



BANGZHAO ELECTRIC  
CO., LTD

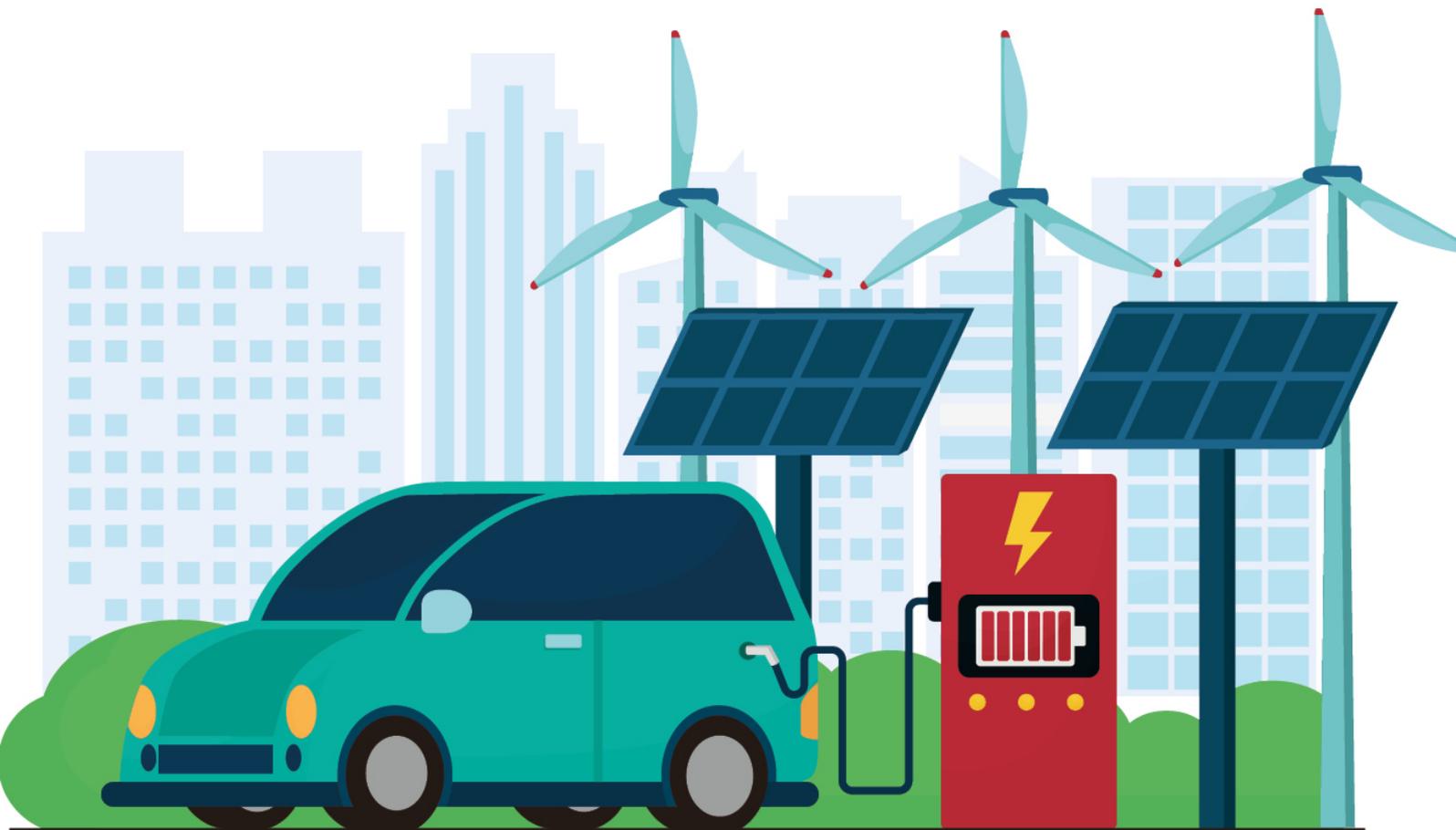
SERVICE DOES  
NOT STOP

# 产品选型手册

PRODUCT SELECTION GUIDE

## 浙江邦照电气有限公司

ZHEJIANG BANGZHAO ELECTRIC CO., LTD





# 公司简介

## COMPANY PROFILE

邦照电气有限公司成立于 2013 年，是一家从事“生产和销售一体”的电源制造公司，其产品性能源于国内 100 强的工程师的技术。10 年来一直以“锂电储能系统，PCS 双向储能电源，正弦波逆变器，船舶逆变器，水泵逆变器，防爆逆变器，光伏控制逆变一体机，光伏汇流箱，太阳能控制器，交 - 直流充电器，单三相转换器”等电源产品为客户提供系统解决方案。主要应用于太阳能、风能、水力、车载、轮船、火车，医疗，航空，电气自动化等领域。

邦照电气有限公司以技术创新和优质服务作为企业发展的根本，培育了一支研发经验丰富及能力较强的研发队伍，年开发费用不少于销售收入的 20%，拥有多项电源方面的证书，是众多知名厂商的合作者。

“诚信、严谨、务实”是邦照电气的不懈追求，面对今天，面向未来，我们将以专业，完善的服务回报社会各界对邦照电气的支持和信赖！



Bangzhao Electric Co.,Ltd is a company who was established in 2013 and specialized in developing and supplying of power products. The high performance of its products stems from the cutting-edge technology developed by the domestic top 100 engineers. During the past 10 years, we have been providing the best system solutions of Lithium battery storage system, PCS bi-directional energy storage power supply, Pure sine wave inverter, Marine inverter, Solar pump inverter, Explosion-proof inverter, PV Inverter-Controller Integrate, PV combiner box, Solar charge controller, AC-DC charger, Static phase converter etc. to customers, it is widely applied in the industry of solar energy,wind power,water power,car,ship,train,hospital, aviation,military automation,etc.

We believe that through our continuous efforts and pursuit,we can become one of the most influential enterprises between domestic big-power inverter manufacturers.

Bangzhao Electric Co., Ltd. regard technological innovation and best service as the fundamental of business development. The annual technology development investment cost is more than 20% of the annual sales, with an experienced and top professional research and development team, obtained a number of certificate and patent of power products, we are cooperation supplier of many famous companies.

" Integrity, Rigorous, Pragmatic" is the continuous pursuit of the Bangzhao Electrical. Facing today and the future, we will provide more professional and perfect services to the public who support and trust Bangzhao Electric.



# 荣誉资质

HONORS ANDI QUALIFICATIONS

邦照品牌是我们企业向前发展的追求目标，我们导入了国际化质量管理体系，坚持每个细节的一丝不苟与精益求精。努力实现产品质量的标准化及系统化管理，使品牌因质量而更加出类拔萃。荣誉源于用心，每份认可的资质证书凝聚邦照人奋力拼搏的结晶，每份荣誉都是我们的金名片和通行证，那是我们一个个路标，那是我们一次次的历程。

Bang Zhao brand is the pursuit goal of our enterprise's forward development. We have introduced an international quality management system and insisted on meticulous and continuous improvement in every detail. Strive to achieve standardization and systematic management of product quality, and make the brand more outstanding due to quality. Honor comes from heart. Each recognized qualification certificate is the crystallization of Bangzhao people's hard work. Each honor is our golden business card and pass. That is our road sign, that is our journey time after time.



