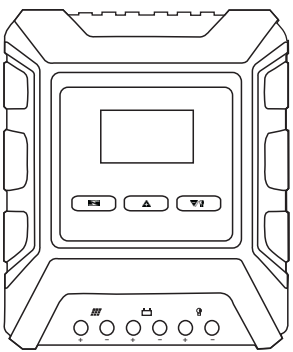
MPPT太阳能控制器操作手册

MPPT SOLAR CONTROLLER
Operation manual



instructions

MPPT Solar charge controller, which has the Max Power Point Target Function, is suitable to be used in the battery or batteries pack solar energy charging and load charging control. It is suitable for off-grid solar energy system with wide voltage.

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

Functions

(Product picture)

Product features & advantages:

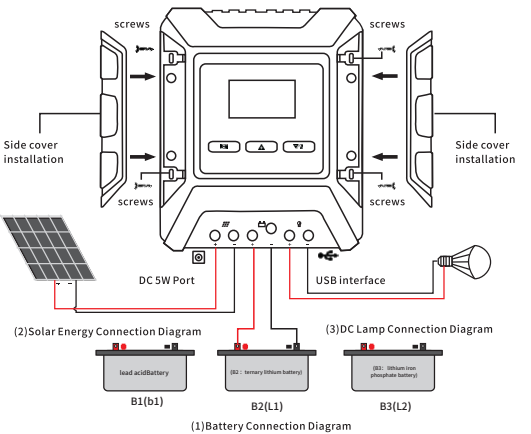
- 12V / 24V / 48V voltage automatic switching
- Applicable range of system voltage: 12V ~ 80V
- 10A/20A/30A/40A/50A/60A/80A load output
- High power and high efficiency (maximum rated power 3840w)
- LCD screen (operation interface, parameter setting, fault message and other contents are displayed)
- 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

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



*Warning: Please follow the（1） （2） （3）connection arrow to avoid damages.

*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 system:Only suitable for 3 series of ternary lithium batteries, i.e. nominal battery voltage 11.1v; Only suitable for 4 series of lithium iron phosphate batteries, i.e. nominal battery voltage 12.8v

*24V system:Only suitable for 6 series of ternary lithium batteries, i.e. nominal voltage of the battery 22.2v; Only suitable for 8 series of lithium iron phosphate batteries, i.e. nominal voltage of the battery 25.6v

*48V system:Only suitable for 12 series of ternary lithium batteries, i.e. nominal voltage of the battery 44.4v; Only suitable for 16 series of lithium iron phosphate batteries, i.e. nominal voltage of the battery 51.2v

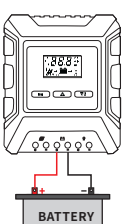
*Warning: if you do not follow the above operation, do not use the battery according to the specification, damage the controller or any problem has nothing to do with this product. If you have any questions about the battery, please contact the battery manufacturer by yourself.

How to connect products

Step 1: battery connection

1) Use copper wire with a diameter of more than 6mm², red wire for the positive pole and black wire for the negative pole,

2) Remove the rubber from the copper wire end connecting the controller terminal, expose the copper core for 8mm, screw up the connecting terminal screw of the controller anticlockwise with a screwdriver, insert the copper core of the conductor into the terminal, and screw down the connecting screw clockwise with a screwdriver,



3) The other end is connected to the battery buckle, which is fixed on the battery and tightened with screws.

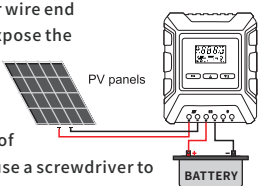
4) Finally, pull the wire, and make sure that the screw compresses the copper wire.

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.

Step 2: solar panel connection

1) Connect the PV solar silicon rubber plate with copper wire with a diameter of more than 6mm², connect the "+" positive pole with the red wire, and connect the "-" negative pole with the black wire.

2) Remove the rubber from the copper wire end connecting the controller terminal, expose the copper core for 8mm, use a screw driver to screw up the connecting terminal screw of the controller anticlockwise, insert the copper core of the conductor into the terminal, and use a screwdriver to screw down the connecting screw clockwise.



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.

