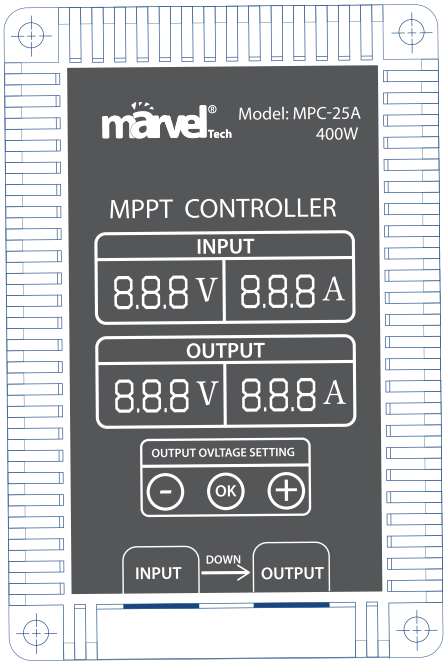
MPPT STEP-DOWN
SOLAR CHARGE CONTROLLER



PRODUCT MANUAL

MPC-25A

1 PRODUCT FEATURE

- MPPT type, suitable for different voltage solar panels.
- Using high efficiency synchronous rectifier circuit structure
- Output power: 200W 300W 400W
- Output voltage adjustable
- Support for lead-acid and lithium battery etc.
- Voltage & current LED display
- Efficiency ≥95%
- Short-circuit protection
- Over temperature protection
- Under-voltage protection
- Size: 120*80*40mm
- Weight: 500g

2 APPLICATION AREA

- Solar charger

3 TECHNICAL PARAMETERS

3.1 ELECTRIC PARAMETER

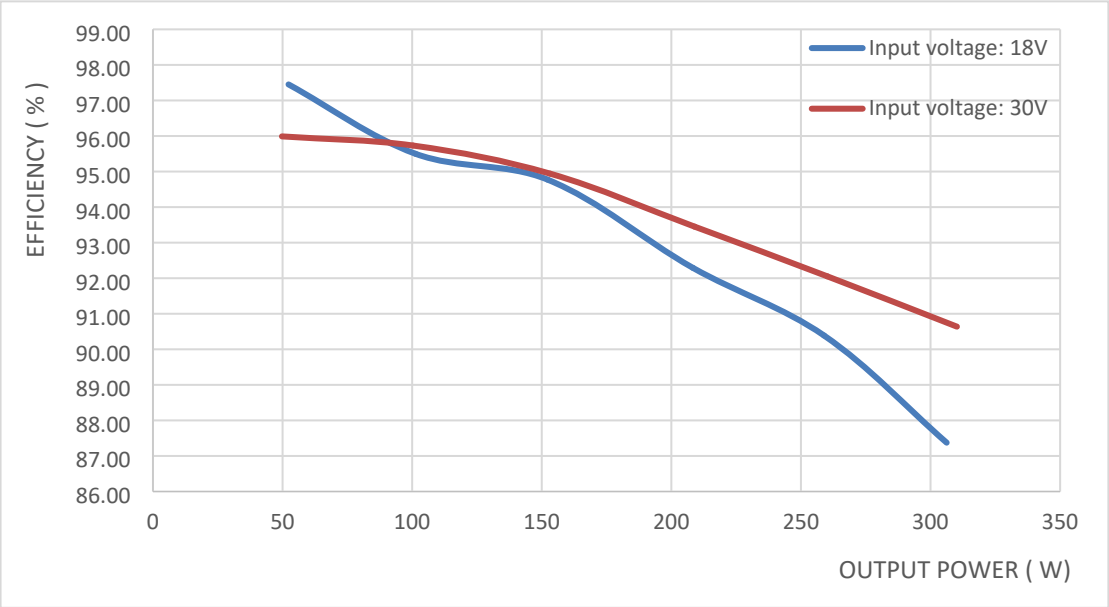
PARAMETER NAME	CONDITION	MIN	RATED	MAX	
POWER			200/300/400	250/350/450	W
Solar tracking voltage range		17		55	V
MAX output voltage		10		30	V
MAX output current	EL-MD200SP		200/Vo	250/Vo or 25 [1]	A
	EL-MD300SP	-	300/Vo	350/Vo or 25 [2]	
	EL-MD400SP		400/Vo	450/Vo or 25 [3]	
Efficiency			97%		
Inside temperature protection			100		℃
Operating ambient temperature	Full load	-40		65	℃
Storage temperature		-40		125	℃

Attention: [1] [2] [3] choose the smaller one.

