

HM-C /CU series Solar Intelligent Charging Controller

User Manual



Model	Panel	Current	USB Load	Size
HM-C10A	LCD	10A		120×74×23.6(mm) (L×W×H)
HM-C20A	LCD	20A		
HM-CU10A	LCD	10A	√	
HM-CU20A	LCD	20A	√	

Dear users:
Thank you very much for choosing our products!
Please read the manual carefully before using our controllers.

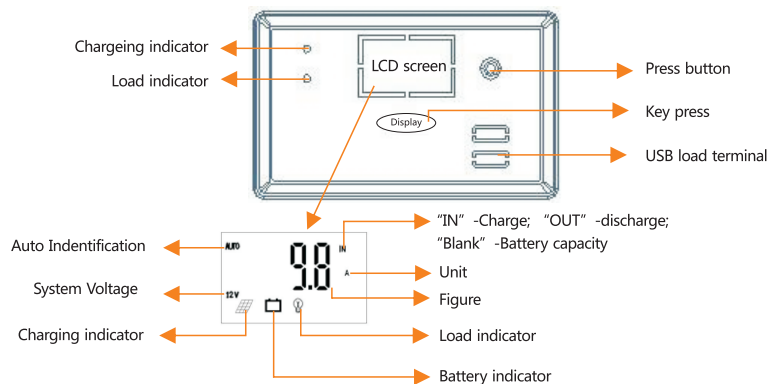
Main Feature

- ◆ Identify 12V/24V system voltage automatically.
- ◆ LED indicates the working status of battery and load.
- ◆ Double USB output charging for various electronic products. Max load current reach up to 1.2A.
- ◆ LCD screen could show charge current, discharge current and capacity of the battery.
- ◆ Adopting advanced ternary form charging algorithm, equalizing charge for battery once a week to prevent battery from imbalance and vulcanization effectively so that the battery service life will be extended.
- ◆ Manual control for the load.
- ◆ External temperature sensor can realize high-precision temperature compensation
- ◆ Various protections: Over charging protection, over discharging protection, over load, short circuit protection, reverse polarity protection, TVS lightning protection

Suggestions for use

1. When the battery over discharged, please cut off the USB load. Otherwise the USB only supply the emergency charging and it is bad for the battery.
2. Controller will fever during working. Therefore, it is suggested to install it in a ventilated environment.
3. Temperature compensation function needs to test the ambient temperature. Therefore, please place the storage battery and the controller in the same environment.
4. Choosing the cable with enough capacities for connection to avoid excessive loss on circuit which may cause the controller wrong judgment.
5. Common anode designed. If grounding, please use the anode.

Status indications



LED indicator	Indications	Status	Functions
	Charging indication	Long-term On	There is voltage on solar panel
		Long-term Off	No voltage on solar panel
	Load indication	Long-term On	Load open
		Long-term Off	Load close
		Slow twinkling	Overload protection
		Fast twinkling	Short circuit protection
	battery indication	Long-term On	Battery normal operation
		Long-term Off	Battery cut-off
		Slow twinkling	Over-discharge or over-voltage
Key Press	Status indication	First gear	Charge current
		Second gear	Battery capacity
		Third gear	Discharge current

Parameters

System voltage	12V/24V Auto
System current	10A;20A
No-load loss	< 12mA
Solar energy input voltage	< 55V
Overvoltage protection	17.0V ; ×2/24V
Equal charging voltage	14.6V ; ×2/24V (25°C) , duration:1h
Ascending charging voltage	14.4V ; ×2/24V (25°C) , duration:2h
Float charging voltage	13.8V ; ×2/24V (25°C)
Charging recovery voltage	13.2V ; ×2/24V (25°C)
over-discharging recovery voltage	12.5V ; ×2/24V
Under voltage	12.0V ; ×2/24V
Over-discharging voltage	11.1V ; ×2/24V
USB load cut-off voltage	10.6V ; ×2/24V
Total USB load rated current	1.2A
Temperature compensation	-4.0mv/°C/2V ;
Overload and short circuit protection	1.25 times of rated current: 30s;≥1.5 times of rated current: short circuit protection
Working temperature	-20°Cto +50°C
Protection level	IP30
Weight	140g(10A);170g(20A)
Dimensions	120×74×23.6(mm); (L×W×H)

