

# SR-MH Series SR-MH60

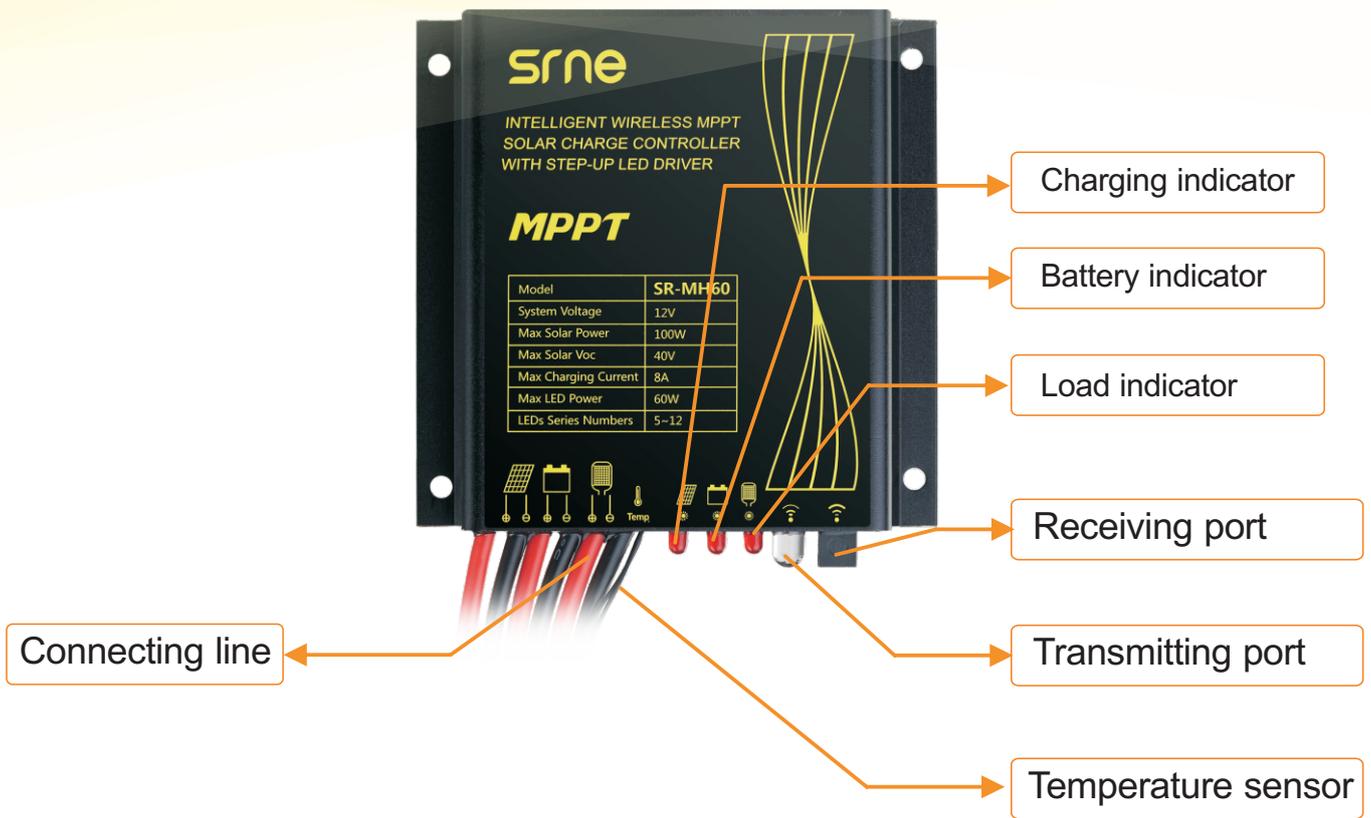
## MH60 MPPT Integrated Constant-Current Charge Controller for Lithium Batteries of Solar Street Lights



