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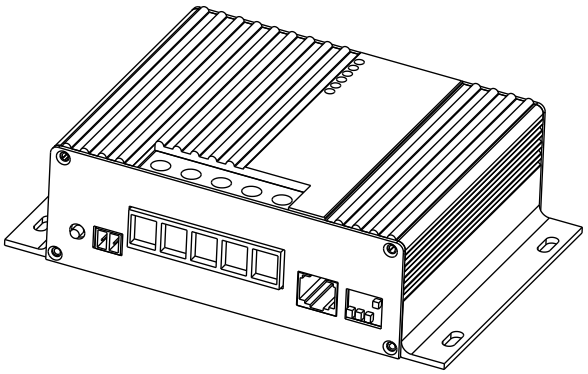


MPPT
solar charge controller
USER MANUAL
MPPT5010

Thank you for using our products, please read this product manual carefully before using the products

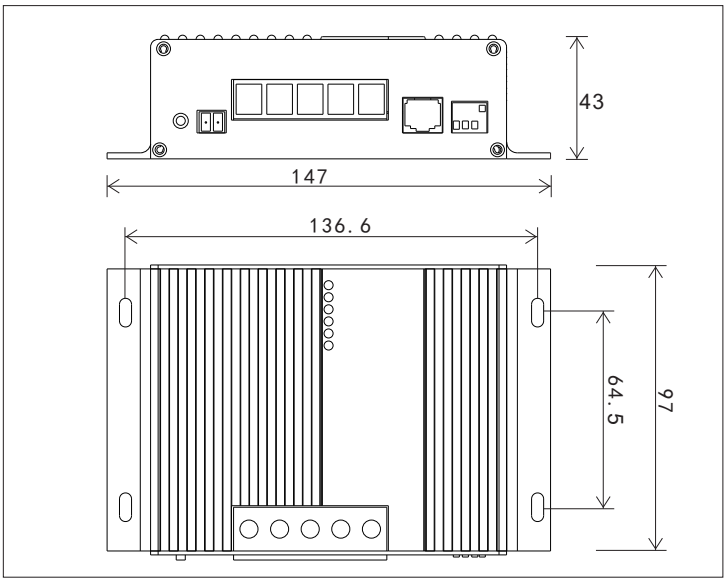
Description

1. Mainly applicable to small off-grid solar power generation systems, such as: home solar power generation systems, solar RV power generation, ships, unattended base stations, outposts, etc.
2. System voltage: 12V/24V automatic recognition
3. Can choose a variety of batteries, including lead-acid batteries, lithium ion(NCM), and LiFePO4
4. Adopt three-stage MPPT charging method. Effectively improve the charging efficiency of solar panels.
5. Bluetooth Dongel can be connected extern and various working parameters of the solar controller can be checked from the mobile phone through a free APP, the communication range is less than 10 meters , (optional function)
6. External solar monitor
6. This product adopts intelligent single chip design, all work processes are controlled by software, which can achieve high precision and high reliability.
7. The load output can be turned on and off manually by pressing the button
8. Fully automatic control with over-charge, over-discharge, overload protection, anti-reverse connection protection, etc.

Installation attention

1. The solar cell module will generate electric current under the light. Even in the case of low light, it can generate high voltage. Before installation, be sure to prepare for the solar power. Covered by the pool board.
2. Before installing the controller, please confirm whether the voltage on the solar panel and the battery voltage match the controller.
3. During installation, do not touch all bare wires
4. The positive and negative poles of the battery must not be short-circuited. It is recommended to install a fuse in series with the positive pole when installing the battery.
5. Please do not use inferior raw materials. Such as wire, screws.
6. Maintain the ventilation and heat dissipation effect of the controller installation location. The controller will generate heat during operation. If good heat dissipation conditions are not obtained, it may cause malfunction and fire.
7. Do not install the controller in a humid environment. If it must be installed, please do a good job of moisture-proof and waterproof treatment.
8. Keep children away from the photovoltaic system.

