



■ Features

- Can be connected to both PV、battery and load
- Support multiple battery types
- MPPT with up to 99.9% efficiency
- Support solar panel 2 in series/more in parallel
- Complete charge and discharge protection mechanism
- Natural cooling
- 3 years warranty

■ Applications

- Home photovoltaic
- Power for farms and ranches
- Communication base station
- Power for rural
- Island photovoltaic

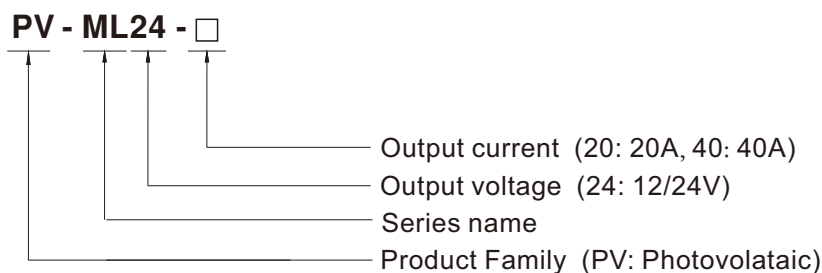
■ Global Trade Item Identifier

- MW Search: <http://www.meanwell.com.cn/serviceGTIN.aspx>

■ Description

The PV-ML series is an MPPT solar controller that uses maximum power point tracking technology to optimize the power output of solar panels in real time. It automatically monitors changes in light conditions to ensure maximum energy extraction in all environments, increasing charging efficiency by 20% to 30%. The charge is widely used in home, commercial and portable solar systems and is compatible with a variety of battery types to ensure that users can charge quickly and efficiently, and promote the wider application of clean energy.

■ Model Encoding





MPPT Solar Controller

PV-ML24 series

Specification	PV-ML24-20		PV-ML24-40
OUTPUT			
BATTERY TYPE	Lead-acid / Li-ion / User Defined		
RATED BATTERY VOLTAGE	12V/24Vdc		
NO LOAD POWER CONSUMPTION	1.2W		
BATTERY VOLTAGE RANGE	9~35Vdc		
RATED LOAD VOLTAGE	Equal to battery voltage 12V / 24V		
RATED CHARGING CURRENT	20A	40A	
RATED LOAD CURRENT	20A		
MAX. CAPACITIVE LOAD	10000uF max		
LOAD WORKING MODE	Light control,Light control + Time control, Manual control (default),Debugging mode, Normal open		
MPPT CHARGING MODE	Buck		
INPUT			
MAX.VOLTAGE OF OPEN CIRCUIT	100Vdc		
MPPT VOLTAGE RANGE	Battery voltage +2V~75V		
MAX.PV INPUT POWER	260W / 12 Battery;520W / 24 Battery	550W / 12V Battery;1100W / 24V Battery	
MAX.CHARGING CONVERSION EFFICIENCY	≤98%		
MPPT TRACKING EFFICIENCY	>99%		
PROTECHTION			
OVER DISCHARGE	11.1V*N(N=1 for 12V Battery , N=2 for 24V Battery)		
OVER DISCHARGE RESET	12.6V*N(N=1 for 12V Battery , N=2 for 24V Battery)		
OVER VOLTAGE	Protection type : Shut down,clamping by zener diode		
BATTERY REVERSE CONNECTION	Protected internal reverse detection,No damage, re-power on to recover after fault condition is removed		
PHOTOVOLTAIC INPUT REVERSE.CONNECTION	Protected internal reverse detection,No damage, re-power on to recover after fault condition is removed		
REVERSE CHARGING	The internal circuit detects the current,Shut down, re-power on to recover after fault condition is removed		
FUNCTION			
COMMUNICATION	RS232		
ENVIRONMENT			
WORKING TEMP.	-35~+45℃		
WATERPROOF LEVEL	IP32		
VIBRATION	10~500Hz,2G 10min./1 cycle,60min.each along X,Y,Z axes		
SAFETY&EMC			
SAFETY STANDARDS	EN IEC 62109-1:2010		
EMC EMISSION	Parameter	Standard	Test Level / Note
	Conducted	EN IEC 61000-6-3	Class A
	Radiated	EN IEC 61000-6-3	Class A
EMC IMMUNITY	Parameter	Standard	Test Level / Note
	ESD	EN 61000-4-2	Level 3,8KV air; Level 2,4KV contact
	RF field susceptibility	EN 61000-4-3	Level 2,3V/m
	EFT	EN 61000-4-4	Level 1,0.5KV
	Surge	EN 61000-4-5	Level 1,0.5KV Line-Line
	Conducted	EN 61000-4-6	Level 2,3V
	Magnetic Field	EN 61000-4-8	Level 2,3A/m
OTHERS			
DIMENSION	1.4Kg	2Kg	
PACKING	210*151*59.5mm	238*173*72.5mm	