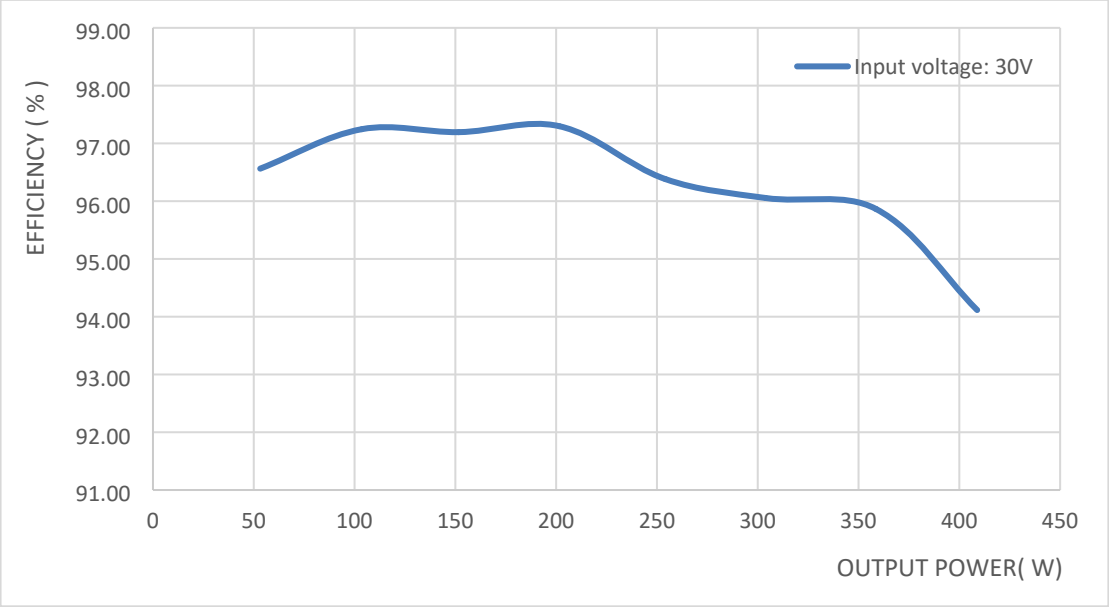
3. 2 PARAMETER CURVE

3.2.1 EFFICIENCY CURVE

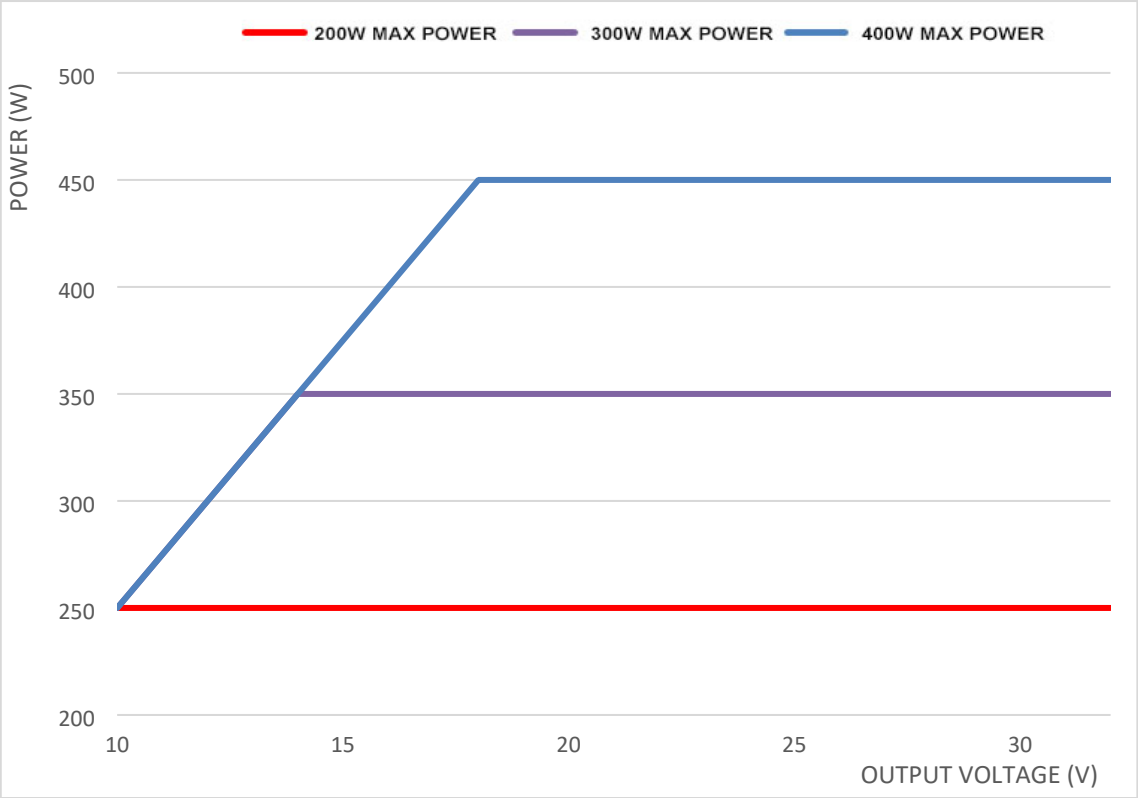
OUTPUT 12V:



OUTPUT 24V:



3.2.2 RELATION CURVE BETWEEN OUTPUT VOLTAGE AND MAXIMUM OUTPUT POWER

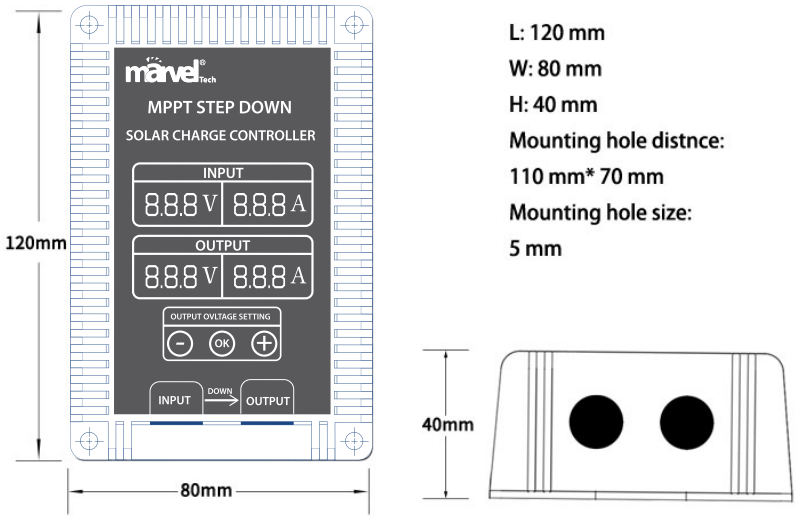


3. 3 OTHER PARAMETER

- Level of protection: IP66
- Noise: ＜55dB
- Mechanical shock and vibration resistance: accord with SAEJ1378

3.4 SHAPE PARAMETER

DIMENSION DRAWING



L: 120 mm
W: 80 mm
H: 40 mm
Mounting hole distnce:
110 mm* 70 mm
Mounting hole size:
5 mm

4 PROTECTION FUNCTION

4.1 OVERHEATING PROTECTION

When the internal temperature of the MPPT controller exceeds 100 °C, the MPPT controller will reduce the output power. If the internal temperature continues to rise to 110 °C, the MPPT controller will automatically turn off the output. When the internal temperature of the MPPT controller is lower than 85°C, the MPPT controller will automatically resume operation.

4.2 SHORT-CIRCUIT PROTECTION

When an unexpected short circuit occurs in the MPPT controller output, the MPPT controller automatically turns off the output and automatically returns to normal after the short circuit removed.