 <p><b>Certificate of Compliance</b> ISET 1.0.1</p> <p><b>CERTIFICATE OF COMPLIANCE</b> Сертификат соответствия - 1.0.1</p>	 <p><b>Certificate of Compliance</b></p> <p>Certificate's NUMBER: Zhejiang Sand Electric Co. Ltd.</p> <p>CERTIFICATION ECM MARK: [Logo]</p> <p>PRODUCT MODEL(S): [List of models]</p> <p>Verification No: [List of numbers]</p> <p>CE Marking: [CE Logo]</p>	 <p><b>Certificate of Compliance</b></p> <p>Certificate's NUMBER: Zhejiang Sand Electric Co. Ltd.</p> <p>CERTIFICATION ECM MARK: [Logo]</p> <p>PRODUCT MODEL(S): [List of models]</p> <p>Verification No: [List of numbers]</p> <p>CE Marking: [CE Logo]</p>	 <p><b>Certificate of Compliance</b></p> <p>Certificate's NUMBER: Zhejiang Sand Electric Co. Ltd.</p> <p>CERTIFICATION ECM MARK: [Logo]</p> <p>PRODUCT MODEL(S): [List of models]</p> <p>Verification No: [List of numbers]</p> <p>CE Marking: [CE Logo]</p>
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 <p><b>QUALITY MANAGEMENT SYSTEM CERTIFICATE</b></p> <p>IAF</p>	 <p><b>质量管理体系认证</b></p> <p>IAF</p>	 <p><b>CERTIFICATE OF COMPLIANCE</b></p> <p>IAF</p>	 <p><b>防爆合格证</b></p> <p>CITC</p>
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## PCS 双向储能管理系统

### PCS bi-directional energy storage management system



#### 概述 Overview

PCS 双向储能电源用于连接蓄电池组和电网（或负荷）之间，是实现电能双向转换的装置！

PCS Bi-directional energy storage power supply is used to connect between the battery bank and the grid (or load) and is a device for the Bi-directional conversion of electrical energy!

#### 主要组成 Main components

- ▲ PCS 双向逆变器 PCS Bi-directional inverter
- ▲ AC/DC 充电器 AC/DC charger
- ▲ 太阳能充电控制器 Solar charge controller
- ▲ 磷酸铁锂电池模组 LiFePO4 Modules
- ▲ 直流充电桩接口（选配）DC Charging station interface (Optional)

#### PCS 双向储能系统图 PCS bi-directional energy storage system diagram





## 性能特点 Performance characteristics

- ▲并网功能：可以把蓄电池的直流电逆变成交流电，输送给电网以此来进行削峰填谷或者直接给交流负荷使用。
- ▲市电充电功能：可以在电网电价便宜的时候把电网的交流电整流为直流电，给蓄电池充电。
- ▲离网功能：在电网不稳定的时候由离网模式利用蓄电池里的电能继续给负载供电，此功能可作为备用电源。
- ▲太阳能充电功能：白天太阳能给锂电充电，并且继续并网。
- ▲采用双向隔离的 PCS 模块设计，可以任意调整功率大小，灵活扩容，容易适配于客户系统。
- ▲完善的电池保护与维护策略，提高蓄电池使用寿命过流、过温、过压，过载，短路，防雷，接地等保护，
- ▲直流电压范围宽，电压可达 850V，控制算法，恒流、恒压、恒功率等，智能风冷稳定运行。
- ▲一体化设计，便于运输节省不必要的隐形成本，
- ▲支持 RS485，CAN 通信方式，可实时接收 BMS 指令。
- ▲On Grid function: it can reverse the DC power of the battery into AC power and transmit it to the grid for peak shaving and valley filling or direct use for AC load.
- ▲Utility charging function: It can rectify the AC power from the grid into DC power to charge the battery when the grid price is cheap.
- ▲Off-grid function: When the grid is unstable, the off-grid mode uses the electrical energy in the battery to continue to supply power to the load, this function can be used as a backup power supply.
- ▲Solar charging function: solar energy charges the lithium battery during the day and continues to be connected to the grid.
- ▲It is designed with bi-directional isolated PCS modules, you can adjust the power size, flexible expansion, easy to adapt to the customer system.
- ▲Perfect battery protection and maintenance strategy, improve battery life over current, over temperature, over voltage, overload, short circuit, lightning protection, grounding and other protection
- ▲Wide range of DC voltage, voltage up to 850V, control algorithm, constant current, constant voltage, constant power, etc., intelligent air-cooled stable operation.
- ▲Integrated design, easy to transport to save unnecessary invisible costs.
- ▲Support RS485, CAN communication mode, It can receive BMS command in real time.

## 储能锂电池 & BMS 系统介绍

### Storage energy lithium battery & BMS system

#### 产品简介 Product Introduction

邦照 SPVLI 系列磷酸铁锂电池系统是针对光伏储能、备电应用而研发推出的新型环保备用电源。系统采用环保的磷酸铁锂电池、配置定制化的 BMS 系统对电芯进行有效管理，与传统电池相比具有更加优异的产品性能和安全可靠。产品充放电循环次数多，功率密度高、使用年限长。在兼容性、能量密度、动态监控、安全性、可靠性及产品外观上都进行了独特的设计和创新，可以为用户带来更好的储能应用体验。 Bangzhao SPVLI series LiFePO4 lithium battery system is a new environment-friendly standby power supply developed for PV energy storage and power reserve applications. The system uses the environment-friendly lithium iron phosphate battery and the customized BMS system to effectively manage the battery cells. Compared with the traditional battery, it has more excellent product performance and safety and reliability. The product has many charging and discharging cycles, high power density and long service life. It has carried out unique design and innovation in compatibility, energy density, dynamic monitoring, security, reliability and product appearance, which can bring better energy storage application experience to users.



光储逆控一体机

Lithium battery inverter charger & integrated system



光储充双向 PCS 系统

PV storage and charging bidirectional PCS



集装箱电池储能系统

Container battery energy storage system

#### 产品优势 Product advantages

- ▲一体化设计、集成度高、安装简单、节约安装空间
- ▲采用高性能磷酸铁锂正极材料，电芯一致性好，设计使用寿命 10 年以上
- ▲充电，放电单独控制，方便可靠控制充放电，过充的时候不会断开放电口，过放的时候不会断开充电口，系统稳定性好主从模式、被动均衡，可以对均衡电阻进行管理，可设置均衡启动压差电压，均衡电阻温度进行监测，更加智能，安全，减低木桶效应对系统储能影响
- ▲BMS 采用美国恩智浦（NXP）汽车级高性能芯片，抗干扰强，可靠性好，温度范围广
- ▲CAN 通信接口，具有实时性强、传输距离较远、抗电磁干扰能力强等优点
- ▲可以通过上位机对系统一些参数设置，比如风扇启停温度，充电器最大电流设置，充放电电流校正，SOC 校正等，带绝缘漏电检测功能，防止电芯漏油短路
- ▲可集成太阳能控制器，市电充电器，充电桩并可以联机通信控制，更加安全可靠
- ▲电芯温度管理，可以与空调加热器按电芯状况进行自动控制让电芯工作在最适合的温度，可按需要与消防系统进行联动
- ▲All-in-one design, high integration and space saving installation
- ▲Using high-performance lithium iron phosphate cells, laser welding, good cell consistency, designed service life of more than 10 years
- ▲Charging and discharging are controlled separately, which is convenient and reliable to control charging and discharging. The discharge port will not be disconnected when over-charging, and the charging port will not be disconnected when over-discharging, the system has good stability
- ▲Master-slave mode, passive equalization, can manage the equalization resistance, can set the equalization start voltage difference, and monitor the equalization resistance temperature, more intelligent and safe, and reduce the impact of barrel effect on system energy storage
- ▲BMS adopts NXP(USA) automotive-grade high-performance chips, with strong anti-interference, good reliability and wide temperature range
- ▲CAN2.0 communication interface, has the advantages of strong real-time performance, long transmission distance, strong anti-electromagnetic interference ability

## 储能锂电池 & BMS 系统

### Storage energy lithium battery & BMS system



可组装 / 拆分型  
Assembly & disassembly type

- ▲ 额定容量 :32KWH
- ▲ 额定电压 :307VDC
- ▲ 电芯 :3.2V-105AH/96 个
- ▲ 逆变器功率 :12KW
- ▲ AC/DC 充电器 :7KW( 单相 )
- ▲ 尺寸 : 宽 891- 高 645- 深 767mm
- ▲ Rated capacity:32kwh
- ▲ Rated voltage:307vdc
- ▲ Cell:3.2v-105ah/96pcs
- ▲ Power inverter:12kw
- ▲ Ac/dc charger:7kw( single phase)
- ▲ Size:W891-H645-D767mm



IP20 室内型  
IP20 indoor type

- ▲ 额定容量： 100KWH
- ▲ 额定电压： 499VDC
- ▲ 电芯： 3.2V-202AH/156 个
- ▲ 太阳能控制器： 499V-80A (MPPT)
- ▲ 尺寸： 宽 1070- 高 1940- 深 980mm

