indicator flickers, it means the controller is in the state of float charge.

Load: load indicator, when the load indicator is constant ON, it means the load output is permitted, but it doesn't mean it has actual output current.

Battery: the battery indicator.

V. Troubleshooting

When the following phenomenon happens, please check as follows,

Phenomenon	Trouble shooting
All the indicators are OFF	Check the battery wiring whether is well connected or tight connection or whether the voltage of the battery is normal or not.
The charge without response during daytime when sunshine falls on solar panel properly.	Check the PV and battery wire whether is well connected or tight connection or not.
The load without response, the load does not start.	1. Reference to the system wiring diagram, check the system whether is well connected or not. 2. Check the power of the battery, the load will start only when the battery voltage is higher than 12.2V. 3. Connect the solar module, charge the battery for 3-5 hours until it reach to the normal state.
Other phenomena	Check the wiring whether is tight or not, and the automatic identification of 12V/24V system is correct or not.

VI. Technical Parameters

Model	CPS-2410 CPY-2410	CPS-2420 CPY-2420
Rated charge current	10A	20A
Rated discharge current	10A	20A
Rated voltage	12V/24V auto work	
MPPT efficiency	Max:99%	
Over load, short circuit protection	≥ 1.5 rated current	
No load current	$< 10\text{mA}$	
Over voltage protection	16V; $\times 2/24\text{V}$	
Voltage of stop charging	14.7V; $\times 2/24\text{V}$	
Discharge recovery voltage	12.2V; $\times 2/24\text{V}$	
Over discharge voltage	10.8V; $\times 2/24\text{V}$	
USB output	5V 1A	
Working temperature	$-35^{\circ}\text{C} \sim +55^{\circ}\text{C}$	
Dimension of controller	CPS:131×99.5×34(mm) (L×W×H) CPY:131×99.5×29.5(mm) (L×W×H)	
Packing dimension	150×123×45(mm) (L×W×H)	
Weight	275g	300g