Step 3: 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 6mm², connect the "+" positive pole with the red wire, and connect the "-" negative pole with the black wire.

3) Remove the rubber from the copper wire end connecting the controller terminal, expose the copper core for 8mm, use a screwdriver to screw up the connecting terminal screw of the controller anticlockwise, insert the copper

Ternary lithium battery system parameters

Model (MPPT)	10A20A	30A40A	50A60A	80A
Parameter Characteristics				
System Voltage	12.6V/25.2V/50.4V	12.6V/25.2V 50.4V	12.6V/25.2V/50.4V	12.6V/25.2V/50.4V
Max.Solar Power Input	126w252w504w/252w504w1008w	378w756w1512w/504w1008w2016w	630w1260w2520w/756w1512w3024w	1008W/2016W/3840W
DC Input				
MPPT Voltage	12.6v<working voltage<80v.4v	12.6v<working voltage<80v.4v	12.6v<working voltage<80v.4v	12.6v<working voltage<80v.4v
Open-circuit Voltage	15V-80V	15V-80V	15V-80V	15V-80V
Module Current	10A~20A	30A~40A	50A~60A	80A
DC Output				
Load Current	0-10A/0-20A	0-30A/0-40A	0-50A/0-60A	0-80A
LVR	11.6V(adjustable range: 11V-11.7V) 25.2V system: 22V-23.4V 50.4V system: 44V-46.8V	11.6V(adjustable range: 11V-11.7V) 25.2V system: 22V-23.4V 50.4V system: 44V-46.8V	11.6V(adjustable range: 11V-11.7V) 25.2V system: 22V-23.4V 50.4V system: 44V-46.8V	11.6V:11.5V 25.2V system: 23V 50.4V system: 46V
LVD	10V(adjustable range: 9V-11V) 25.2V system: 18V-22V 50.4V system: 36V-44V	10V(adjustable range: 9V-11V) 25.2V system: 18V-22V 50.4V system: 36V-44V	10V(adjustable range: 9V-11V) 25.2V system: 18V-22V 50.4V system: 36V-44V	10V:9V 25.2V system: 18V 50.4V system: 36V
Battery				
Charging Current	10A /20A	30A/ 40A	50A/60A	80A
Charging Completed Volt	12.6v 25.2v 50.4v non-ajus	12.6v 25.2v 50.4v non-ajus	12.6v 25.2v 50.4v non-ajus	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	12V(adjustable range: 11V-13.5V) 25.2V system: 22V-27V 50.4V system: 44V-54V	12V(adjustable range: 11V-13.5V) 25.2V system: 22V-27V 50.4V system: 44V-54V	12V:12V 25.2V system: 24V 50.4V system: 48V
Constant Charging	**12.6v 25.2v 50.4v**	12.6v 25.2v 50.4v	12.6v 25.2v 50.4v	12.6v 25.2v 50.4v
Set Battery Type	Ternary lithium battery	Ternary lithium battery	Ternary lithium battery	Ternary lithium battery
Operating Condition				
Environment Temperature	-20℃~+40℃	-20℃~+40℃	20℃~+40℃	**-10℃~45℃**
Accessories & Installation				
Product Size	130x156x50mm	153x190x53mm	193x227x58mm	193x227x58mm
N.W/G.W	0. 55kg/0.68kg	0. 8kg/0.85kg	1.11kg/1.32kg	1.11kg/1.32kg

