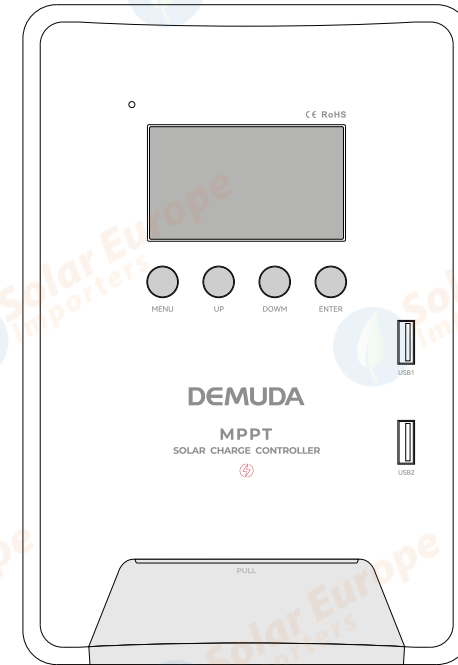


# DEMUDA



**MPPT** Solar Charge Controller

## Manual

• Please read this user manual carefully before installation and use.

### Statement

• Unauthorized Copying and Plagiarism is Prohibited • This information is subject to change without notice.

## ⚠ Installation Notes

- 1、 the controller should be installed in a well-ventilated, avoid direct sunlight, high temperature, rainproof location.
- 2、 please choose the right screw to fix the controller on the wall or other oval template.Screw M3 or M4, screw cap diameter less than 7mm.
- 3、 Please reserve enough space between the wall and the controller for cooling and cable connection.
- 4、 please do not change the connection order at will, otherwise it will cause the system voltage identification failure
- 5、 The battery fuse should be installed as close as possible to the battery, and the distance between the battery fuse and the battery pack should be within 150mm.
- 6、 All terminals are in the fastening state after leaving factory, in order to connect well, first of all please loosen all terminals.
- 7、 The connection cable between the battery and the controller should be as short as possible, it is recommended that the distance between the controller terminal and the battery is 30CM-100CM.
- 8、 Short circuit will cause fire or explosion. Please be careful.We strongly recommend choosing a fuse with 1.5 times the rated current of the controller attached to the battery side.
- 9、 The voltage of solar panels in the sun is very high, and high voltage will cause damage to the controller, ensuring that PVMAX is within the required safety range.
- 10、 The controller does not provide reverse connection protection, so please pay attention to positive and negative polarity, reverse connection will damage the load or controller.

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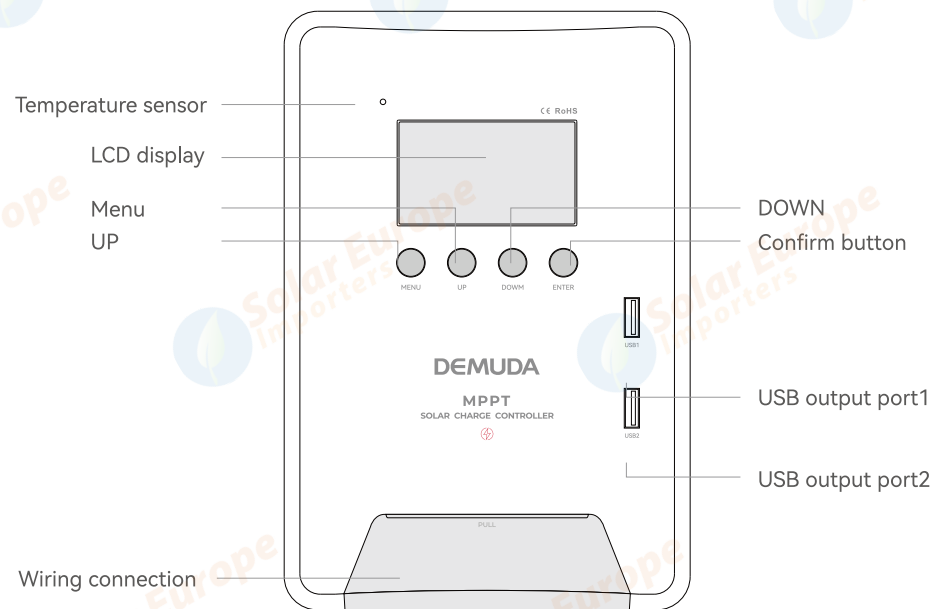
## 1. Product Overview

