

PV & BATTERY ENERGY STORAGE INTEGRATED MACHINE

Lithium Iron Phosphate Battery GSL Product Series



GSL-0.5/1KVA-2.5KWh



GSL-3/5KVA-10KWh

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 AC charger.

Technical parameters

Model	GSL-0.5/1KVA-2.5KWh		GSL-3/5KVA-10KWh	
Input				
Nominal input volt	230 VAC single phase			
Option input volt range	170-280 VAC (computer) ; 90-280 VAC (home appliance)			
Input frequency range	50 Hz/60 Hz			
Output				
Nominal output volt (Bat mode)	230VAC ± 5% single phase			
Surge power	10000VA			
Max. efficiency	90%~93%			
Output waveform	Pure sine wave			
Switch time	10 ms (Computer) ; 20 ms (Home appliance)			
Peak	3:1			
Battery				
Lithium type	LiFePO4			
Battery capacity	Standard 50AH		Standard 100~200AH (100AH~300AH Option)	
Nominal bat volt	48VDC			
Charging volt	52.5VDC			
AC charging+PV charging				
Charging type	MPPT			
Max. PV power	1KW		3KW	
MPPT range	60-115VDC			
Max. PV open circuit volt	150V			
Max. PV charging current	60A			
Max. AC charging current	10A			
Size				
Size (W*D*H mm)	510*210*695		700*300*1200	
Net weight	32Kg		143Kg	
Communication interface	RS232			
Ambient				
Humidity	0 ~ 95% No condensation			
Working temperature	-10℃ ~ 50℃			
Storage temperature	-15℃ ~ 60℃			

The above data are for reference only and are subject to change without prior notice. Special voltage can be customized.

PV INVERTER & CONTROLLER INTEGRATED MACHINE

Single-phase power frequency GSA series



Product introduction

The photovoltaic control and inverter integrated machine (hereinafter referred to as the inverter control integrated machine) 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.

This series of integrated control and inverter power supplies is the first choice to solve the daily electricity consumption of residents in areas without public power grids or underdeveloped power grids.

Performance characteristics

- MPPT charge controller (500W and 1000W are PWM controllers), with high utilization of photovoltaic modules;
- 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;
- With AC interface/Diesel input interface(Optional);
- AC charger function (Optional).

Technical parameters

Model		GSA96	GSA192/220	
Output Power(KVA)		6/8	6/10/15	20/25/30
Battery				
Rated Voltage (VDC)		96	220	
Low Voltage Protective Value(VDC)		86.4	194.4	
Low voltage recovery value(VDC)		104.0	234.0	
Over voltage protective value(VDC)		124.0	279.0	
Over voltage recovery value(VDC)		120.0	270.0	
PV Input				
Maximum Input Power(KWP)		5.7	12.8/25.6	
Maximum Charge Current(A)		50/100		
Start Voltage(VDC)		120	270	
MPPT Voltage Range(VDC)		110-280	260-450	
Maximum Open Circuit Voltage(VDC)		300	480	
Floating Voltage(VDC)	Adjustable	108.0	243.0	
Bulk Charge Voltage(VDC)		113.6	255.6	
Ac bypass(Optional)				
Allowable Input Voltage Range(VDC)		220±15%/110±15%Other input voltage can be customized)		
Input Frequency(HZ)		50/60±3%		
AC charger		Optional		
AC Output				
Output Waveform		L+N Pure Sine Wave		
Output Voltage		220VAC±1%; 110VAC±1% (Other output voltage can be customized)		
Output Frequency(HZ)		50/60±1%		
Output waveform distortion rate (THD)		≤2% (Liner Load)		
Convert Efficiency(80% Resistive load)		≥85%		
Current Peak Factor		3:1		
Overload Ability		105-110%, 600Seconds; 110-125%, 60Seconds; >125%, 1Second		
Display Method		LCD+LED		
Protection		Input reverse protection; Input low voltage protection; Input over voltage protection; Output overload protection; Output short circuit protection(do not recovery automatically need to restart machine); Machine over heating protection.		
Communication Function		Optional		
surroundings				
Protective Level		IP20		
Applied Altitude (M)		≤5000 (above1000meters,rated power derating1% every 100meters)		
Allowable relative humidity		<95% Non-condensation		
Environment temperature(℃)		-10 ~ +50		
Noise (1 Meter)		≤50dB		
Size and weight				
D*W*H(mm)		650*310*770	650*310*770	690*405*980
Weight(KG)		55	55-100	135-155