■ LED Indicators

		PV array indicator	Indicating the controller's current charging mode.
		BAT indicator	Indicating the battery's current state.
		LOAD indicator	Indicating the loads' On/ Off and state.
		ERROR indicator	Indicating whether the controller is functioning normally.

➤ PV array indicator

No.	Graph	Indicator state	Charging state
①	 BULK	Steady on	MPPT charging
②	 ACCEPTANCE	Slow flashing (a cycle of 2s with on and off each lasting for 1s)	Boost charging
③	 FLOAT	Single flashing (a cycle of 2s with on and off lasting respectively for 0.1s and 1.9s)	Floating charging
④	 EQUALIZE	Quick flashing (a cycle of 0.2s with on and off each lasting for 0.1s)	Equalizing charging
⑤	 CURRENT-LIMITED	Double flashing (a cycle of 2s with on for 0.1s, off for 0.1s, on again for 0.1s, and off again for 1.7s)	Current-limited charging
⑥		Off	No charging

➤ BAT indicator:

Indicator state	Battery state
Steady on	Normal battery voltage
Slow flashing (a cycle of 2s with on and off each lasting for 1s)	Battery over-discharged
Quick flashing (a cycle of 0.2s with on and off each lasting for 0.1s)	Battery over-voltage

➤ LOAD indicator:

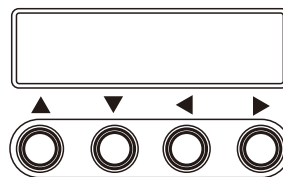
Indicator state	Load state
Off	Load turned off
Quick flashing (a cycle of 0.2s with on and off each lasting for 0.1s)	Load overloaded/ short-circuited
Steady on	Load functioning normally

➤ ERROR indicator:

Indicator state	Adnormality indication
Off	System operating normally
Steady on	System malfunctioning

■ Key Operations

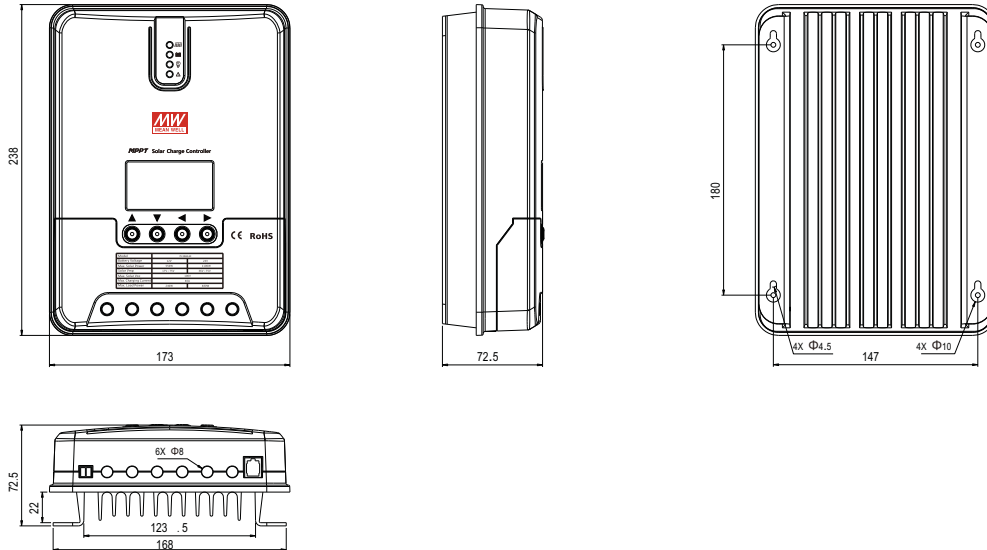
	Up	Page up; increase the parameter value in setting
	Down	Page down; decrease the parameter value in setting
	Return	Return to previous menu (exit without saving)
	Set	Enter into sub-menu; set/save Turn on/off loads (in manual mode)