The product adopts industrial-grade 32-bit high-speed computing technology and advanced MPPT control algorithm, which can quickly track the maximum power point of the photovoltaic array in any environment, so that the maximum energy conversion can be obtained in the solar cell, which significantly improves the utilization rate of the photovoltaic array. The adaptive three-stage digital control charging mode can effectively prolong the battery life and improve the system performance. Intelligent temperature control circuit can effectively protect the normal operation of machines in high temperature environment. It can be used in communication base stations, home power systems, traffic lights, solar street lights, garden light systems, etc.

- 1、Excellent MPPT maximum power point tracking technology, tracking efficiency is not less than 99%
- 2、Adopting high speed computing technology to improve system performance, the maximum conversion rate reach to 98%
- 3、Super fast maximum power point tracking speed, improve the tracking efficiency
- 4、Accurate identification and tracking of the maximum power point of multi-wave peaks
- 5、Wide voltage maximum power point tracking operation mode, improve the utilization of PV modules
- 6、Large size display and four buttons combination, improve the exchange rate of man-machine information
- 7、12V 24V 48V system automatic identification (30A 40A model only for 12V 24V system)
- 8、Support lead acid, lithium, LifePo4 battery

## 2. Product Appearance

### 2.1 Product Picture



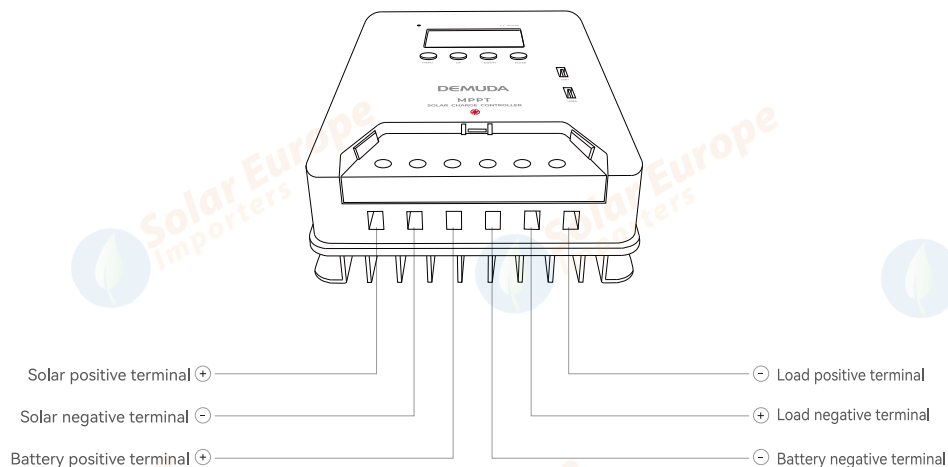
\* USB output port (DM130 and DM140D are equipped with dual USB ports, M160A model has no USB ports)

### 2.2 Button

MENU	UP	DOWN	ENTER
Menu key	Up to previous page	Next page	Function confirmation and load switch
Tap the button to cycle through the menus	After entering the menu Settings, scroll up to set the function parameters	After entering the menu Settings, scroll down to set the function parameters	Confirm entry and exit Settings / load switches

### 3.Assembly

#### 3.1Wiring diagram

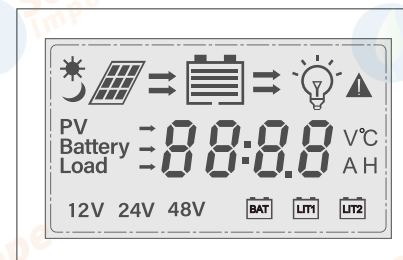


#### 3.2 Join sequence: 1; 2; 3

1	<b>Connect to battery</b> Note: The battery terminal should be installed with safety, and the installation distance should not exceed 150mm
2	<b>Connect to load</b>
3	<b>Connect to Solar Panel</b>
4	<b>Charge Controller power-on</b> Connect the battery, identify the voltage of control system, and observe whether the display screen lights up. If it does not work or the display is abnormal, check the operation instructions and fault guide.

