






CM cube series solar charge controller

User's manual

CMP(II)	CMU	CMD	CMK	CMKU
				
AUTO	USB	Voltage display	LCD display	LCD+USB

These series controllers are suitable for 12V/24V lead-acid battery system, if you need other types of batteries, please feel free to contact with the manufacturer or agents to customize.

I . Product Overview

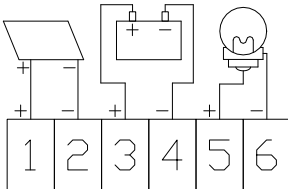
1. Use single-chip microcomputer control which makes the controller has the advantages of intelligent, strong adaptability, reliable function.
2. Use PWM charge mode, which can improve system efficiency and prolong the life span of the battery.
3. Clear charge state, discharge state and battery power display.
4. Adopts the modified shell which accords with air flow, has better cooling effect (compare with the old version).
5. Optimize the assembly design, the structure more stable (new shell uses 4 screws, old version use 2 screws).

II . Protection

- | | | |
|-----------------------------|-----------------------------|--------------------------------|
| 1. Over-load protection | 2. Short circuit protection | 3. Lightning protection |
| 4. Under-voltage protection | 5. Over-charging protection | 6. Reverse polarity protection |

III. Installation Instructions

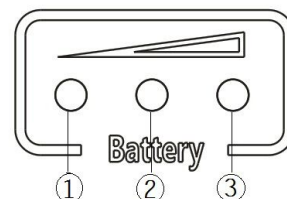
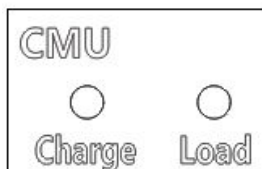
Open the top cover of controller and connect the wire with terminals as the diagram on the top cover of it.



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.**

IV. Function Features

CMP, CMU



Charge: Charge indicator, when the Charge flickers, it means the controller is in the state of float charge or full charged.

Load: Load indicator, when the Load is ON, it means the load output is permitted, but it doesn't mean it has actual output current. When the Load flickers, it means the load output overload or short circuit.

The battery indicator are as follow: ① Overlow indicator (the battery under voltage), ② Normal indicator (the voltage of battery is normal), ③ Full indicator (the battery is full charged).

Only when the voltage of the battery is higher than 12.2V, the load output indicator lights up, the load output is allowed to work.

Indicator instruction

Battery voltage	Battery indicator			⑤Load output indicator
	② Overlow indicator	③ Normal indicator	④ Full indicator	
<10.5V	flicker	extinguish	extinguish	extinguish
≥10.5V	constant ON	extinguish	extinguish	extinguish
≥12.2V	constant ON	constant ON	extinguish	constant ON
≥13.2V	constant ON	constant ON	constant ON	constant ON

CMD

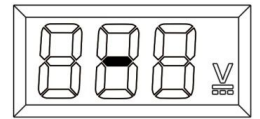
Charge: Charge indicator, when the Charge flickers, it means the controller is in the state of float charge or full charged.

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LED display screen:

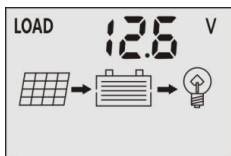
Battery voltage display: intuitively display the current battery voltage.

Battery under voltage display: when the battery is in the state of under voltage, a middle cross of the digital tube flickers as it shows in the figure. At this time the controller enter in the dormancy and power saving state.

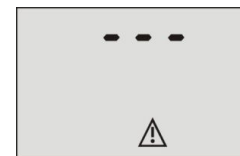


CMK, CMKU

LCD display



LCD displays the battery voltage, the charge and discharge status



Failure interface

Charge: the left arrow display, when the left arrow flickers, it means the solar panel is charging, the battery is in the state of full charge or float charge.

Discharge: when the load output switch is ON, the right arrow display, it is allowed to discharge. When the controller has discharge current, the right arrow flickers.

