

Run Status:

Status	Instance	Status value description
System status	Discharge	Current run status: discharge / charge / idle / full / over discharge, etc.
Battery voltage	12.3V	Current battery voltage
PV voltage	17.6V	Current PV panel voltage
Charge current	0.0A	Current charge current
Charge power	0.0W	Current charge power
Charge AH	0.01AH	Charge AH in the daytime
Load voltage	27.1V	Current load voltage
Load current	1.00A	Current load current
Load power	27.2W	Current load power
Lighting-up time	05:20	Total lighting-up time of loads in the nighttime
Sensing time	01:10	The lighting-up time of loads in the nighttime with person sensed
Discharge AH	2.05AH	Discharge AH in the nighttime
Ambient temperature	23°C	Current internal temperature
Running days	15D	Cumulative running days
Number of times of over discharge	2N	Total number of times of lithium battery over discharge
Number of times of full charge	10N	Total number of times of lithium battery full charge
Production Date	1810	Production date of controller
Software version	1000	Software version number of controller

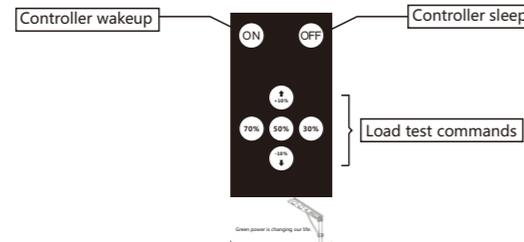
History Data:

The controller can read the running data of controller in the past 30 days through the remote control, and the number of days to read can be selected.

Status	Instance	Status value description
--->Past N days<---		Number of days can be selected, N= 0-30
Minimum voltage	11.2V	The minimum voltage of battery before N days
Maximum voltage	14.2V	The maximum voltage of battery before N days
Maximum temperature	38°C	The maximum ambient temperature before N days
Minimum temperature	23°C	The minimum ambient temperature before N days
Charge power	205W	The maximum charge power before N days
Lighting-up time	07:10	Night lighting-up time before N days
Charge AH	55AH	Total charge AH before N days
Discharge AH	49AH	Total discharge AH before N days
Charge WH	408WH	Total charge WH before N days
Discharge WH	350WH	Total discharge WH before N days

2.5.2 Remote control CU-mini2: (Optional)

The small remote control CU-mini2 is used for power on/off and testing.



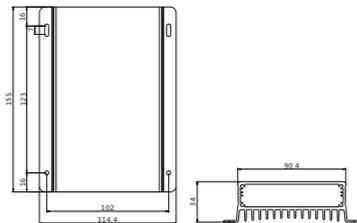
A total of 7 buttons: [ON], [OFF], [70%], [50%], [30%], [+10%], [-10%]; button icons and descriptions are as follows:

Icon	Description
	Controller is awakened from sleep mode
	Controller enters a low power sleep mode
	Controller runs for 1 minute at 70% of the set load current
	Controller runs for 1 minute at 50% of the set load current
	Controller runs for 1 minute at 30% of the set load current
	Each time you press it, the test current increases by 10% and the controller runs for 1 minute.
	Each time you press it, the test current decreases by 10% and the controller runs for 1 minute.

2.6 Installation method:

Installation method and size:

Controller dimensions are as follows:
Outline dimensions: 155*114.4*34mm
Installation size: 102*123mm
Hole diameter: φ3.5mm
Controller dimensions diagram:



3. Technical Parameters

Items	Values		Adjus table	Default
	DM200	DM200-U		
Models	DM200	DM200-U	DM200-C	
Controller type	All-in-one constant current MPPT charge controller with IoT function			
System voltage	12V/24V			Lead acid
Static power consumption	≤10mA/12V; ≤5mA/24V			
Sleep power consumption	≤1 mA			
Load current	150mA ~ 7000mA			√ 330mA
Load voltage	15V ~ 75V			
Max. load power	100W/12V ; 200W/24V			
Load conversion efficiency	98% (Typical efficiency: 85%-98%)			
Load current accuracy	≤3%			
Intelligent power	High / Medium / Low / Auto / Custom / No			√ Medium
Load working period	9 periods + pre-dawn working period			
Period adjustment range	1min. / 10min.			
Power adjustment range	1% / 10%			
Max. solar input power	260W/12V ; 520W/24V			
Max. charge current	20A			
Max. solar input voltage	95V (at minimum temperature); 92V (at standard 25° C)			
Overvoltage	Pb-16.0V; Li- Overcharge voltage +2V ; ×2.24V system			16.0V
Charging limit voltage	Pb-15.5V; Li- Overcharge voltage +1V ; ×2.24V system			15.5V
Equalizing charge voltage	Pb-14.6V ; Li- none ; ×2.24V system			14.6V
Equalizing charge interval	30 days			30D
Boost charge voltage (Lead-acid)	8.5V ~ 17.0V; ×2.24V system			√ 14.4V
Charge voltage (lithium battery)				
Floating charge voltage (Lead-acid)	8.5V ~ 17.0V; ×2.24V system			√ 13.8V
Charge return voltage (lithium battery)				
Over discharge voltage	8.5V ~ 17.0V; ×2.24V system			√ 11.0V
Over discharge return voltage	8.5V ~ 17.0V; ×2.24V system			√ 12.5V
Temperature compensation coefficient	Pb: -3.0mV/C/2V; (Lithium battery without temperature compensation)			
Light control voltage	3V ~ 11V; ×2.24V system			√ 5V
Light control delay	0s ~ 60s/2min ~ 60min			√ 10S
High temperature working	40°C ~ +90°C			√ 65°C
Low temperature charging	0°C ~ -35°C			√ -35°C
Operating temperature	-35°C ~ +65°C			
IP rating	IP68			
Protections	Battery polarity reverse protection, solar panel polarity reverse protection, solar panel overvoltage protection, lithium battery overcharge and over discharge protection, lithium battery BMS overcharge detection protection, over temperature protection, load open circuit and short circuit protection, load overcurrent protection, etc.			
Weight	770g			
Controller dimensions	155*114.4*34mm			
Controller installation size	102*123mm			
Installation hole diameter	φ3.5			

4. Protections

Waterproofing protection

Rating: IP67

Lithium battery BMS overcharge detection protection

When the controller detects a BMS overcharge protection, it stops charging immediately, preventing the high voltage of PV panel from being applied to both ends of the BMS for a long time, which may cause damage of the battery.

Lithium battery low temperature charge protection

When ambient temperature drops to the set value, the controller stops charging to protect the lithium battery from an irreversible damage caused by low temperature.

High temperature protection

When ambient temperature is above the set value, the controller stops charging and discharging to protect the lithium battery from being damaged by excessive temperature.

Battery reverse polarity protection

When the battery polarity is reversed, the system will not work but it will not burn out the controller.

PV input end over voltage protection

When the voltage at the PV input end is too high, the controller will automatically shut off PV input.

PV input end short circuit protection

When the voltage at the PV array input end is short circuited, the controller will turn off charging; after short circuit is removed, charging will automatically recover.

PV input reverse polarity protection

When the polarity of PV array is reversed, the controller will not be damaged, and normal operation will continue after wiring error is corrected.

Load power limit protection

When the power of LED lights that customer uses is too large, or the load current is adjusted to be too large, the controller will limit the load power output to less than the rated value, to ensure that the controller and LED load will not be damaged.

Load overload and short circuit protection

When the number of connected LEDs in series is insufficient (3 or less), the controller will stop output immediately to protect LED loads or controller from damage;

When a short circuit occurs, the controller immediately turns off load output to prevent control damage. After the load short-circuit condition is removed, controller output automatically restores within 1 minute (if it is short-circuited for a long time, output will automatically restore once every 1 hour), or press and hold the test button on the remote control (CU or mini2) for 10S to automatically restore output.

Load open-circuit protection

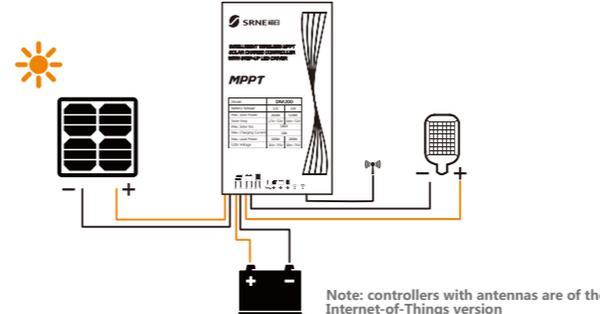
If wiring is suddenly disconnected while the LED load is normally running, the controller can immediately turn off load output and protect the controller from damage. After the load wiring is restored, the controller will automatically restore load output within 10 seconds (if the circuit is open for a long time, it will automatically restore output once every 1 hour), or press and hold the test button on the remote control (CU or mini2) for 10S to automatically restore output.

