

# BHLX-DC Photovoltaic DC Combiner Box

## Summarize

The solar combiner box is used in the photovoltaic power generation system to reduce the connection line between the photovoltaic module and the inverter. Through the protection of photovoltaic special fuses, circuit breakers and lightning protectors, there liability is improved, and the maintenance of the system is convenient. Users can according to the inverter input DC voltage range, a certain number of specifications of the same photovoltaic modules in series to form a photovoltaic module series, and then a number of series connected to the photovoltaic array lightning busbar, through the lightning arrester and circuit breaker protection output, convenient access to the post-inverter.



## Main technical parameters

item	BHLX-DC
Electrical parameters	
System DC Voltage V	250/500/750/1000/1500
Electrical parameters	10A ~30A
System DC Voltage V	2 ~ 24 Road
Maximum output switching current	20A~630A
Output path	1/2/3/4/5/6
Lightning protection	
Test class	Surge protection level II
Nominal discharge current	20kA
Maximum discharge current	40kA
Voltage protection level	3.8kV
Maximum continuous operating voltage	1500V
Number of poles	2P、3P、4P
Structural characteristics	Pluggable module
System	
Degree of protection	IP65
Output switch	Dc Circuit breaker (standard)/ DC Rotary isolating Switch (optional)
MC4/ Waterproof connector	Optional
Photovoltaic DC fuse	Standard configuration
Photovoltaic DC Surge Protector	Standard configuration
Monitoring module	optional
Anti-reverse diode	optional
Box material	Powder-coated cold-rolled steel, stainless steel, fiberglass (SMC), plastic boxes (ABS)
Installation mode	wall-mounted
Operating temperature	-25°C ~+55°C
altitude	2000 m
Allowable relative humidity	0~95%, no condensation

## Main feature

The cabinet is made of hot-dip galvanized steel plate, ensuring a safe and reliable structure with sufficient mechanical strength to prevent shaking or deformation of components after installation and during operation; it has an IP65 protection rating, providing waterproof, dustproof, rustproof, and salt spray protection, meeting outdoor installation requirements; it can simultaneously connect up to 24 photovoltaic arrays.

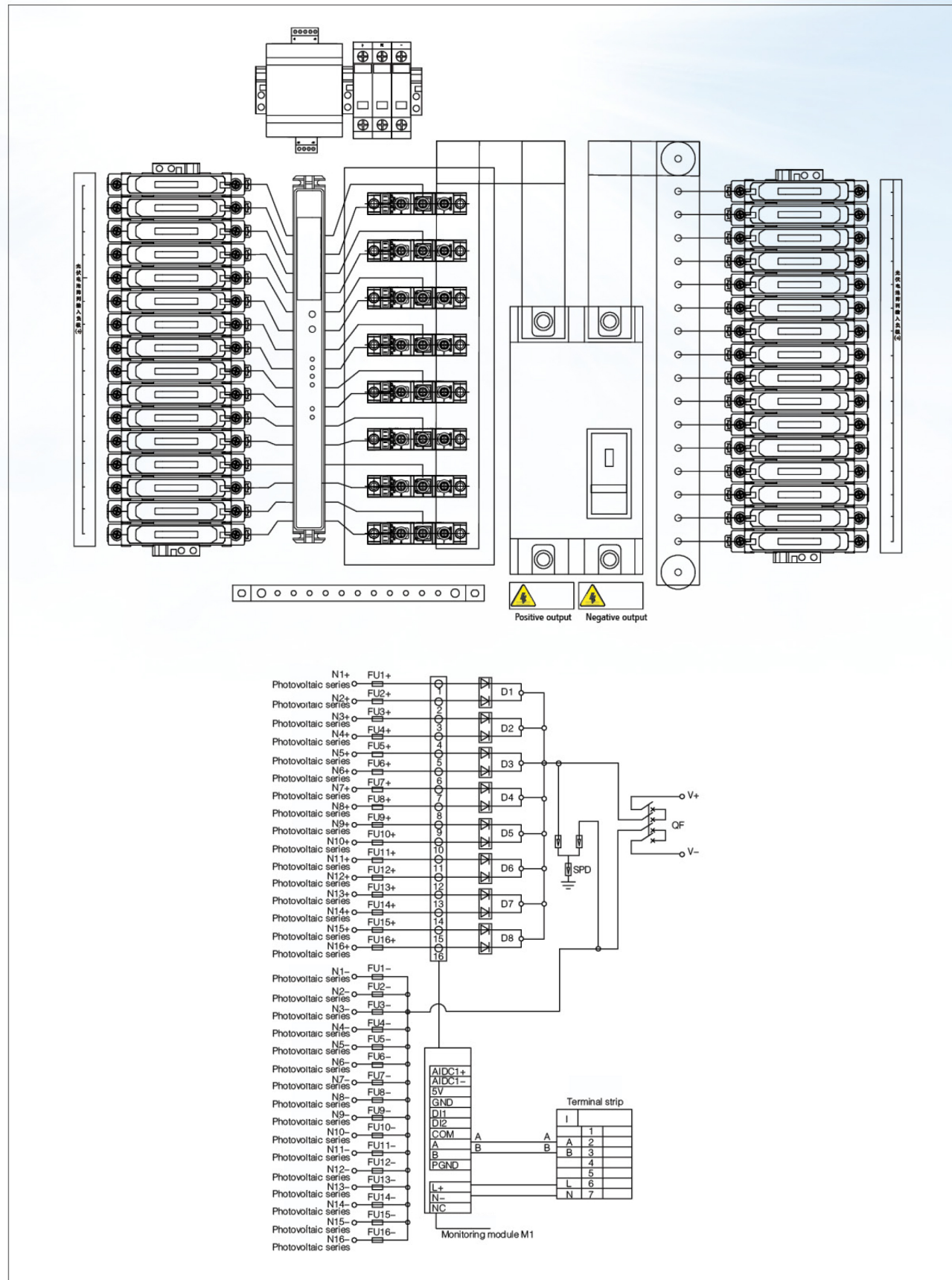
\* Each battery string is equipped with photovoltaic-specific fuses for protection at both the positive and negative terminals. The fuse bases and fuses are designed for compatibility, reducing maintenance costs for owners and effectively protecting the safety of maintenance personnel;

