



MPPT SOLAR CHARGE CONTROLLER

For solar off-grid system

Sohigh MCB

**SOHIGH
SOLAR**



Full-range electronic protection functions



Self-timing



Various control mode for load



High voltage disconnect on, high voltage recovery



Parameters can be set and modified



Low voltage disconnect on, low voltage recovery



LCD display



Overload protection short circuit protection

■ TECHNICAL DATA

Model	MCB-50A	MCB-60A	MCB-80A	MCB-100A/120A
Input				
Maximum PV open circuit voltage	150V (at the lowest temperature) 138V (at a standard temperature of 25°)			
Minimum PV voltage	20V/40V/60V/80V			
Rated Charge Current	50A	60A	80A	100A
Output				
System voltage	12V/24V/36V/48V Auto			
Rated Discharge Current	25A	30A	40A	50A
Own consumption	≤35mA(48V)			
MPPT highest accuracy	99%			
Maximum charging efficiency	97%			
Charging control mode	Multi-stage(MPPT, Absorption, Float,Equalization,CV)			
Float charge	13.8V/27.6V/41.4V/55.2V			
Absorption charge	14.4V/28.8V/43.2V/57.6V			
Equalization charge	14.6V/29.2V/43.8V/58.4V			
Load disconnection(LVD)	10.8V/21.6V/32.4V/43.2V			
Load reconnection(LVR)	12.6V/25.2V/37.8V/50.4V			
Load control mode	Normal, light control, light and timing control, timing control, reverse light control			
Light control point voltage	5V/10V/15V/20V			
Battery Type	GEL, SLD,FLD and USR(default),Lithium batteries customization 3series 3.7V,4 series 3.7V,4series 3.2V,5series 3.2V			
Other				
Human interface	Color LCD with backlight, 3 buttons			
Cooling mode	AL alloy heat sink and cooling fan			
Wiring	High current copper terminal≤25 mm² (3AWG)			
Temperature probe	10K, line length 3 meters			
Communication mode	RS485,RJ45 port			
Working temperature range	-20~+55° C			
Storage temperature range	-30~+80° C			
Humidity	10%~90% No condensation			

Note: Please operate at the ambient temperature allowed by the controller.
If the ambient temperature exceeds the allowable range of the controller, please derate it.

※ Reamrks:

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*36V is not automatically recognized and can be set as a fixed system voltage;

** There is no equalizing charging method for colloidal batteries.

Product Advantages

12V / 24V / 36V / 48V

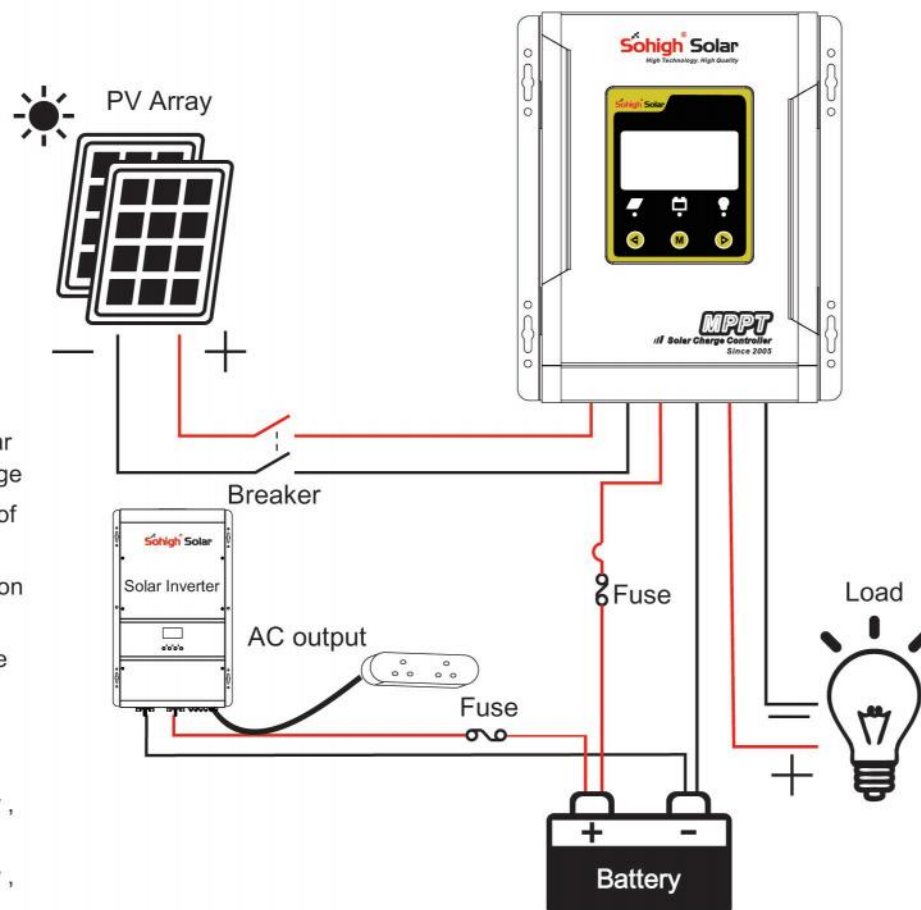
- Advanced digital power technology raises the circuit energy conversion efficiency to 98%.
- The controller features a limited current charging mode.
- MPPT Tracking efficiency is up to 99.9%.
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- Support charging lithium batteries, gel batteries, sealed batteries and vented batteries, etc.
- The controller has an overheat protection mechanism. With charging line loss compensation, the voltage of the battery terminal can be accurately controlled.
- The controller has an overheat protection mechanism.



