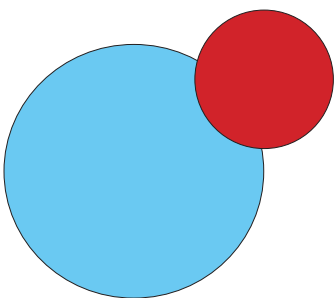
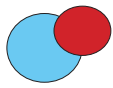


LITHIUM BATTERY SOLAR ENERGY STORAGE SYSTEM CATALOGUE 2024





PV INVERTER&CONTROLLER INTEGRATED

High frequency PST series



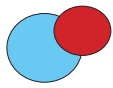
Product introduction:

The PST series inverter control integrated is a pure sine wave photovoltaic off-grid power generation equipment that integrates the functions of a photovoltaic controller, a mains charger and a high-frequency inverter. The battery is charged through the controller or mains charger, and the battery supplies power to the inverter, which then supplies AC power to the AC load.

Performance characteristics:

- Small size and light weight
- High efficiency
- Pure sine wave inverter
- Selectable voltage input range, inverter output voltage can be used for home and PC
- The priority of AC, solar battery charging can be set through LCD settings
- Compatible with mains voltage or generator power supply
- Auto restart function, can be not guarded
- Overload and short circuit protection

Model	PST48-3K	PST48-5K
Output voltage(kVA)	3	5
Battery type(Optional)		
Rated voltage(VDC)	48	
Under voltage protection point(VDC)	Lead-acid battery 42, lithium battery 45(default setting)	
Under voltage recovery point(VDC)	Lead-acid battery 51.2, lithium battery 50(default setting)	
Over voltage protection point(VDC)	lead-acid battery 58, lithium battery 53(default setting)	
Over voltage recovery point(VDC)	Lead-acid battery 56, lithium battery 51(default setting)	
PV input		
PV input power(Wp)	3000	
Way of working	MPPT	
Starting voltage(VDC)	>66	
Voltage range(VDC)	70-256	
Maximum open circuit voltage(VDC)	256	
Float voltage(VDC)	Lithium battery 54	
Equalizing Voltage(VDC)	Lead-acid battery 55/lithium battery 52.2	
Mains bypass (optional)		
Input voltage allowable range(VAC)	220±15%	
Input frequency(Hz)	50/60±1%	
Mains charging (optional)		
Mains charging current(A)	10	
AC output		
Output waveform	L+N pure sine wave	
Output voltage(VAC)	220±3%	
Output frequency(Hz)	50/60±1%	
Output waveform distortion(THD)	≤5%(linear load)	
Inverter efficiency	≥1%	
Overload capacity	110%1min	
Display method	LCD+LED/LED	
Protective function	under voltage, over voltage, overload, short circuit, overheat	
Environment		
Protection class	IP20	
Altitude(m)	≤5000 (1% derating for every 100m above 1000m)	
Allowable relative humidity	<95% Non-condensing	
Ambient temperature(°C)	-10/+40	
Noise(dB)	≤50	
Communication		
Communication method	CAN, 232, 485, Wi-Fi, GPRS	
Max. Size(D*W*H)mm	130*400*520	130*360*580
Weight(kg)	8	9



PV INVERTER&CONTROLLER INTEGRATED

Single-phase power frequency PSA Series



Product introduction:

The photovoltaic control and inverter integrated is a new type of photovoltaic power generation device that organically combines a photovoltaic charge controller and an inverter.

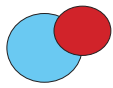
It consists of a charge controller, an inverter and a protection circuit, and the output is a pure sine wave voltage. It has the advantages of small total installation space, few connection lines, safety and reliability.

Photovoltaic charge controller is a high-performance step-down device that uses MPPT (Maximum Power Point Tracking) algorithm to make full use of solar photovoltaic energy. The PV input voltage range is wide, which can charge a variety of batteries, and the three-stage charging effectively improves the life of the battery.

Performance characteristics

- MPPT solar charging controller, which can make the most use of solar photovoltaic
- Three-stage charging, effectively prolonging the life of the battery
- It has the functions of power generate record, Event recording, Time switch, Auto sleep function
- Photovoltaic priority or utility power priority mode can be set by users
- Pure sine wave output & completely protection
- Low frequency circuit design, good system reliability, low breakdown rates and long life time
- Higher ability to anti-attack from the loads
- Supporting city power/ Diesel generator input port (Optional)
- AC charger function (Optional)

Series	PSA96	PSA192/220
Output power(KVA)	6/8	6/10/15/20/25/30
	Battery	
Rated voltage(VDC)	96	192/220
	PV Input	
Maximum input power(KWP)	6	12/24
Maximum charge current	50/100	
Start voltage(VDC)	120	270
Mppt voltage range(VDC)	110-280	260-450
Maximum open circuit voltage(VDC)	300	480
	AC bypass(Optional)	
Allowable input voltage range(VAC)	220±15%/110±5% (Other input voltage can be customized)	
Input frequency(Hz)	50/60±3%	
AC charger	Optional	
	AC Output	
Output waveform	Pure Sine Wave	
Output voltage(VAC)	220±1%/110±1% (Other output voltage can be customized)	
Output Frequency(HZ)	50/60±1%	
Output wave form distortion rate(THD)	≤2%(Liner Load)	
Convert Efficiency (80% Resistive load)	≥85°C	
Current Peak Factor	3:1	
Overload Ability	105-110%,600Seconds;110-125%,60Seconds;>125%,1Second	
Display method	LCD+LED	
Protection	Input reverse, low voltage, over voltage protection; Output overload, short circuit, over hating protection	
Communication Function	Optional	
	Surroundings	
Protective level	IP20	
Applied Altitude(m)	≤5000 (above 1000meters, rated power derating 1% every 100meters)	
Humidity	<95% Non-condensation	
Environment temperature(°C)	-10~50	
Noise(dB)	≤60	
	Appearance	
Dimensions(D*W*H)mm	640*305*770	700*405*980
Weight(KG)	80-85	55-155



PV INVERTER&CONTROLLER INTEGRATED

Three phase power frequency PSA Series



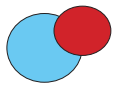
Product introduction:

The solar photovoltaic control inverter integrated power supply is a new generation of dedicated power supply for new energy power generation systems. It is mainly designed and manufactured according to the characteristics and requirements of new energy power generation systems, and is suitable for the high quality and high reliability requirements of solar photovoltaic power generation systems for power supply equipment. The system uses photovoltaic cells to convert light energy into electrical energy, and charges the battery through the charging circuit. At the same time, the battery supplies power to the inverter, and the inverter provides AC power to the AC load.

