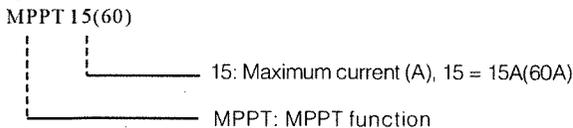


MPPT SOLAR CHARGE CONTROLLER

MPPT15—MPPT60 USER MANUAL

Thank you for purchasing our MPPT solar charge controller. Please Read this manual Before Proceeding.

Our controller named as follow: (Please specify the item No before you place order)



1. SAFETY

Full consideration to the safety of persons and property has been given when designing the products. However the incorrect connection may cause the system breakdown or even safety accident. For your safety and benefits, the following rules must be complied during the operation.

- Installation of this product shall be under the guidance of the professionals in this field.
- Prevent this controller from water, humidity and insects, to avoid short-circuit.
- Keep children and incapable persons away from the controller.
- Keep the controller away from electrical heater, heating machine and other high temperature electrical appliances; avoid the controller suffering from insolation directly.
- Please check the rated voltage of solar panel, battery, and loads before connection. 12V rated voltage is 12V, 24V rated voltage is 24V, 48V rated voltage is 48V.
- Make sure connections between positive and negative poles of Solar panels, Battery and Loads are correct.
- The diameter of connecting cable must be matched with the requirements of the current. Do not use thinner diameter cable, the thinner diameter, the larger resistance, this will cause higher temperature and output power decreasing.
- The total rated current of solar panel and loads must be smaller than the rated current of the controller.
- Components of system must be correctly and firmly connected. Prevent the terminals from oxidation and moldy, to avoid connection trouble.

2. FEATURES

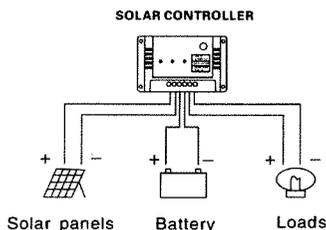
- MPPT solar charge controller MPPT10-60: Compared with normal solar charge controller, this MPPT controller could increase efficiency by 10%-30%.
- This controller can charge and discharge at the same time.
- This MPPT controller has perfect SOC function, control charge current, and supply power to the loads.

Function:

- Always keep the battery on full voltage condition.
- Prevent the battery from over-charging.
- Prevent the battery from over-discharging.
- Prevent the battery from reverse charging to solar panels during nights.
- Reverse Polarity Protection for Battery
- Reverse Polarity Protection for Solar panels
- When the battery voltage is low, the controller will automatically cut off the load from the system. If the voltage of battery is back to normal and the load will restart working.
- Thunder protection
- According to the battery voltage grade, the controller can automatically set charge-off voltage, the load-off voltage, the load-restore voltage. (The parameter is default under 25°C condition, locked by the CPU procedure, cannot adjust.)
- The controller will automatically compensate the temperature of the charging voltage according to the changes of ambient temperature

3. CONNECTION

As shown in the following diagram of connection, there are 6 terminals on the controller with clear sign.



Warning:

Before connecting to the solar panel, please connect the controller to the battery. do not use solar panel supply power to the loads directly.

Notes:

- Do not use lamplight to charge the solar panel (lamplight is too weak to charge)
- DC power source to replace the solar panel will cause troubles to controlle
- Choose the suitable wire which diameter should not be too small, please refer to the parameter.

4. INDICATE LIGHT AND BUTTON

- When Red LED(CHARGE) is on, battery is charged up strongly. When Red LED is flickering, battery is MPPT charged up in constant voltage; when Red LED is off, charge off.
- When Green LED(LOAD) is on, loads are working; when Green LED (LOAD) is off, loads stop working.
- Three Color-changing LED(BATTERY), When light is red, it indicates low voltage, green indicate battery full charged, orange indicate normal status.