\* The DC output bus is equipped with a photovoltaic-specific surge protector. The combiner box features robust surge protection for positive-to-ground, negative-to-ground, and positive-to-negative connections. It is equipped with a modular intelligent detection unit to monitor the current, output voltage, enclosure temperature, surge protector status, and circuit breaker status of each component string. The intelligent detection unit has a digital display function, showing information such as current, voltage, power, temperature, device address, and device number on the device itself. The modular combiner box intelligent detection unit consumes less than 4W and has a measurement accuracy of 0.5%.

It supports multiple data transmission methods, providing RS485 and wireless ZigBee interfaces. The communication interfaces have built-in surge protection to effectively protect the device's communication ports. The modular combiner box intelligent detection unit adopts a DC 1000V/1500V self-powered mode, with the self-powered power supply using modular potting encapsulation.

The power supply has reverse connection protection, overcurrent and overvoltage protection, and corrosion resistance.

## BHLX-DC 16/1 DC Busbar Circuit Diagram and Layout Diagram



## BHLX-AC Photovoltaic AC Combiner Box

### Summarize

The product is mainly used in the centralized photovoltaic grid-connected power generation system of series inverter confluence, series connected between the series grid-connected inverter and grid-connected metering cabinet, the product has input lightning protection, system overcurrent protection, the application of this product reduces the long distance transmission of the large line, for the user to reduce costs, improve system efficiency.



## Main feature

All components are sourced from well-known domestic and international brands, possessing authoritative certifications and complete qualifications.

The internal exposed live parts are protected by flame-retardant, anti-static, and high-temperature resistant transparent covers. Incoming and outgoing circuit breakers are installed vertically and horizontally within the enclosure, with wiring precisely matched to avoid incorrect connections. Main circuits utilize copper busbars with corrosion- and oxidation-resistant tin plating.

Each line is clearly and conspicuously marked with industry-standard colors. An optional intelligent monitoring system (system voltage, main circuit current, switch status, and lightning protection status) is available.

