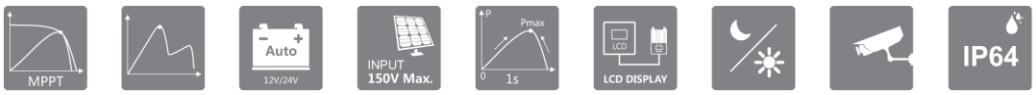
p.n.435004

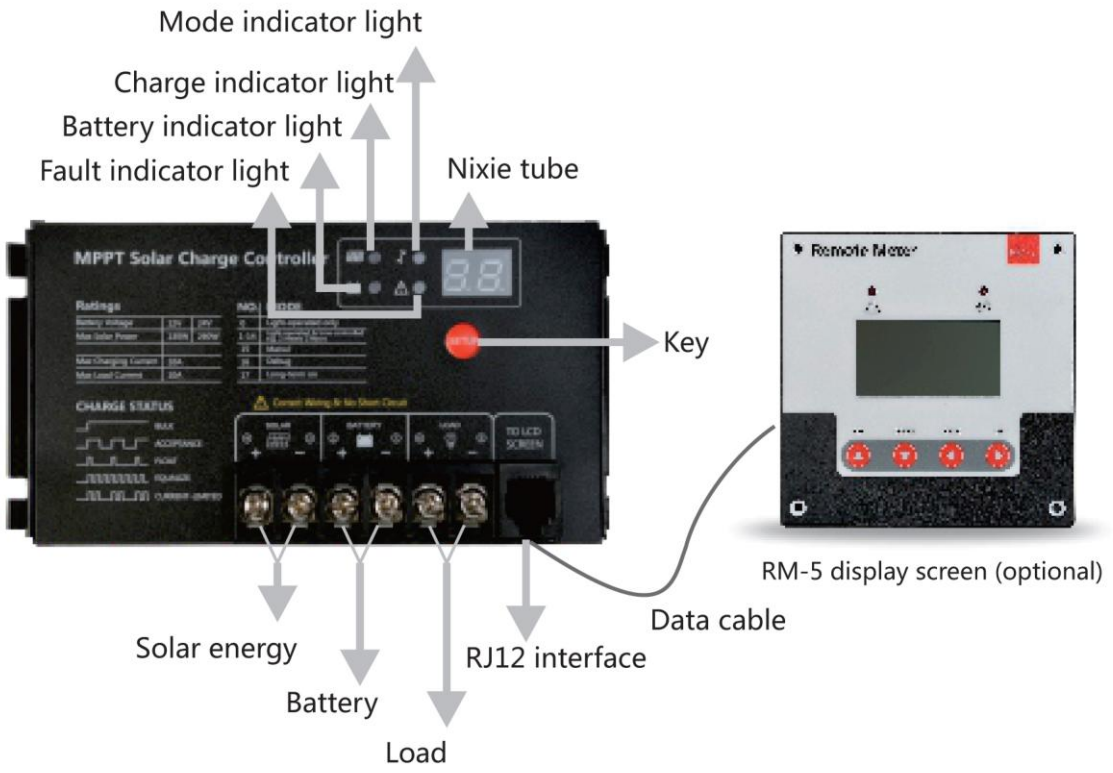
MPPT Solar Controller 10A, IP64, 100V



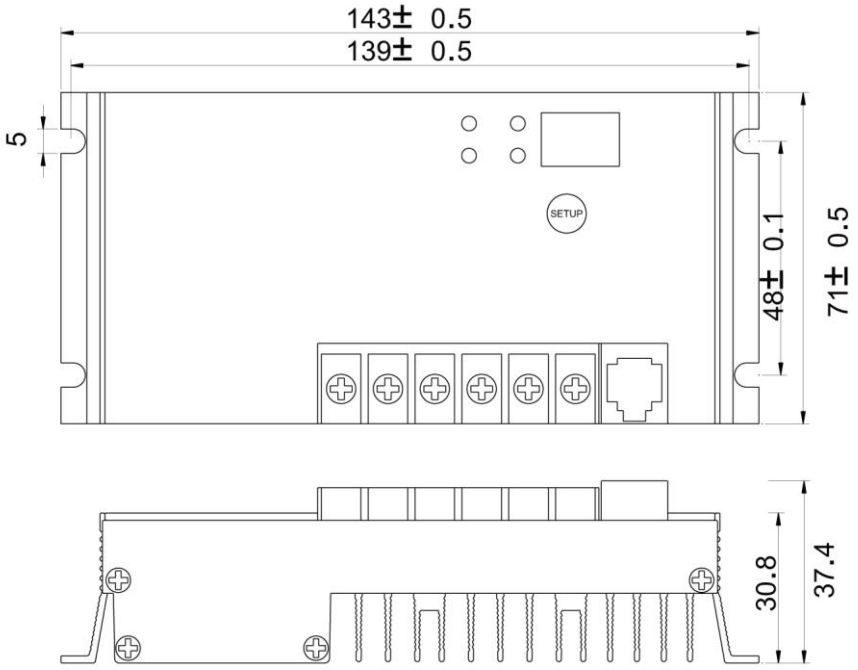
Features

- ◊ Support 100V maximal open-circuit voltage of photovoltaic panel.
- ◊ Supporting 12V/24V automatic identification of lead-acid battery.
- ◊ Supporting lithium battery application.
- ◊ Double-peak or multi-peak MPPT technology, suitable for partial shading or partial damage of photovoltaic batteries.
- ◊ Significantly improving the energy utilization rate of photovoltaic batteries, which is higher than that of the traditional PWM charge by 15% ~ 20%.
- ◊ MPPT can trace the best working point of I-V curve accurately within 1 second with as much as 99.9% tracing efficiency.
- ◊ With advanced digital power technology, the circuit energy conversion efficiency is up to 98%.
- ◊ Four-stage charge mode: MPPT - equalizing charge - boost charge - float charge.
- ◊ Limited current charge mode: in case of excessive power of photovoltaic battery, the controller automatically reduces the power to the rated value.
- ◊ With fault code indication, it is convenient for users to determine the system fault.
- ◊ It can be equipped with RM-5 LCD screen so as to view the operation data and state of the equipment and change the controller parameters.
- ◊ With multiple load control modes, it can automatically identify day/night and enhance the flexibility of load system.
