

BX48D3000RBM

MPPT Solar Charge Controller Module

CE FC RoHS



Introduction

- BX48D3000RBM is an isolated, high-efficiency, high-power-density digital solar charge controller module. It features a wide input range, integrated MPPT (Maximum Power Point Tracking), and isolated circuit design to improve solar conversion efficiency and system safety. It is applicable to base stations powered by grid only, solar only, solar-diesel hybrid and energy storage of solar-grid hybrid systems.

Features

▪ Efficient and Flexible

Functional modules support hot-swapping and can be flexibly configured to meet customer and scenario requirements. Designed for easy installation, maintenance, and scalability.

▪ High Conversion Efficiency

The solar module integrates MPPT (Maximum Power Point Tracking) technology to continuously optimize PV array output under varying environmental conditions, achieving module conversion efficiency above 96%.

▪ Wide Range

Support 120Vdc-420Vdc wide voltage input.

▪ Safe and Reliable

Modular isolation design ensures that single failure does not affect overall system operation. Power module employs electrically isolated circuits to keep it away from interference effectively, enhance system immunity and electrical safety for long-term stable and reliable performance.

▪ Dual communication interfaces

Integrated RS485 and CAN bus for remote monitoring and flexible networking.

▪ Intelligent power control

Supports voltage regulation and current limiting to ensure stable system operation.

*Product dimensions and parameters refer to the latest documents;

*The product shall be subject to the actual item.



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Configuration

BX48D3000RBM Isolated 3000W Solar Charge Controller Module for Telecom Grid-Solar and Energy Storage

Product Type	
Controller type	MPPT (Maximum Power Point Tracking) controller
MPPT efficiency	$\geq 99\%$
Peak conversion efficiency	$\geq 96\%$
Standby consumption	Output powered only: $\leq 2.0W$; Input powered only: $\leq 4.0W$
Cooling method	Fan Cooling
Input Parameters	
Input protection voltage (overvoltage & undervoltage protection)	420Vdc/115Vdc
Input protection recovery voltage (overvoltage & undervoltage recovery)	415Vdc/120Vdc
Input voltage range	120Vdc~420Vdc
MPPT voltage range	120Vdc~340Vdc
Startup charge voltage $V_{start-pv}$	160 $\pm$ 2V
Low voltage protection V_{low-pv}	115 $\pm$ 2V
Maximum input current	18A
Maximum input power	3300W
Charging Parameters	
Output DC voltage range	40V ~ 60VDC (factory default: 57VDC), adjustable
Applicable battery types	Lead-acid batteries / Lithium-ion batteries
Battery management	parameters of output charging and protection are configurable
Output DC current	Rated: 50A, Maximum: 60A
Display & Communication	
Status indicators	LED status lights: Red (fault & alarm), Blue (standby & running), Green (power)
Communication protocols	Rs485 bus / Standard Modbus protocol / CAN2.0B
Protection Functions	
PV input protection	PV input overvoltage and undervoltage protection
Output protection	Voltage regulation protection, battery reverse polarity protection, battery disconnection protection, and overcharge protection
General protection	Overtemperature protection, fan fault protection, overcurrent protection, surge protection
Safety / Withstand Voltage	Input-to-ground / Output-to-ground: 1.0KV / 20mA / 60S
	Communication port-to-ground: 0.7KV / 20mA / 60S
Insulation Resistance	$\geq 10M\Omega$
Grounding Impedance	$\leq 0.1\Omega$
Other Specifications	
Installation Method	Insert the module into the slot
Product Dimensions	333*105*41mm
Product Weight (kg)	2.025
Operating Ambient Temperature	-20°C ~+50°C (Derating is allowed when operating above 40°C)
IP Protection Rating	IP20
Altitude	4000m (above 3000m, operating ambient temperature derated by 1°C per 100m increase)

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