

MPPT Integrated Constant-Current Charge Controller for Solar Street Lights

SR-DM160/SR-DM160-U



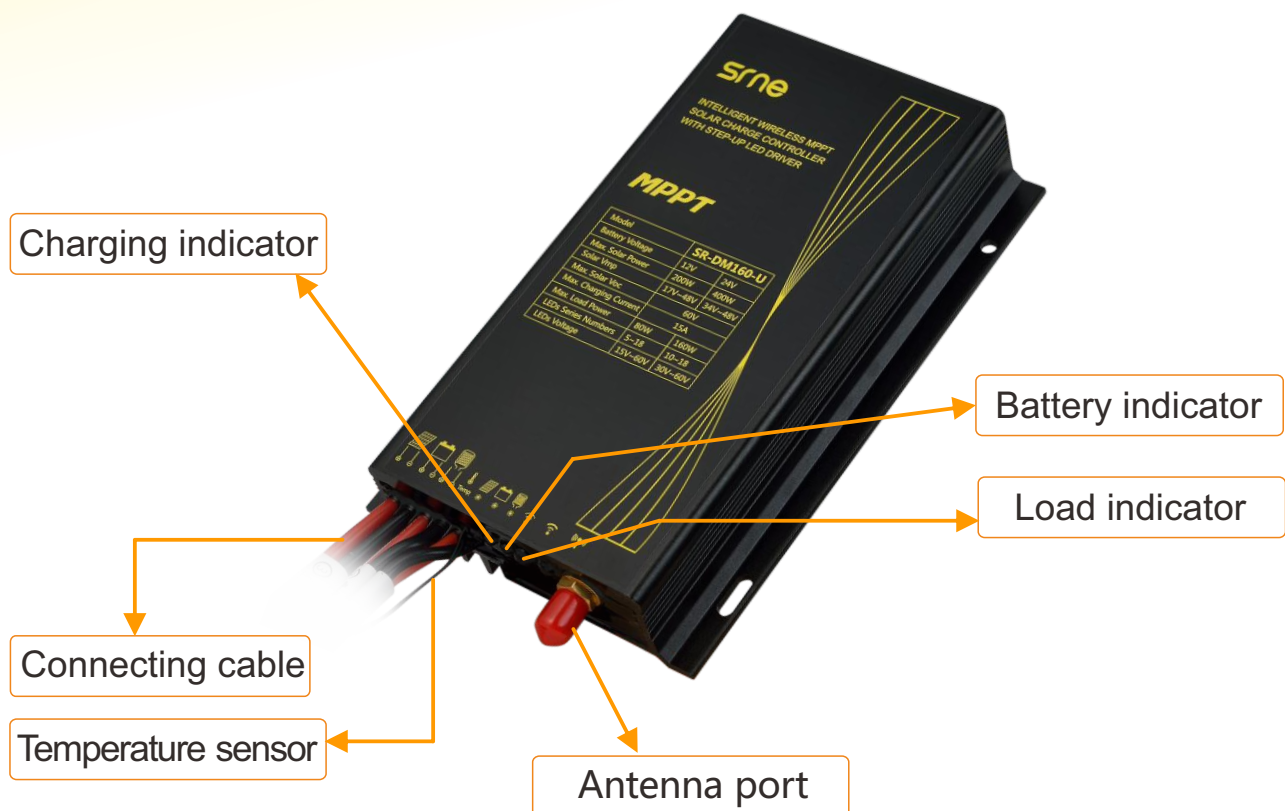
Main Features

- Features true MPPT functions, applicable to monocrystalline, polycrystalline and amorphous silicon solar panels serially connected in various numbers, significantly improving the solar panels' energy utilization ratio.
- Adopts the MPPT solar charging technology, with a max. solar panel open-circuit voltage $V_{oc} \leq 60V$ and a max. solar panel power $P_m \leq 260W$.
- Features load boost constant-current output, able to directly power a maximum of 18 light bulbs in series, with a max. load power $P_{led} \leq 120W$.
- Adopts an improved charging algorithm that supports 12V and 24V lead-acid batteries and lithium batteries, and the user can set the operating modes for lead-acid batteries or lithium batteries accordingly.
- Boasts a load triple-stage brightness adjustment and morning on design, with an operating duration adjustable from 0 to 15 hours and a power settable from 0 to 100%.
- Features a system status log function, able to record a maximum of 7 days of system status, comprehensively and effectively monitoring the system's conditions.
- Data communication adopts a multi-time two-way handshake protocol and a data compression algorithm, realizing precise and fast data transmission.
