

## 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

- High quality and low failure rate components of ST or IR to ensure the service life
- Advanced MPPT technology & ultra-fast tracking speed guarantee tracking efficiency up to 99.5%
- Maximum DC/DC transfer efficiency up to 98.6%, full load efficiency up to 96.6 %
- Accurate recognizing and tracking technology of multi-peaks maximum power point
- Wider MPP running voltage to increase the utilization ratio of PV modules
- Support the lead-acid and lithium batteries, programmable temperature compensation
- High temperature charging automatic power reduction function
- The freely set voltage level of the two-way load output, especially suitable for voltage-sensitive loads
- Configurable cut-off voltage value for the two-way load output
- Support no-battery mode, PV array powers the load directly
- High-efficiency buck-boost control chip and power device, conversion efficiency up to 98.9%
- Optional charging prior mode and load prior mode
- Effectively prolong the running time of load one by the discontinuous power supply in load prior mode
- Customized the load two output according to the actual requirement
- Common negative design, used in a negative grounded system
- Real-time monitor controller by an external remote meter, BT module, Wifi module or PC software
- Comprehensive electronic protections



Solar Car



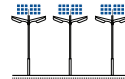
Solar Home



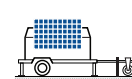
Solar Backpack



Solar Boat



Solar Street Light



Solar Power Generator

## Technical specifications

Model	MSC2210N		MSC3210N	MSC4210N	MSC4215N
Battery rated voltage	12/24VDC ★ Auto-recognition			24VDC	
Rated charging current	20A	30A		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.)				
Storage temperature	-20 °C ~ +70 °C				
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 system voltage can't be identified automatically. Please confirm the system voltage before operating.

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