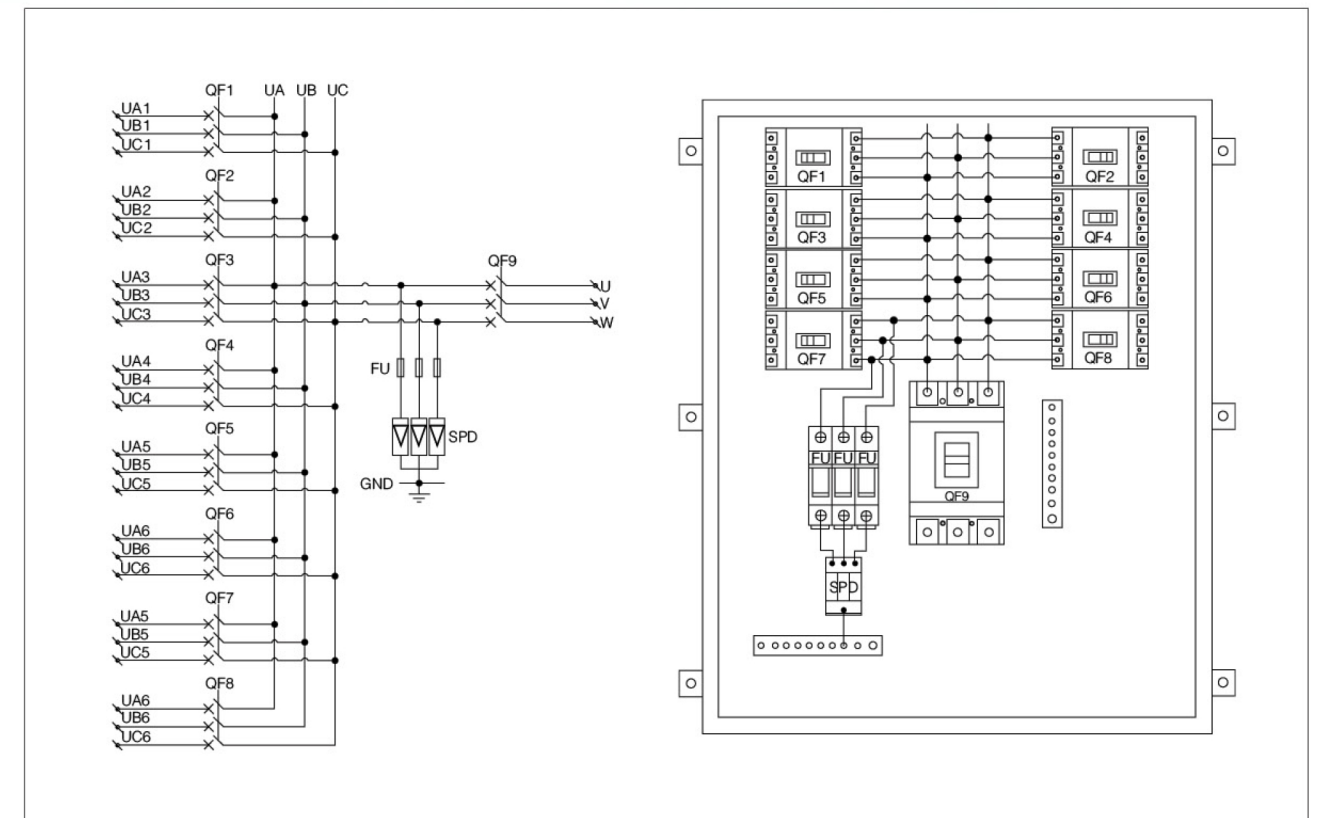
It is suitable for various voltage levels in the industry: 380Vac, 480Vac, and 540Vac. Features a rainproof design for outdoor installation. Customization for special requirements and functions is supported.

## Main technical parameters

Product model	BHLX-AC
Common series inverter power	5、10、15、20、25、30、40、50、60、80、100、110、125、175KW
Inverter input channels	1 to N channels (customized on demand)
Total AC output channels	Route 1
Confluence requirement	Single-phase, three-phase confluence
System voltage (optional)	AC:220V、AC:380V、AC:540V、AC:800V
Branch switch tolerance (optional)	32A、63A、80A、100A、125A、160A 200A、250A、400A、630A、800A
Switch brand (optional)	Chint, ABB, Schneider
<b>Protection function</b>	
Short circuit protection	Available
Overload protection	Available
Lightning protection	Available (Nominal current: In: 20KA, I <sub>max</sub> :40KA, U <sub>p</sub> ≤ 4kV)
Lightning failure protection	Available
<b>Environmental applicability</b>	
Temperature and humidity	Operating temperature: -25 to + 60°C Storage temperature: -40 to +70°C Humidity: 0-90% no condensation frost Free of corrosive oil gas (if any, please specify)
Service altitude	≤ 3000M
Salt spray resistance	Standard salt spray test 336 hours

