

AC ENERGY



SOLAR CHARGE CONTROLLER

MPPT 20A

Installation guide

Instructions

The MPPT solar charge controller, equipped with the Max Power Point Target function, is perfectly suited for charging a battery or battery pack using solar energy. It is designed for off-grid solar energy systems with a wide operating voltage range.

MPPT Solar Charge Controller, combine the most advance charging technology with high-efficiency and professional battery maintenance technology, has numerous programming options, perfect protection function and Intuitive LCD display.

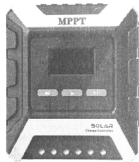
Functions

Product features & advantages:

- 12V / 24V or 48V voltage automatic switching
- Applicable range of system voltage: 12V~ 80V
- 20 Ampere Charge Output
- High power and high efficiency (maximum rated power 960W)
- LCDscreen (operation interface, parameter setting, fault message and other contents are displayed)
- Multistage charging technology
- Three kinds of batteries are available: lead acid battery, ternary lithium battery, lithium iron phosphate battery
- CE, ROHS certification, ISO9001 quality system requirements

Protection

- Over charge protection
- Deep discharge protection
- Short-circuit protection
- Battery Open circuit protection
- Overheat temperature protection
- Battery overpressure over current protection

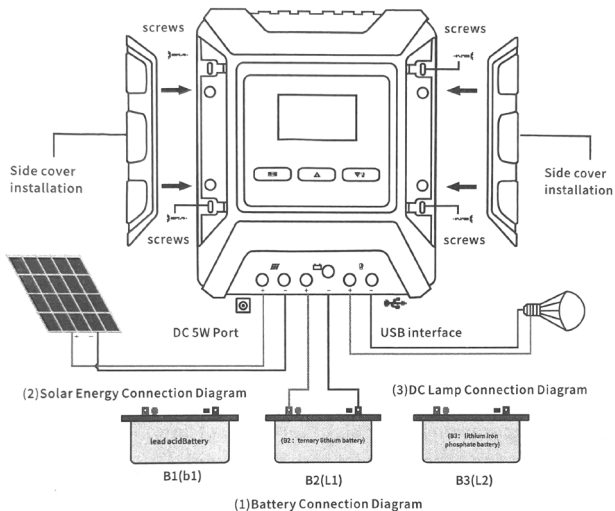


Product picture

Controller and Solar System Connection

Diagram and Installation

- Fix the screws in the four holes of controller before install the side covers to hidden screws



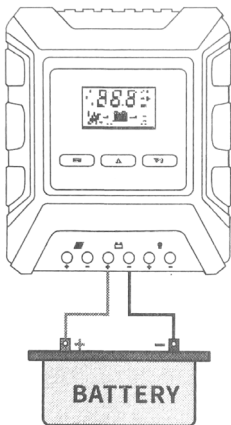
***Caution: To avoid damaging the MPPT, carefully read the following and follow the connection steps in the order from 1 to 3.**

- Inductive load devices cannot be connected to the controller
- The maximum voltage of PV panel shall not exceed 80V, otherwise the controller will be damaged.
- 12V Lithium Battery: Suitable for a pack of 4 modules for Lithium Phosphate or Lithium Iron/Phosphate batteries.
- 24V Lithium Battery: Suitable for a pack of 8 modules for Lithium Phosphate or Lithium Iron/Phosphate batteries.
- 48V Lithium Battery: Suitable for a pack of 16 modules for Lithium Phosphate or Lithium Iron/Phosphate batteries.
- Failure to follow the above instructions may damage the MPPT or the batteries. If in doubt, contact the battery manufacturer to verify the technology, number of modules, and the presence of a BMS.

How to connect products

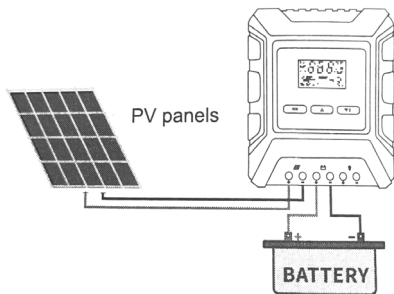
Step1: battery connection

1. Use copper wire with a diameter of more than 6mm^2 , red wire for the positive pole and black wire for the negative pole,
2. Strip the end of the cable by 8 mm, unscrew the connection screw on the controller, insert the cable, and tighten the connection screw.
3. Attach the other end of the cables to the batteries, tightening them firmly.
4. Finally, pull the wire, and make sure that the screw compresses the copper wire.
5. After the battery connection is completed, the controller is powered on, and the screen lights up to display the battery parameters, indicating that the connection is successful.