Performance characteristics

- Advanced DSP digital control technology can effectively improve product performance and system reliability
- Excellent industrial environment protection performance
- Perfect protection function to provide safe and reliable power protection for the load
- Intelligent battery management function can effectively detect whether the battery is good or bad, prolong the battery life
- Economical and safe mode operation can make the whole machine more efficient than 98%
- High-performance large-screen LCD interface, intuitive and convenient operation
- Powerful communication interface and network remote monitoring, etc
- A wealth of optional accessories, which can be flexibly configured according to actual needs

Series	PSA					
Output power(KVA)	10	20	30	40	50	60
AC Input						
Phase	Three phase+N+G					
Volt range(VAC)	380/400/415±20%					
Frequency (Hz)	50/60±5%					
Soft-start	0~100% 5sec					
PV Input						
MPPT volt range (VDC)	230-450					
Max.Open circuit volt(VDC)	480					
Input paths	1/2					
Max.Input power(kWp)	12/24					
Full charge protection volt	The battery voltage can be set according to the actual configuration					
Charging voltage(VDC)	216/243/270(Settable)					
DC						
Nominal volt(VDC)	192/220/240					
Inverter						
Phase	Three phase+N+G					
Nominal volt(VAC)	380/400/415					
Nominal frequency(Hz)	50±0.5 (Powered on by battery)					
Frequency stability(Hz)	<±0.5 (Battery mode)					
Peak factor	3:1					
Output wave	Pure sine wave					
THD	Line load<3%; Non-line load<5%					
Voltage transient	<±3% (steady state load), <± 5% (dynamic load)					
Over-load ability	125% 10mins, 150% 1min					
System						
Communication interface	RS485(RS232, Network remote monitoring Option)					
Interface and instructions	7-inch color touch screen, LED status indication, dry contacts(optional)					
Operating environment	Temperature:0-40°C; Humidity:20%~90% (non-condensing);<1000 meters (power decreases by 1% per 100 meters)					
Cooling method	Forced ventilation					
Noise(dB)	40-65					
Size(D*W*H)mm	600*600*1600			600*800*2000		



OFF GRID INVERTER

Single-phase power frequency PSI Series



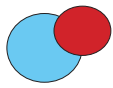
Product introduction:

PSI series inverter power supply is the fourth generation power frequency intelligent inverter power supply developed with new digital technology. The system adopts SPWM pulse width modulation technology, IGBT power module and output isolation transformer, so that the output of the inverter power supply is a pure sine wave power supply with stable frequency and voltage regulation, filtering noise and low distortion. It has the characteristics of strong load capacity, good load compatibility, and wide DC input voltage range, which greatly meets the needs of various electrical environments. The perfect protection device improves the stability of the system operation; the user-friendly LCD liquid crystal interface design enables man-machine communication zero-distance.

Performance characteristics

- Pure sine wave output, sufficient power output
- Protection function: output overload protection; output short circuit protection; input over/under voltage, over temperature protection and a series of alarm and protection
- Power frequency circuit design, good system stability, low failure rate and long life
- Good transient response, low waveform distortion, high inverter efficiency, stable output voltage, and excellent EMI indicators; this series of products have strong load resistance and load capacity. In addition to driving various resistive loads, they can also load all kinds of inductive devices, such as motors, air conditioners, electric drills, etc; it can drive almost all loads.
- Intelligent empty load automatic sleep function

Series	PSI96	PSI220
Output power (KVA)	6/8	6/10/15/20/25/30
Battery		
Rated voltage (VDC)	96	220
Under voltage protection value (VDC)	86.4	194.4
Under voltage recovery value (VDC)	104	234
Over voltage protection value (VDC)	124	279
Over voltage recovery value (VDC)	120	270
Mains bypass (optional)		
Input voltage allowable range (VAC)	220±15%	
Input frequency (Hz)	50/60±3%	
Mains charging	Optional	
AC output		
Output waveform	Pure sine wave	
Output voltage (VAC)	220±1%	
Output frequency (Hz)	50/60±1%	
Output waveform distortion rate (THD)	≤2% (Liner load)	
Inverter efficiency	≥85%	
Current peak factor	3:1	
Overload capacity	105%-110%; 10min; 110%-125%, 1min > 125%, 1s	
Display method	LCD+LED	
Protective function	Input reverse connection, input undervoltage, overvoltage, overload, short circuit, overheating protection	
Communication function	RS485/GPRS (Optional)	
Environment		
Protection level	IP20	
Operating altitude (m)	≤5000 (1% derating for ever 100m above 1000m)	
Humidity	<95% No condensation	
Environment temperature (°C)	-10~+40	
Noise (dB)	≤50	
Volume and weight		
Dimensions(D*W*H) mm	645*305*770	645*305*770/700*405*980
Weight (KG)	75-85	55-100/135-155



OFF GRID INVERTER

PSI Series three phases inverter



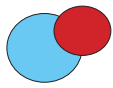
Product introduction:

This series of three-phases off-grid inverters are high-efficiency and high-performance three-in-three-out inverter products. They are new generation dedicated power supplies for new energy power generation systems. They integrate digitization, informatization and networking. They have powerful information acquisition system, signal processing system, detection system and perfect protection system. They have wide input DC voltage, stable output voltage and frequency, which are mainly used in photovoltaic power stations, wind power stations, wind, light, oil, storage complementary power generation systems, household photovoltaic power supply system and other fields, especially places that require three-phase four-wire AC power.