LiFePo4 battery system parameters

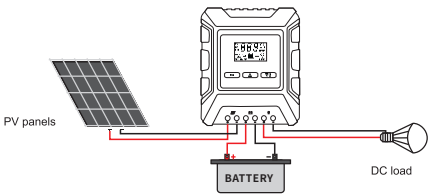
Model (MPPT)	10A20A	30A40A	50A60A	80A
Parameter Characteristics				
System Voltage	14.5V29W58V	14.5V29W58V	14.5V29W58V	14.5V29W58V
Max.Solar Power Input	145w290w580w/290w580w1160w	435w870w1740w/580w1160w2320w	725w1450w2880w/870w1740w2880w	1160W/2320W/3840W
DC Input				
MPPT Voltage	14.5v<working voltage<80v	14.5v<working voltage<80v	14.5v<working voltage<80v	14.5V<working voltage<80V
Open-circuit Voltage	15V-80V	15V-80V	15V-80V	15V-80V
Module Current	10A~20A	30A~40A	50A~60A	80A
DC Output				
Load Current	0-10A/0-20A	0-30A/0-40A	0-50A/0-60A	0-80A
LVR	13.5V(adjustable range: 12.8V-13.8V) 29V system: 25.6V-25.7V 58V system: 51.2V-55.2V	13.5V(adjustable range: 12.8V-13.8V) 29V system: 25.6V-25.7V 58V system: 51.2V-55.2V	13.5V(adjustable range: 12.8V-13.8V) 29V system: 25.6V-25.7V 58V system: 51.2V-55.2V	13.5V:12V 29V system: 24V 58V system: 48V
LVD	12V(adjustable range: 10.3V-12.8V) 29V system: 20.6V-27.6V 58V system: 51.2V-55.2V	12V(adjustable range: 10.3V-12.8V) 29V system: 20.6V-27.6V 58V system: 51.2V-55.2V	12V(adjustable range: 10.3V-12.8V) 29V system: 20.6V-27.6V 58V system: 51.2V-55.2V	12V:10V 29V system: 20V 58V system: 40V
Battery				
Charging Current	10A/20A	30A/ 40A	50A /60A	80A
Charging Completed Volt	14.5v /29v /58v non-ajus	14.5v /29v /58v non-ajus	14.5v/ 29v/ 58v non-ajus	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	13.8V(adjustable range: 12.5V-15.5V) 29V system: 25V-31V 58V system: 50V-26V	13.8V(adjustable range: 12.5V-15.5V) 29V system: 25V-31V 58V system: 50V-26V	13.8V:13.8V 29V system: 29.6V 58V system: 55.2V
Constant Charging	14.5v/ 29v/ 58v	14.5v/ 29v /58v	14.5v/ 29v/ 58v	14.5v /29v /58v
Set Battery Type	LiFePo4 battery	LiFePo4 battery	LiFePo4 battery	LiFePo4 battery
Operating Condition				
Environment Temperature	-20℃~+40℃	-20℃~+40℃	-20℃~+40℃	-10℃~45℃
Accessories & Installation				
Product Size	130x156x50mm	153x190x53mm	193x227x58mm	193x227x58mm
N.W/G.W	0. 55kg/0.68kg	0. 8kg/0.85kg	1.11kg/1.32kg	1.11kg/1.32kg

core of the conductor into the terminal, and use a screwdriver to screw down the connecting screw clockwise.

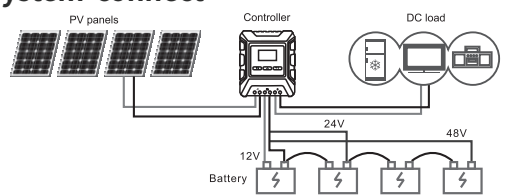
4) Pull out the lead wire to confirm that the screw presses the copper wire. Verify again that the load output is off.

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

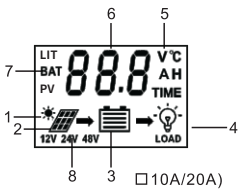
The charge and discharge parameters are the system default. Not adjustable.