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PV INVERTER & CONTROLLER INTEGRATED MACHINE

Three phase power-frequency GSA model series

Product introduction

Solar photovoltaic control and inverter integrated power supply is a new generation of special 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 solar photovoltaic power generation systems. High quality and high reliability requirements of power supply equipment. The system uses photovoltaic cells to convert light energy into electric energy, and charges the battery through the charging circuit. At the same time, the battery supplies power to the inverter part, and the inverter part supplies the AC power to the AC load.

This series control inverter integrated power supply, with wide input DC voltage and constant output voltage and frequency. The products are widely used in households, substations, communication service industries or comprehensive system power generation, etc., and can realize real-time and online observation of remote data through remote communication functions. They are the core products in modern new energy power generation systems.



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

Technical parameters

Model	GSA-10KVA3	GSA-20KVA3	GSA-30KVA3	GSA-40KVA3	GSA-50KVA3	GSA-60KVA3
Nominal capacity	10KVA	20KVA	30 KVA	40 KVA	50 KVA	60 KVA
AC input						
Phase	Three phase+N+G					
Volt range	380/400VAC±20%					
Frequency range	50/60Hz±5%					
Soft-start	0 ~ 100% 5sec					
PV input						
MPPT volt range	230—450VDC					
Max. Open circuit volt	480VDC					
Input paths	1/2					
Rated power	10KW/20KW					
Full charge protection volt	The battery voltage can be set according to the actual configuration					
Floating volt	The battery voltage can be set according to the actual configuration					
DC						
Nominal volt	192/220/240VDC					
Inverter						
Phase	Three phase+N+G					
Nominal volt	380VAC/400VAC					
Nominal frequency	50±0.5 Hz (Powered on by battery)					
Frequency Stability	< ±0.5 Hz (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% 10min, 150% 1min					
System						
Communication interface	RS232/RS485(USB、Network remote monitoring Option)					
interface and instructions	7-inch color touch screen, LED status indication, dry contact					
Operating environment	Temperature: 0 ~ 40℃; Relative Humidity: 20% ~ 90% (non-condensing); <1000 meters (power decreases by 1% for every 100 meters, maximum 4000 meters)					
cooling method	Forced ventilation					
Noise dB	(According to load size and ambient temperature) 40 ~ 65					
Size (W×D×Hmm)	600*600*1600			800*600*2000		

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PV INVERTER & CONTROLLER INTEGRATED MACHINE

High frequency GSI series



Product introduction

GST series inverter& controller is a pure sine wave photovoltaic off-grid power generation equipment integrating the functions of photovoltaic controller, mains charger and high-frequency inverter.

The battery is charged through the controller or the mains charger, and the battery supplies power to the inverter part, which then supplies the 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 personal computer
- Selectable charging current
- 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