- ▲ Rated capacity:100kwh
- ▲ Rated voltage:499vdc
- ▲ Cell:3.2v-105ah/156pcs
- ▲ Solar controller:499V-80A(MPPT)
- ▲ Size:W1070-H1940-D980mm



IP54 户外型  
IP54 Outdoor type

- ▲ 额定容量： 42KWH
- ▲ 额定电压： 345VDC
- ▲ 电芯： 3.2V-125AH/108 个
- ▲ 太阳能控制器： 345V-100A (MPPT)
- ▲ AC/DC 充电器： 7KW (单相)
- ▲ 尺寸： 宽 950- 高 1800- 深 750mm
- ▲ Rated capacity:42KWH
- ▲ Rated voltage:345VDC
- ▲ Cell:3.2V-125AH/108PCS
- ▲ Solar controller:345V-100A(MPPT)
- ▲ AC/DC charger:7kw(Single phase)
- ▲ Size:W950-H1800-D750mm

## 储能锂电池 & BMS 系统

### Storage Energy Lithium Battery & BMS system



集中式锂电储能系统  
Centralized lithium battery system

- ▲ 额定容量: 256KWH
- ▲ 额定电压: 460VDC
- ▲ 电芯: 3.2V-280AH/288 个
- ▲ 太阳能控制器: 460V-120A/3 个
- ▲ AC/DC 充电器: 20KW/2 个 (三相)

- ▲ Rated capacity:256KWH
- ▲ Rated voltage:460VDC
- ▲ Cell:3.2V-280AH/288PCS
- ▲ Solar controller:460V-120A/3PCS
- ▲ AC/DC charger:20KW/2PCS(Three phase)



车载储能系统  
On-board energy storage system

- ▲ 额定容量: 33KWH
- ▲ 额定电压: 614VDC
- ▲ 电芯: 3.2V-27AH/384 个
- ▲ AC/DC 充电器: 7KW (单相) &20KW (三相)
- ▲ 国标直流充电桩接口

- ▲ Rated capacity:33KWH
- ▲ Rated voltage:614VDC
- ▲ Cell:3.2V-27AH/384PCS
- ▲ AC/DC charger:7KW(1 Phase)&20KW(3 Phase)
- ▲ DC Charging post interface



EV 充电桩储能系统  
EV charging station storage system

- ▲ 额定容量: 64KWH
- ▲ 额定电压: 614VDC
- ▲ 电芯: 3.2V-105AH/192 个
- ▲ AC/DC 充电器: 20KW2 个 (三相)
- ▲ 尺寸: 宽 850- 高 2100- 深 850mm

- ▲ Rated capacity:64KWH
- ▲ Rated voltage:614VDC
- ▲ Cell:3.2V-105AH/192PCS
- ▲ AC/DC charger:20KW/2PCS(3 Phase)
- ▲ Size:W850-H2100-D850mm

## 工频逆变器

### Low frequency off-grid inverter



BZP-5KW~25KW



BZP-30KW~80KW



BZP-100KW~500KW

### ★产品简介 Product Introduction

我公司研发的工频离网逆变器是通过全桥逆变将直流电能转换成交流电的智能电源设备，该系列产品满足 5KW-500KW 功率负载使用。本产品适用于太阳能 / 风能、储能电站发电系统。输出波形为纯正弦波，完善的保护功能，整机效率高，空载损耗低。为无电山区、牧区、边防、海岛等电力缺乏和电网电压不稳定的地区提供多能源供电解决方案。产品具有人性化设计、外观大方、操作方便、液晶指示直观、工作稳定、无噪音、无污染。输出的纯正弦波交流电适用于大多数工业电器及家用电器，例如：工业自动化控制、民用、火车、船舶、汽车、消防电力等电气设备。它主要针对电力控制系统的特点和要求设计制造，适合电力控制系统对供电设备高质量、高可靠性控制的要求，能满足电力控制系统中各种终端设备的需求，同时也适合于其它需要稳定的交流输电电压的场合。

The low frequency off-grid inverter developed by our company is an intelligent power supply device that converts DC power into AC power through full-bridge inverter. This series of products can meet the use of 5KW-500KW power load. This product is applicable to the power generation system of solar/wind power and energy storage power stations. The output waveform is pure sine wave, with perfect protection function, high overall efficiency and low no-load loss. Provide multi-energy power supply solutions for areas without electricity, such as mountainous areas, pastoral areas, border areas, islands, and other areas with power shortage and unstable grid voltage. The product has humanized design, generous appearance, convenient operation, intuitive LCD indication, stable operation, noiseless and pollution-free. The pure sine wave AC output is applicable to most industrial and household appliances, such as industrial automation control, civil, train, ship, automobile, fire power and other electrical equipment. It is mainly designed and manufactured according to the characteristics and requirements of the power control system. It is suitable for the requirements of the power control system for the high quality and high reliability control of the power supply equipment, and can meet the requirements of various terminal equipment in the power control system. It is also suitable for other occasions requiring stable AC transmission voltage.

### ★性能特点 Performance characteristics

- ▲核心元件均为进口器件，采用三菱的第 6 代 IPM 模块性能稳定，使用寿命长，保护功能强大，更换维修方便。采用美国 TI 中央处理器 DSP28335 芯片，响应迅速准确，给负载提供稳定干净的电源提供保障
- ▲整机采用模块化设计，结构简单、插拔式设计，便于维修，减少机器故障来回维修的隐形成本
- ▲据产品配置条件、调整系统的使用模式：逆变优先或市电旁路优先可任意设置
- ▲双模式启动选择功能，通过液晶设置可以设置降压启动和变频启动两种方式。这样可以充分发挥逆变器的功率，再也不需要在带电机，感性负载时扩大逆变器的容量，给用户节省了费用
- ▲输出频率可以自行设置，例如想控制电机转速设置为 30HZ，逆变器就输出 30HZ，此功能非常方便客户使用于不同的负载类型
- ▲输出频率 50HZ & 60HZ 和输入直流电压范围可以设置，例如过压点，欠压点，过压恢复点，欠压恢复点都可通过液晶屏来设置。此功能方便可以增加或减少蓄电池，光伏组件灵活使用
- ▲输出保护功能完善，有输出过压、过载、过温、短路、自诊断保护等多种保护
- ▲人性化安全设计，采用隔离变压器设计方案，输入输出完全电气隔离，并配有塑壳断路器，为用户节省开关，安装方便安全。带电部位全封闭，防止触电
- ▲LCD+LED 显示，可以显示输入输出电压，电流，用电量，故障代码，方便用户迅速查找故障指导维修
- ▲采用 SVPWM 空间矢量算法，高转换效率、高瞬间功率及低无负载损耗转换效率可以到 93% 以上
- ▲宽电压输入可按照客户要求定制，输入电压范围从 100-400V,200-500V,300-600V 或 450-850VDC，适用于太阳能 / 风能系统无储能蓄电池，直流输入直接接太阳能板 / 风力发电机，在线式切换时间为 0 秒
- ▲本产品通过欧洲 CE (EMC 和 LVD) 和 ISO9001 质量管理体系认证