Performance characteristics

- Advanced DSP digital control technology effectively improve the product feature and system stability
- Excellent industrial ambient protection performance, applicable to all kinds of working environment
- High performance big LCD screen, smart boot prompts and operation error alert function, operate visually and easily
- Powerful communication interfaces and network remote monitoring
- Wealth of options can be flexibly configured according to the actual needs
- Independent airtight duct, optimized ventilation design, internal modular installation, all devices required maintenance can be maintained from the front side. Machine can be installed three faces against the wall or parallel

Series	PSI					
Output power(KVA)	10/15/20/30	40/50/60	80/100/120	160/200	250/300	400
Rated DC voltage(VDC)	220/360/384		360/384		384	
Phase	Three phases+N+G					
Nominal voltage(VAC)	380/400					
Nominal frequency(Hz)	50/60					
Current peak factor	3:1					
Output waveform	Pure sine wave					
THD	Liner load<3%; Non-liner load < 5%					
Dynamic load voltage transients	<±5%					
Load voltage	<±3% (Balanced load); <±5% (unbalanced load)					
Overload capacity	125% 10mins, 150% 1min					
Inverter efficiency, load 100%	>92%					
Computer communication interface	RS232 (485 Network remote monitoring optional)					
Operating temperature(°C)	10~40					
Humidity	20%~90%					
Altitude	≤5000 (above 1000 meters. rated power derating 1% every 100 meters)					
Cooling	Forced cool air					
Noise(dB)	45~65 (1m from the machine)					
Weight(KG)	220-390	490-780	850-1050	1200-1400	1600-1800	2100
Dimension(D*W*H) mm	600*600*1350	600*800*1350	800*805*1800	900*1005*1800	1100*1150*1920	1100*1250*1920



ENERGY STORAGE SYSTEM

PPCS Energy Storage Converter



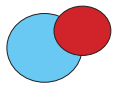
Product introduction:

PPCS50/100/150/250K energy storage converter is a product developed for industrial and commercial energy storage applications, which can meet the diversified needs of users and provide assistance for comprehensive energy services. PPCS500/630K energy storage converter can be applied to various scenarios such as power generation side and power grid side, and can quickly realize AC/DC bidirectional energy conversion. The multi branch input technology can reduce the battery parallel numbers, reduce battery circulation, and extend the service life of battery packs.

Performance characteristics

- Modular design. The product adopts the modular design concept. Each module can operate independently, providing n+1 redundancy and improving system stability. The capacity can be expanded according to the users' need.
- Intelligent matching. The product is suitable for various types of batteries. The system can realize different charging and discharging strategies according to different battery types, to prolong the battery life span.
- Distributed in demand. The energy dispatching can be regulated, and the user can change the charging and discharging logic according to the power consumption policies in different periods of time in the region.
- Independent regulation of active and reactive power. The product can realize independent regulation of active and reactive power, meet different load requirements, ensure power factor and avoid fines.
- On/Off grid seamless switching. Realize seamless switching between grid and off grid connection, ensure the continuity of power consumption, and avoid economic losses caused by power failure.

Model	PPCS 50KW	PPCS 100KW	PPCS 150KW	PPCS 250KW	PPCS 500KW	PPCS 630KW
DC side parameters						
DC voltage range(V)	500-850			600-900		
Maximum DC current(A)	110	220	330	550	873	958
Battery branches number	1				1/2/4/8	1
AC grid connection parameters						
Rated output power(KW)	50	100	150	250	500	630
Rated grid voltage(V)	400±15%				380±15%	
Rated grid frequency(Hz)	50/60±2.5					
AC rated current(A)	72	144	216	360	727	916
System parameters						
Wiring mode	Three phases four wires					
Isolation	Power frequency isolation					
Cooling	Forced air cooling					
Temperature range (°C)	-20~50					
Protection level	IP20					
Size(D*W*H) mm	800*800*2160			800*1200*2160	800*1100*2260	
Communication						
Upper computer communication mode	ModBus TCP/IP					
Communication interface	Net port, RS485, CAN					



ENERGY STORAGE SYSTEM

PPG2 PV&Battery energy storage integrated machine



Product introduction:

PPG2 optical storage integrated machine products integrate energy storage converters and photovoltaic inverters, which can efficiently utilize photovoltaic power generation, reduce the workload of installation sites, reduce the integration difficulty of integrate for supplier, and meet the storage integration application needs of small and medium-sized microgrids and industrial and commercial buildings.

Performance characteristics

- Intelligent switching operation strategy. It can be directly connected to the photovoltaic panel for charging, eliminating the loss in the power transmission process and improving the stability of the output current; it can also be applied to the photovoltaic storage integrated machine to convert the photovoltaic output current into the available electricity of the grid, improving economic benefits.
- Flexible configuration. The maximum power that can be connected to twice the equipment capacity, up to 200KW, improves the flexibility of product configuration in areas without electricity.
- MPPT photovoltaic maximum power tracking. It can detect the power generation voltage of the photovoltaic panel in real time, so that the system can charge the battery with the maximum power output and increase the power generation of the system.
- Optional outdoor version. It can effectively reduce the construction cost in remote areas. IP54 protection grade, can perfectly deal with various types of outdoor weather