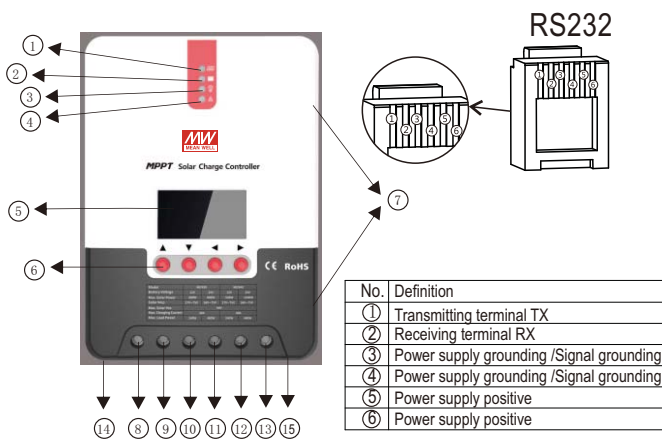
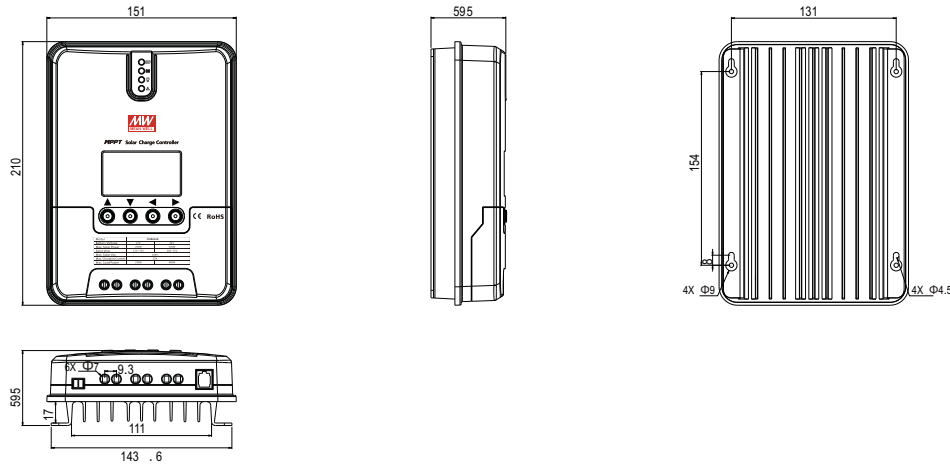
Mechanical Specification

(Unit:mm,tolerance ± 1 mm)

PV-ML24-40:



PV-ML24-20:



Product appearance and interfaces

No.	Item	No.	Item
①	Charging indicator	⑩	Battery "+" interface
②	Battery indicator	⑪	Battery "-" interface
③	Load indicator	⑫	Load "+" interface
④	Abnormality indicator	⑬	Load "-" interface
⑤	LCD screen	⑭	External temperature sampling interface
⑥	Operating keys	⑮	RS232/RS485 communication interface
⑦	Installation hole		
⑧	Solar panel "+" interface		
⑨	Solar panel "-" interface		