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

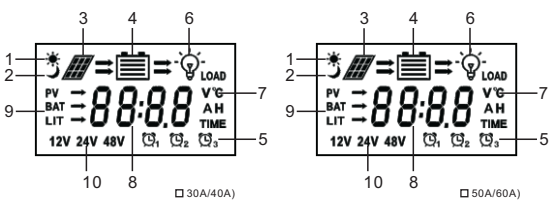
Lead acid battery system Specifications

Model (MPPT)	10A20A	30A40A	50A60A	80A
Parameter Characteristics				
System Voltage	12V/24V/48V	12V/24V/48V	12V/24V/48V	12V/24V 48V
Max.Solar Power Input	240W/480W/960W	480W/960W/1600W	720W/1440W/2880W	960W/1920W-3840W
DC Input				
MPPT Voltage	12V<working voltage<80v	12V<working voltage<80v	12V<working voltage<80v	12V<working voltage<80v
Open-circuit Voltage	15V~80V	15V~80V	15V~80V	15V~80V
Module Current	20A	Max. 40A	Max. 60A	Max.80A
DC Output				
Load Current	0~20A	0~40A	0~60A	0~80A
LVR	12.5V/28.2V/56.4V	12.5V/28.2V/56.4V	12.5V/28.2V/56.4V	12.6V/25.2V/50.4V
LVD	11.5V/23V/46V	11.5V/23V/46V	11.5V/23V/46V	10.7V/21.4V/42.8V
Battery				
Charging Current	10A(20A)	30A(40A)	50A(60A)	80A
Charging Completed Voltage	14.2V/28.4V/56.6V	14.2V/28.4V/56.6V	14.2V/28.4V/56.6V	14.4V/28.8V/57.6V
Floating Charging Voltage	14.4V/28.8V/57.6V	14.4V/28.8V/57.6V	14.4V/28.8V/57.6V	13.7V/27.4V/54.8V
Constant Charging	15V/30V/60V	15V/30V/60V	15V/30V/60V	15V/30V/60V
Set Battery Type	liquid	liquid	liquid	liquid
Operating Condition				
Environment Temperature	-20℃~+40℃	-20℃~+40℃	-20℃~+40℃	-10℃~+45℃
Accessories & Installation				
Product Size	130x156x50mm	153x190x53mm	193x227x58mm	193x227x58mm
N.W/G.W	0. 55kg/0.68kg	0. 8kg/0.85kg	1.11kg/1.32kg	1.11kg/1.32kg

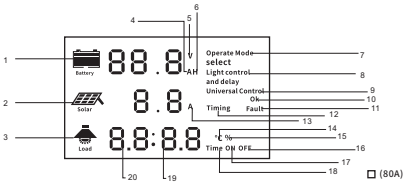
LCD Display



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



1)Daytime mode 2)Night Mode 3)Solar Panel
4)Battery power display 5)Time Setting 6)Load
7)Unit 8)Digital display 9)Battery Symbo
10)Battery System Voltage



1) Battery 2) Solar panel 3) Load
4) Load current 5) Voltage 6) Light control
7) Operation mode selection 8) Light control delay
9) Universal control 10) Operation mode selection
11) Illegal operation 12) Time setting 13) Current
14) External temperature 15) Battery capacity 16) Off
17) On 18) Use time 19) Minutes 20) Hours

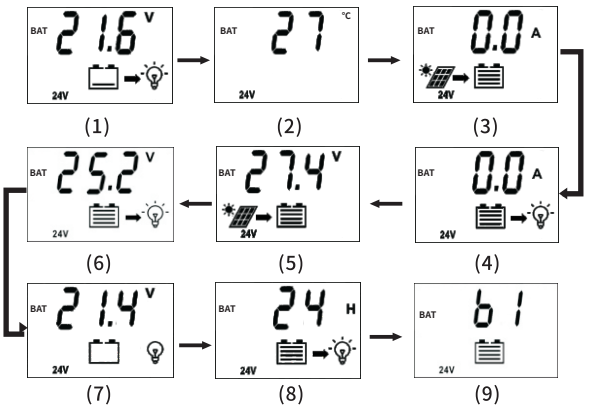
Controller Parameter Interface

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) 10a-60a 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) 80A parameter setting method: long press the menu key for about 3 seconds, the screen will flash, enter the setting state, then press the "up" and "down" keys to adjust the parameters, after confirming the parameters (without pressing the menu key for confirmation), stay for about 3 seconds, and automatically return to the main interface.
5) 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/ Parameter Setting