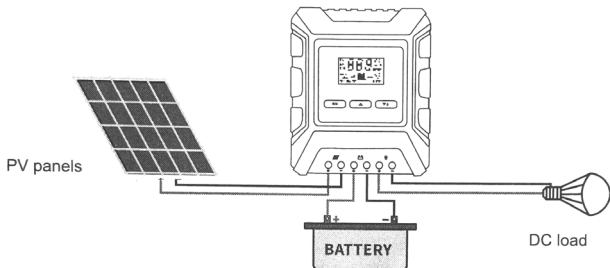
Step2: solar panel connection

1. Connect the PV solar silicon rubber plate with copper wire with a diameter of more than 6mm^2 , connect the «+» positive pole with the red wire, and connect the «-» negative pole with the black wire.
2. Strip the end of the cable by 8 mm, unscrew the connection screw on the controller, insert the cable, and tighten the connection screw.
3. The other end is connected to the solar silica gel plate. Pull out the wire to make sure that the screw pressing copper wire is connected to the solar panel.
4. After the solar panel connection is completed, the icon of solar panel and sun will be displayed on the screen when there is sufficient sunlight, and the icon of solar panel and moon will be displayed on the screen when it is cloudy or at night.

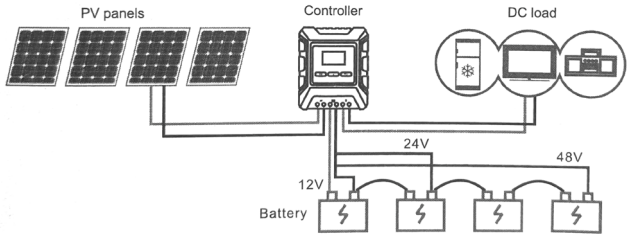


Step3: load connection

1. First, press the down key on the controller to turn off the load output (the arrow on the screen and the light on the bulb are gone), which means that the load output function is turned off successfully. If the rear wiring is not turned off, there will be a short circuit danger.
2. Connect the load with copper wire with a diameter of more than 6mm^2 , connect the «+» positive pole with the red wire, and connect the «-» negative pole with the black wire.
3. Strip the end of the cable by 8 mm, unscrew the connection screw on the controller, insert the cable, and tighten the connection screw.
4. Pull out the lead wire to confirm that the screw presses the copper wire. Verify again that the load output is off.
5. Connect the other end of the wire to the load (« red line » + « black line »). After the load connection is completed, and the check is correct, press the down key on the controller to turn on the load and the load is powered on.



System Connect



Product connection diagram

Disassembly steps:

- Step 1: remove the solar panel;
- Step 2: remove the battery;
- Step 3: remove the load

The charge and discharge parameters are the system default. Not adjustable.

Warning: If the battery is not matched according to the above operation and specification, the damage or any problem is irrelevant to the product.

Lead acid battery system Specifications

Model (MPPT)	20A
Parameter Characteristics	
System Voltage	12V / 24V / 48V
Max.Solar Power Input	240W / 480W / 960W
DC Input	
MPPT Voltage	12v < working voltage < 80V
Open-circuit Voltage	15V~80V
Module Current	20A
DC Output	
Load Current	0~20A
LVR	12.5V / 28.2V / 56.4V
LVD	11.5V / 23V / 46V
Battery	
Charging Current	20A
Charging Completed Voltage	14.2V / 28.4V / 56.6V
Floating Charging Voltage	14.4V / 28.8V / 57.6V
Constant Charging	15V / 30V / 60V
Set Battery Type	liquid
Operating Condition	
Environment Temperature	-20°C~+40°C
Accessories & Installation	
Product Size	130 x 156 × 50mm
N.W/G.W	0.55kg / 0.68kg

Ternary lithium battery system parameters

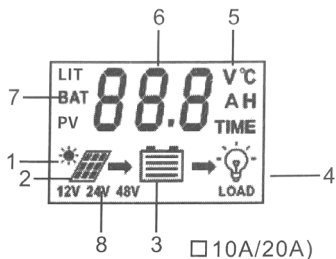
Model (MPPT)	20A
Parameter Characteristics	
System Voltage	12.6V / 25.2V / 50.4V
Max.Solar Power Input	252w / 504w / 1008w
DC Input	
MPPT Voltage	12.6v < working voltage < 80v.4v
Open-circuit Voltage	15V-80V
Module Current	20A
DC Output	
Load Current	0-20A
LVR	11.6V(adjustable range: 11V-11.7V) 25.2V system:22V-23.4V 50.4V system:44V-46.8V
LVD	10V(adjustable range: 9V-11V) 25.2V system:18V-22V 50.4V system:36V-44V
Battery	
Charging Current	20A
Charging Completed Volt	12.6v / 25.2v / 50.4v non-ajus
Floating Charging Volt	12V(adjustable range: 11V-13.5V) 25.2V system: 22V-27V 50.4V system:44V-54V
Constant Charging	12.6v / 25.2v / 50.4V
Set Battery Type	Ternary lithium battery
Operating Condition	
Environment Temperature	-20°C~+40°C
Accessories & Installation	
Product Size	130 x 156 x 50mm
N.W/G.W	0.55kg / 0.68kg