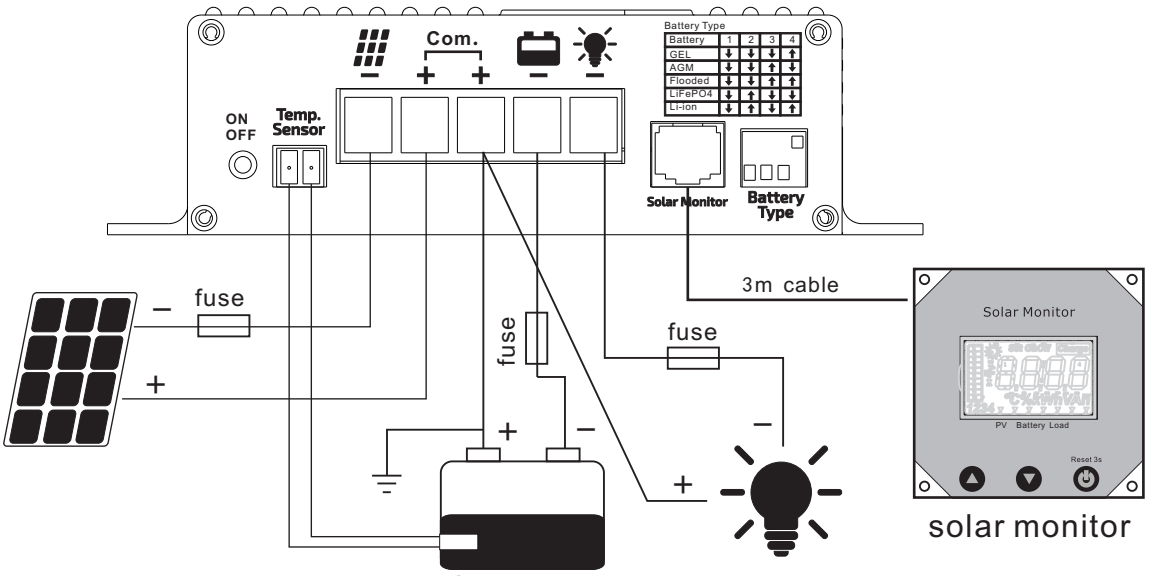
Dimension

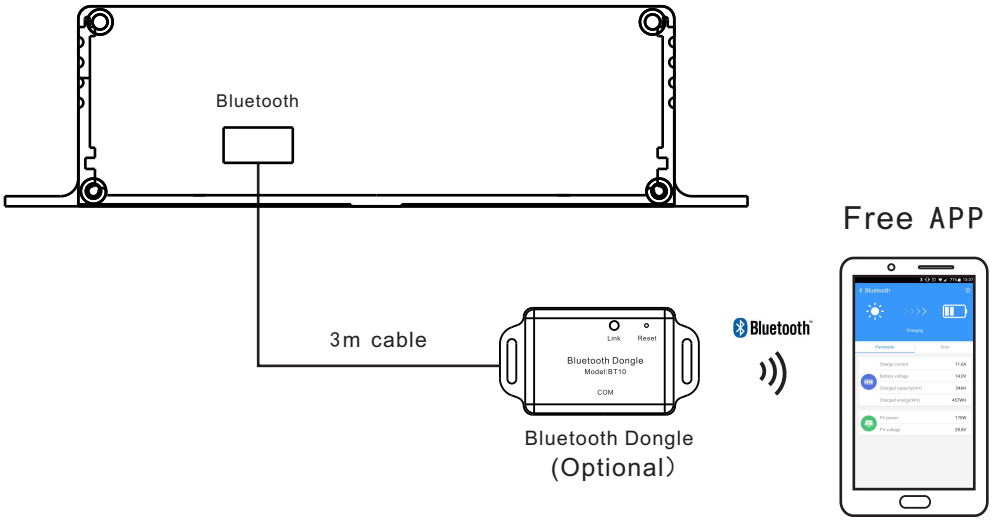


NOTE

1. It is recommended to install the product indoors to avoid direct sunlight, if it must be installed outdoors,Please take measures to prevent rain.
2. This controller is only suitable for solar panels. Cannot be used for diesel power generation, city power, windPower generation and other charging control, otherwise it will cause damage to the controller.
3. Please ensure that the controller is well ventilated and cannot be installed in a completely sealed environment