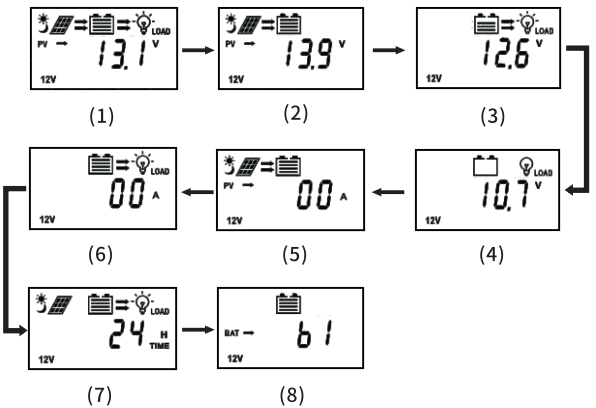
1. Home page
2. Environment temperature
3. Charging current
4. Discharge current
5. Floating charge voltage setting(adjustment)
6. Recovery voltage setting(adjustment)
7. Load switch(adjustment)
8. Light control delay setting(adjustment)
9. Battery type setting(adjustment)

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 (6). 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 (7). Long press for 5 seconds and the screen will flash. Press the key to turn off or on the load output. Figure (7), 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 (8). 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 (9). 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.

30A-40A Setting Menu Interface



30A-40A Interface/ Parameter Setting

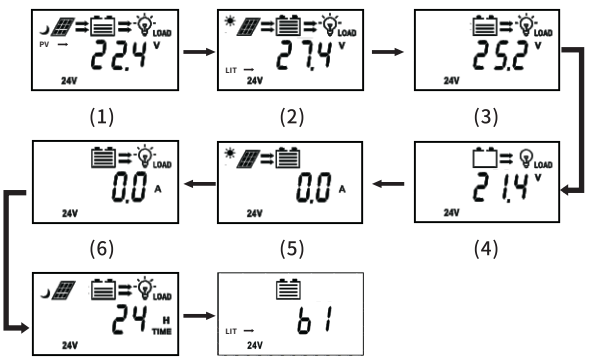
1. Home page
2. Floating charge voltage setting(adjustment)
3. Recovery voltage setting(adjustment)
4. Load switch(adjustment)
5. Charging current
6. Discharge current
7. Light control delay setting(adjustment)
8. Battery type setting(adjustment)

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 (2). 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.

50A-60A Setting Menu Interface



50A-60A Interface/ Parameter Setting

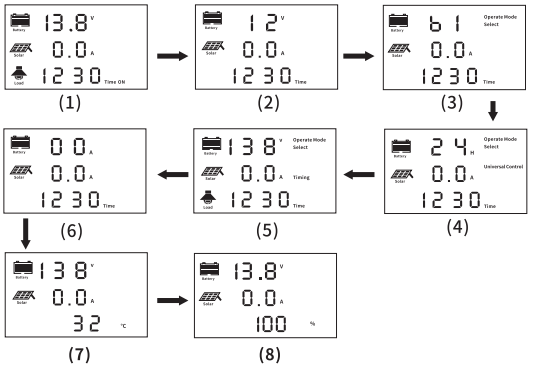
1. Home page
2. Floating charge voltage setting(adjustment)
3. Recovery voltage setting(adjustment)
4. Load switch(adjustment)
5. Charging current
6. Discharge current
7. Light control delay setting(adjustment)
8. Battery type setting(adjustment)

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(2). 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.

80A Setting Menu Interface



Controller operation interface

1. Home page
2. System voltage display
3. Battery type setting (adjustment)
4. Light control mode setting (adjustment)
5. Light control time setting (adjustment)
6. Load discharge current
7. Environment temperature
8. Battery capacity display

Parameter setting method

MENU UP DOWN

1.Battery type setting: long press the menu key for about 3 seconds, and the screen flickers to the figure (3) interface. Press the up key to select the battery type (B1: lead acid battery, L1: lithium ternary battery, L2: lithium iron phosphate battery), and the battery type will stay for about 3 seconds to automatically determine and return to the main interface.

2.Setting of light control mode: the system defaults to 24h mode;

24h: unlimited time, open or close load output manually;

00h: with solar energy, automatically turn off the load, without solar energy, automatically turn on the load;

01h: turn off or on the load according to the set time.

Long press the menu key for about 3 seconds and the screen will flash to the figure (4) interface. Press the up key to select (24h / 00h / 01h). Select the mode according to the demand, stay for about 3 seconds and return to the main interface automatically.

3.Setting of light control time: long press the menu key for about 3 seconds and the screen flashes (5). Press the up key to set the hour and press the key to set the minute. Stay for about 3 seconds and return to the main interface automatically.