Failure interface: when short circuit or over load occurs, the failure interface appears. At this time, you can press the load output switch to close the output or just wait. After finish trouble shooting, the output recovers automatically. If short circuit lasts over 30s, the controller automatically close the output.

Load output switch: the output switch default open, when the interface appears LOAD or the right arrow, the load output of the controller is permitted. When the battery is under voltage, the output stop, the output switch could not work. Only when the battery voltage returns to Normal, the output switch can be operated.

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.

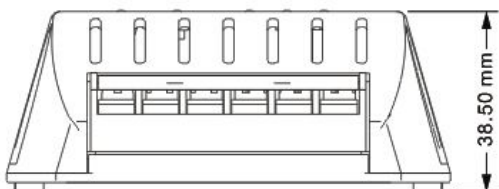
The battery voltage is over low, the digital tube does not display the battery voltage.	The battery is low, the load does not start. The load restart automatically until the voltage of battery has raise to the normal voltage ($\geq 10.5V$).
The load without response, the load does not start.	<ol style="list-style-type: none"> 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 Normal. 3. Connect the solar module, charge the battery 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.

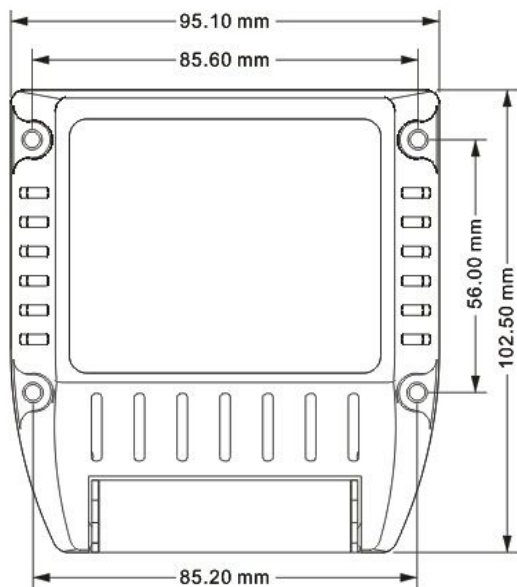
VI. Specification

Model	CMP	CMP	CMU	CMU	CMD	CMD	CMK	CMK	CMKU	CMKU
	-2410	-2420	-2410	-2420	-2410	-2420	-2410	-2420	-2410	-2420
Rated charge current	10A	20A	10A	20A	10A	20A	10A	20A	10A	20A
Rated discharge current	10A	20A	10A	20A	10A	20A	10A	20A	10A	20A
Rated voltage	12V/24V									
Over discharge voltage	10.5V/21.0V									
Discharge recovery voltage	12.2V/24.4V									
Voltage of stop charging	14.7V/29.4V									
LED voltmeter	-	-	-	-	√	√	-	-	-	-
LCD display	-	-	-	-	-	-	√	√	√	√
Output switch	-	-	-	-	-	-	√	√	√	√
USB output voltage	-	-	5V	5V	-	-	-	-	5V	5V
USB output current	-	-	2A	2A	-	-	-	-	2A	2A
Working temperature	-20~+60°C									
Temperature compensation	-3mV/°C/cell									
Dimension of controller	103×95×38(mm) (L×W×H)									
Packing dimension	115×102×55(mm) (L×W×H)									
Weight	160g~180g									

*Parameters may customized by customers.

VII. Dimension





GUARANTEE

Customer Name		Telephone	
Model		E-mail	
Bar Code No.		Purchase Area	
Address			

After-Sales Service

1. After the product has sold, if the function failure occurs, you can choose change or repair it within _____ months.
2. Warranty: _____ years upon the date of purchase. If the product exceeds the warranty period or do not belong to the free repair, our company repair center is still dedicated to serve you.
3. Man-made damage, disassemble the product by yourself, product appearance damage and improper use, all of these may cause the invalidation of product guarantee.

Note:

We keep right to change and update without prior notice.
 Any purchase channel of our product may enjoy the appropriate warranty service and technical service in the local agents or in our company.