- Features an intelligent power mode which can extend the battery 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 an infrared remote control function, operations including setting parameters, reading status and viewing historical data can be conducted.
- A metal case and an IP68 waterproof level enable the device to operate in various kinds of tough conditions.
- An overheat protection function enables the device to scale down the load or shut off the load completely when its temperature exceeds a certain point.
- A range of protection measures such as battery reverse-connection protection, LED short-circuit and open-circuit protection, etc., put the system under comprehensive and constant guard.

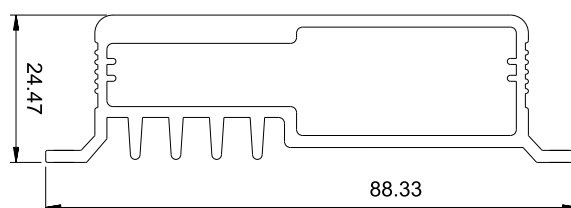
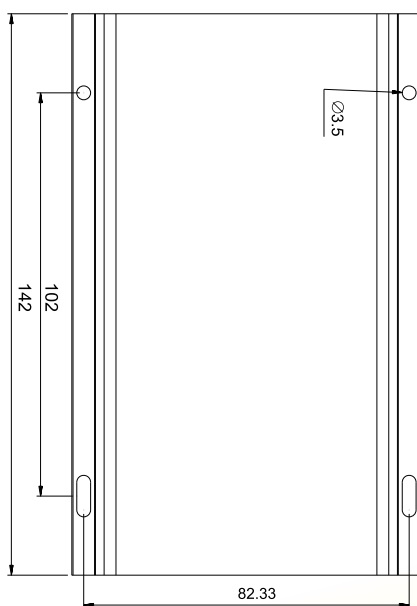
The following are functions of "-U" series

- Boasts a wireless Internet communication function, able to conduct remote monitoring and real-time management on street lights via the solar power street light management system.
- Supports remote light on/off switching and dimming, as well as modification of battery and load parameters.
- Monitors solar panel voltage, current and power, battery charging and discharging current and voltage, load operating status, controller operating status and other data, and automatically triggers alarms when failures are detected.

