

### Overview

MSC-N series is a new generation of the solar controller with a two-way load output. The two-way load output voltage can be switched to 12V or 24V DC freely by an enable switch. According to the battery voltage, the two-way load output voltage can be turned off in stages to ensure the load1 output. The two-way load output adopts a high-efficiency buck-boost conversion circuit, which greatly reduces the invalid loss of the battery and improves the service time of the battery.

The MPPT charging technology can fast track the max power point of solar panels in any situation and obtain the maximum energy in real-time. It can increase the utilization ratio of solar energy by 20%-30% compared with the PWM charging method. Charging current limit, charging power limit, and high temperature charging power automatic reduction of function, fully ensure the system stability of access to excess PV modules and high temperature running. Adaptive three-stage charging mode and comprehensive electronic protections such as over-charge, over-discharge, PV & battery reverse polarity, etc. effectively ensure the power supply safer, more stable, and more durable. MSC-N series controllers are most suitable for applications in the field of security monitoring, RV, and household system, etc.



### Features

- MPPT tracking efficiency up to 99.5%
- Maximum charging transfer efficiency up to 98.6%, full load efficiency up to 96.6 %
- Optional charging prior mode and load prior mode
- Support the lead-acid and lithium batteries
- Support no-battery mode, PV array powers load directly
- Constant voltage output of two-way load
- Freely set output voltage level
- Configurable cut-off voltage value, ensuring power supply for main load
- RS485 com. port to realize remote control



Solar Car



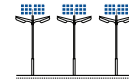
Solar Home



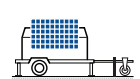
Solar Backpack



Solar Boat



Solar Street Light



Solar Power Generator

## Technical specifications

Model	MSC2210N	MSC3210N	MSC4210N	MSC4215N
Battery rated voltage	12/24VDC ★ Auto-recognition		24VDC	24VDC
Rated charging current	20A	30A	40A	40A
Controller working voltage range	8~32V		16~32V	
Max. PV open circuit voltage	100V(lowest temperature) 92V(At 25°C operating environment temperature)			150V(lowest temperature) 138V(At 25°C operating environment temperature)
MPPT voltage range	(Battery voltage +2V) ~ 72V			(Battery voltage +2V) ~ 108V
Rated charging power	260W/12V 520W/24V	390W/12V 780W/24V	1040W/24V	
Max. conversion efficiency	98.30%	98.60%	98.60%	
Full load efficiency	96.40%	96.60%	96.50%	
Self-consumption	≤35mA(12V) ≤22mA(24V)			
Load 1/2 constant-voltage output voltage	DC 12V/24V (configurable)			
Load rated power	Load 1: 100W Load 2: 36W			
Load output protection voltage	Load 1: Under Voltage Warning Voltage (it can be set when the battery type is "USER.") Load 2: Low Voltage disconnect Voltage (it can be set when the battery type is "USER.")			
Max. load conversion efficiency	Load 1 98.9%; Load 2 97.1%			
Full load conversion efficiency	Load 1 97.4%; Load 2 96.0%			
Temperature compensate coefficient◆	-3mV/°C/2V (Default)			
Grounding Type	Common negative			
Communication port	RS485			
Working temperatureø	-30°C ~ +65°C (when the working temperature reaches 50°C, the charging power and load power will be reduced appropriately; working of full load is not supported.)			
Enclosure	IP30			
Dimension	173×158×77.1mm	178×162×80.1mm	213.2×192×96.6mm	
Net Weight	1.3kg	1.5kg	2.0kg	2.0kg

◆ When an LFP or LNCM battery is used, the temperature compensation coefficient will be 0, and can't be changed.