- ◊ Possessing overcharge, over discharge, overload, short circuit, reverse connection, over temperature, TVS and anti-reverse charge protection

Front View schema

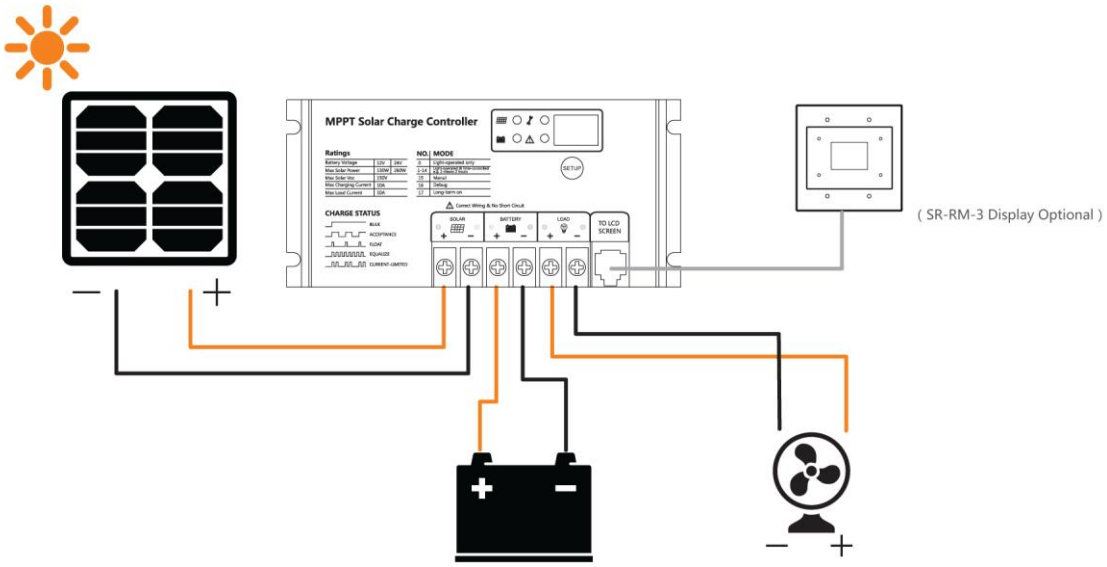


Installation Dimension



Boundary dimension：143×71×37.4(mm)
Installation dimension：139×48(mm)

Wiring diagram is as below



Working State Indication

1. Charge indication: when the output voltage of the solar panel reaches a certain value, the charge indicator light starts working. Different flashing states represent different charge stages. See table A for specific meanings.
2. Battery indication: when the battery is normal, the battery indicator light is constantly on; in case of over discharge of the battery, the indicator light flashes slowly; in case of overvoltage of battery, the indicator light flashes quickly. (see table B)
3. Mode indicator light: when the mode indicator light is on, it means that the value displayed by the nixie tubes at the moment is the mode of the controller. If there is no key operation for 5s, the nixie tube will be off automatically.
4. Fault indicator light: when the fault indicator light is on, it means that the value displayed by the nixie tube at the moment is the fault code of controller. If there is no key operation for 5s, it will go out automatically. The indicator light will flash in case of any fault.