Exterior



Installation Dimensions



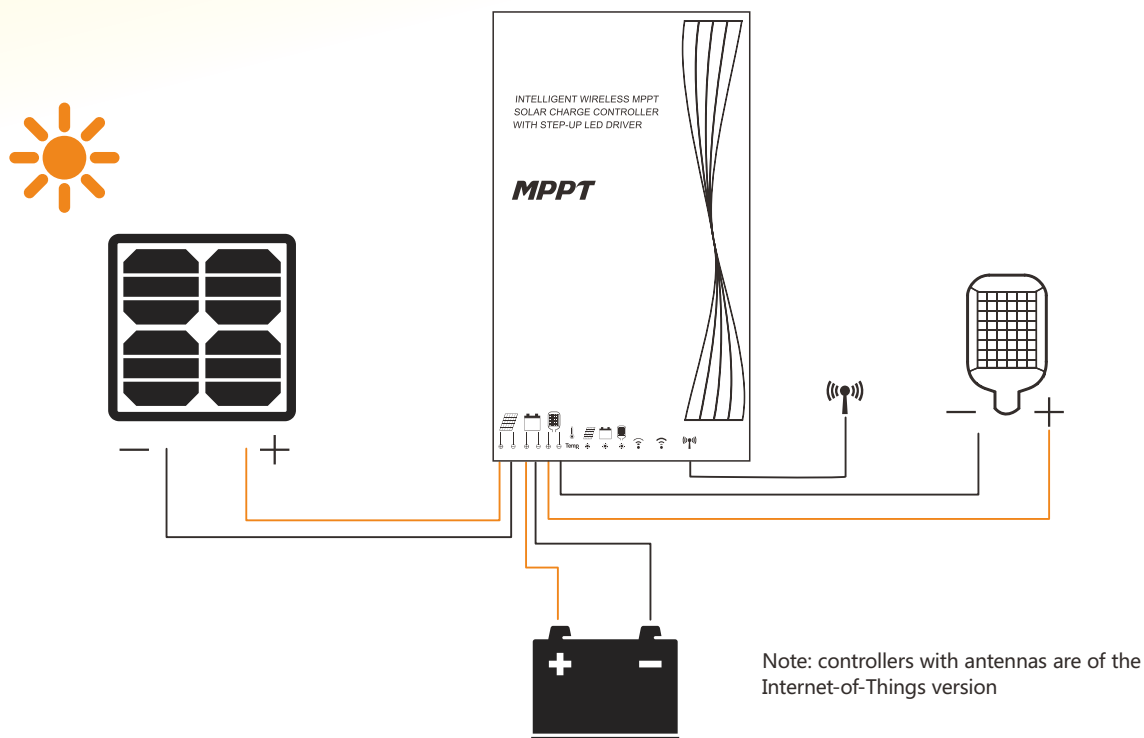
DM160/DM160-U 's dimensions are as follows:

External dimensions: 142x88.3x24.5(mm)




Installation dimensions: 102x82.33(mm)

Installation hole diameter: 3.5(mm)

Wiring Diagram



State Indicators

LED indicator	Indicated item	Status	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 over-voltage
	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 switched off

Parameters

Parameter	Value		Adjustable or not	Default
Model	DM160	DM160-U		
No-load loss	28mA/12V;17mA/24V	42mA/12V;23mA/24V		
System voltage	12V/24V			
Charging current	15A			
Max. solar panel power	200W/12V;400W/24V			
Solar panel input voltage	<60V			
MPPT tracking efficiency	>99%			
Charging conversion efficiency	90% ~ 96%			
Load conversion efficiency	90% ~ 96%			
Output current	70mA~5600mA		√	900mA
Load current accuracy	±3% (load current > 300mA)			
Max. load power	80W/12V;160W/24V			
Load output voltage	<60V			
Load current accuracy	±3% (load current > 300mA)			
Over-voltage protection	Lead-acid batteries	17.0V; ×2/24V		
Charging voltage limit		15.5V; ×2/24V		
Equalizing charging voltage		(Boost charging voltage+0.2V); ×2/24V(25°C)		14.6V
Equalizing charging time		1 hours		
Equalizing charging interval		30 days		
Boost charging voltage		7.5V~15.5V; ×2/24V(25°C)	√	14.4
Boost charging time		4 hours		
Floating charging voltage		7.5V~15.5V; ×2/24V(25°C)	√	13.8
Temperature compensation factor		-3.0mV/°C/2V		
Over-voltage protection	Lithium batteries	(over charge voltage+2V) ; ×2/24V(25°C)	√	16.6V
Whether charging is prohibited below 0 °C		Yes, No	√	No
Overcharge voltage		7.5V~15.5V; ×2/24V(25°C)	√	14.6V
Overcharge recovery voltage		7.5V~15.5V; ×2/24V(25°C)	√	13.6V
Over-discharge voltage		7.5V~15.5V; ×2/24V(25°C)	√	11.0V
Over-discharge recovery voltage		7.5V~15.5V; ×2/24V(25°C)	√	12.6V
Light control voltage	5V~11V; ×2/24V		√	10V
Light control delay	1~50min		√	1min
Operating temperature	-35°C ~ +65°C			
Protection degree	IP68			
Weight(g)	480			
Dimensions (mm)	142x88.3x24.5			

Note: parameter settings shall comply with the following rule, i.e. Boost charging voltage > floating charging voltage > over-discharge recovery voltage > over-discharge voltage.