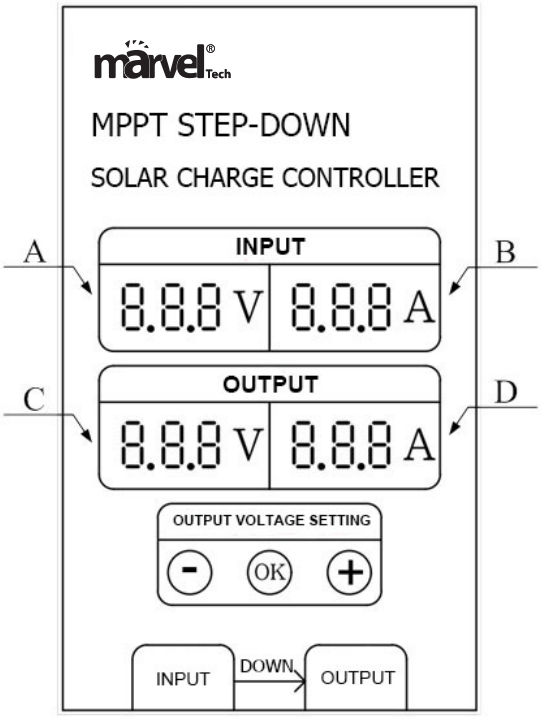
4.3 INPUT UNDERVOLTAGE PROTECTION

When the input voltage of MPPT controller higher than 17V, it starts working. When the input

voltage is lower than 1.1 times of the rated output voltage and the charging current is lower than the cut-off current, the system will turn off the charging and turn off the display。When the input voltage of the MPPT controller is lower than 10V, the MPPT will protectively shut down and automatically resumes operation after the input voltage is normal.

5 INTERACTIVE INTERFACE

5.1 LED DISPLAY INSTRUCTIONS



Operative mode \ Display area		A	B	C	D
Normal mode	Connect the battery	Current PV voltage	Current PV current	Current charging voltage	Current charging current
Setting mode	-	Current PV voltage	Current PV current	Charging voltage setting	Current charging current
Fault alarm	Over temperature	E-1	No display	No display	No display

	protection				
	Undervoltage protection	No display/E2	No display	No display	No display
	Short circuit protection	E-3	No display	No display	No display
	Overcurrent protection	E-4	No display	No display	No display
	Battery over voltage	E-5	No display	No display	No display

5.2 KEY OPERATION INSTRUCTIONS

The user can adjust the output charging voltage of MPPT solar charge controller directly. Please connect the controller to solar panel first, and setting the output charging voltage, then connect to the battery. The detailed operation method is as follows:

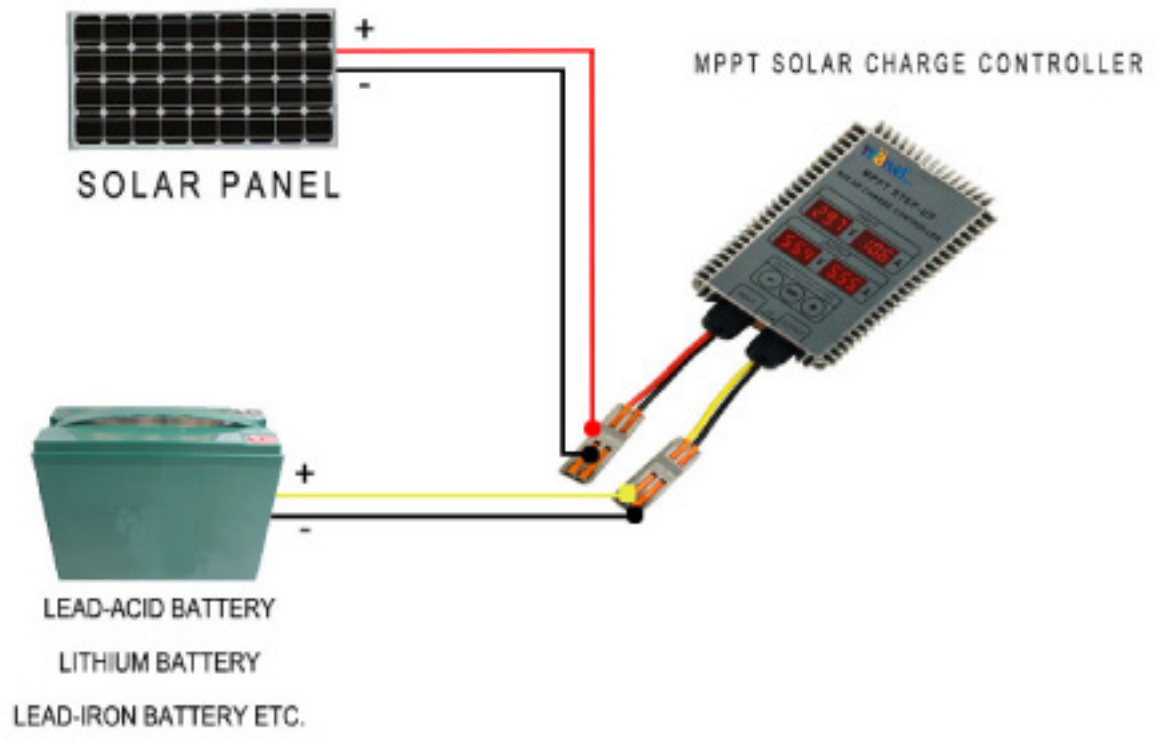
1. Under normal working condition, press any key of [+] or [-] once, the controller will enter from [normal working] mode to [output voltage setting] mode, the displayed number will change from the [current output voltage value] to the [current set voltage value], and flicker continuously.
2. The user can press the [+] or [-] key to increase or decrease the [output voltage setting value]. Click the key to change 0.1V each time. Long press and hold the key to increase or decrease continuously. The system will automatically limit the setting voltage range according to the input voltage, and there is no response and no effect beyond the range.
3. After adjust to the required [output voltage setting value], press the [OK] key to confirm, and the last [output voltage setting value] will be memorized.
4. Finally, the memorized [output voltage setting value] will continue to display for 4 seconds. After 4 seconds, the displayed number will convert from [current set voltage value] to [current output voltage value], and at the same time, exit the [output voltage setting] mode and return to [normal working] mode.
5. Although entering the [output voltage setting] mode, after the last press of [+] or [-], the converter will automatically exit the [output voltage setting] mode without pressing the [OK] key within 4 seconds. The [output voltage setting value] adjusted is invalid and will not be memorized.