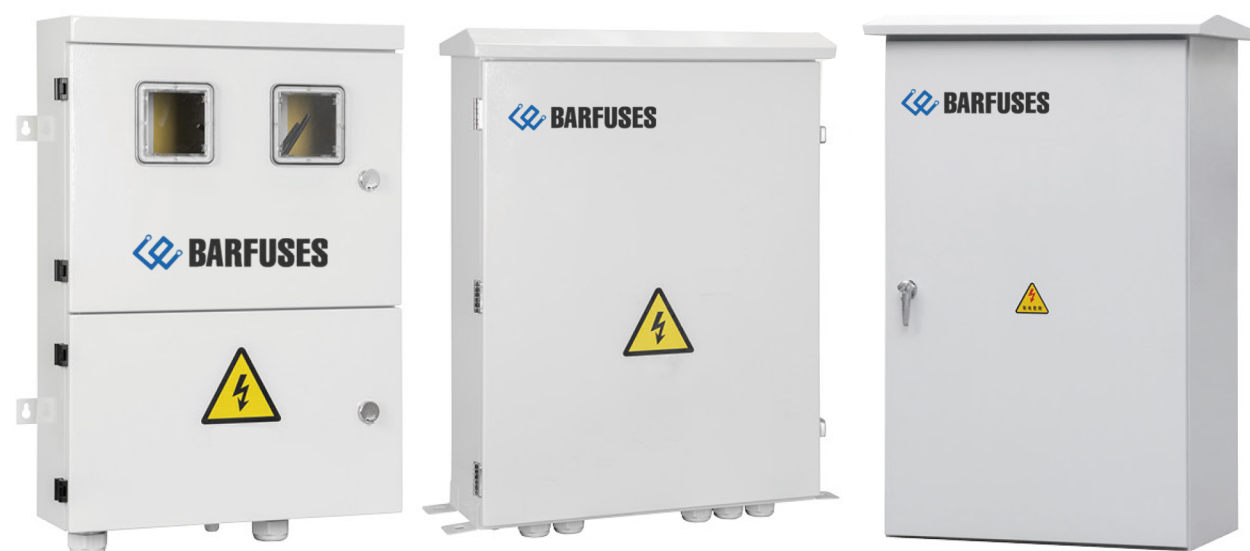
Product model	BHLX-AC
<b>Safety specification</b>	
Copper row selection	Tin plated
Safety protection	PVC protective plate
Electrical clearance	≥ 14mm
Creepage distance	≥ 25mm
Insulation resistance	>20MΩ
Insulation voltage	AC3000V, 1MIN
<b>Conventional parameter</b>	
Box material	Powder-coated cold-rolled steel, stainless steel, fiberglass (SMC), plastic boxes (ABS)
Degree of protection	Outdoor IP65
Box type	Single door distribution box
Installation mode	Wall mounted/floor mounted (customizable)
Box size (L * W * H)	On-demand customization

## BHLX-AC 8/1 AC Bus Box Circuit Diagram and Layout Diagram



## BBWX Single-phase/Three-phase Grid-connected Box (with Meter Position)

The product is mainly used in household photovoltaic distributed grid-connected power generation system, small industrial and commercial photovoltaic power generation system, series connected between the grid-connected inverter and the power grid, the product has anti-island protection check voltage closing voltage loss trip grid low voltage, power grid overvoltage, input lightning protection, system overcurrent, power grid isolation and a series of protection. Accurate power metering, transmission and intelligent operation control is an essential part of the household grid-connected power generation system.