Color-changing LED working voltage indicate area:

Color-changing LED	12V	24V	48V
Red LED	10.5V~11V	21V~22V	42V~44V
Orange LED	10.5 ~ 11V~13.7V	21 ~ 22V~27.4V	42 ~ 44V~54.8V
Green LED	≥ 13.7V	≥ 27.4V	≥ 54.8V

5. PARAMETERS

Specification	MPPT15	MPPT15	MPPT30	MPPT30	MPPT60	MPPT60	MPPT60
Rated Voltage	12V / 24V / 48V						
Max Load current	10A	15A	20A	30A	40A	50A	60A
Input voltage range	12V ~ 20V / 24V ~ 40V / 48V ~ 80V						
Length ≤ 1m Charge loop drop	<250mV	<250mV	<250mV	<250mV	<250mV	<250mV	<250mV
Length ≤ 1m Discharge loop drop	<50mV	<50mV	<50mV	<50mV	<50mV	<50mV	<50mV
Full charge cut	13.7V ~ 14.4V / 27.4V ~ 28.8V / 54.8V ~ 57.6V (data under no load condition)						
Low voltage cut	10.5V ~ 11V / 21V ~ 22V / 42V ~ 44V						
Temperature compensation	-3mv / °C / cell						
No load loss	≤ 10mA	≤ 10mA	≤ 20mA	≤ 20mA	≤ 30mA	≤ 40mA	≤ 45mA
Efficiency	95%~97%	95%~97%	95%~97%	95%~97%	95%~97%	95%~97%	95%~97%
Max wire area	2.5mm ²	2.5mm ²	4mm ²	6mm ²	8mm ²	10mm ²	12mm ²
Ambient temperature	-25°C ~ 55°C						

6. TROUBLE SOLUTION

Phenomenon: Green LED off, battery indicator LED is red.
Reason: Low voltage of battery

Solution:

A: Cut off the power, disconnect the load, reconnect the load after the charge become normal.

B: Battery charge problem: Increase the solar panel power or change the battery.

Phenomenon: Battery indicator LED is orange and Load indicator LED is green, the loads cannot work.

Reason: Over load or short-circuit causes the controller inner fuse cut off
Solution: 10-20 minutes after eliminated the malfunction, the fuse will automatically back to working.

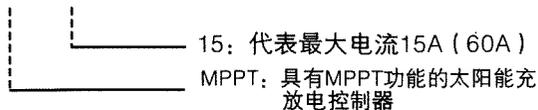
太阳能MPPT充放电控制器

MPPT15—MPPT60使用说明书

在使用设备前请仔细阅读本手册

我公司生产的控制器，按以下规则命名，请您在订货时注明，以便我们及时准确的为您供货。

MPPT 15(60)



1. 安全事项

太阳能MPPT充放电控制器在设计时已经充分考虑了人身和财产安全，但不正确的使用方法有可能导致安全及故障的发生，为了保证您的安全和利益，请您在使用安装时遵守以下规则：

- 本控制器安装需要有专业人员指导或与经销商联系。
- 防水、防潮、防虫，以免损坏机内器件造成短路。
- 不要让小孩或自主能力不足的人使用本产品。
- 不要将本产品放置在电热器、取暖机等热源边使用，尽量避免阳光直射。
- 系统连接前请仔细核对并确认太阳能板、蓄电池、负载的额定电压，三者的额定电压应当相同，12V全部是12V；24V三者额定电压都是24V；48V全部是48V。
- 连线时特别注意太阳能板、蓄电池、负载的“+”、“-”极都不能接错。
- 系统连接线径大小应符合电流的要求，不可过小。线径减小后，增大内阻，快速增大控制器内部温度，降低输出功率。
- 负载的额定电流不得大于控制器的额定电流。
- 连接必须牢固，确保接触良好。接线端必须防霉变、抗氧化处理，这样可防止很多故障。