Night reverse charging protection

Prevent battery discharge through the solar panel at night.

TVS lightning protection

5. Electrical Wiring Diagram



1. Wiring sequence: Firstly connect the load, then the battery and finally the solar panel.

6. Common Exceptions and Handling Methods

No.	Exceptions	Problems	Handling methods
1	Remote control cannot work	A. Remote control password is incorrect B. Remote control working mode (infrared or wireless) is not selected properly C. Wireless remote control distance is set too short D. Remote control battery is low	B1. Press the "+" and "-" buttons at the same time to enter the (Remote Control Settings) interface and set a correct password. B2. Press the "+" and "-" buttons at the same time to enter the (Remote Control Settings) interface, and then select [Infrared Remote Control] or [Wireless Remote Control]. C1. Press the "+" and "-" buttons at the same time to enter the (Remote Control Settings) interface, and then increase the (Remote Control Distance) before testing. D1. Replace 2 AA (No. 5) batteries
2	The controller has no response after connected to the battery. Indicator does not light up and the remote control has no response.	A. There is a problem with battery power supply	A1. Check if battery wiring is intact. A2. Check if there is voltage on the battery and if the protection board is working. If there is no voltage on the battery, it indicates that the protection board has protected, and the battery can be charged to activate. B1. Press the "ON" button on the remote control to activate the controller. B2. Connect the solar panel to charge the battery.
3	Charge is normal in the daytime, but the load does not light up at night, and the LED indicator on the controller does not light up.	A. The controller is in sleep state	A1. Press the "ON" button on the remote control to activate the controller. A2. Select «PV Wakeup» as Yes, and the controller will be automatically activated if charged in the daytime.
4	The battery indicator flashes quickly and the load LED does not light up.	A. The battery is low	A1. Check if the solar panel is charging properly and if the solar panel is covered. A2. Check if the wiring between battery and solar panel wiring is disconnected or loose.
5	Load lighting-up time is short	A. The battery is low B. The load power is too large	A1. Check if the solar panel for proper charging and correct configuration. A2. Check if the lithium battery has a single-cell protection. A3. Open the "Intelligent Power" option B1. Check if the controller current is properly set and if the load power is right.
6	Load lighting-up current does not reach the set value	A. Intelligent power regulation of load current B. LED power exceeds rated value	A1. Turn "Intelligent Power" off and test load current again B1. Lower the set value or replace the lamp with less number of LEDs in series.
7	Load indicator flashes and load LED does not light up.	A. Load open circuit B. LED load wiring is shorted or the number of LEDs in series is less	A1. Check if load wiring is correct, and if the LED positive and negative poles are reversed. B1. Check if there is a short circuit in the load wiring, and if the LED positive and negative poles are reversed. B2. Check if the LED string is correct, and replace the lamp with appropriate number of LEDs in series and parallel.
8	LED load cannot be dimmed	A. There is a problem with the number of LEDs in series; a 3-LED (in series) or step-down lamp is used	A1. Replace a step-up (more than 5 LEDs in series) lamp
9	LED load lights up in the daytime or only lights up for one night	A. The solar panel is not connected B. The solar panel polarity is reversed	A1. Check if the solar panel is connected properly and the wiring is reliable. B1. Reverse the solar panel wiring in the daytime to see if the charging indicator flashes.
10	Charging indicator does not flash slowly during charging when there is sunlight in the daytime.	A. Solar panel fault or wiring error.	A1. Check if the solar panel wiring is correct and reliable, and if the solar panel is covered.
11	LED load does not light up and the battery indicator is steady on.	A. The voltage of solar panel is not lower than the light control voltage or the delay time is not up. B. The controller runs out of time	A1. Wait for reduction of solar panel voltage, and then, LED load automatically lights up B1. Controller recharge reset timer
12	Charging indicator flashes quickly and there is no charging current.	A. Lithium battery BMS overcharge protection	A1. Please wait, when the lithium battery voltage lowers to the overcharge return voltage, charging automatically restores.