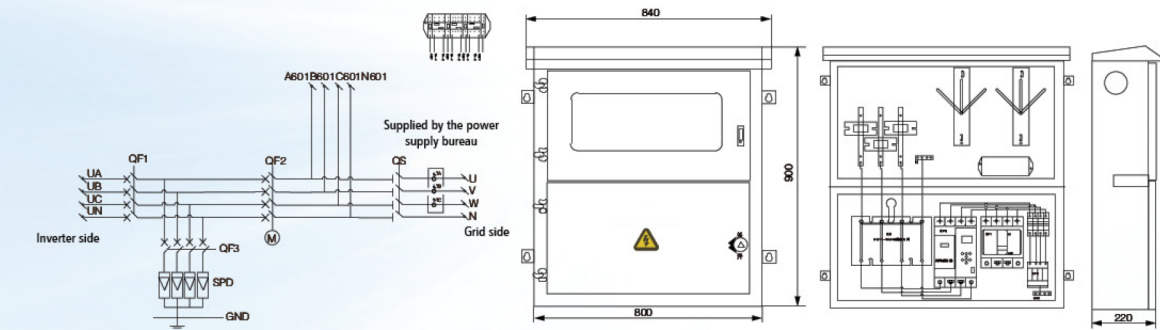
### Main feature

Pre-installed locations for electricity meters and data acquisition units;  
Electricity meters feature a viewing window and lead seal (to prevent electricity theft);  
The integrated design completely isolates the power distribution and metering sections, reducing electromagnetic interference;  
Multiple self-resetting over/under voltage protectors and photovoltaic-specific reclosing circuit breakers are available to meet the needs and acceptance standards of different regions;  
The enclosure requires a special key for opening, enabling professional management;  
Powder-coated or stainless steel enclosures are available; Outdoor installation ensures greater safety.  
Customization of special requirements and functions is supported.

### Main technical parameters

Product model	BBWX(monophase)	BBWX(Three phase)
Installed power	3KW~20kW	3KW~200KW
Inverter input channels	1 way /2 way /3 way /4 way (the above recommended bus box)	
Number of grid-connected output channels	Route 1	
Grid-connection requirement	Single phase/three phase grid connection	
Grid-connected voltage	AC:220	AC:380
Switching capacity	20A-100A	32A-400A
Short circuit protection		
Overload protection	Available	
Lightning protection	Available	
Isolation protection	Available ( Nominal current: In: 20KA, I <sub>max</sub> :4 0KA, U <sub>p</sub> ≤ 4kV)	
Isolation protection (visual breakpoint)	Available (knife brake/hand pull disconnecting switch)	
Automatic reclosing	Available	
Grid-connected switch	Available	
Grid-connected switch		
Self-duplex overvoltage and undervoltage protector (optional) 40A~125A	1, power grid power failure or bias >20%, automatic disconnect (internal disconnect); 2, when the power grid returns to normal, automatic suction (internal connection);	
Photovoltaic special small reclosing circuit breaker (optional)20A~100A	1, power grid power failure or bias >20%, automatic switching (operation handle action); 2, when the power grid returns to normal, automatic closing (operation handle action); 3, manual operation and automatic operation can be switched; 4: check the pressure closing	

Product model	BBWX(monophase)	BBWX(Three phase)
Plastic case reclosing (optional) 40A~400A	1, power grid power failure or bias >20%, automatic trip (delay trip time 0~10S adjustable >; 2, the power grid returns to normal, automatic closing; 3, manual operation and automatic operation can be switched; 4: Lack of phase protection, break zero protection 5: check the pressure closing	
Environmental applicability		
Temperature and humidity	Operating temperature: -25 to +60°C Storage temperature: -40 to +70°C Humidity: 0-90% no frost; Non-corrosive gas sites (if any, please specify)	
Service altitude	≤ 3000M	
Salt spray resistance	Standard salt spray test 336 hours	
Conventional parameter		
Box material	Powder-coated cold-rolled steel, stainless steel, fiberglass (SMC), plastic boxes (ABS)	
Class of protection	Outdoor IP45 / IP55 / IP65	
Box type	Double door with gauge (distribution bin, metering bin) Single door without metering bin (optional)	
Installation mode	wall-mounted	
Box size (L * W * H)mm	On-demand customization	



More than 30KW secondary metering AC and cage electrical circuit diagram Electrical layout diagram of secondary metering AC and cage above 30KW

