Maximum Power Point Tracking (MPPT)

Solar Charge and Discharge Controller

Model : DML-MPPT-4830A

12V/24V/36V/48V 30A

12V/24V/36V/48V 30A-Li

Features

● Advanced double-peak or multiple-peak tracking technology. When the panel has a shadow block or a part of the panel is damaged, I-V curve shows multiple peaks. The solar charge controller can still accurately track the maximum power point.

● Built-in algorithm for maximum power tracking. This significantly raises energy utilization efficiency of photovoltaic systems, with charging efficiency 15% ~ 20% higher than traditional PWM solar charge controllers.

● Combination of multiple tracking algorithms that can track the optimum working point of I-V curve accurately in a very short period of time.

● MPPT tracking efficiency can be as high as 99.9%.

● Advanced digital power technology, with circuit energy conversion efficiency as high as 98%.

● Supporting charging procedures of gel batteries, sealed batteries, open batteries, lithium batteries and other types of batteries.①

● Current-limiting charging mode. When the power of a solar panel is too large, and the charging current is greater than rated current, the solar charge controller automatically reduces charging power, thereby making the solar panel work at rated charging current.

● Supporting the start of capacitive load instantaneous large current.

● Supporting automatic identification of battery voltage.

● LED indicator of malfunction, buzzer alarm, and liquid crystal display of abnormal information. This helps users identify system failures.

● Supporting historical data storage for up to 5 years.

● LCD screen display function. The display enables users to view equipment operation data and status, and modify controller parameters at the same time.

● Supporting standard Modbus protocol that meets communication needs on different occasions.

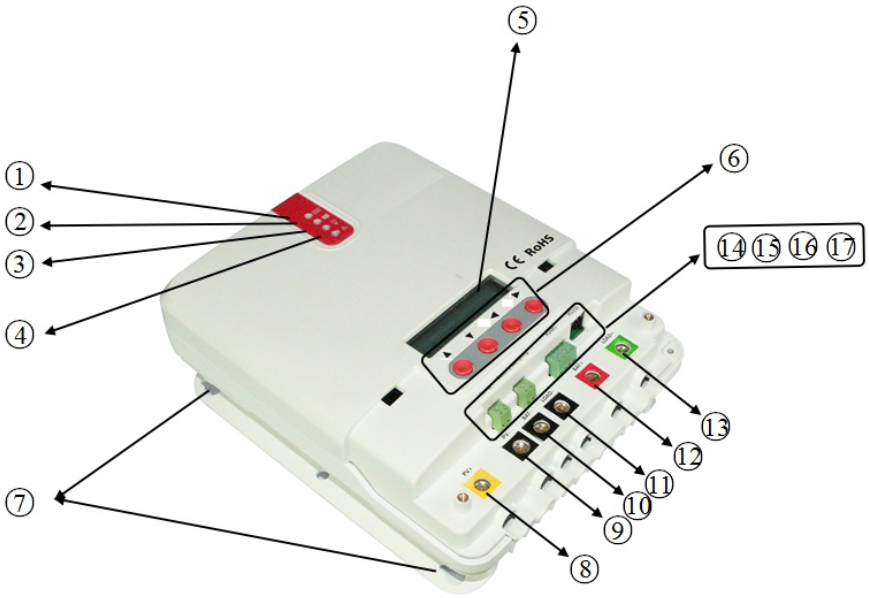
● Built-in mechanism of over-temperature protection. When the temperature exceeds the preset value, the charging current falls linearly with temperature, therefore slowing down the rise of controller temperature and avoiding controller damage from high temperature.

● External battery voltage sampling function. This function prevents line loss from affecting external battery voltage sampling and ensures greater preciseness of, control parameters.

● Temperature compensation functions. Charging and discharging parameters are automatically adjusted, thereby extending battery service life.

● TVS lightning protection.