Note: If you want to connect the inverter, please connect the inverter directly to the battery, do not connect the load terminal of the controller

#### 3.3 Display interface:

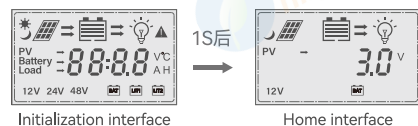


#### display and icons:

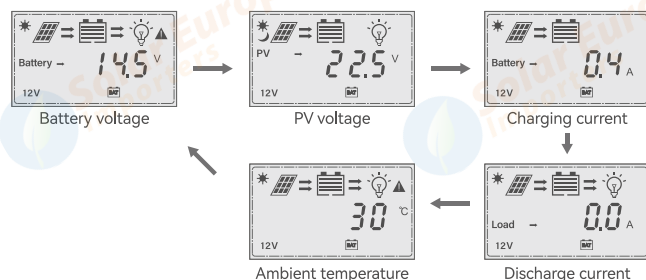
1		The sun icon lights up when the system detects solar input
2		The moon icon lights up when the system detects no solar input
3		Solar panel icon lights up after turning on
4		Charging arrow icon lights up when the battery is charged by solar energy
5		Battery icon, 5 power bars display battery capacity
6		Discharge arrow icon lights up when the load is discharging
7		Load icon, "Load on display mode, "Load off display mode, Overload or short circuit protection "Blinking display
8		Warning icon: When the PV voltage is greater than the upper limit, the icon lights up and turns off the charging
9	<b>PV</b>	The icon lights up to indicate that the digital display area is PV array information, such as PV output voltage
10	<b>Battery</b>	The icon lights up to indicate that the digital display area is battery information, such as battery voltage, charging current, and accumulated charge amount
11	<b>Load</b>	The icon lights up to indicate that the digital display area is load information, such as discharge current, discharge accumulated power
12	<b>88.8.8</b>	Digital display area
13	<b>V°C A H</b>	Unit display area
14	<b>12V 24V 48V</b>	12V, 24V, 48V system automatically adapt, such as the display of 12V on the machine, indicating that the machine is running 12V system
15		The icon lights up to indicate that the battery type currently selected by the system is lead-acid
16		The icon lights up to indicate that the battery type currently selected by the system is ternary lithium battery
17		The icon lights up to indicate that the battery type currently selected by the system is lithium iron phosphate battery

## 4. Operation Instruction

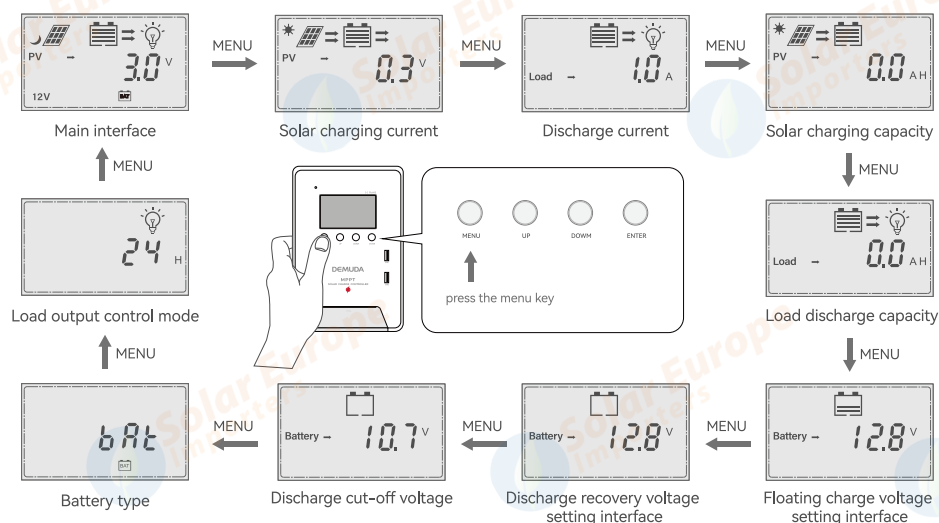
- 1、There is 1 second initialization time after the controller is powered on, and then it enters the main interface