### Cable processing requirements and related equipment

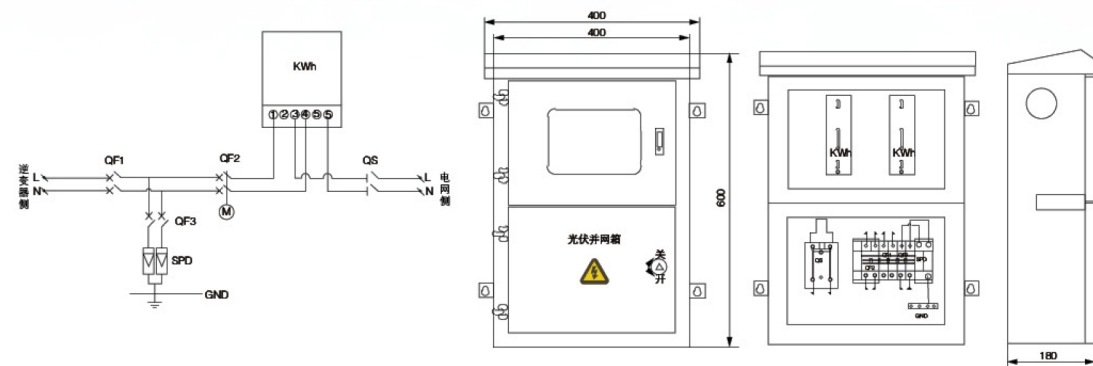
The cable lug adopts the general standard type of the power industry, and different colors are selected according to the different phase sequence of the cable to ensure that the cable copper wire will not leak out.

The cable cutting and stripping machine adopts a fully automatic machine, which can select different lengths of cables for cutting and stripping according to the actual situation, to ensure that the length of the cable is consistent in mass production.

### Cable processing requirements and related equipment

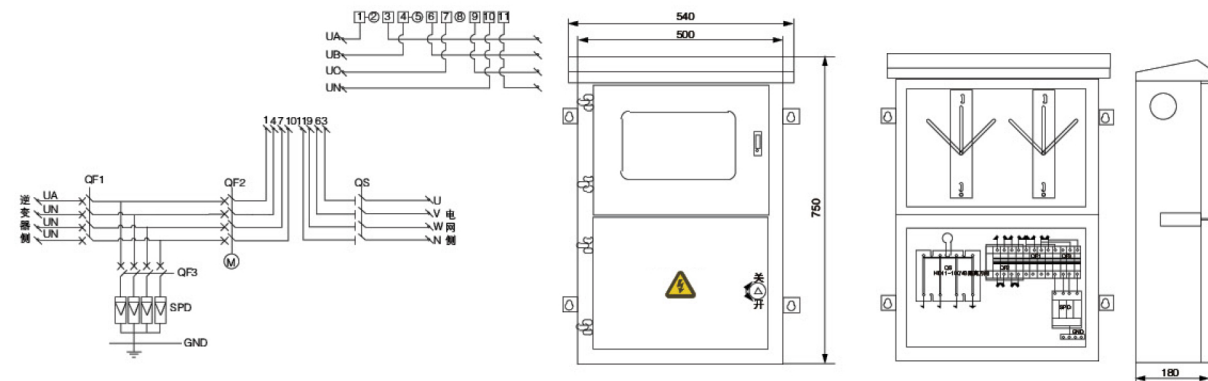
Parallel cage power	Inverter output maximum current	Main loop cable (minimum diameter)	Surge protector cable (minimum diameter)	Ground cable (minimum diameter)
monophase 03KW	15A	4mm <sup>2</sup>	4mm <sup>2</sup>	4mm <sup>2</sup>
monophase 05KW	25A	6mm <sup>2</sup>	6mm <sup>2</sup>	6mm <sup>2</sup>
monophase 10KW	50A	16mm <sup>2</sup>	16mm <sup>2</sup>	16mm <sup>2</sup>
Three phase 08KW	14A	4mm <sup>2</sup>	4mm <sup>2</sup>	4mm <sup>2</sup>
Three phase 10KW	17A	6mm <sup>2</sup>	6mm <sup>2</sup>	6mm <sup>2</sup>
Three phase 15KW	25A	6mm <sup>2</sup>	6mm <sup>2</sup>	6mm <sup>2</sup>
Three phase 20KW	33.5A	10mm <sup>2</sup>	10mm <sup>2</sup>	10mm <sup>2</sup>
Three phase 25KW	42A	10mm <sup>2</sup>	10mm <sup>2</sup>	10mm <sup>2</sup>
Three phase 30KW	50A	16mm <sup>2</sup>	16mm <sup>2</sup>	16mm <sup>2</sup>
Three phase 40KW	67A	25mm <sup>2</sup>	16mm <sup>2</sup>	16mm <sup>2</sup>
Three phase 50KW	83.5A	25mm <sup>2</sup>	16mm <sup>2</sup>	16mm <sup>2</sup>
Three phase 60KW	100A	25mm <sup>2</sup>	16mm <sup>2</sup>	16mm <sup>2</sup>
Three phase 80KW	134A	35mm <sup>2</sup>	16mm <sup>2</sup>	16mm <sup>2</sup>
Three phase 90KW	150A	35mm <sup>2</sup>	16mm <sup>2</sup>	16mm <sup>2</sup>
Three phase 100KW	167A	50mm <sup>2</sup>	16mm <sup>2</sup>	16mm <sup>2</sup>
Three phase 120KW	200A	50mm <sup>2</sup>	16mm <sup>2</sup>	16mm <sup>2</sup>