Installation Process

Note: Please switch off the breakers of battery, solar panels array before installing the controller. Do not touch the positive and negative pole of solar panels or battery at the same time when installing, otherwise there is danger of electric shock!

- (1) Mount the controller on the wall and fasten the screws
- (2) Check whether the battery voltage and solar panels array voltage is within the requested range
- (3) Switch off the over-current breaker or fuse of the battery, solar panels array and load
- (4) Connect the battery to the battery terminal on the controller by cables and fasten the screws
- (5) Connect the load to the load terminal on the controller by cables and fasten the screws
- (6) Connect the solar panel to the solar panel terminals on the controller with cables
- (7) Switch on the breaker or fuse of the battery, then LCD display the system status
- (8) Switch on the breaker or fuse of the battery, then the controller starts to charge the battery



Dimensions (mm)



50A/60A dimensions:
Mounting hole pitch: 131mm*206mm
Mounting hole pitch: 171mm*206mm
Mounting hole pitch: 211mm*206mm
Mounting hole diameter: Ø5mm
Length*Width*Thickness: 265mm*220mm*88mm
Connecting terminals: Maximum 16mm²



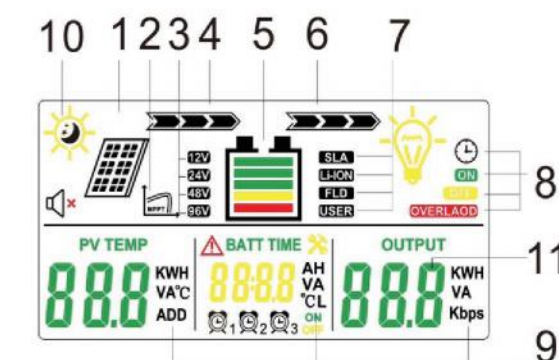
80A/100A dimensions:
Mounting hole pitch: 206mm*226mm
Mounting hole pitch: 246mm*226mm
Mounting hole pitch: 286mm*226mm
Mounting hole diameter: Ø5mm
Length*Width*Thickness: 340mm*240mm*108mm
Connecting terminals: Maximum 25mm²

Instruction



- ① LCD Display Screen
- ② Button
- ③ Communication port
- ④ Grounding terminal
- ⑤ Load terminal
- ⑥ Battery terminal
- ⑦ Solar panel terminal
- ⑧ Temperature sensor

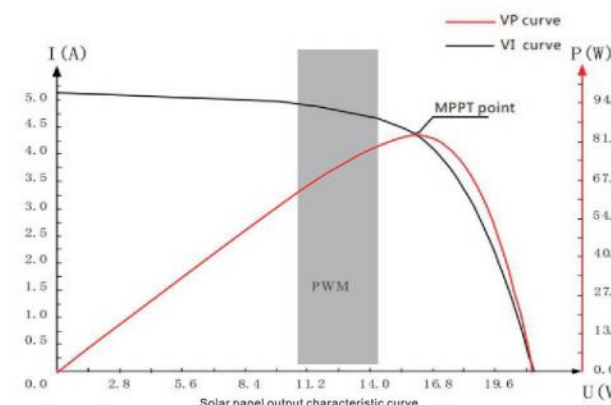
Icons Explanation



- | | |
|----------------------|-----------------------------|
| 1: Solar panel | 7: Battery type |
| 2: Working status | 8: Load working mode&status |
| 3: System voltage | 9: Parameters unit |
| 4: Charge display | 10: Day or Night |
| 5: Battery capacity | 11: Parameters display |
| 6: Discharge display | |