LiFePo4 battery system parameters

Model (MPPT)	20A
Parameter Characteristics	
System Voltage	14.5V / 29V / 58V
Max.Solar Power Input	290w / 580w / 1160w
DC Input	
MPPT Voltage	14.5v < working voltage < 80v
Open-circuit Voltage	15V-80V
Module Current	20A
DC Output	
Load Current	0-20A
LVR	13.5V(adjustable range: 12.8V-13.8V) 29V system:25.6V-25.7V 58V system:51.2V-55.2V
LVD	12V(adjustable range: 10.3V-12.8V) 29V system:20.6V-27.6V 58V system:51.2V-55.2V
Battery	
Charging Current	20A
Charging Completed Volt	14.5v / 29v / 58v non-ajus
Floating Charging Volt	13.8V(adjustable range: 12.5V-15.5V) 29v system: 25V-31V 58V system:50V-26V
Constant Charging	14.5v / 29v / 58v
Set Battery Type	LiFePo4 battery
Operating Condition	
Environment Temperature	-20°C~+40°C
Accessories & Installation	
Product Size	130 x 156 x 50mm
N.W/G.W	0.55kg / 0.68kg

LCD Display

- 1) Daytime Mode
- 2) Solar Panel
- 3) Battery Power Display
- 4) Load
- 5) Unit
- 6) Digital Display
- 7) Battery Symbol
- 8) Battery System Voltage

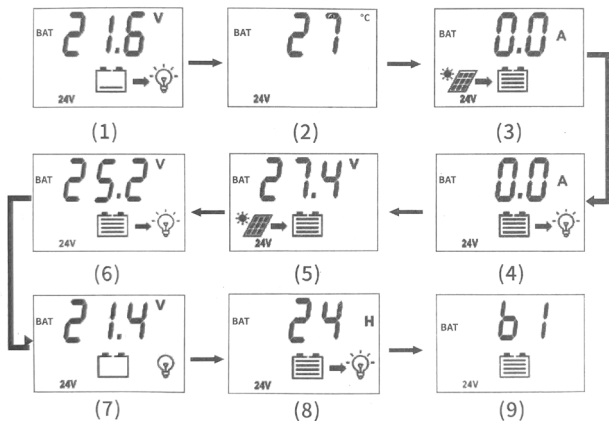


Controller Parameter Interface

Setting method:

- 1) Press the menu key once to switch between (1) - (9) parameter display interfaces
- 2) If there is a remark (adjustment) after the operation prompt, it means that the parameter can be adjusted
- 3) Parameter setting method: long press the menu key for 5 seconds, the screen will flash, enter the setting state, then press the «up» and «down» keys to adjust the parameters, and finally press the menu key to confirm.
- 4) The controller interface of 10a-60a is always on, and the controller interface of 80A is on for 40 seconds, then it will be black, Press the menu key again to light up the screen.

Controller Interface Indicate 10A-20A Setting Menu Interface



10A-20A Interface/ParameterSetting

1. Home page
2. Environment temperature
3. Charging current
4. Discharge current
5. Floating charge voltage setting (adjustment)
6. Recovery voltage setting (adjustment)
7. Load switch (adjustment)
8. Light control delay setting (adjustment)
9. Battery type setting (adjustment)

Parameter setting method



MENU



UP



DOWN

1. Floating charge voltage setting : press the menu key to select the mode, and the screen will display the interface shown in Figure (5), Long press for 5 seconds, the screen will flash, and press the up and down buttons to set the floating charge voltage. Press the menu key to confirm.
2. Recovery voltage setting : refers to charging according to the voltage the customer wants to charge. Press the menu key to select the mode. The screen will display the interface shown in Figure (3). Long.press for 5 seconds and the screen will flash. Press the up and down keys to set the recovery voltage. Press the menu key to confirm.
3. Load switch: 1) when the main page is displayed on the screen, as shown in Figure (1), directly press the key to close or open the load output. 2) Press the menu key to select the mode. The screen will display the interface shown in Figure (4). Long press for 5 seconds and the screen will flash. Press the key to turn off or on the load output. Figure (4) appears on the display to prove that the load output is turned off successfully. To turn it on again, press the next key again.
4. Setting of light control delay mode: press the menu key to select the mode, and the screen will display the interface shown in Figure (7). Long press the screen for 5 seconds to flash; and enter the light control delay mode. 00 represents whether there is sun output, 01 and other figures represent the working time when there is no sun. Press the up and down buttons to set the time. Press the menu key to confirm.

5. Battery type mode setting: press the menu key to select the mode, and the screen will display the interface shown in Figure (8). Long press for 5 seconds, the screen will flash, enter the battery type selection mode, press the up and down buttons to select different battery types, b1: lead acid battery, b2: ternary lithium battery, b3: lithium iron phosphate battery. Press the menu key to confirm.

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