Technical parameters

Model	GST48-1K	GST48-2K	GST48-3K	GST48-5K	GST24-0.5K	GST24-1K	GST24-2K	GST24-3K
Output voltage	1KVA	2KVA	3KVA	5KVA	0.5KVA	1KVA	2KVA	3KVA
Battery type (optional)								
Rated voltage(VDC)	48V				Lead-acid battery 24V, lithium battery 25.6V (default setting)			
Under voltage protection point (VDC)	Lead-acid battery 42V, lithium battery 46V (default setting)				Lead-acid battery 21V, lithium battery 23.6V (default setting)			
Under voltage Recovery Point (VDC)	Lead-acid battery 51.5V, lithium battery 51V (default setting)				Lead-acid battery 25.5V, lithium battery 26.5V (default setting)			
Over voltage Protection Point (VDC)	Lead-acid battery 58V, lithium battery 53V (default setting)				Lead-acid battery 27.5V, lithium battery 27.8V (default setting)			
Over voltage Recovery Point (VDC)	Lead-acid battery 56V, lithium battery 52V (default setting)				Lead-acid battery 27V, lithium battery 27V (default setting)			
PV input								
PV input power (W)	1500W (default)/3000W (optional)				1200W (default)/2400W (optional)			
Way of working	MPPT/PWM							
Starting voltage (VDC)	>53							
Voltage range(VDC)	53-150/53-94							
Maximum open circuit voltage (VDC)	150/94							
Float voltage (VDC)	52-54/53-56							
Equalizing Voltage (VDC)	53V							
Mains bypass (optional)								
Input voltage allowable range (Vac)	220±15%							
Input frequency (Hz)	50/60±3%							
Mains charging (optional)								
Mains charging current (A)	10							
AC output								
output waveform	L+N pure sine wave							
Output voltage	220VAC±3%							
Output frequency	50/60±1%							
Output waveform distortion (THD)	≤5% (linear load)							
Inverter efficiency	≥91%							
Current crest factor	1.5:1							
Overload capacity	10% 1 minute							
Display method	LCD+LED/LED							
Protective function	Input under-voltage protection, input over-voltage protection, output overload protection, output short-circuit protection (no automatic recovery, need to restart the machine), machine overheat protection.							
Environment								
Protection class	IP20							
Altitude (m)	≤5000 (1% derating for every 100m above 1000m)							
Allowable relative humidity	<95% non-condensing							
Ambient temperature (℃)	-10 ~ +55							
Noise (1m)	≤50dB							
Communication								
Communication method	CAN, RS232, RS485, Wi-Fi, GPRS							
Max. size(W*D*Hmm)	360*126*600							
Weight (KG)	9							

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OFF GRID INVERTER

GSI series single phase inverter



Product introduction

GSI 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 and reliability 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; reverse polarity 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, fluorescent lamps, gas lamps, etc.; it can drive almost all loads;
- Intelligent empty load automatic sleep function.

Technical parameters

Model	GSI96	GSI220
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)	104.0	234.0
Over voltage protection value(VDC)	124.0	279.0
Over voltage recovery value(VDC)	120.0	270.0
Mains bypass (optional)		
Input voltage allowable range (Vac)	220±15%	
Input frequency(Hz)	50/60±3%	
Mains charging	Optional	
AC output		
Output waveform	L+N Pure sine wave	
output voltage	220VAC±1%	
Output frequency(Hz)	50/60±1%	
Output waveform distortion rate	≤2% (Liner load)	
Inverter efficiency	≥85%	
Current peak factor	3:1	
Overload capacity	105-110%, 600seconds; 110-125%,60seconds; >125% 1second	
Display method	LCD+LED	
Protective function	Input reverse connection protection, input undervoltage protection, input overvoltage protection, output overload protection, Output short circuit protection (not automatically restored, the machine needs to be restarted), machine overheating protection.	
Communication function	RS485/GPRS (Optional)	
Environment		
Protection level	IP20	
Operating altitude (m)	≤5000 (1% derating for every 100m above 1000m)	
Allowable relative humidity	<95% No condensation	
Environment temperature (℃)	-10 ~ +50	
Noise (1 meter)	≤50dB	
Volume and weight		
Dimensions(W*D*H mm)	650*310*770/690*405*980	
Weight (Kg)	75-80	75-90/110-130

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OFF GRID INVERTER

GSI series three phases inverter



Product introduction

This series of three-phase off-grid inverters are high-efficiency and high-performance three-in-three-out inverter products. They are a 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 optionas 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.