户外高速公路远端机  
Outdoor highway power supply



户外逆变器  
Outdoor inverter

- ▲ The core components are all imported components. Mitsubishi's 6th generation IPM module has stable performance, long service life, strong protection function and convenient replacement and maintenance. With the TI central processor DSP28335 chip, the response is fast and accurate, providing a stable and clean power supply for the load
- ▲ The whole machine is modular in design, simple in structure and plug-and-drop in design, which makes maintenance easy and reduces the hidden cost of back and forth maintenance of machine failures
- ▲ Adjust the use mode of the system according to the product configuration conditions: Inverter priority or by-pass priority can be set arbitrarily
- ▲ Dual mode startup selection function, through the LCD settings, you can set the two modes of Step-down voltage startup and VFD startup. In this way, the power of the inverter can be fully utilized, and the capacity of the inverter can be expanded when there is an inductive load, thus saving the user's expenses
- ▲ The output frequency can be set for example, if you want to control the speed of the motor to be set to 30HZ, the inverter will output 30HZo, which is very convenient for customers to use in different load types
- ▲ Output frequency 50HZ & 60HZ and input DC voltage range can be set, such as the overvoltage point, undervoltage point, overvoltage recovery point, undervoltage recovery point can be set through LCD screen. This function is convenient to increase or decrease the storage battery, and the photovoltaic components can be used flexibly
- ▲ The function of output protection is perfect, which includes protection of output overvoltage, overload, overtemperature, short circuit and self-diagnosis
- ▲ Human-friendly safety design, using isolation transformer design, fully electrical isolation of input and output, input and output are equipped with plastic case circuit breaker, saving switches for users, easy and safe installation. The charged part is completely closed to prevent electric shock
- ▲ LCD+LED display, can display input and output voltage, current, power consumption, fault code, so that users can quickly find the fault to guide maintenance
- ▲ Using SVPWM space vector algorithm, the conversion efficiency of high conversion efficiency, high instantaneous power and low no load loss can be more than 93%
- ▲ Wide voltage input can be customized according to customer requirements, with input voltage range from 100-400V, 200-500V, 300-600V or 450-850VDC, suitable for solar/wind energy system without storage batteries, direct DC input connected to solar panels/wind generators, on-line switching time of 0 seconds
- ▲ This product has been certified by European CE (EMC and LVD) and ISO9001 quality management system

注：可选配 RS485 和 CAN 通信接口

Note: RS485 and CAN communication interfaces are optional

## ★技术参数 Technical parameter

型号规格 Model		BZP-3KW~500KW
隔离 Isolation mode		工频隔离变压器 low frequency transformer
直流输入 DC Input	额定电压 Rated voltage(VDC)	48V- 900V( 可定制 Can be customized)
交流输入 AC Input	额定电压 Rated voltage(VAC)	120/220/240V/380V/400V/415/440/480V( 可选 optional)
交流输出 AC output	输出波形 Output waveform	纯正弦波 Pure sine wave
	输出电压 Rated output voltage	120/220/240V/380V/400V/415/440/480V( 可选 optional)
	输出频率 Output frequency	50Hz/60Hz±0.05Hz
	输出相数 Phases	单相 / 二相 / 三相 1 phase/2 phase /3 phase
	功率因数 Power factor (PF)	>0.99
	过载能力 Overload ability	150%, 10 秒 seconds
	逆变效率 Efficiency	>94%( 根据输入电压 according to the Input voltage)
	波形失真率 Waveform distortion rate (THD)	<3% ( 线性负载 Linear load)
	动态响应 ( 负载 0- 100%) Dynamic Response time (Load 0*--100%)	5%, ≤ 50ms
	显示 Display	LCD+LED
	通讯 Communication interface	RS485 ( 可选 Optional)
	运行方式 Running mode	可 7*24h 连续运行 7* 24h Working continuously
	绝缘强度 Electrical insulation properties	2000VaC, 1 分钟 Minute
	工作温湿度 Working temperature	-20- +50° C
	相对湿度 Relative humidity	0-90%, 不凝结 non- condensing
	保护功能 Protection function	输入防反、欠压保护、过压保护、输出过载、短路保护、过热保护 Input anti inversion, undervoltage protection, overvoltage protection, output overload, short circuit protection, overheat protection
冷却方式 Cooling method	风扇 Fan-cooled	
工作环境 Work Environment	噪音 (dB,1 米 )noise (1 meter)	≤ 50dB
	防护等级 Degree of protection	IP20 ( 室内 indoor)
	海拔高度 Working altitude (m)	<3500 米 (meters)
备注 Remark	以上参数仅供参考，可根据客户要求定制！ The above parameters are for reference only, can be customized to customer's requirement!	

## 机架式逆变器 Rack mount inverter



- ▲标准 6U、7U、9U 机箱，适合各种标准机柜安装，及车载房车等
- ▲采用三菱 IPM 模块设计，安装可靠易维修，设计寿命长
- ▲体积小，功率密度大，工频隔离设计，转换效率 $\geq 93\%$
- ▲重量轻，产品净重约 75~120kg
- ▲两种启动模式：降压启动和变频启动
- ▲可选择 RS485，CAN 通信
- ▲Standard 6U, 7U, 9U chassis, suitable for installation in various standard cabinets, as well as in car campers, etc
- ▲Adopt Mitsubishi IPM module design, reliable installation, easy maintenance, and long design life
- ▲Small size, high power density, power frequency isolation design, conversion efficiency  $\geq 93\%$
- ▲Light weight, net weight of the product is about 75~120kg
- ▲Two startup modes: reduced voltage startup and variable frequency startup
- ▲Selectable RS485, CAN communication

## 防爆逆变器 Explosion-proof inverter



- ▲4.0 厚钢板无缝焊接，表面喷塑，外形美观；
- ▲防爆标准为 EXdIIBT4；
- ▲内置工频隔离变压器，抗干扰能力强；
- ▲负载性能强悍，可带多种复合型负载，如：卤灯，电机，电焊机，精密机床日光灯，节能灯等
- ▲良好的防尘，防水，防震性能：
- ▲4.0 thick steel plate seamless welding, surface spray, beautiful appearance. Explosion-proof standard is EXdIIBT4.
- ▲Built-in low frequency isolation transformer, strong ability of anti-interference. Excellent performance of taking load, it can take a variety of loads, such as: halide lamps, motors, welding machines precision machine tools, fluorescent lamps, energy-saving lamps, etc.
- ▲With good performance of anti-dust, waterproof, shockproof.

## 船用逆变器 Marine inverter



- ▲采用三菱 IPM 模块设计，安装可靠易维修，设计寿命长
- ▲工作电压广泛，直流输入 48~950VDC
- ▲工频隔离型，转换效率 $\geq 93\%$ ，抗电磁干扰，零序电压电流低，漏电流小与锂电系统完美结合
- ▲两种启动模式：降压启动和变频启动，抗冲击，负载特性好，电机，LED 灯等等都能可靠工作，可选择 RS485，CAN 通信
- ▲Adopt Mitsubishi IPM module design, reliable installation, easy maintenance, and long design life
- ▲Wide operating voltage, DC input 48~950VDC
- ▲Power frequency isolation type, conversion efficiency  $\geq 93\%$ , anti electromagnetic interference, low zero sequence voltage and current, low leakage current, perfect combination with lithium battery system
- ▲Two startup modes: reduced voltage startup and variable frequency startup, shock resistant, good load characteristics, reliable operation of motors, LED lights, etc
- ▲Selectable RS485, CAN communication

## 光伏逆变充电一体机

PV inverter & Charger integrated



## 光伏逆控一体机

PV inverter & Controller integrated



## 户外型

Outdoor type



不锈钢电源  
Stainless steel power supply

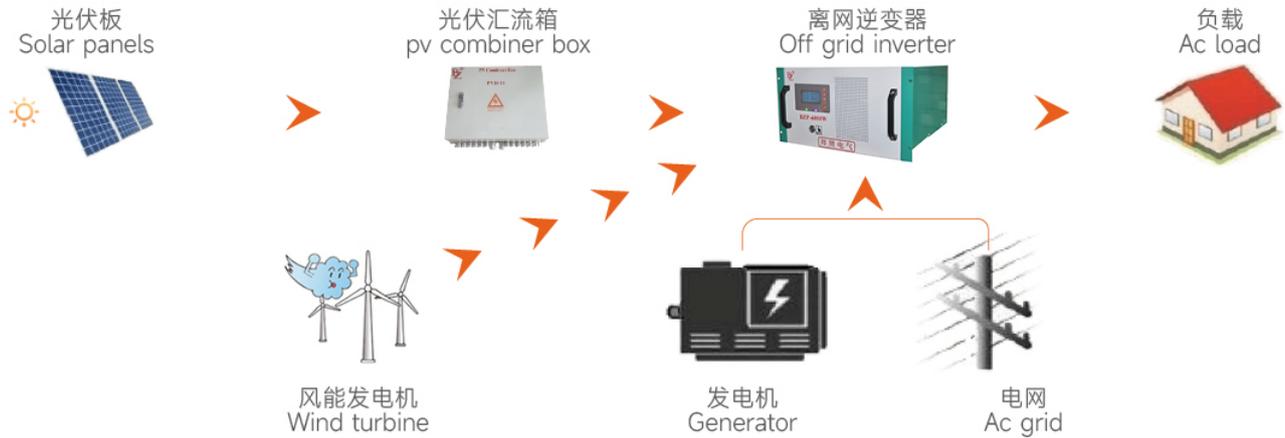


光储一体机  
PV Inverter & Controller & charger integrated



大功率户外逆变器  
High power outdoor inverter

## 无电池储能系统 No battery storage system



- ▲1. 当太阳能 / 风能充足时，采用即发即用逆变模式，将太阳能 / 风能直接转换对负载供电。
- ▲2. 当太阳能 / 风能不足时，此逆变器自动把太阳能 / 风能发电协同市电或交流发电机对负载供电。
- ▲3. 自动稳压，稳频输出。可在 LCD 屏中设置优先使用太阳能 / 风能发电或市电 / 交流发电机
- ▲4. 100-300VDC, 300-600VDC 或 400-850VDC 宽电压可以选择，也可以根据客户要求定制。