### Main Features

- Dedicated MPPT controller for lithium batteries; applicable to ternary-material lithium, lithium iron phosphate, lithium cobalt oxide and other types of lithium batteries.
- Supporting 12 V lithium batteries; able to activate the batteries automatically.
- Adopting the MPPT solar charging technology, with a max. solar panel open-circuit voltage  $V_{oc} \leq 40$  V and a max. solar panel power  $P_m \leq 100$  W.
- Providing lithium battery low-temperature charging protection function. When the ambient temperature falls below the freezing point, charging is halted to protect the battery.
- Featuring load boost constant-current output; able to directly power a maximum of 12 light bulbs in series, with a max. load power  $P_{led} \leq 60$  W.
- Boasting the design of load triple-stage brightness adjustment and morning light, with operating duration adjustable from 0 to 15 hours and power settable from 0 to 100%.
- Featuring system status log function; able to record system status for a maximum of 7 days; comprehensively and effectively monitoring the system's conditions.
- Data communication adopts a multiple-time two-way handshake protocol and a data compression algorithm, realizing precise and fast data transmission.
- Providing intelligent power mode, which can extend the battery's life to its top limit by adjusting the load power automatically according to the remaining battery capacity.
- True constant current rather than current-limiting control ensures smooth and stable output current, effectively reducing LED light attenuation and extending LED service life.
- With infrared remote control function, operations including setting parameters, reading status and viewing historical data can be performed.
- A metal case and an IP68 waterproof level enable the device to operate in various tough conditions.
- The overheat protection function enables the device to scale down or shut off the load completely when its temperature exceeds certain point.
- A range of protection measures such as battery reverse-connection protection, LED short-circuit protection and open-circuit protection place the system under comprehensive protection.

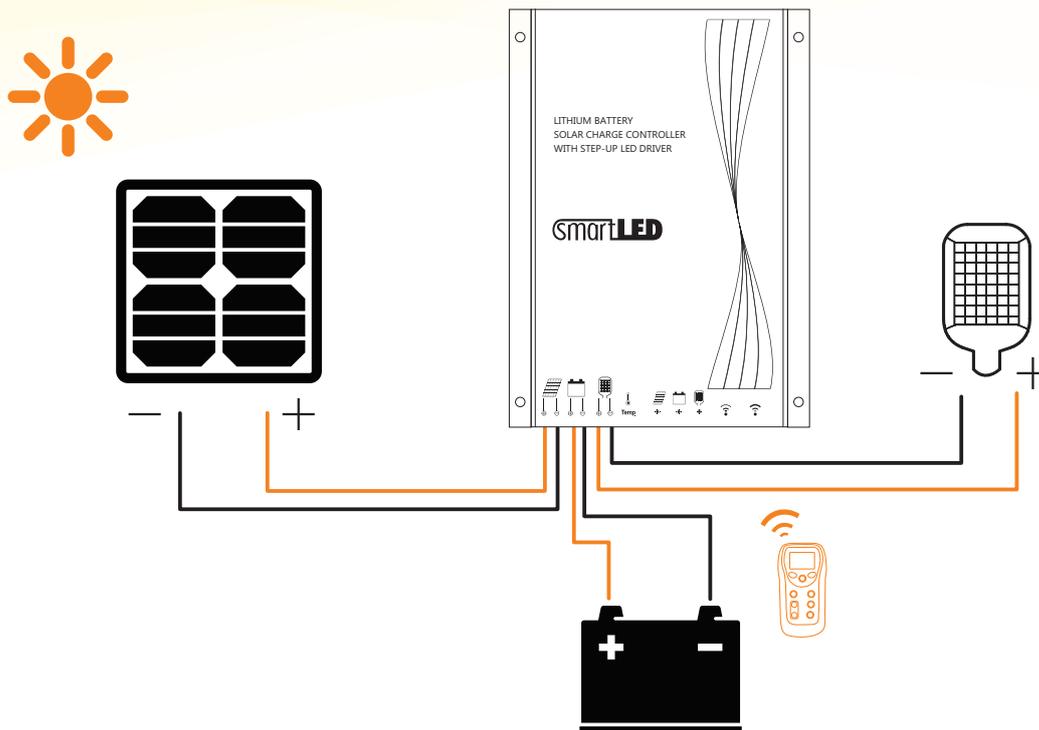
## Panel graphics



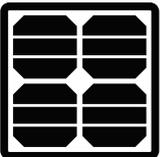
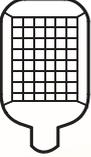
## Product Detail



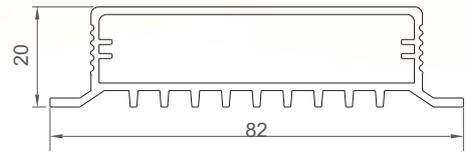
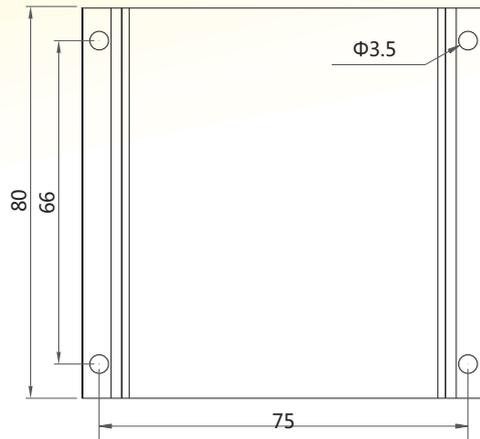
## Wiring diagram is as below