CONNECTION





NOTE

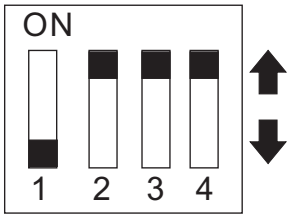
1. The controller uses a common positive design, If you need to connect the ground wire, please connect to the positive pole
2. Wiring sequence: Before connecting the controller, it is recommended to first disconnect the battery and the solar panel and the load. When the controller terminal cable is connected and fixed, first connect the battery, then the solar panel ,Finally connect the load. If you want to remove the controller cable, it is recommended to remove the solar panel first, then remove the load, and finally remove the battery
3. Wire diameter: Recommended 10A: 2.5mm^2, 20A: 4mm^2, Remarks: The shorter the connection distance between the battery and the controller, the better.
4. Fuse: because the system uses a common positive electrode design, the battery fuse must be connected to the negative electrode. Fuse specifications: 10A model: 20A, 20A model: 40A

Instructions

Battery selction

1. Battery type selection: switch up is ON, down is OFF
2. The battery selection must be completed before controller turn on, If the battery type is modified during the operation of the controller , please power on reset detection.
3. Incorrect battery selection (not within 5 batteries) All indicators LED flash once every pre seconds

DIP Switch



Battery type	1	2	3	4
GEL	↓	↓	↓	↑
AGM	↓	↓	↑	↓
Flooded	↓	↓	↑	↑
LiFePO4	↓	↑	↓	↓
Lithium ion	↓	↑	↓	↑

System voltage recognition

1. Battery voltage range: 8-32V
2. Battery system judgment:

12V battery system: Lead-acid batteries (including AGM, GEL batteries, Flooded): <16V.
Lithium battery (lithium ion and LiFePO4) : 8-16V

24V battery system: Lead-acid batteries (including AGM, GEL batteries, Flooded): <32V.
Lithium battery (lithium ion and LiFePO4) : 16-32V

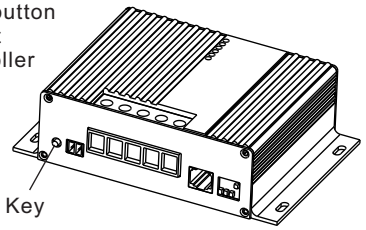
3. If the connected battery is not within the voltage range, all indicators LED flash once per second

Power-off memory function

The historical data stored by the host will remain unchanged after power-off

Key Function

1. Only connect battery and load, the controller is in the standby state, press and hold the button for 2 seconds, the controller is turned on, The buzzer will beep once, and the load output and external devices can start to work. If you press and hold again 2 seconds, the controller is turned off
2. When the solar panel, battery and load are connected normally, the controller automatically starts charging, Short press the button to switch the load normally. Long press key function is invalid



Battery over discharge, turn off the controller

When the controller is over discharge, the load is turned off. Turn off the controller after 1 minute. When the controller resumes charging, the controller will automatically turn on. After the voltage rises to the load recovery voltage, the load can be turned on again.

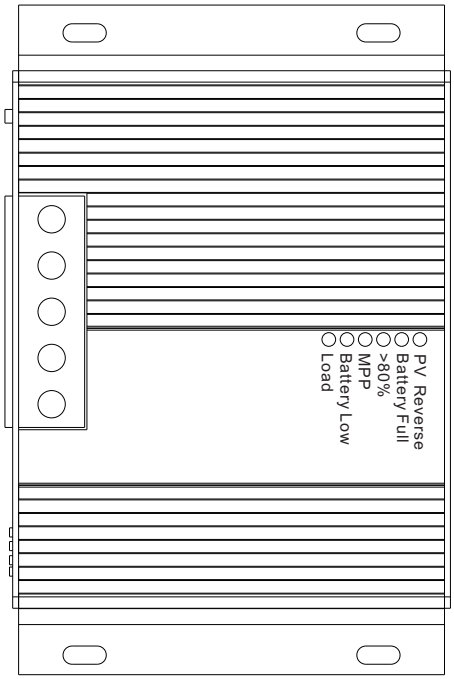
MPPT charge

The maximum power point tracking (MPP) charging technology can effectively improve the charging efficiency of solar panels.