- ▲1. When there is sufficient solar/wind energy, the inverter is used to convert the solar/wind energy to the load directly.
- ▲2. When there is insufficient solar/wind energy, the inverter will automatically supplies solar/wind power to the load in conjunction with AC grid/AC Generator
- ▲3. Automatic regulating stable voltage and stable frequency output, can set solar/wind power priority or AC grid/AC generator priority on LCD
- ▲4. Wide input voltage can be set according to customer's requirement. Input voltage range can be selected from 100-300VDC or 300-600VDC or 400-850VDC.

## 电池储能系统 Battery storage system



- ▲1. 当太阳能 / 风能存在且高于电池电压时，逆变器为逆变模式将太阳能 / 风能直接转换对负载供电，同时控制器检测电池是否需要充电。
- ▲2. 当太阳能 / 风能存在但是不足，电池电压较高时，逆变器将自动切换到旁路模式将太阳能 / 风能协同电池共同对负载供电。
- ▲3. 当太阳能 / 风能低于电池电压时或太阳能 / 风能不存在时，逆变器自动切换为市电 / 交流发电机对负载供电（可选配市电对电池充电功能）。

- ▲1. When the solar/wind energy is present and higher than battery voltage, the inverter converts the solar/wind energy to the load directly. while the controller detects whether the battery needs to be charged.
- ▲2. When the solar/wind energy is present but not sufficient and the battery voltage is high, the inverter will automatically switch to bypass mode supplies solar/wind power to the load in conjunction with AC grid/AC generator
- ▲3. When solar/wind power is lower than the battery voltage or solar/wind power is insufficient, the inverter is used to convert the AC grid/AC generator to the load directly(Optional AC to DC charging function).

## 光伏水泵逆变器

### PV pump inverter



1.5-22KW/IP65 户外型  
Outdoor type



25-75KW/IP20 室内型  
Indoor type



90-200KW/IP20 室内型  
Indoor type

### 产品简介 Product introduction

光伏水泵系统有别于传统的交流水泵应用系统，光伏水泵系统是利用太阳能电池直接将太阳能转化为电能，然后由光伏水泵逆变器来驱动交流电机带动水泵，从深井、江、河、湖等水源取水，再输送到目的地，以满足我们对水的需求。

光伏水泵系统主要由四部分组成：光伏阵列、光伏水泵逆变器、三相交流水泵，以及储水装置。

光伏阵列吸收日照辐射能量，将其转化为电能，为整个系统提供动力电源。

光伏水泵逆变器是光伏水泵系统中的重要组成部分，它将光伏阵列输出的直流电转换为交流电并驱动水泵，并根据日照强度的变化实时地调节输出电压和频率，实现最大功率点跟踪，最大限度地利用太阳能。

光伏水泵系统广泛适用于生活用水、农林浇灌、沙漠治理、草原畜牧、海岛供水、水处理工程等，亦可用于市政工程、城市广场、宾馆饭店以及住宅社区等处的景观喷水系统中。

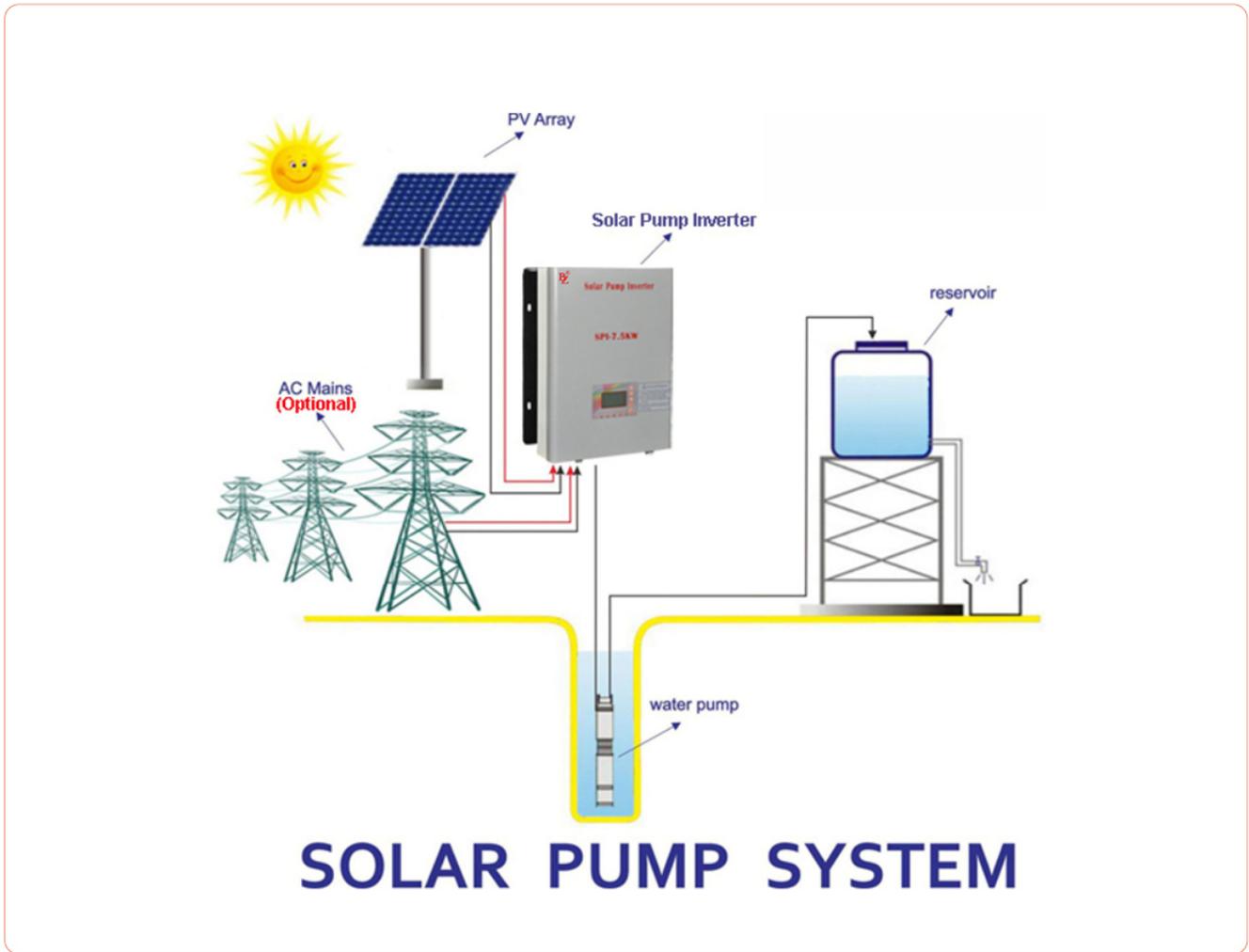
Bangzhao PV pump system is different from traditional AC pump application system, PV pump system is using solar cells to directly convert solar energy into electrical energy, then PV pump inverter drive the AC motor to drive pump getting water from deep well, river, lake etc., finally transport to the destination to meet our demand for water.