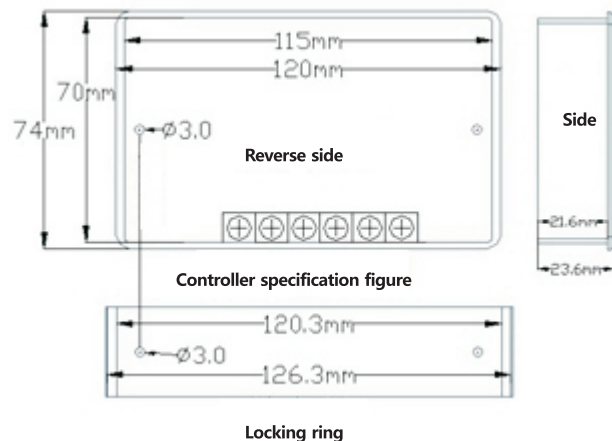
Installation method

1. Installation of controller should be stable and dimensions are as follows:

Overall dimension: 120×74×23.6(mm)

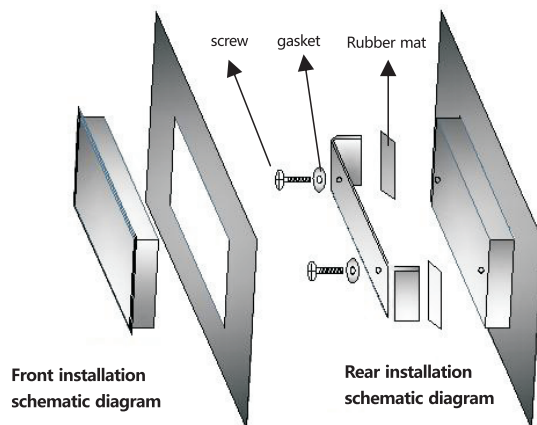
Installation dimension: 115×70(mm)

Installation hole diameter: 3.0(mm)

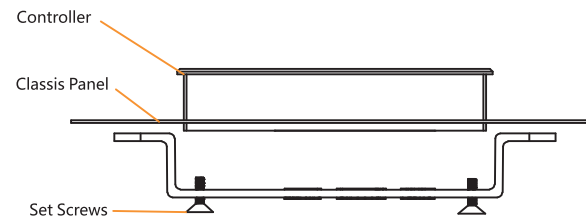


2. Installation method :

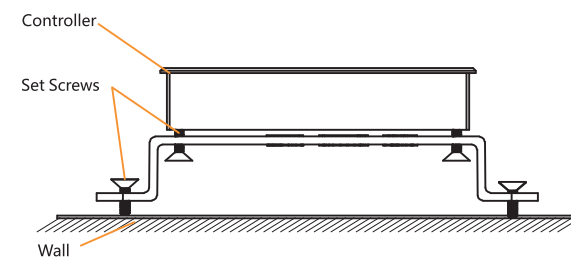
First put the controller into the panel then fix the controller with the locking ring by screw:



One way



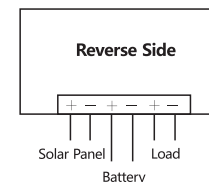
Another way



Installation and wiring

1. 12V or 24V voltage worked, the storage battery connected first, controller will work after recognize the battery volt automatically. If 12 V system, "12" showed on LCD screen. If 24V system, "24." showed on LCD screen
2. Connecting the solar panel: if connection is right, indicator of solar panel will twinkle. If no, please check the connection.
3. Connecting the load: connect the load wire to the controller' s load output terminal. Ensure the load current no exceed rate current.

Wiring diagram is as follows:



Methods for setting

1. After installation, short press the button to turn on or off the load
2. Slide the switch below the LCD screen to show controller' s parameters.
3. When over load or short circuit, please cut off the load and ensure the load power satisfy the requirement before connecting again. Long press for 2 seconds to remove the load protection.
4. When over voltage or over discharge, load will be cut-off. It will be recovered after the system voltage return to normal.