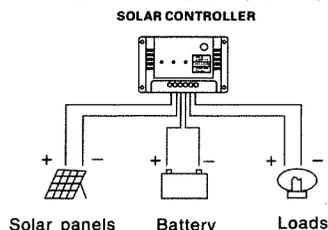
2. 性能特点

- MPPT15—60太阳能MPPT充放电控制器的充电系统：由MPPT充电系统控制，充电效能比一般太阳能控制器提高10%—30%。
- 具有同时充、放电工作的功能
- 本产品具备完善的SOC电池系统，控制充电电流，决定是否向负载供电，性能如下：
- 经常保持蓄电池处在饱满状态
- 防止蓄电池过度充电
- 防止蓄电池过度放电
- 防止夜间蓄电池向太阳能板反向充电
- 蓄电池反接保护
- 太阳能极板反接保护
- 负载短路，有保护设置
- 电池电压过低，控制器会切断负载，若电池电压升高，负载自动恢复
- 控制器可以对雷击进行保护
- 控制器开机时会根据电池电压等级自动设置停充电压、负载停机电压、负载恢复电压，这些参数均为环境温度25℃时的默认值（由CPU的程序锁定，不可调）
- 根据环境温度的变化，控制器会自动对充电电压进行温度补偿

3. 系统连接

如图所示

控制器的六个端子口均有明确的接线标志，用户按照标志接线。



警示：

- 在连接太阳能板前、应首先将蓄电池与控制器连接好，不可以用太阳能板的电能直接带负载工作。

注意：

- 不可以用灯照太阳能板发电（用灯照的光强度很低）
- 用直流电源代替光板容易引发控制器很多故障
- 根据电流选定合适的线径，不可过小，详情请参照技术参数表。

4. 指示灯及按键

- 太阳能MPPT充放电控制器有一个红色充电指示灯（CHARGE），常亮表示正在强力充电，闪动表示正在MPPT充电，不亮表示充电已经停止。
- 本控制器有一个绿色负载指示灯（LOAD），亮表示有输出，负载可以工作；不亮表示没有输出，负载不能工作。
- 本控制器有一个蓄电池电量指示灯（三色变色灯）（BATTERY），蓄电池欠压时是红色，当蓄电池充满时是绿色，正常情况下是橙色。

变色灯工作电压指示范围（参考值）空载

变色灯	12V	24V	48V
红色灯	10.5V~11V	21V~22V	42V~44V
橙色灯	10.5~11V~13.7V	21~22V~27.4V	42~44V~54.8V
绿色灯	≥13.7V	≥27.4V	≥54.8V

5. 技术参数表

规格	MPPT15	MPPT15	MPPT30	MPPT30	MPPT60	MPPT60	MPPT60
额定电压	12V/24V/48V						
最大负载电流	10A	15A	20A	30A	40A	50A	60A
光输入电压范围	12V~20V/24V~40V/48V~80V						
短路<1ms情况下充电时电压降	<250mV	<250mV	<250mV	<250mV	<250mV	<250mV	<250mV
短路<1ms情况下放电时电压降	<50mV	<50mV	<50mV	<50mV	<50mV	<50mV	<50mV
电池充满断开	13.7V~14.4V/27.4V~28.8V/54.8V~57.6V（空载测试）						
电池欠压断开	10.5V~11V/21V~22V/42V~44V						
温度补偿	-3mV/°C/cell						
空载损耗	≤10mA	≤10mA	≤20mA	≤20mA	≤30mA	≤40mA	≤45mA
效率	95%~97%	95%~97%	95%~97%	95%~97%	95%~97%	95%~97%	95%~97%
最大电线规格	2.5mm ²	2.5mm ²	4mm ²	6mm ²	8mm ²	10mm ²	12mm ²
工作环境温度	-25℃~55℃						

6. 故障处理

现象：绿灯熄，蓄电池电量指示灯为红色

原因：蓄电池电压不足

解决办法：

A. 断开负载，待蓄电池充满电后，再接上负载。

B. 蓄电池充电有问题，则应增加太阳能板的功率或更换蓄电池。

现象：蓄电池电量指示灯（橙色）及负载指示灯（绿色）正常，负载不能工作。

原因：因为负载超载或短路，造成控制器内保险断开。

解决办法：消除负载的超载或短路原因后，过10—20分钟，保险能自动恢复，恢复工作。