PV pumping system consists of four parts: PV array, PV pump inverter, three-phase AC pump and storage device.

PV array absorb sunshine radiation energy and convert it into electrical energy, supply power for whole system.

PV pump inverter is an important part of PV pump inverter system, which convert the output DC from PV array into AC for driving pump, and according to the changes of sunlight intensity in real time to adjust the output voltage and frequency to achieve max. power point tracking and max the use of solar energy.

## ☛系统图 System diagram



## ☛性能特点 Performance characteristics

- ▲采用动态 VI 最大功率点跟踪 (MPPT) 控制方法和优化的 SVPWM; 响应速度快
- ▲运行稳定; 转换效率达到 99.9%
- ▲采用日本三菱公司的高效率 IPM 智能功率模块, 可靠性高, 使用寿命长
- ▲模块化设计, 运行稳定, 安全可靠, 安装维护十分便捷
- ▲系统自动运行, 无需人工值守, 节约大量人力
- ▲变频驱动 (VFD) 设计, 可根据日照的强度变化实时地调节输出频率控制电机的转速, 大大提高了效率, 并更好地保护水泵和太阳能电池板的最大利用率
- ▲LCD 液晶显示功能, 可查看和设置多种运行参数
- ▲可以根据实际系统情况自由设定水泵调速范围
- ▲高防护等级适用于各种应用环境, 安装成本低
- ▲强大的保护功能, 如欠压、过压、DC 过流、过载、短路、防干烧, 防溢流和干抽、堵转保护等保护功能
- ▲可选配 RS485 通讯接口, 实现远程数据监控
- ▲本产品通过欧盟 CE(EMC, LVD) 和 ISO9001 认证

- ▲Using dynamic VI maximum power point tracking (MPPT) control method and optimized SVPWM; Fast response time
- ▲Stable operation; The conversion efficiency reaches 99.9%
- ▲Adopt high-efficiency IPM intelligent power module from Mitsubishi Corporation of Japan, featuring high reliability and long service life
- ▲Modular design, stable operation, high safety and reliability, and very convenient installation and maintenance
- ▲The system operates automatically, eliminating the need for manual attendance, saving a lot of manpower
- ▲The variable frequency drive (VFD) design can adjust the output frequency to control the rotational speed of the motor in real-time according to the intensity of sunlight, greatly improving efficiency and better protecting the maximum utilization of water pumps and solar panels
- ▲LCD display function, which can view and set various operating parameters
- ▲The speed range of the water pump can be freely set according to the actual system situation
- ▲High protection level is suitable for various application environments, with low installation cost
- ▲Powerful protection functions, such as undervoltage, overvoltage, DC overcurrent, overload, short circuit, dry burn prevention, overflow prevention, dry extraction, locked rotor protection, and other protection functions
- ▲Optional RS485 communication interface for remote data monitoring
- ▲This product has passed the EU CE (EMC, LVD) and ISO9001 certification

## 🔧 技术参数 Technical parameter

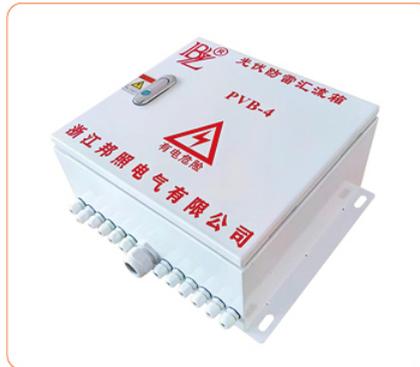
型号 Model	允许电机最大输入 Adapted pump motor		推荐光伏输入 功率 (KWP) Recommend PV input power	最大直流输入 电压 (V) MPPT tracking Voltage	推 MPPT 电压 (VDC) Max. DC input voltage	输出电流 (A) Rated output current	输出频率 (HZ) Output frequency
	额定功率 (KW) Rated power	额定电压 (V) Rated voltage					
SPI-3700W	3.7KW	380 ~ 440V	4.8KW	850V	500 ~ 850V	7A	0 ~ 50 (60)
SPI-5500W	5.5KW	380 ~ 440V	7KW	850V	500 ~ 850V	10A	0 ~ 50 (60)
SPI-7500W	7.5KW	380 ~ 440V	10KW	850V	500 ~ 850V	14.5A	0 ~ 50 (60)
SPI-11KW	11KW	380 ~ 440V	14KW	850V	500 ~ 850V	21A	0 ~ 50 (60)
SPI-15KW	15KW	380 ~ 440V	20KW	850V	500 ~ 850V	28A	0 ~ 50 (60)
SPI-18KW	18KW	380 ~ 440V	24KW	850V	500 ~ 850V	33A	0 ~ 50 (60)
SPI-25KW	25KW	380 ~ 440V	33KW	850V	500 ~ 850V	46A	0 ~ 50 (60)
SPI-30KW	30KW	380 ~ 440V	39KW	850V	500 ~ 850V	55A	0 ~ 50 (60)
SPI-37KW	37KW	380 ~ 440V	48KW	850V	500 ~ 850V	68A	0 ~ 50 (60)
SPI-45KW	45KW	380 ~ 440V	59KW	850V	500 ~ 850V	82A	0 ~ 50 (60)
SPI-55KW	55KW	380 ~ 440V	72KW	850V	500 ~ 850V	102A	0 ~ 50 (60)
SPI-75KW	75KW	380 ~ 440V	98KW	850V	500 ~ 850V	137A	0 ~ 50 (60)
SPI-90KW	90KW	380 ~ 440V	117KW	850V	500 ~ 850V	164A	0 ~ 50 (60)
SPI-110KW	110KW	380 ~ 440V	143KW	850V	500 ~ 850V	204A	0 ~ 50 (60)
SPI-132KW	132KW	380 ~ 440V	172KW	850V	500 ~ 850V	240A	0 ~ 50 (60)
SPI-150KW	150KW	380 ~ 440V	195KW	850V	500 ~ 850V	274A	0 ~ 50 (60)
SPI-200KW	200KW	380 ~ 440V	260KW	850V	500 ~ 850V	364A	0 ~ 50 (60)

## 光伏防雷汇流箱

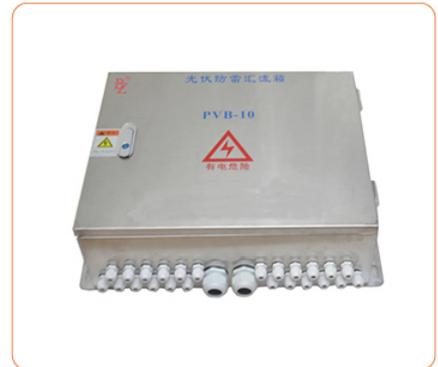
PV combiner box



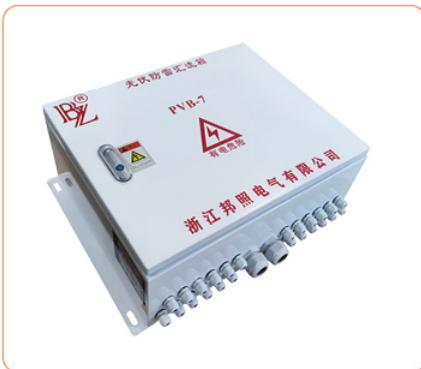
ABS 工程塑料型  
ABS engineering plastic type



户外喷塑工艺型  
Outdoor coating process type



不锈钢型  
Stainless steel type



7~12 路  
7~12 strings



14~18 路  
14~18 strings



20~28 路  
20~28 strings

### 产品优势 Product advantages



- |                           |  |
|---------------------------|--|
| ▲2.0 冷轧钢板喷塑工艺             | ▲2.0 cold-rolled steel plate spray process   |
| ▲DC1000V 防反模块             | ▲DC 1000V Anti-reverse module                |
| ▲IP65 防水型                 | ▲IP65 waterproof                             |
| ▲ABB& 施耐德断路器              | ▲ABB& Schneider circuit breaker.             |
| ▲使用寿命长达 15 年以上            | ▲Service life is more than 15 years.         |
| ▲可选配 RS485 通讯             | ▲RS485 Optional                              |
| ▲耐高温硅胶线                   | ▲High temperature resistant silicone wire    |
| ▲输入 4 路 -28 路可定制          | ▲Input4 string to 28 string can be customize |
| ▲带 LED 故障指示直流熔断座          | ▲DC fuse holder with LED fault indicat       |
| ▲铜排布线整齐 copper bar wiring | ▲copper bar wiring                           |
| ▲整体散热模块                   | ▲Overall cooling module                      |
| ▲1000V 直流专用浪涌保护器          | ▲1000V DC special SPD                        |