Technical parameters

Rated power(KVA3)	GSI 10/15/20/30 KVA3	GSI 40/50/60 KVA3	GSI 80/100/120 KVA3	GSI 160/200 KVA3	GSI 250/300 KVA3
Rated DC voltage(VDC)	220/360/384	220/360/384	360/384	360/384	384
Phase	Three phases+N+G				
Nominal voltage	380VAC/400VAC				
Nominal frequency	50/60Hz				
Frequency stability: when out of sync	<±0.05%				
Frequency stability: when synchronized	<±5%				
Current peak factor	3:1				
Output waveform	Pure sine wave				
THD	Liner load < 3%; Non-liner load < 5%				
Dynamic load voltage transients (from 0 to 100%)	<±5%				
Load voltage	<±3%(Balanced Load); <±5% (unbalanced load)				
Overload capacity	125%10min, 150%1min				
Inverter efficiency,load 100%	>92%				
Computer communication interface	RS232 (485 Network remote monitoring Optional)				
Operating temperature	0~40℃				
Relative Humidity (No condensation)	20%~90%				
Altitude	≤5000 (above 1000meters, rated power derating1% every 100meters)				
Cooling	Forced cool air				
Noise dB	45~65 (1m from the machine)				
Color	Black(Optional)				
Weight (kg)	190-340	450-750	750-950	1100-1600	1800-2300
Dimension(W*D*H mm)	600*600*1600	800*600*1600	805*800*1800	1005*900*1800	1100*1340*1920

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LOW VOLTAGE LITHIUM BATTERY MODULE

GBP-L1 Model Series 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 systems. 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
- Maintenance-free
- 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
- Easy for installation and maintenance

Technical parameters

Model	GBP24V-200AH	GBP48V-100AH-R (Voltage Optional 51.2V)	GBP48V-200AH-R (Voltage Optional 51.2V)
Nominal Voltage (V)	24	48	
Nominal capacity (AH)	210	105	210
Nominal energy capacity (KWH)	5.04	5.04	10.08
Operating voltage range	22.4-30	42-56.25	
Recommended charging voltage (V)	27.6	51.75	
Recommended discharge cut-off voltage (V)	24	45	
Standard charging current (A)	50	25	50
(A)Maximum continuous charging current (A)	100	50	100
Standard discharge current (A)	50	25	50
Maximum discharge current (A)	100	50	100
Applicable temperature (°C)	-30°C ~ 60°C (Recommended 10°C ~ 35°C)		
allowable humidity range	0 ~ 95% no condensation		
Storage temperature (°C)	-20°C ~ 65°C (Recommended 10°C ~ 35°C)		
Protection level	IP20		
cooling method	natural air cooling		
Life cycles	5000+ times at 80% DOD		
Maximum size (W*D*H)mm	545*600*156	545*540*156	465*682*252
Weight	50KG	50KG	90KG

Remarks: The above data are for reference only and are subject to change without prior notice. Special voltage can be customized.

LOW VOLTAGE LITHIUM BATTERY MODULE

GBP-L2 model series Power wall type lithium iron phosphate battery



Right angle



Rounded

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; strong compatibility, seamless connection with UPS, photovoltaic power generation and other main equipment; various forms of communication interfaces. CAN/RS485, etc. can be customized according to customer needs, which is convenient for remote monitoring and flexible use of the system. High-energy, low-power lithium-ion battery equipment achieves higher energy supply, lower energy consumption, and reduces environmental pollution; all-round, multi-level battery protection strategies and fault isolation measures are adopted to ensure the safe operation of the system.

Performance characteristics

- Wall-hanging installation,save space
- Multiple in parallel, easy for expand
- Easy for installation and maintenance
- Standard configuration with LCD display, real time knowing battery status
- 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

Technical parameters

Type	GBP48V-100AH-W (Voltage Optional 51.2V)	GBP48V-200AH-W (Voltage Optional 51.2V)
Nominal Voltage (V)	48	
Nominal capacity (AH)	105	210
Nominal energy capacity (KWH)	5	10
Operating voltage range	42-56.25	
Recommended charging voltage (V)	51.75	
Recommended discharge cut-off voltage (V)	45	
Standard charging current (A)	25	50
Maximum continuous charging current (A)	50	100
Standard discharge current (A)	25	50
Maximum discharge current (A)	50	100
Applicable temperature (℃)	-30℃ ~ 60℃(Recommended 10℃ ~ 35℃)	
allowable humidity range	0 ~ 95% no condensation	
Storage temperature (℃)	-20℃ ~ 65℃(Recommended10℃ ~ 35℃)	
Protection level	IP20	
cooling method	natural air cooling	
Life cycles	5000+ times at 80% DOD	
Maximum size (W*D*H)mm	410*630*190	465*682*252
Weight	50KG	90KG

Remarks: The above data are for reference only and are subject to change without prior notice. Special voltage can be customized.