Model	50KW	100KW
Battery side parameters		
DC voltage range (V)	250-520 (Rated 400)	
DC maximum current (A)	150	300
PV side parameters		
PV voltage range (V)	520-900	
Maximum PV current (A)	110	220
Maximum PV power (KW)	100	200
AC grid connection parameters		
Rated grid voltage (V)	400±15%	
Grid frequency range (Hz)	50/60±2.5	
System parameters		
Isolation method	Power frequency isolation	
Cooling method	forced air cooling	
Protection class	IP20/IP54	
Dimensions (D*W*H) mm	800*800*2160 / 800*1000*2160 (outdoor version)	
Communication method		
Host computer communication method	ModBus C TCP/IP	
Communication interface	Ethernet port, RS485, CAN	



ENERGY STORAGE SYSTEM

PDS DC Converter



Product introduction:

The PDS400KW DC-DC converter converts the direct current of the photovoltaic module array into direct current that can charge the battery. Adopt single-stage topology, wide photovoltaic voltage input range with 250-650V; output voltage range to battery with 600-900V with MPPT photovoltaic maximum power tracking function.

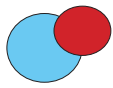
Performance characteristics

For the DC conversion protection strategy, it meets the relevant standards of the photovoltaic industry, and has but is not limited to the following protection functions:

- PV input overvoltage protection
- PV input under-voltage protection
- Output overload protection
- Output current control
- Output short circuit protection
- DC reverse protection

At the same time, according to the BMS requirements of different batteries, the battery side charging status is protected according to its control strategy, including overcharge, overdischarge, capacity protection, etc.

Model	PDS
Rated power (KW)	400
Low voltage side connected to PV input	
HVDC bus voltage (V)	750 (Low side voltage+40~850)
HVDC bus current (A)	67*8 (maximum 100*8)
DC bus power (KW)	50*8
Low voltage charge and discharge voltage (V)	500 (250-840)
Low voltage charge and discharge current (A)	100*8 (maximum 120*8)
The low voltage side is connected to the battery input	
HVDC bus voltage (V)	750 (Low side voltage+40~850)
HVDC bus current (A)	67*8 (maximum 100*8)
DC bus power (KW)	50*8
Low voltage charge and discharge voltage (V)	500 (250-840)
Low voltage charge and discharge current (A)	100*8 (maximum 120*8)
System parameters	
Protection	Protection for over temperature, overload, emergency stop, fan failure
Maximum efficiency (refer to the efficiency curve)	98.6%
Isolation	No isolation
Refrigeration	Forced air cooling
Noise	≤ 70dB
Communication method	RS485/CAN/Ethernet network port
Operating temperature (°C)	-20~50 (Derating above 45)
Humidity	0~95% (No condensation)
Altitude (m)	3000
Protection class	IP20
Size (D*W*H) mm	800*1100*2060
Weight (KG)	600



ENERGY STORAGE SYSTEM

PSWD on-grid and off grid switch cabinet system



Product introduction:

The PSWD on-grid and off-grid switch cabinet system consists of AC power distribution cabinet, photovoltaic inverter (optional), local load and energy storage converter to form a set of AC micro-grid system. The microgrid switching cabinet can work in different modes as required.

The PSWD on-grid and off-grid switching cabinet plays a central role in the whole system, with the characteristics of energy dispatch management, fast on-grid and off-grid switching and convenient maintenance. At the same time, it has perfect protection functions, such as over temperature, AC over and under voltage, AC reverse sequence, emergency shutdown, fan failure, output overload, etc., to meet the requirements of off-grid operation. The micro-grid switching cabinet includes on road power grid input.

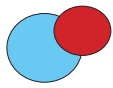
When the thyristor of the micro-grid switching cabinet breaks down, the bypass switch can be closed for emergency power supply. Note: the bypass switch and the grid switch cannot be closed at the same time. The microgrid switching cabinet includes a PCS switch, which is specially used to connect the energy storage converter. It is equipped with four load switches at most, and can be optionally connected to photovoltaic grid-connected inverters, wind turbines, diesel generators and local loads. The external communication of the switching cabinet includes RS485, and the Ethernet can exchange data with the background PC to form an energy management system, which can dispatch and manage energy and switch between on-grid and off-grid.

Model	PSWD-800KW
Rated power (KW)	800400
Rated voltage (V)	-25%~15%
Input voltage range	-25%~15%
Output voltage range	1155
Rated input current (A)	1270 (1.1 times)
Maximum input current (A)	50/60
Rated frequency (Hz)	47~52/57~62
On and off grid switching time	<20ms
Overall efficiency	99.5% (full load)
Protection class	IP20
Design life	10 years
Cooling method	air cooling
Grid access	1 road
PCS/PV access	1 road (not more than 500KW)
Load access	4 roads
Maximum load switching power (KW)	300 (RCD load, pure capacitive or inductive load is less than 100)
Wiring	Three phases four wires system
Protection	Protection for over temperature, AC over and under voltage, AC reverse sequence emergency shutdown, fan failure, output overload, etc.
Host computer communication method	ModBus TCO/IP protocol
Communication Interface	Ethernet port/ RS485
Cabinet size (D*W*H) mm	800*800*2160
Noise	70dB
Temperature range (°C)	-20~45
Altitude (m)	3000
Humidity	0-95%
Weight (KG)	300

Introduction of PSTS Microgrid Controller:

The micro-grid controller (PSTS) consists of four parts: fast switching, high-precision detection, login control, and external communication. It can automatically complete on-off-grid switching and on-grid synchronization. The active switching and off-grid time is 0ms, the passive switching time is 20ms (typical), and the switching can be realized within 5ms through customization (at this time, the system mainly guarantees the power supply waveform).