## AC/DC 充电器

### AC/DC Charger

#### 产品简介 Product introduction

邦照 BEG 系列 AC-DC 恒功率恒流充电器可选择单相 90-280VAC 输入或三相 260-530VAC 输入输出电压范围 50-750VDC 或 150-1000VDC，具有效率高，高功率密度，低谐波，输出恒功率，宽电压输出等优点。适用于铅酸电池，胶体电池，磷酸铁锂电池，燃料电池等。

Bangzhao BEG series AC-DC constant power and constant current charger can choose single-phase 90-280VAC input or three-phase 260-530VAC input, output voltage range 50-750VDC or 150-1000VDC, with the advantages of high efficiency, high power density, low harmonics, constant power output, wide voltage output, etc. Suitable for lead-acid batteries, GEL batteries, lithium iron phosphate batteries, fuel cells, etc.

#### 性能特点 Performance characteristics

- ▲ 5 寸彩色 LCD 触控屏，操作方便简单
- ▲ 采用可插拔式电源模块，方便后期维护
- ▲ 输入和输出带保护断路器开关，安全可靠
- ▲ 可设置电池均充电压，浮充电压，充电电流等
- ▲ 可设置定时充电，手动和自动模式
- ▲ 具备过热，短路，过载，过压，欠压等保护功能
- ▲ 5-inch color LCD touch screen, easy and simple to operate
- ▲ using pluggable power supply module, convenient for later maintenance
- ▲ input and output with protection circuit breaker switch, safe and reliable
- ▲ can set the battery even charging voltage, floating charging voltage, charging current, etc.
- ▲ can set the timing charging, manual and automatic mode
- ▲ with overheat, short circuit, overload, overvoltage, undervoltage and other protection functions



- ▲ 型号: BEG75050-100KW
- ▲ 输入电压范围: 260-530VAC
- ▲ 输出电压范围: 50-750VDC
- ▲ 输出电流: 1-250A
- ▲ 尺寸: 宽 550- 高 850- 深 550mm

- ▲ Model: BEG75050-100KW
- ▲ Input voltage: 260-530VAC
- ▲ Output voltage range: 50-750VDC
- ▲ Output current: 1-250A
- ▲ Size: W550-H850-D550mm

## AC/DC 充电器

### AC/DC Charger

#### 应用场所 Application places

- ▲大, 中, 小型电动汽车充电站
- ▲高速服务区, 车站, 码头等交通枢纽区域
- ▲城市居民小区, 购物广场, 电力营业场所等公共场所
- ▲large, medium and small electric vehicle charging stations
- ▲high-speed service areas, stations, docks and other transportation hub areas
- ▲urban residential areas, shopping plazas, power business premises and other public places

#### 单相充电器

### Single phase battery charger



- ▲型号: BEG75020S
- ▲输入电压范围: 90-280VAC
- ▲输出电压范围: 50-750VDC
- ▲输出电流: 1-20A
- ▲尺寸: 宽 483- 高 133- 深 520mm
- ▲Model: BEG75020S
- ▲Input voltage: 90-280VAC
- ▲Output voltage range: 50-750VDC
- ▲Output current: 1-20A
- ▲Size: W483-H133-D520mm

#### 三相充电器

### 3 Phase battery charger



- ▲型号: BEG75050
- ▲输入电压范围: 260-530VAC
- ▲输出电压范围: 50-750VDC
- ▲输出电流: 1-50A
- ▲尺寸: 宽 483- 高 133- 深 520mm
- ▲Model: BEG75050
- ▲Input voltage: 260-530VAC
- ▲Output voltage range: 50-750VDC
- ▲Output current: 1-50A
- ▲Size: W483-H133-D520mm



- ▲型号: BEG75020S-21KW
- ▲输入电压范围: 90-280VAC
- ▲输出电压范围: 50-750VDC
- ▲输出电流: 1-60A
- ▲尺寸: 宽 432- 高 267- 深 525mm
- ▲Model: BEG75020S-21KW
- ▲Input voltage: 90-280VAC
- ▲Output voltage Range: 50-750VDC
- ▲Output current: 1-60A
- ▲Size: W432-H267-D525mm



- ▲型号: BEG75050-40KW
- ▲输入电压范围: 260-530VAC
- ▲输出电压范围: 50-750VDC
- ▲输出电流: 1-100A
- ▲尺寸: 宽 492- 高 267- 深 550mm
- ▲Model: BEG75050-40KW
- ▲Input voltage: 260-530VAC
- ▲Output voltage range: 50-750VDC
- ▲Output current: 1-100A
- ▲Size: W492-H267-D550mm

## PWM&MPPT 太阳能充电控制器

### PWM&MPPT Solar charge controller

#### 产品简介 Product introduction

邦照 BZC 系列和 BZMC 系列太阳能充电控制器是一个智能型光伏控制器专为离网光伏发电系统而设计的。LCD 液晶显示屏，操作方便等良好的运行性能，并且还能自动地控制太阳能电池的断开和连接根据电池电压的变化。该控制器使得充分利用太阳能电池的资源，并保持电池安全可靠。

Bangzhao BZC series and BZMC series solar charge controller is an intelligent solar controller designed for off-grid solar power generation systems. LCD screen display, easy operation and other good operational performance, and also automatically control the disconnection and connection of solar panels according to the change of battery voltage. The controller makes full use of the solar panels resources and keeps the battery safe and reliable.



机架式 /Drawer type

- ▲型号：BZC48V/96V/192V/240V/360V/480V/600V
- ▲光伏最大电压：系统额定电压的 2 倍
- ▲额定充电电流：30A/50A/60A/80A/100A/120A/150A
- ▲控制方式：PWM
- ▲防护等级：IP32



壁挂式 /Wall mounted type

- ▲Model: BZC48V/96V/192V/240V/360V/480V/600V
- ▲Rated charge current: 30A/50A/60A/80A/100A/120A/150A
- ▲Control method: PWM
- ▲Protection level: IP32
- ▲Max PV voltage: 2 Times of rated system voltage

#### 产品优势 Product advantages

- ▲使用高速高性能的 32 位处理器，优良的 EMC 设计
- ▲MPPT 跟踪算法，跟踪效率不低于 99%(MPPT 型)
- ▲使用 IGBT 作为电子开关，多相同步整流技术，提高设备稳定性
- ▲超快的大功率点跟踪速度，多波峰大功率点准确识别跟踪 (MPPT 型)
- ▲超宽输入电压范围，可节省汇流箱线材等成本，节省施工成本
- ▲采用 PID 算法，具有更精准的电池能量管理系统
- ▲三阶段 (PWM 型) / 四阶段式 (MPPT 型) 充电模式，提升光伏组件和蓄电池利用率
- ▲标配了二次保护功能，可保证蓄电池在任何情况下不会过充损坏 (PWM 款选配)
- ▲具有电压环和电流环双环路控制，可设置限流充电
- ▲全密闭风道结构设计，防护等级高，高速智能风扇散热
- ▲具有发电量统计及实时功率曲线功能，随时了解系统发电情况
- ▲彩色 LCD 显示、触控按键、多语言选择，人机交互更便捷
- ▲环境温度显示、自动温度补偿功能、RTC 实时时钟
- ▲可通过 RS485、干接点输入控制控制器充放电 (PWM 款选配)
- ▲基于 RS-485 通讯总线的标准 Modbus 通讯协议 (PWM 款选配)