6 INSTALLATION INSTRUCTIONS

6.1 PREINSTALLATION INSPECTION

1. Check the appearance is ok before installation.
2. Check the label on the MPPT controller enclosure to verify that the specifications and performance of the MPTT controller match the equipment.

6.2 SCHEMATIC DIAGRAM



ATTENTION：

- The MPPT controller should fix on an iron or metal bracket to avoid the machine shaking due to the unstable instability.
- The MPPT controller should install with a certain space around the enclosure.
- The output and input wires should be as short as possible to avoid excessive energy consumption during transmission.

7 ANNOUNCEMENTS

- Please read this manual carefully before using and installing this product, so that you

can use it better.

- There is high voltage and high current in the machine, and non-professionals are not allowed to disassemble it.
- The input and output terminals should be reliably and must not be loose to avoid heating at the connection point.
- If you encounter any problems that other users cannot solve, please contact the factory after-sales service personnel.

8 BATTERY CHARGING VOLTAGE SETTING

STANDARD VOLTAGE	BATTERY TYPE	BATTERY STRING NUMBER	OUTPUT CHARGING VOLTAGE SETTING
12V	12V lead acid battery	1	13.8V
	3.7V 3 series lithium battery	3	12.6V
	3.7V 4 series lithium battery	4	16.8V
	3.2V 3 series lithium iron phosphate battery	3	11.0V
	3.2V 4 series lithium iron phosphate battery	4	14.6V
24V	12V 2 series lead acid battery	2	27.6V
	3.7V 3 series lithium battery	6	25.2V
	3.7V 4 series lithium battery	7	29.4V
	3.2V 7 series lithium iron phosphate battery	7	25.6V
	3.2V 8 series lithium iron phosphate battery	8	29.2V
36V	12V 3 series lead acid battery	3	41.4V
	3.7V 10 series lithium battery	10	42.0V
	3.7V 11 series lithium battery	11	46.2V
	3.2V 10 series lithium iron phosphate battery	11	40.2V
	3.2V 11 series lithium iron phosphate battery	12	43.8V
48V	12V 4 series lead acid battery	4	55.2V
	3.7V 13 series lithium battery	13	54.6V
	3.7V 14 series lithium battery	14	58.8V
	3.2V 15 series lithium iron phosphate battery	15	54.8V
	3.2V 16 series lithium iron phosphate battery	16	58.4V
60V	12V 5 series lead acid battery	5	69.0V
	3.7V 17 series lithium battery	17	71.4V
	3.2V 20 series lithium iron phosphate battery	20	73.0V
72V	12V 6 series lead acid battery	6	82.8V
	3.7V 20 series lithium battery	20	84.0V
	3.2V 24 series lithium iron phosphate battery	24	87.6V

Instruction:

1. Single series 12V lead-acid battery charging voltage: 13.8V
2. Single series 3.7V lithium battery charging voltage: 4.2V
3. Single series 3.2V lithium iron phosphate battery charging voltage: 3.65V
4. Maximum charging voltage = single string charging voltage × number of battery strings