Project	PSTS-100KW	PSTS-200KW	PSTS-300KW	PSTS-800KW
Input voltage range (VAC)	340-460	340-460	340-460	340-460
Rated output voltage(V)	400	400	400	400
Rated output current (A)	153	306	459	1215
Communication method	CAN			
Size (D*W*H) mm	220*585*482			800*800*2160



SOLAR CHARGING CONTROLLER

MPPT Controller



Product introduction:

MPPT series photovoltaic controller is a high-performance step-down solar power generation equipment, which adopts MPPT algorithm to make full use of solar photovoltaic energy. The PV input voltage range is wide, which can charge a variety of batteries, and the three-stage charging effectively improves the life of the battery. The modular design of the controller allows multiple units to be used in parallel, allowing customers to configure freely and flexibly.

Performance characteristics

Memory function, save the settings, date and time, power generation etc function

Charging mode: three-stage charging (constant current, constant voltage, float), effectively extending the battery life

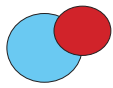
LCD and LED display various parameters, such as model, PV input voltage, the battery type, charging voltage, charging current, charging power, working condition etc

Photovoltaic input adopts MPPT tracking technology

Can be operated in parallel, expanding the range of use and meeting the charging requirements under high power

Available for communication power supply field

Model	PSM48	PSM96
Rated voltage (VDC)	48	96
Over voltage protection point (VDC)	62	124
Over voltage resumption point (VDC)	60	120
Float voltage (VDC)	54	108
Bulk voltage (VDC)	56.8	113.6
Maximum charging current (A)	60/120	(50/100)/(150/200)
Charging mode	Three-stage; constant current (MPPT), constant voltage, float	
Maximum input power (kWp)	3.4/6.8	5.7/11.4/17.1/22.8
Starting voltage (VDC)	60	120
MPPT voltage range (VDC)	50-150	110-280
Maximum open-circuit voltage(VDC)	170	300
Maximum efficiency	>98%	
MPPT efficiency	>99%	
Noise (dB)	<55	
Display	LCD+LED	
Communication	RS485(optional)	
Working temperature (°C)	-10~+40	
Humidity	0~95% (Non-condensing)	
Altitude(m)	≤5000m, above 1000m derating	
Protection level	IP20	
Dimension (D*W*H) mm	225*475*640(Wall-mounted type)	(225*475*640)/(530*530*1150) (vertical)
Weight (KG)	13-16	13-50
Protection	PV array reverse polarity protection; reverse battery protection; battery overcharge protection over-discharge protection; output overload protection; output short circuit protection	



SOLAR CHARGING CONTROLLER

MPPT Controller



Product introduction:

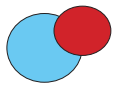
MPPT series photovoltaic controller is a high-performance step-down solar power generation equipment, which adopts MPPT algorithm to make full use of solar photovoltaic energy. The PV input voltage range is wide, which can charge a variety of batteries, and the three-stage charging effectively improves the life of the battery. The modular design of the controller allows multiple units to be used in parallel, allowing customers to configure freely and flexibly.

Performance characteristics

- In order to increase reliability, multiple protections are used
- Input over voltage protection
- Input under voltage protection
- Output over voltage protection
- Output over current protection
- Stand-alone two-phase current unbalance protection
- Single-phase output over current hardware protection
- Display mode can be LED light or LCD screen

- Support multi-module parallel work
- Relevant parameters can be set freely
- A controller cabinet is optional, and control cabinets of different specifications can be selected according to the required charging power. The control cabinet comes standard with photovoltaic input circuit breakers, battery circuit breakers, fuses, etc.

Series	PSM192	PSM220	PSM240	PSM360	PSM384
Rated volt(VDC)	192	220	240	360	384
Float charging volt(VDC)	216	243	270	405	432
Bulk charging volt	227	256	284	426	454
Charging mode	Three stage: Constant current, constant voltage, floating				
Max.Input power(kWp)	12/24			42	45
Start voltage(VDC)	250	280	310	470	490
MPPT volt range(VDC)	230-450	260-450	290-450	450-800	480-800
Max.open circuit voltage (VDC)	480			850	
Max. efficiency	>98%				
MPPT efficiency	>99%				
Noise(dB)	<65				
Display	LCD+LED				
Communication	RS485 (Optional)				
Working temperature (°C)	-10~+50				
Humidity	≤95% (Non-condensing)				
Altitude(m)	≤5000m, above 1000m derating				
Protection level	IP20				
Protection function	PV array anti-reverse connection, Night anti-reverse charging, Battery over-charging, Over-temperature protection, etc				
Dimension(D*W*H) mm	10KW Wall-mount	470*360*100		Wall-mount	490*423*203
	10KW Ract-mount	403*482*87		Rack-mount	527*480*219
	20KW Wall-mount	517*400*181			
Weight (KG)	10KW:9 ; 20KW: 18			25	
Optional cabinet size (D*W*H) mm	4 Modules	550*550*900		4 Modules	700*550*1300
	6 Modules	600*600*1600			



ENERGY STORAGE SYSTEM

EMS-A7 Micro-grid controllers



Product introduction:

The EMS-A7 series of micro grid controller is an energy management system for monitoring and controlling other devices such as PCS, batteries and smart meters in the entire micro grid system, which can be used in both on grid and off-grid modes. EMS-A7 can be used to monitor switching devices, which enable the system to switch between on grid and off-grid states, but switching commands maynot be sent by the EMS-A7.

The EMS-A7 series micro grid controllers can also be used in off-grid systems containing diesel generators.

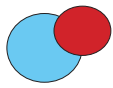
Performance characteristics

For the DC conversion protection strategy, it meets the relevant standards of the photovoltaic industry, and has but is not limited to the following protection functions:

- PV input overvoltage protection
- PV input under-voltage protection
- Output overload protection
- Output current control
- Output short circuit protection
- DC reverse protection

At the same time, according to the BMS requirements of different batteries, the battery side charging status is protected according to its control strategy, including overcharge, overdischarge, capacity protection,etc.