## PWM&MPPT 太阳能充电控制器

### PWM&MPPT Solar charge controller

- ▲The solar controller uses high performance 32-bit chips which is excellent EMC design
- ▲Advanced MPPT tracking algorithm, >99% efficient(MPPT type)
- ▲High performance IGBT power module as electronic switch, plus multiphase synchronous rectification technology, stabilizes charging battery voltage from PV voltage
- ▲Ultrafast maximum power point tracking speed to ensure tracking efficiency(MPPT type)
- ▲The controller adopts advanced PID algorithm which has more accurate battery energy management system to improve the battery efficiency 45% at least
- ▲Wide range of the charge controller's solar input can save costs reducing or eliminating equipment such as combiner box, cabling and installation
- ▲The controller adopts four charging stages (buck charging, equalize charging, float charging and end charging) which can maximize the utilization of photovoltaic modules and batteries
- ▲Twice protection function to protect battery from damage when the power switch is down(PWM type optional)
- ▲Through the double loop control function of voltage loop and current loop, user can set the limiting charging current
- ▲Fully enclosed duct design and high-speed fan for cooling makes the controller working under harsh environments
- ▲The controller has power generation statistics and real-time power curve function, so we can know power generating information at any time
- ▲Colorful LCD display, touching key and multi-language option makes the HMC (Human Machine Communication) easy and convenient. Users can set working parameters through the LCD panel and touching keys according to different battery feature
- ▲The controller also has temperature compensation function and RTC real time clock function,
- ▲Standard Modbus protocol for RS-485 communication(PWM type optional)
- ▲User can control the charging of controller through RS485 or dry contact(PWM type optional)



- ▲型号: BZMC192V-398V/400V-480V
- ▲光伏最大电压: 800V/850VDC
- ▲额定充电电流: 50A/60A/70A/80A/100A
- ▲控制方式: MPPT
- ▲防护等级: IP32
  
- ▲Model:BZMC192V-398V/400-480V
- ▲Max PV voltage :800V/850V
- ▲Rated charge current:50A/60A/70A/80A/100A
- ▲Control method:MPPT
- ▲Protection level:IP32

## 单三相转换器

### Power phase converter

#### 产品简介 Product Introduction

邦照电气有限公司的 BZT 系列的电源转换器采用交 - 直 - 交的电路结构，将单相交流市电转换成工业用三相四线电压。以美国 TIDSP28335 微处理器为核心，采用三菱第 6 代 IPM 智能模块，维护简单，寿命长，损耗小，采用双闭环控制，响应迅速，保护功能强大使单机容量可达 500KW，以隔离变压器输出增加整机稳定性，具有负载适应性强、输出波形品质好、操作简便、体积小、重量轻等特点，具有短路、过流、过载、过热，浪涌，过压欠压等保护功能，以保证电源可靠运行。

Bangzhao Electric's BZT series power phase converter adopt AC-DC-AC circuit structure convert AC single phase voltage to industrial three phase voltage, USA TI DSP28335 microprocessor as the core. using the sixth mitsubishi IPM intelligent module, simple maintenance, long life, low loss, adopts double closed loop control, quick response and powerful protect to make single machine capacity up to 500kw using isolation transformer output to increase the stability of the whole machine, has a strong adaptability to all types of load, high quality output waveform, convenient operation, small size, light weight and so on. it has the protection function of short circuit, over current, overload, overheating, surge, overvoltage. undervoltage to ensure the power supply reliable operation.



BZT 5KW~20KW



BZT 30KW~60KW



IP54 户外转换器  
IP54 Outdoor converter

#### 性能特点 Performance characteristics

- ▲ 输入电压：单相 130-300V 或 三相 260-500V
- ▲ 输入频率：35-70HZ
- ▲ 输出电压：单相 100/120/220/240V 或 三相 220/380/400/415/440/460/480V±0.5%
- ▲ 输出频率：50HZ±0.01%
- ▲ 转换效率：≥ 92%
- ▲ 动态响应：≤ 20MS
- ▲ 波形失真：≤ 3%
- ▲ Input voltage: 130-300V single-phase or 260-500V three-phase
- ▲ Input frequency: 35-70HZ
- ▲ Output voltage: single-phase 100/120/220/240V or three-phase 220/380/400/415/440/460/480V±0.5%
- ▲ Output frequency: 50HZ/60HZ±0.01%
- ▲ Conversion efficiency: ≥ 92%
- ▲ Dynamic response: ≤ 20MS
- ▲ Waveform distortion: ≤ 3%

## 技术参数 Technical parameter

Model 型号	BZT-5KW ~100KW
Isolation mode 隔离方式	Low frequency transformer( 工频隔离 )
<b>AC Input 交流输入</b>	
Rated voltage (Vac) 额定电压 (Vac)	220V single phase( 单相 )
Input rated voltage range 输入额定电压范围	110/120/220/230/240V optional( 可选 )
<b>AC Output 交流输出</b>	
Rated power (Kw) 额定功率 (KW)	5KW ~100KW
Rated voltage 额定电压 (V)	380VAC
Output voltage range 输出电压范围 (V)	220/380/400/415/440/480V optional( 可选 )
Output phases 输出线制	3 phase + Neutral wire( 三相 + 零线 )
Output frequency 输出频率	50Hz/60Hz±0.05Hz (Can be set) 可设置
Waveform 输出波形	Pure sine wave 纯正弦波
Voltage accuracy 电压精度	Load balancing 负载平衡≤ 1%、Unbalanced load 负载不平衡≤ 5%
Waveform distortion rate (THD)	≤ 5%
Unbalance ability 负载不平衡能力	≤ 20% (long-term unbalanced load will affect the life of equipment)
Dynamic response 动态响应	5%, ≤ 50ms (load 0 ~ 100%)
Power factor (PF) 功率因素	0.99
Inverter efficiency 逆变效率	>87%
Electrical insulation properties 电气绝缘	2000Vac、1 Minute 分
<b>Protection function 保护功能</b>	
Overload ability 过载能力	150%、10s
Protection 保护	Input under voltage, overvoltage, output over-current, short circuit, overheating etc. 输入反接保护、欠压保护、过压保护、输出过载保护、短路保护、 过热保护
Display 显示	LCD+LED
Method of working 运行方式	Working continuously 工作连续
Cooling method 冷却方式	High speed fan 高速风扇
Short-circuit protection 短路保护	No automatic recovery, need to restart the machine
<b>Working environment &amp; Mechanical dimension 工作环境 &amp; 机械尺寸</b>	
Degree of protection 防护等级	IP20 (indoor 室内)
Working altitude (m) 使用海拔	≤ 3000m
Working temperature (°C) 工作温度	-20 ~ +50°C
Relative humidity (°C) 相对湿度	-25 ~ +85°C
Noise 噪音	≤ 55dB

## 配件

### Accessory



1000VDC/2P 防雷  
SPD



1000VDC/3P 防雷  
SPD



蓄电池  
Battery



600VDC/2P 断路器  
Circuit breaker



1000VDC/4P 断路器  
Circuit breaker



软起动器  
Soft starter



2P AC 断路器  
Circuit breaker



4P AC 断路器  
Circuit breaker



1000VDC 保险丝  
Fuse



1000VDC 熔断座  
Fuse holder



1500VDC 保险丝  
Fuse



1500VDC 熔断座  
Fuse holder

## 配件

### Accessory



光伏接头  
Solar connector



防尘帽  
Protection caps



MC4 熔断器  
MC4 Fuse



线束加工  
Wiring harness customized



光伏线  
PV cable



接线端子  
Terminals



组装式电池架  
Disassembled battery rack



重载型电池柜  
Battery cabinet withstand heavy weight



交流配电箱  
AC distribution cabinet



工频隔离变压器  
Low frequency isolation transformer



交流接触器  
AC contactor



压线钳  
Crimping tool

# 应用案例

## APPLICATION CASES

节能  
Energy conservation

安全  
Safe and secure

应用广泛  
Widely used

船用 / 车载 Marine/Vehicle applications



# 太阳能 Solar system application



# 储能锂电池系统 Energy storage lithium battery system



本选型手册刊载的型号、规格等因产品更新而变化，恕不另行通知。本手册仅供参考之用，一切依实物为准，最终解释权归浙江邦照电气有限公司。  
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 采用环保纸印刷

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