Table A Charge State Indication:

No.	Diagram	LED State	Charge State
①	BULK	Constant on	Charge at maximal power
②	ACCEPTANCE	Slow flashing (on for 1s, off for 1s, 2s cycle)	Boost charge
③	FLOAT	Single flashing (on for 0.1s, off for 1.9s, 2s cycle)	Float charge
④	EQUALIZE	Quick flash (on for 0.1s, off for 0.1s, 0.2s cycle)	Equalizing charge
⑤	CURRENT-LIMITED	Double flash (on for 0.1s, off for 0.1s, on again for 0.1s, off again for 1.7s, 2s cycle)	Current-limiting charge

Table B Battery Indication:

No.	LED State	Battery State
①	Constant on	Normal battery voltage
②	Slow flash (on for 1s, off for 1s, 2s cycle)	Over discharge of battery
③	Quick flash (on for 0.1s, off for 0.1s, 0.2s cycle)	Overvoltage of battery

Parameters

Name of Parameter	Value of Parameter					
Type of battery	Sealed lead acid battery	Gel lead acid battery	Vented battery	Ternary lithium battery	Lithium iron phosphate battery	User-defined
System voltage	12V/24V AUTO			3/4 string: 12V system 6/7 string: 24V system	4 strings: 12V system 8 strings: 24V system	12V/24V AUTO
Overvoltage protection voltage (V)	16.0*n	16.0*n	16.0*n	4.2*N+2.0*n	3.6*N+2.0*n	9~17
Overvoltage restoration voltage (V)	15.0*n	15.0*n	15.0*n	4.2*N+1.0*n	3.6*N+1.0*n	/
Charging limit voltage (V)	15.5*n	15.5*n	15.5*n	4.2*N	3.6*N	9~17
Equalizing charge voltage (V)	14.6*n	-	14.8*n	-	-	9~17
Boost charge voltage (V)	14.4*n	14.2*n	14.6*n	4.2*N	3.6*N	9~17
Float charge voltage (V)	13.8*n	13.8*n	13.8*n	-	-	9~17
Boost return voltage (V)	13.2*n	13.2*n	13.2*n	3.9*N	3.3*N	9~17
Over discharge return voltage (V)	12.6*n	12.6*n	12.6*n	3.3*N	3.0*N	9~17
Under voltage alarm restoration voltage (V)	12.2*n	12.2*n	12.2*n	(3.2*N+0.2)*n	(2.7*N+0.2)*n	/
Under voltage alarm voltage (V)	12.0*n	12.0*n	12.0*n	3.2*N	2.7*N	9~17
Over discharge protection voltage (V)	11.1*n	11.1*n	11.1*n	3.0*N	2.5*N	9~17
Discharge cut-off voltage (V)	10.6*n	10.6*n	10.6*n	2.8*N	2.3*N	9~17
Operating voltage range of battery	8V~32V					
Charge mode	Trace MPPT at maximal power					
Maximum PV open-circuit voltage	100V (95V protection, stop charging. Restore in case of less than 90V)					
Voltage range of MPPT working point	(Vbat+2)~72V					
MPPT tracking efficiency	> 99%					
Charge conversion efficiency	85%~98% (10%~100% of rated power)					
Rated charge current	10A					
Maximum solar panel power	130W/12V ; 260W/24V					
No-load loss	≤10mA					
Rated load current	10A (breaking type)					
Overload protection	1.25 times of 10s protection; 1.5 times of 5s protection; double 1s protection					
Load working mode	Pure optical control, light and time control, manual mode (default), debugging mode, constant on mode					
Optical control voltage	Optical control on 5V; optical control off 6V; *2/24V					
Optical control delay	Optical control on: 5min; Optical control off: 1min					
Equalizing charge interval	30 days					
Equalizing charge duration	120min					
Boost charge time	120min					
Internal over temperature protection	When the internal temperature of the controller is higher than 60 ℃, the controller will run with power declining linearly until the charge stops; when the temperature is reduced, the charge can be restored.					
Working temperature	-35℃ ~ +65℃					
Protection level	IP64					
Weight	430g					
Altitude	≤3000m					
Product dimension	143×71×37.4(mm)					
Installation size	139×48 (mm)					
Grounding mode	Common negative design, negative grounding.					
Protection function	PV overvoltage protection, PV reverse connection protection, reverse charge protection at night, input overpower protection, charge PV short circuit protection, internal over temperature protection of controller, load short circuit protection, overload protection, battery overvoltage protection, battery over discharge protection, battery reverse connection protection, TVS lightning protection.					