Maximum Power Point Tracking Technology

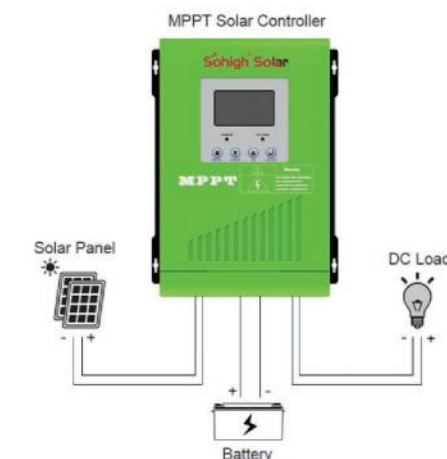
MPPT Tracking efficiency is up to 98%.



- With the advanced dual-peak or multi-peak tracking technology, when the solar panel is shadowed or part of the panel fails resulting in multiple peaks on the I-V curve, the controller is still able to accurately track the maximum power point.
- The maximum power point tracking algorithm can significantly improve the energy utilization efficiency of photovoltaic systems. The charging efficiency is 15% to 20% higher than the conventional PWM method.



Rated Charge Current	30A	40A
Charging mode	MPPT automatic maximum power point tracking	
Charging method	Three stages : Constant current charging(MPPT), Equalizing charging, float charging	
System Rated Voltage	12/24V Auto Rocognized	
System identification voltage range	12V system: 24V system:	DC 9V-DC15V DC18V-DC30V
MPPT Working voltage range	12V system: 24V system:	DC18V-DC80V DC30V-DC100V
Quiescent dissipation	<=2W	
Overall Unit efficiency	>=96.5%	
Photovoltaic module utilization ratio	<=99%	
Temperature compensation coefficient	4mV/°C/2V(25°C)	
Operating Temperature	-20°C~+55°C(to run at full rated current continuously)	
Storage Temperature	-30°C~+80°C	
Protection class	Ip30	
Grounded type	Positive grounded	
Battery Type	GEL, SLD, FLD and Usr (default)	
Light control voltage	5V	
Man-machine interface	LCD,2 Buttons	
Static loss	<=9.2mA/12V ; <=11.7mA/24V	
Charge loop voltage drop	<=0.29V	
Discharge loop voltage drop	<=0.16V	
Aperture for installation	Φ5mm	
Optional function	Remote communication, TTL, Standard Modbus protocol	



Rated Charge Current	50A	60A	80A	100A	120A
Charging mode	MPPT automatic maximum power point tracking				
Charging method	Three stages : Constant current charging(MPPT), Equalizing charging, float charging				
System Rated Voltage	12/24/36/48 or 96V (Optional)				
System identification voltage range	12V system: 24V system: 36V system: 48V system: 96V system:		DC 9V-DC15V DC18V-DC30V DC27V-DC45V DC36V-DC60V DC80V-DC120V		
MPPT Working voltage range	12V system: 24V system: 36V system: 48V system: 96V system:		DC18V-DC80V DC30V-DC100V DC18V-DC100V DC30V-DC150V DC30V-DC200V		
Quiescent dissipation	<=2W				
Overall Unit efficiency	>=96.5%				
Photovoltaic module utilization ratio	<=99%				
Temperature compensation coefficient	4mV/°C/2V(25°C)				
Operating Temperature	-20°C~+55°C(to run at full rated current continuously)				
Storage Temperature	-30°C~+80°C				
Protection class	Ip30				
Grounded type	Positive grounded				
Battery Type	GEL, SLD, FLD and Usr (default)				
Light control voltage	5V				
Man-machine interface	LCD,2 Buttons				
Static loss	<=9.2mA/12V ; <=11.7mA/24V				
Charge loop voltage drop	<=0.29V				
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