- 2、After 5 seconds without operating the key, the machine automatically displays battery voltage, PV voltage, charging current, discharging current, and ambient temperature

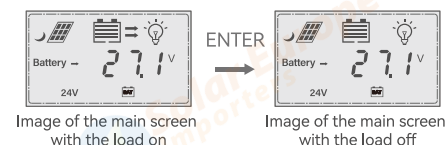


- 3、Press the menu key to browse through each interface



Press the menu key to display 1 to 10 interfaces in a cycle. In the 6th to 10th interface, press the enter key to enter the menu, press the up and down keys to select the desired setting value, press the enter key to save the set value and exit the submenu after selection. It will also automatically save and return to the main interface after 5 seconds if without and press after setting.

- 4、The load can be switched on and off by pressing the Confirm key in the main interface under normal load mode



- 5、Load output control mode:

In pure light control mode, the load is turned off after solar charging is connected, and the load is turned on after solar charging is disconnected. The system will have a delay time of about 1 minute

In 01-15 Optical control delay mode, if the setting value is 01, the load output will be automatically turned off after 1 hour after disconnecting the solar charging

In 24 normal mode, press ENTER to control the load on or off. (This function is unavailable in other modes.)

## 5. 故障指南

Fault phenomenon	Possible cause	Possible cause
Possible cause	Controller does not light up	Replace battery/check reverse connection
Load indicator flashing	Load overcurrent	Reduce the negative power
No charging in full sun	Open/reverse connection of photovoltaic panel wiring	Reconnect the PV panel
Load indicator is off	Mode setting error	Reset
	The battery voltage is too low	Recharge
“▲”Flashing without charging	The PV input voltage is too high	Reassemble the solar panels to reduce PV output voltage

## 6. Technical parameter

Technical parameter			
ITEM NO.	DM130	DM140	DM160
Rated charging current(A)	30A	40A	60A
Rated discharge current(A)	10A		
USB output current(A)	5V3A Max		//
PV Maximum open circuit voltage	80V	100V	150V
PV Maximum input power	400W/12V 800W/24V	550W/12V 1100W/24V	800W/12V 1600W/24V 3200W/48V
MPPT tracking efficiency	≥99%		
Conversion efficiency	≤98%		
System voltage(V)	12V24V auto adapt	12V24V auto adapt	12V24V48V auto adapt
N.W.(g)	800g	1300g	1400g
Size(mm)	195x132x63mm	217x148x65mm	232x163x75mm

### Lithium/LIT1/L1

System voltage(V)	12V 3 series default	adjustable	24V 7series default	adjustable	48V 13series default	adjustable
Floating charge voltage	12.6V	//	29.4V	//	54.6	//
Discharge cut-off voltage	9V	8.5-10.5	21V	19.8-24.5	39	36.8-45.5
Discharge recovery voltage	10.5V	10.0-11.5	24.5V	23.5-27	45.5	43-50

### LifePo4/LIT2/L2

System voltage(V)	12V 4series default	adjustable	24V 8series default	adjustable	24V 16series default	adjustable
Floating charge voltage	14.6V	//	29.2V	//	58.4	//
Discharge cut-off voltage	11V	10.5-12.5	22V	21-25	44	42-50
Discharge recovery voltage	12.5V	12.0-13.5	25V	24-27	50	48-54

### LEAD ACID/BAT/BAT

System voltage(V)	12V	adjustable	24V	adjustable	48V	adjustable
Floating charge voltage	13.8V	13-15	27.6V	26-30	55.2	52-60
Discharge cut-off voltage	10.7V	9.5-11	21.4V	19-22	42.8	38-44
Discharge recovery voltage	12.6V	11.5-13	25.2	23-26	50.4	46-52