Compared with PWM charging, it can improve 10-30% charging efficiency

Indicator LED status

"PV Reverse"(Red)	ON: The solar panel is reversed OFF: The solar panel connect is normal
"Battery Full"(Green)	ON: Battery Full OFF: Not Full
"＞80%"(Green)	ON: Start constant voltage charging Flash (1 time/s): controller over-heat Flash(2 times/s):Battery or PV over-voltage
"MPPT"(Green)	ON: Charging Flash(1 time/2s): no charging
"Batt. Low"(Yellow)	ON: Battery voltage low OFF: Battery voltage normal
"Load"(Red)	OFF: Load output normal OFF: Battery low-voltage protection Slow flash: Manually turn off the load(1 time/s) fast flash: Load overload or short circuit(1time/0.5s)



Protection function

1	Battery overvoltage protection	1. Battery voltage> Load high voltage protection voltage: Load OFF 2. Battery voltage> Overvoltage protection voltage: Off charging 3. Battery voltage> Boost voltage +0.2V for 10 seconds, turn off charging Buzzer: Di-Di-Di (1 ring every 2 seconds, half a minute)
2	Solar panel overvoltage protection	Solar panel voltage>50V: stop charging Buzzer: Di-Di-Di (1 ring every 2 seconds, half a minute)
3	Battery low voltage protection	Battery voltage <over-discharge voltage: load off Buzzer: Dididi--Dididi--Dididi (half minute)
4	Solar panel over-power protection	Limit charging power 130W (12V), 260W (24V)
5	Load overload protection	1.2 times rate current : Turn off the load output after 60 seconds 1.5 times rate current: Turn off the load output after 20 seconds 2 times overload: directly turn off the load output If the above overload protection occurs, restart the load output after 120 seconds If overload occurs more than 3 times, turn off the load completely. Manually reset the machine before restarting
6	Load short circuit	no protection
7	Overheating protection	stop working at 80℃, resume working at 60℃ Buzzer: Di--Di--Di (1 time/s, half minute)

Technical data

The following charging voltage parameters and protection voltage parameters are 12V battery system, and the value of 24V battery system is twice that of 12V system

Model	MPPT5010				
System voltage	12V/24V Auto recognition				
Battery range	12V: 0-16V /24V:16V-32V				
Max. charge current	10A				
Max. load current	10A				
Max. PV voltage	50V				
Max. PV power	130W/260W				
Battery type	GEL	AGM	Flooded	LiFePO4(12.8V)	Lithium ion(NCM)(11.1V)
Boost charge	14.3V	14.4V	14.7V	14.4V	12.6V
Float charge	13.8V	13.5V	13.5V	14.3V	12.5V
Equalization charge	No	14.6V	14.8V	No	No
Overvoltage shuts down the load	16V	16V	16V	16V	14V
Overvoltage shutdown charging	15.5V	15.5V	15.5V	15.5V	13.5V
Overvoltage recovery	13.7V	13.7V	13.7V	14.8V	12.8V
Boost charge recovery	13.2V	13.2V	13.2V	13.2V	12V
Load reconnect level	12.5V	12.5V	12.5V	12.5V	11V
Battery low voltage alarm	11.5V	11.5V	11.5V	11.5V	10V
Load disconnect voltage	11V	11V	11V	11V	9.5V
Temperature compensation	-3mv/℃/2V Note: Lithium battery has no temperature compensation				
Idle self-consumption	<25mA				
Grounding	Positive grounded				
Ambient temperature	-20℃-+50℃				
Dimensions (W x H x D)	147×97×43mm				
Weight	0.38kg				
IP level	IP30				
Accessories (need to be purchased separately)	Meter(MT-4-BT) Bluetooth Dongle(BT10,), freeAPP Temperature Sensor(RTS)				