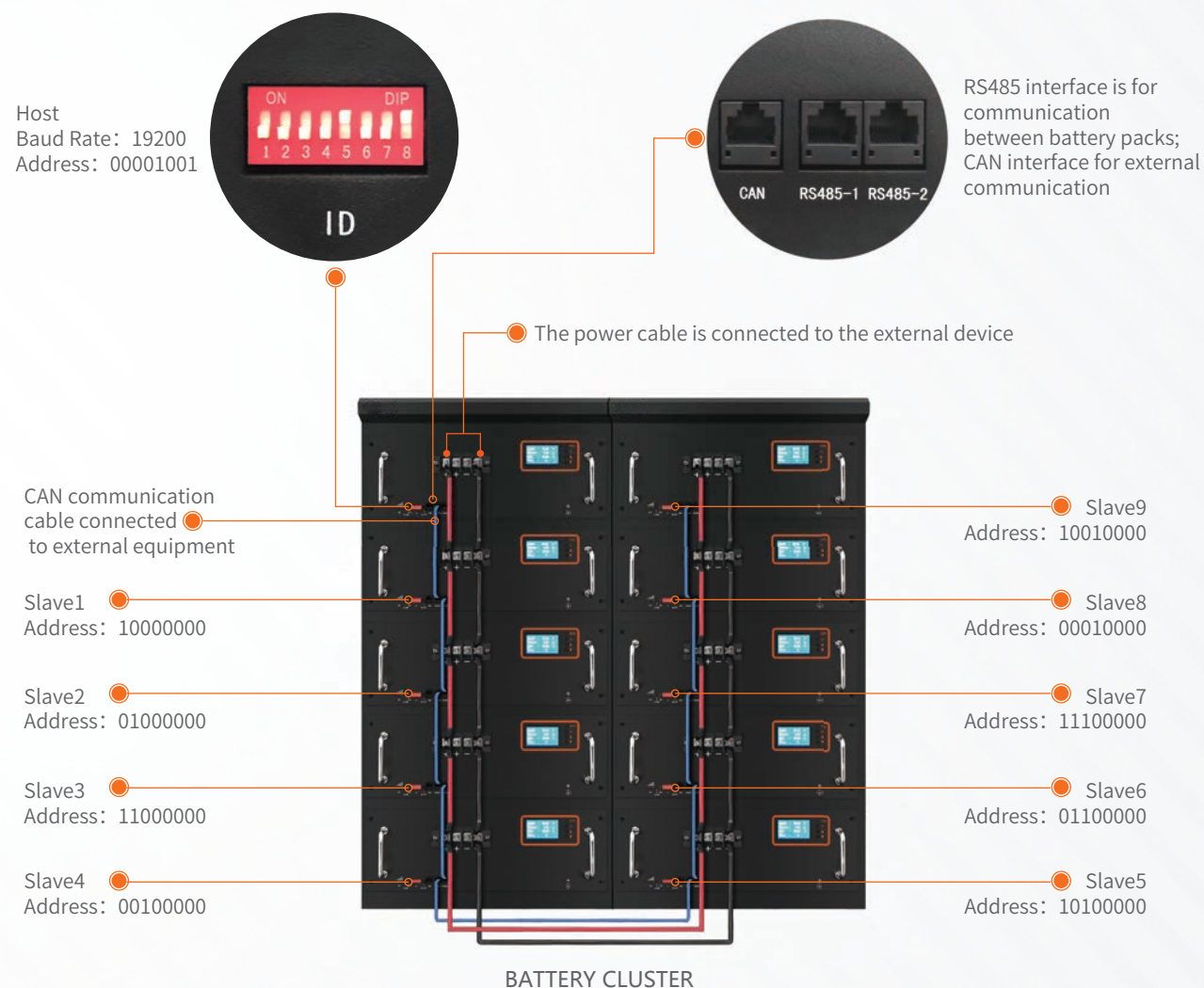
LOW VOLTAGE LITHIUM BATTERY MODULE

low-voltage multi-parallel system

The above low-voltage series battery pack can be paralleled by dialing the address. The RS485 communication cable is connected to each battery pack, and the RS485 output interface can be connected to the host computer. The CAN interface is used for external communication, and can be connected in parallel at most 16 battery packs.