Model	EMS-A7
Basic configuration	
Input (AC)	100V~240Vac L/N/PE
RS485	4 path
Ethernet	1 path 100M Network port; Expandable switches
CAN	2 path
USB	1 path
Digital input	5 path
Digital output	5 path
Operation system	Linux
Other parameters	
CPU	ARM Cortex-A7, 528MHz
RAM	256MB DDR3
Hard disk	256MB
RTC	Built-in real time clock
Indicator light	Power indicator light: Always on at power up
IP grade	IP20
Size (D*W*H) mm	210*290*42
Weight	3
Installation form	Wall/rack Installation
Operating temperature (°C)	-10~60
Storage temperature (°C)	-40~85
Altitude (m)	4000
Humidity	10~90%



PV&BATTERY ENERGY STORAGE INTEGRATED

Lithium Iron Phosphate Battery PSL Series



Product introduction:

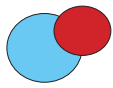
Lithium battery integrated machine, integrated lithium battery and photovoltaic inverter controller integrated machine, can realize photovoltaic and mains power supply mode, battery or bypass priority can be set, with multiple protections, such as input battery over-voltage protection, under-voltage protection, over-current protection, output under-voltage protection, over-current three-level protection (peak high current, RMS current, peak over-current soft start).

Built-in lithium battery can store excess power to meet the uninterrupted use of small outdoor equipment

Performance characteristics:

- Modular structure design, easy to assemble and maintain, and the volume is half of that of conventional lead-acid batteries
- Pure sine wave output, perfect protection function
- Optional fingerprint lock with anti-theft function
- High efficiency, low standby loss
- Standard 60A MPPT photovoltaic controller, optional 10A charger

Model	PSL-0.5/1KVA-2.5KWh	PSL VII-5KW
Input		
Rated mains input voltage(VAC)	230 Single phase	
Mains input voltage range(VAC)	170-280(Computer); 90-280(Household appliances)	
Mains input frequency range(Hz)	50/60	
Output		
Inverter output voltage(VAC)	230±5% Single phase	
Maximum efficiency	90%~93%(Peak)	94%(Peak)
Output waveform	Pure sine wave	
Switching time(ms)	10(Computer);20(Household appliances)	≤10
Peak	3:1	
Battery		
Battery type	Lithium iron phosphate	
Battery capacity(kWh)	2.5	10/20/30
Rated voltage(VDC)	48	
Charging voltage(VDC)	52.5	
Mains charging+photovoltaic charging		
Maximum photovoltaic power(KW)	3	6
MPPT range(VDC)	70-256	120-450
Maximum photovoltaic open circuit voltage(VDC)	256	500
Maximum PV charging current(A)	60	100
Maximum AC charging current(A)	10(Optional)	60
Appearance		
Dimensions(D*W*H)mm	210*510*695	301*693*(860/1325/1790)
Net weight(KG)	32	67/115/163
Communication interface	RS485	RS485 communication/mobile App(Wifi or GPRS)
Environment		
Humidity	0~95% No condensation	
Operating temperature(°C)	-10~40	
Storage temperature(°C)	-15~60	



LOW VOLTAGE SERIES LITHIUM BATTERY MODULE

GBP-L2 Power wall type lithium iron phosphate battery



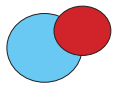
Product introduction:

The product adopts modular design, higher integration, saves installation space; adopts high-performance lithium iron phosphate positive electrode material, the battery cell has good consistency, and the designed service life is more than 10 years. One-key switch machine, front operation, front wiring, easy installation convenient maintenance and operation. Various functions, over-temperature alarm protection, over-charge and over-discharge protection, short-circuit protection, over-charge and over-discharge protection, short-circuit protection; strong compatibility, seamless connection with UPS.

Performance characteristics:

- Wall-hanging installation, save space
- Multiple in parallel, easy for expand, Automatic addressing, no need to dial a code
- Standard configuration with LCD display, real time knowing battery status, Screen direct selection of inverter communication
- Environmentally friendly non-polluting materials, free of heavy metals, green and environmentally friendly
- Standard cycle life is more than 5000 times
- Remote viewing of errors and online software upgrades

Model	GBP48V-100AH-W (optional 51.2V)	GBP48V-200AH-W(Optional 51.2V)
Nominal voltage (V)	48	
Nominal capacity (AH)	105	210
Nominal energy capacity(kWh)	5	10
Operating voltage range (V)	42-52.5	
Recommended charging voltage (V)	52.5	
Recommended discharge cut-off voltage (V)	45	
Standard charging current (A)	50	100
Maximum continuous charging current (A)	100	200
Standard discharge current (A)	50	100
Maximum discharge current (A)	100	200
Applicable temperature (°C)	-30 ~ 60 (Recommended 10~35)	
Humidity range (%rh)	0 ~ 95% No condensation	
Storage temperature (°C)	20 ~ 65 (Recommended 10~35)	
Protection level	IP20	
Cooling method	Natural air cooling	
Life cycles	5000+ times at 80% DOD	
Maximum size (D*W*H) mm	628*410*186	682*465*276
Weight (KG)	45.7	89.6



LOW VOLTAGE SERIES LITHIUM BATTERY MODULE

GBP-L1 RACK Type Lithium Iron Phosphate Battery



Product introduction:

This product is composed of high-quality lithium iron phosphate cells (by series and parallel) and advanced BMS management system. It can be used as an independent DC power supply or as a "basic unit" to form a variety of energy storage lithium battery power system. High reliability and longer life. It can be used as backup power supply of communication base station, backup power supply of digital center, household energy storage power supply, industrial energy storage power supply, etc. It can be seamlessly connected with main equipment such as UPS and photovoltaic power generation.