## Load Working Modes

LED light	Indicated content	State	Meaning
	Charging	Steady on	Solar panel voltage higher than light control voltage
		Off	Solar panel voltage lower than light control voltage
		Slow flashing	Charging in process
		Quick flashing	System overvoltage
	Battery	Steady on	Normal battery function
		Off	Battery not connected
		Quick flashing	Battery over discharged
	Load	Steady on	Load turned on
		Slow flashing	Open-circuit LED load
		Quick flashing	Short-circuit LED load
		Off	Load turned off

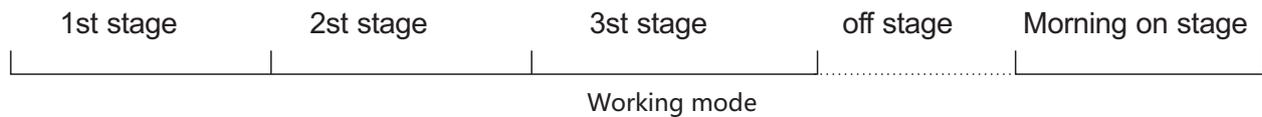
## Installation Demension



The size of MH60 is as follows :  
 Boundary dimension : 82×80×20(mm)  
 Installation dimension : 75×66(mm)  
 Installation aperture : 3.5(mm)

## Load Working Modes

Controlled by the MH60 controller, the load's working time can be divided into 3 stages plus the stage of morning on. The operating duration and power of each stage can be freely adjusted, with different combinations achieving different control modes.



A.Normal working mode: operates according to time and power settings in sequence.

B.Delay on mode: For example, if the 1st-stage operating duration is set to 4 hours and power to 0%, the system will delay switching on the lights by 4 hours.

C.Morning on mode: The controller automatically calculates the length of the night and intelligently adjusts the time point for switching on the lights in the morning, thereby making the morning on time more precise.

D.Test mode: In daily use, the controller works in the light control + time control mode. However, when test is needed during installation, you can use the remote control to switch on the load, and the LED load will change its power according to the remote control settings. The test mode lasts for 1 minute, and after that, the system will automatically restore the normal working mode.

Adjustment item	Value	Default
1st-stage operating duration	0 to 15 hours	4
1st-stage operating power	0 to 100%	100%
2nd-stage operating duration	0 to 15 hours	0
2nd-stage operating power	0 to 100%	70%
3rd-stage operating duration	0 to 15 hours	4
3rd-stage operating power	0 to 100%	50%
Morning on operating duration	0 to 15 hours	0
Morning on operating power	0 to 100%	30%

## Parameters

Parameter	Value	Whether adjustable	Default
Model	MH60		
System voltage	12V		
Output power	60 W/ 12 V		
Output current	0.15 A to 3.3 A		
Static power consumption	12.5 mA/ 12 V		
Rated charging current	8 A		
Solar panel power	≤ 100 W		
Solar panel open-circuit voltage	< 40 V		
MPPT tracking efficiency	99%		
Typical constant current source efficiency	90% to 96%		
Overvoltage protection	Overcharge voltage + 2 V		
Charging voltage limit	Overcharge voltage + 1 V		
Overcharge voltage	8.0 V to 17.0 V		
Overcharge recovery voltage	8.0 V to 17.0 V		
Over-discharge voltage	8.0 V to 17.0 V		
Over-discharge recovery voltage	8.0 V to 17.0 V		
Current accuracy	±3% (load current > 300 mA)		
Load output voltage	< 40 V		
Over-temperature protection	Ambient temperature: 85 °C (load downrating power)		
Light control voltage	5 V to 11 V		
Light control delay	1 min to 50 min		
Operating temperature	-35 °C to +65 °C;		
Protection degree	IP68		
Weight	200g		
Dimensions (mm)	82*80*20		

Note: Parameter setting shall comply with the following rule, i.e. overcharge voltage > overcharge recovery voltage > over-discharge recovery voltage > over-discharge voltage.