Battery packs



The above is the connection scheme of 10 battery packs in parallel, the system supports up to 16 parallel

LOW VOLTAGE LITHIUM BATTERY MODULE

Household stacked lithium battery 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 a 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.



Technical parameters

Model	GHV1-5.32	GHV1-10.64	GHV1-15.96	GHV1-21.28	GHV1-26.6
Battery module	BAT-5.32(32S1P102.4V52Ah)				
Module number	1	2	3	4	5
Rated power[kWh]	5.32	10.64	15.96	21.28	26.6
Module Size (W*D*Hmm)	625*420*450	625*420*625	625*420*800	625*420*975	625*420*1150
Weight[kg]	50.5	101	151.5	202	252.5
Rated volt[V]	102.4	204.8	307.2	409.6	512
Working volt[V]	89.6-116.8	179.2-233.6	268.8-350.4	358.4-467.2	358.4-584
Charging volt[V]	115.2	230.4	345.6	460.8	576
Standard charging current[A]	25				
Standard discharging current[A]	25				
Control module	PDU-HY1				
Working temperature	Charge:0-55°C;Discharge:-20-55°C				
Working ambient humidity	0-95% No condensation				
Cooling method	Natural heat dissipation				
Communication method	CAN/485/Dry-contact				
Bat volt range[V]	179.2-584				

LITHIUM BATTERY ENERGY STORAGE SYSTEM

GBP-H2 Lithium battery cluster energy storage system



▲ High voltage box



▲ Battery pack



▲ Battery clusters

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; strong compatibility, seamless connection with UPS, photovoltaic power generation and other main equipment; various forms of communication interfaces. CAN/RS485, etc. can be customized according to customer needs, which is convenient for remote monitoring and flexible use of the system. High-energy, low-power lithium-ion battery equipment achieves higher energy supply, lower energy consumption, and reduces environmental pollution; all-round, multi-level battery protection strategies and fault isolation measures are adopted to ensure the safe operation of the system.

Product advantages

- 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, or as a basic unit to form a variety of specifications of energy storage power supply systems and container energy storage systems. Can be used as a backup power supply for communication base stations, backup power supply for digital centers, home energy storage power supply, industrial energy storage power supply, etc.

Performance characteristics

- Equipped with a touchable screen to visually display the operating status of the battery pack
- Modular convenient installation
- Special voltage, flexible matching of capacity system
- 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;
- Fault and data records of the whole life cycle, remote viewing of errors, online software upgrades.

Technical parameters

Model Number	GBP9650	GBP48100	GBP32150	GBP96100	GBP48200	GBP32300
Cell version	52AH			105AH		
Nominal power (KWH)	5	5	5	10	10	10
Nominal capacity(AH)	52	104	156	105	210	315
Nominal voltage (VDC)	96	48	32	96	48	32
Operating voltage range(VDC)	87-106.5	43.5-53.2	29-35.5	87-106.5	43.5-53.2	29-35.5
Operating temperature	-20~65℃					
IP grade	IP20					
Reference weight(Kg)	50			90		
Reference size (D*W*H mm)	475*630*162			510*640*252		

Note: Battery pack is used in a system, cycle life≥5000, under working condition of 25℃ , 80%DOD.
Systems with different voltage capacity levels can be configured according to battery pack specifications

ON/OFF GRID SOLAR SYSTEM

GPCS Energy storage converter

Product introduction

GSO GPCS50/100/150/250K 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. GPCS500/630K 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' needs.
- **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.