Performance characteristics:

- Small size and light weight
- Screen direct selection of inverter communication
- Standard cycle life is more than 5000 times
- Accurately estimate the state of charge of the battery pack, that is the remaining power of the battery, to ensure that the power of the battery pack is maintained within a reasonable range
- Multiple in parallel, easy for expand, Automatic addressing, no need to dial a code
- Easy for installation and maintenance

Model	GBP24V-200AH	GBP48V-100AH-R (optional 51.2V)	GBP48V-200AH-R(Optional 51.2V)
Nominal voltage (V)	25.6	48	
Nominal capacity (AH)	210	105	210
Nominal energy capacity(kWh)	5.3	5	10
Operating voltage range (V)	22.4-29.2	52.5	
Recommended charging voltage (V)	28		
Recommended discharge cut-off voltage (V)	24	45	
Standard charging current (A)	100	50	100
Maximum continuous charging current (A)	200	100	200
Standard discharge current (A)	100	50	100
Maximum discharge current (A)	200	100	200
Applicable temperature (°C)	-30 ~ 60 (Recommended 10 ~ 35)		
Humidity range (%rh)	0~95% no condensation		
Storage temperature (°C)	20 ~ 65 (Recommended 10 ~ 35)		
Protection level	IP20		
Cooling method	Natural air cooling		
Life cycles	5000+ times at 80% DOD		
Maximum size (D*W*H) mm	596*545*155	540*545*155	610*510*246
Weight (KG)	48	44.5	88.3



GHV1 SERIES HIGH VOLTAGE LITHIUM BATTERY STACK SYSTEM



Product introduction:

The product is mainly composed of high-quality lithium iron phosphate battery and smart energy storage inverter. When the sunlight is sufficient during the day, the excess power generation of the rooftop photovoltaic system is stored in the energy storage system, and the energy of the energy storage system is released at night to supply power for household loads, so as to achieve self-sufficiency in household energy management and greatly improve the economical performance of the new energy system. At the same time, in the event of sudden power outage/power failure of the power grid, the energy storage system can take over the electricity demand of the whole house in time. The capacity of a single battery is 5.32kWh, and the total capacity of the largest battery stack is 26.6kWh, providing a stable power supply for the family

Battery pack performance indicators

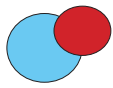
Performance	Item	Parameter	Remarks
Battery pack	Standard capacity (Ah)	52	25±2°C 0.5C, New battery state
	Rated working volt (V)	102.4	
	Power (kWh)	86.4 ~ 116.8	Temperature T>0°C, Theoretical value
	Packing size (D*W*H) mm	420*625*175	
	Weight (KG)	45	
	Self-discharging	≤3%/month	25, 50% SOC
	Battery pack internal resistance (mΩ)	19.2-38.4	New battery state 25°C±2°C
	Staticvoltage difference (mV)	30	25°C, 30% ≤ SOC ≤ 80%

GLV1 SERIES LOW-VOLTAGE LITHIUM BATTERY STACK SYSTEM



Product introduction:

This product is mainly composed of high-quality lithium iron phosphate battery module and intelligent PDU. When there is sufficient sunlight during the day, the excess power generated by the rooftop photovoltaic system will be stored in the energy storage system, and the energy from the battery is released at night to supply power for household loads, so as to achieve self-sufficiency in household energy management, the economy of the new energy system is greatly improved. At the same time, in case of sudden power outage/power failure of the power grid the energy storage system can take over the electricity demand of the whole house in time. With a single battery capacity of 5kWh/10kWh and a maximum stacked capacity of 20kWh/40kWh , the system can be used seamlessly with mains equipment such as photovoltaic power generation, as well as with a UPS to provide a table power supply for home.



MODULAR OUTDOOR INTEGRATED CABINET

PSO50-80/100-200 Modular outdoor integrated cabinet



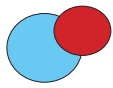
Product introduction:

The modular energy storage integrated cabinet can achieve efficient and safe design of building blocks from 100KWH small energy storage unit to MWH large-scale energy storage power station, solving the industry common problems such as low system safety, high parallel loss rate, short system life and so on existing in the traditional centralized energy storage solution, and defining a new solution for energy storage system integration.

Performance characteristics:

- Highly integrated. All in one, factory prefabricated design. Flexible deployment, plug and play
- Safe and efficient. High efficient neutral point clamped topological structure. Support EMS and BMS system linkage
- Intelligent and friendly. Programmable working mode, touch screen control. Support photovoltaic AC coupling, DC coupling access
- Grid friendly. Equipped with four-quadrant adjustment function for active and reactive power. Equipped with LVRT and HVRT functions

Model	PSO-50-80	PSO-100-200
Efficiency		
Maximum efficiency	95%	
Battery cluster parameters		
String formation method	8S	14/16S
Rated voltage (V)	768	672/768
Working voltage (V)	696-852	609-745.5/696-852
Rated capacity (kWh)	80	150-240
Support charging and discharging power	≤1C	
AC grid connection parameters		
Grid connection	3 phase 4 wires/ 3 phase 3 wires	
Rated output power (KW)	50	100
Maximum apparent power (KVA)	55	110
Grid voltage range (V)	400±15%	
Rated grid frequency (Hz)	50/60	
Maximum output current (A)	145	
Adjustable power factor	-0.99 ~ +0.99	
Maximum total current harmonic distortion rate	< 3	
AC off-grid parameters		
Rated output power (KW)	50	100
Maximum apparent power (KVA)	55	110
Rated output voltage (V)	400	
Rated grid frequency (Hz)	50/60	
Other parameters		
Working temperature range (°C)	-25 ~ +55	
Humidity (% RH)	0 ~ 95, non-condensing	
Altitude (m)	4000 (De-rating power from 2000)	
Cooling Type	Industrial air conditioning (battery storage)/Intelligent Air cooling (electrical storage)	
Display	10 inch display screen	
Communication	CAN/485/TCP IP	
Weight (KG)	2000	3600
Size (D*W*H) mm	900*1500*2300	900*2230*2300
Protection grade	IP54 (Key device IP65)	



LOW VOLTAGE SERIES LITHIUM BATTERY MODULE

GBP-L1 RACK Type Lithium Iron Phosphate Battery



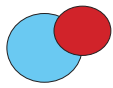
Product features:

- Equipped with a touchable screen to visually display the operating status of the battery pack
- Modular convenient installation
- Cycle life of over 5000 cycles
- With low power consumption mode, one-key restart is guaranteed within 5000 hours during standby, and data is retained
- Full life cycle fault and data recording, remote viewing of error reports, online software upgrades and GPS positioning.