Appearance picture is as below

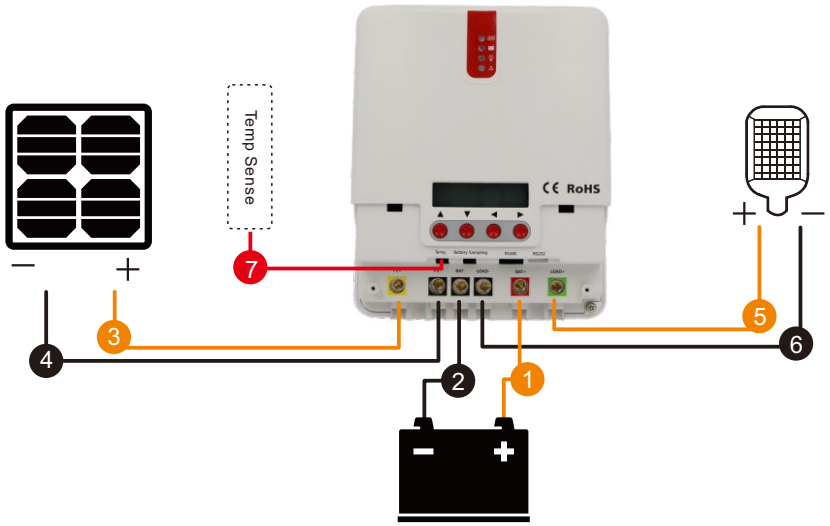


No.	Name	No.	Name
1	Charging Indicator	10	Battery “-” Interface
2	Battery Indicator	11	Load “-” Interface
3	Load Indicator	12	Battery “+” Interface
4	Abnormality Indicator	13	Load “+” Interface
5	Liquid Crystal Display	14	External Temperature Sampling Interface
6	Operation Button	15	External Battery Voltage Sampling Interface
7	Mounting Hole	16	RS485 Communication Interface
8	Solar Panel “+” Interface	17	RS232 Communication Interface
9	Solar Panel “-” Interface		

Product Detail

Wiring diagram is as below

Remove the two screws on the solar charge controller panel, and then start wiring. For installation security, we recommend the following wiring sequence. However, wiring without following this order will not damage the solar charge controller.



① **External temperature sampling interface connection**

② **Battery voltage sampling line connection**

③ **Communication cable connection**

④ **Connect power line**

Warning: Risk of electric shock! We strongly recommend access insurance or circuit breaker at photovoltaic array end, load end and battery end, to prevent electric shock from occurring during wiring or misoperation. Before wiring, ensure that insurance or circuit breaker is disconnected.

Warning: High pressure danger! Photovoltaic array may generate very high open circuit voltage. Before wire connection, disconnect the breaker or insurance. Be careful in the process of wiring.

Warning: Risk of explosion. Short circuit of battery positive and negative terminals and wires connected to them will cause fire or explosion. Please be careful during operation.

Please connect battery first, then connect load, and finally connect the solar panel, please follow the connection mode of "+" first and then "-".

⑤ **Power On**

Tip: ML series solar charge controller only starts the solar charge controller via wiring at the battery end, but ML - LI can start the solar charge controller via power of PV array,. This applies to starting the solar charge controller and activating lithium battery when lithium battery BMS is in the protection state and cannot export electricity externally.

When all the power line connections are firm and reliable, recheck whether the wiring is correct, and whether positive and negative ends are connected reversely. After confirmation, connect battery fuse or circuit breaker, observe whether LED indicator is lit, and whether LCD screen displays content. If there is no display, disconnect the fuse or circuit breaker immediately and recheck whether the circuit connection is correct.

If battery is powered on normally, connect the solar panel. If solar charge controller charging indicators are on normally or flashing, start battery charging.

When battery and photovoltaic is well connected, then connect load fuse or circuit breaker. At this time, you can use manual mode to test whether the load On and Off is normal. See load working mode and operation.

Warning: When the solar charge controller is under normal charging state, disconnecting battery connection will affect solar charge controller DC load. In a severe case, the load can be damaged.

Warning: Within 10 minutes after solar charge controller charging stops, battery reverse polarity operation may damage internal components of the solar charge controller.

Attention:

1) Battery insurance installation site should be as close as possible to the battery end. Recommended installation distance shall be no more than 150 mm.

2) When solar charge controller is not connected to a remote temperature sensor, battery temperature is a fixed value of 25 ℃.

3) If the inverter is connected in the system, please connect inverter directly with battery, and do not connect solar charge controller with the load end.

⑥ **Close wiring cover**

Product Specification Parameter

Parameter Name	Parameter Value
Model	DML-MPPT-4830A / DML-MPPT-4830A-Li
System Voltage	12V/24V/36V/48V Auto
No-Load Loss	0.7 W ~ 1.2W
Battery Voltage	9 ~ 70
Max Solar Energy Input Voltage	<150V
Max Power Point Voltage Scope	Battery Voltage +2V ~ 120V
Rated Charging Current	30A
Rated Load Current	20A
Max capacitive load capacity	10000uF
PV System Max Input Power	400W/12V 800W/24V 1200W/36V 1600W/48V
Conversion Efficiency	≤98%
MPPT Tracking Efficiency	>99%
Temperature compensation coefficient	-3mv/℃/2V (Default)
Working Temperature	-35℃ ~ +45℃
Protection Level	IP32
Weight	2.3Kg
Max Wiring Size	25 mm^2
Communication Mode	RS485, RS232
Altitude	≤ 3000m
Product Size	226*182*81mm