Parallel cage circuit drawing and layout drawing:



Single-phase AC parallel cage electrical circuit diagram

Single phase AC parallel cage electrical layout diagram



Electrical circuit diagram of three-phase AC parallel cage below 30KW

Electrical layout diagram of three-phase AC parallel cage below 30KW

# BBWG Photovoltaic grid-connected metering cabinet

## Summarize

The product is mainly used in 100KW-2000KW high-power industrial and commercial photovoltaic grid-connected power generation system, connected in series between grid-connected inverter (or AC busbar) and the power grid, the product has a series of protection such as anti-island protection check voltage closing, voltage loss tripping, grid low voltage, grid overvoltage, input lightning protection, system overcurrent, grid isolation, etc. The multi-function meter display and fault status indication make the system running status clear at a glance.



## Main feature

Pre-installed locations for electricity meters and data acquisition units;  
 Electricity meters feature a viewing window and lead seal (to prevent electricity theft);  
 The product's integrated design completely isolates the power distribution and metering sections, reducing electromagnetic interference. Optional features include photovoltaic-specific molded case re-closing circuit breakers and universal frame circuit breakers, ensuring greater reliability;  
 Online power quality monitoring, anti-islanding protection devices, and fault disconnection devices can be added; outdoor and indoor installation options are available for greater convenience.  
 Customization of special requirements and functions is supported.

## Technical parameters

Product model	BBWG
Inverter input channels	1 to 5 channels (The above recommended AC bus box)
Number of grid-connected output channels	Route 1
Grid-connection requirement	Three-phase grid-connected cabinet
Grid-connected voltage	AC:380V~AC:500V
Switch brand (optional)	Chint, ABB, Schneider
Protection function	
Short circuit protection	Available
Overload protection	Available
Lightning protection	Available (Nominal current: In: 20KA, I <sub>max</sub> :40KA、Up ≤ 4kV)
Isolation protection (visual breakpoint)	Available (knife/disconnecting switch)
Over and under voltage protection	Available
Automatic reclosing	Available
Panel manually open and close	Available
Optional function	1, online power quality monitor; (optional) 2, anti-island protection device; (optional) 3, so degradation column device; (optional)
Grid-connected switch	
Plastic case reclosing (100A~800A)(optional)	1, power grid power failure or bias >20%, automatic trip (0-10s delay trip time adjustable); 2, the power grid returns to normal, automatic closing; 3, manual operation and automatic operation can be switched; 4: Lack of phase protection, break zero protection 5: check the pressure closing

## Technical parameters

Product model	BBWG
Universal frame circuit breaker (200A~4000A) (optional)	1, power grid power failure or bias >20%, automatic trip (0-10s delay trip time adjustable); 2, the power grid returns to normal, automatic closing; 3, manual operation and automatic operation can be switched; 4: Lack of phase protection, break zero protection; 5: check the pressure closing
Environmental applicability	
Temperature and humidity	Operating temperature: -25 to +60°C Storage temperature: -40 to +70°C Humidity: 0-90% no condensation cream Non-corrosive gas sites (if any, please specify)
Service altitude	≤ 3000M
Salt spray resistance	Standard salt spray test 336 hours
Conventional parameter	
Cabinet material	Powder-coated cold-rolled steel, stainless steel, fiberglass (SMC), plastic boxes (ABS)
Place of use	Indoor type (customizable outdoor type)
Cabinet type	Distribution bin, measuring bin, transformer bin, isolation switch bin
Installation mode	Floor vertical mounting
Cabinet size (D * W * H)	600mm*800mm*2200mm / 800mm*800mm*2200mm(Customizable)