Product advantage:

- Modular design, higher integration, saving installation space
- High-performance lithium iron phosphate cathode material, with good consistency of the core and a design life of more than 10 years
- One-touch switching, front operation, front wiring, ease of installation, maintenance and operation
- Various functions, over-temperature alarm protection, over-charge and over-discharge protection, short-circuit protection
- Highly compatible, seamlessly interfacing with mains equipment such as UPS and photovoltaic power generation, various forms of communication interfaces, CAN/RS485 etc. can be customized according to customer.
- Requirements, easy for remote monitoring. Flexible using range, can be used as a stand-alone DC power supply
- Specification of energy storage power supply systems and container energy storage systems

Model Number	GBP9650	GBP48100	GBP32150	GBP96100	GBP48200	GBP32300
Cell version (Ah)	52			105		
Nominal power(kWh)	5	5	5	10	10	10
Nominal capacity(Ah)	52	104	156	105	210	315
Operating voltage range (VDC)	96	48	32	96	48	32
Operating temperature(°C)	87-106.5	43.5-53.2	29-35.5	87-106.5	43.5-53.2	29-35.5
IP grade	IP21					
Reference weight (KG)	47.1			86.6		
Reference size (D*W*H) mm	630*475*162			640*510*252		
Note: Battery pack is used in a system, cycle life≥5000, under working condition of 25°C 80% DOD						



CONTAINER ENERGY STORAGE SYSTEM

20FT AND 40FT CONTAINERS

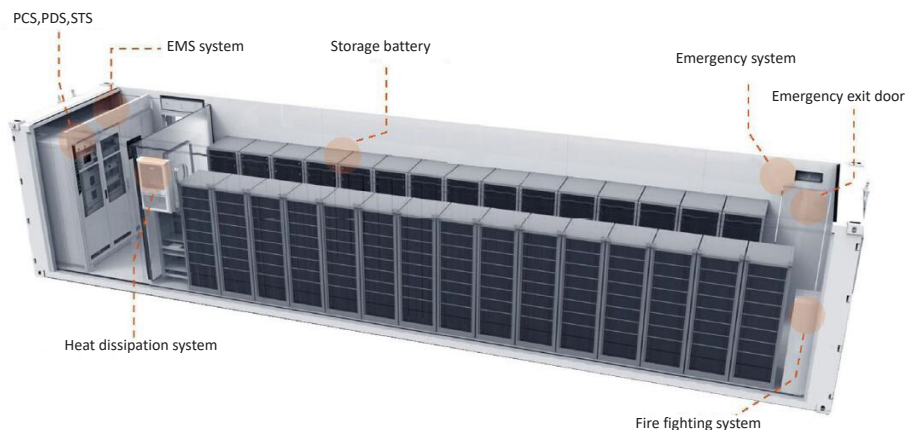


Product introduction:

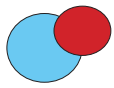
The containerized energy storage system includes :Battery management system (BMS), Power conversion system(PCS), Power distribution system(PDS), Micro-grid switching system(STS), Energy management system(EMS), and Auxiliary power distribution system, air conditioning system, fire protection system. It is widely used in scenarios such as power security, peak shaving and valley filling, new energy consumption and grid load smoothing.

Performance characteristics:

- Flexible configuration of battery system types and capacities according to customer requirements
- The PCS has a modular architecture, simple maintenance and flexible configuration, allowing for myltiple parallel machines support parallel and off-grid operation mode, seamless switching
- Black start support
- EMS unattended system, locally controlled, cloud-monitored operation, with highly customized features
- Various modes including peak and valley reduction, demand response, backflow prevention, back-up power, command response, etc
- Complete gas fire extinguishing system and automatic fire monitoring and alarm system with audible and visual alarm and fault uploading
- Complete thermal and temperature control system to ensure that the battery compartment temperature is within the optimum operating range
- Access control system with remote control and local operation



Model	20ft	40ft
Output volt (V)	380/400 ±15%	
Gird frequency (Hz)	50/60 (±2.5)	
Output power (KW)	50-300	250-630
Battery capacity (kWh)	200-600	600-2000
LiFePO4		
Size (m)	Inside size (D*W*H) : 2.352*5.898*2.385 Outside size (D*W*H): 2.438*6.058*2.591	Inside size (D*W*H) : 2.352*12.032*2.385 Outside size (D*W*H) : 2.438*12.192*2.591
Protection level	IP54	
Humidity (% rh)	0-95	
Altitude (m)	3000	
Working temperature (°C)	-25 ~ 50	
Battery volt range (V)	500 -850	
Max. DC current (A)	500	1000
Connect method	3P 4W	
Power factor	-1 ~ 1	
Communication method	RS485, CAN, Ethernet	
Isolation method	Low frequency isolation with transformer	



Japan 700KW



Japan 300KW



Japan 224KW



Japan 76KW



Japan 13KW



Japan 100KW



Japan 250KW



Italy 900KW



Tahiti 6KW



New Zealand 10KW



Sweden 14.76KW



Sweden 15.58KW



Sweden 15.99KW



Sweden 85.28KW



Iraq 39.6KW-15.12kWh



Indonesia 5KW-10.24kWh

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