

# MPPT SOLAR CHARGE CONTROLLER

## Main Features:

- Advanced MPPT (maximum power point tracking) technology, efficiency no less than 99.5%
- High-quality components to improve system performance, the maximum conversion efficiency can up to 98%
- Ultra-fast speed of maximum power point tracking and tracking efficiency
- Accurate identification of the peak of maximum power point tracking
- Reliable function of enter the automatic power limit maximum PV array, ensure that any conditions will not overload
- Wide range of photovoltaic array maximum power point voltage
- LCD design, dynamic display operating data and status
- With battery temperature compensation function
- Real-time power statistics logging
- Standard Mod bus communication protocol based on RS-485 bus to maximize meet different communication needs

## Overview

This series based on advanced MPPT control design uses LCD displaying status, with elegant, economical and practical advantages. The series products used of MPPT control algorithm, in any condition can fast track PV array column of maximum power points, real-time get solar panels of maximum energy, significantly improve solar system energy utilization; used standard Modbus communications agreement of communications interface, convenient for user to expand application, maximum meet different monitoring needs. Comprehensive electronic fault self-test function and powerful electronic protection, maximum to avoid installation errors and system failure may result in damage to the system components.



## Battery Charging Stages:

Controller has a three-stage charging separately: fast charging, maintenance charging and floating charging. Through the fast, efficient and safe battery charging mode, the system can effectively extend the battery life.

### A) Fast charging

Fast charging battery voltage has not reached full voltage value (i.e.balance/boosting voltage), controller MPPT charging will provide maximum solar power to charge battery. When the battery voltage reaches a preset value, there will be a maintenance charging.

### B) Maintenance charging

When the battery voltage value is reached, the controller will conduct on constant voltage charging, this process will no longer be MPPT charging and the charging current also gradually declining as time goes by. Maintenance charge default duration is 0.5h, when the time reaches the set value, the system will be transferred to the floating charging.

### C) Floating charge

After constant charging phase, the controller through reducing the charging current in order to reduce the battery voltage, and keeping the battery voltage in floating charge voltage set point. During float charging stage, battery charging is very weak, ensure the batteries are full charged. In the float charging stage, loads can get nearly all of the solar power. If the loads exceed solar power, the controller will not be able to maintain float charging stage. When the battery voltage is low and then recover back to charging set value, the system will exit float charging stage, re-entering the fast charging stage.

## Specifications:

Model	BK-MPPT /48V 50A	BK-MPPT /48V 100A	BK-MPPT /192V 50A	BK-MPPT /192V 100A	BK-MPPT /384V 50A	BK-MPPT /384V 100A
Rated system voltage	48V		192V		384V	
Rated charging current	50A	100A	50A	100A	50A	100A
Rated discharging current	50A	100A	50A	100A	50A	100A
Output capacity	2.8kW	5.6kW	11kW	22kW	22kW	44kW
PV open circuit voltage input range	75V~155V		300V~400V		580V~800V	
max power point voltage range	60V~124V	60V~124V	240V~320V	240V~320V	464V~640V	464V~640V
Recommend PV open circuit Voltage	115V±10V		343V±10V		650V±10V	
Efficiency	≥98%					
Empty loss	≤5W					
Temperature compensation algorithm	-2mV/°C/2V					
Communication	RS485					
ambient working temperature range	-25°C ~ +45°C					
Storage temp. Range	-35°C ~ +80°C					
Altitude	≤5500m ( 2000m above the need to reduce power use )					
relative humidity	≤95% , no condensation					
IP level	IP30					
Measurement DxWxH	178*110*250	178*110*350	393*203*507	393*203*507	393*203*507	393*203*507
Mounting hole size	158*230	158*330	370*330	370*330	370*330	370*330
Installation hole radius	M5	M5	M6	M6	M6	M6
N.G ( kg )	3	5	20	23	21	24