Technical parameters

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

Remarks: The above data are for reference only and are subject to change without prior notice. Special voltage can be customized.

ON/OFF GRID SOLAR SYSTEM

GPG2 PV&Battery energy storage integrated machine

Product introduction

GSO GPG2 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.

Technical parameters

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

Remarks: The above data are for reference only and are subject to change without prior notice. Special voltage can be customized.

ON/OFF GRID SOLAR SYSTEM

GDS DC ConverterGDS DC Converter

Product introduction

The GDS400KW 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: 250-650V; output voltage range to battery: 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.



Technical parameters

Rated power	400kW
Low voltage side connected to PV input	
HVDC bus voltage	750V (【 Low side voltage+40V 】 ~850V)
HVDC bus current	67A*8 (maximum 100A*8)
DC bus power	50kW*8
Low voltage charge and discharge voltage	500V (250V-840V)
Low voltage charge and discharge current	100A*8 (maximum 120A*8)
The low voltage side is connected to the battery input	
HVDC bus voltage	750V (【 Low side voltage+40V 】 ~850V)
HVDC bus current	67A*8 (maximum 100A*8)
DC bus power	50kW*8
Low voltage charge and discharge voltage	500V (250V-840V)
Low voltage charge and discharge current	100A*8 (maximum 120A*8)
System parameters	
Protection	Over temperature protection, overload protection, emergency stop protection, fan failure protection
Maximum efficiency (refer to the efficiency curve)	98.6% Up to 98.6%
Isolation	No isolation
Refrigeration	Forced air cooling
Noise	≤70dB
Communication method	RS485/Can/Ethernet network port
Operating temperature	-20℃-50℃ (Derating above 45℃)
Working humidity	0~95% (no condensation)
Altitude	3000m
Protection class	IP20
Size (W*H*D)	1100*2060*800mm
Weight	600kg
Certification	
Certificate	UL Certification(module)

Remarks: The above data are for reference only and are subject to change without prior notice. Special voltage can be customized.

ON/OFF GRID SOLAR SYSTEM

PWD on-grid and off-grid switch cabinet system

Product introduction

The PWD 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 PWD 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 one 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.



Technical parameters

Index item\model	PWD-800KW
rated power	800KW
Rated voltage	400V
Input voltage range	-25%~15%
Output voltage range	-25%~15%
Rated input current	1155A
Maximum input current	1270A (1.1 times)
Rated frequency	50Hz/60Hz
Frequency Range	47~52Hz/57~62Hz
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 road
Maximum load switching power	300KW (RCD load, pure capacitive or inductive load is less than 100KW)
Wiring	Three-phase four-wire system
Protection	System protection: over temperature, AC over and under voltage, AC reverse sequence, emergency shutdown, fan failure, output overload. The safety protection conditions can be set, and the setting parameters include: upper limit of AC voltage protection, lower limit of AC voltage protection, AC frequency protection upper limit, AC frequency protection lower limit.
Host computer communication method	ModBus TCP/IP protocol
Communication Interface	Ethernet port/RS485
Cabinet Size (W*H*D mm)	800*800*2160
Noise	70dB
temperature range	-20~45°
height	3000M
humidity	0~95%
weight	300KG

Introduction of STS Microgrid Controller

The micro-grid controller (STS) consists of four parts: fast switching, high-precision detection, logic 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).

STS microgrid controller technical parameters

project	STS-100K	STS-200K	STS-300K	STS-800K	Remark
Input voltage range	340-460Vac	340-460Vac	340-460Vac	340-460Vac	
Rated output voltage	400V	400V	400V	400V	
Rated output current	153A	306A	459A	1215A	
communication method	CAN	CAN	CAN	CAN	internal use
size (W*H*D mm)	585*482*220	585*482*220	585*482*220	800*2160*800	
by way	Integrated in PCS	Integrated in PCS	Integrated in PCS	Single cabinet	

The above data are for reference only and are subject to change without prior notice. Special voltage can be customized.

ENERGY STORAGE SYSTEM CONTAINER

GBP Lithium battery cluster energy storage system



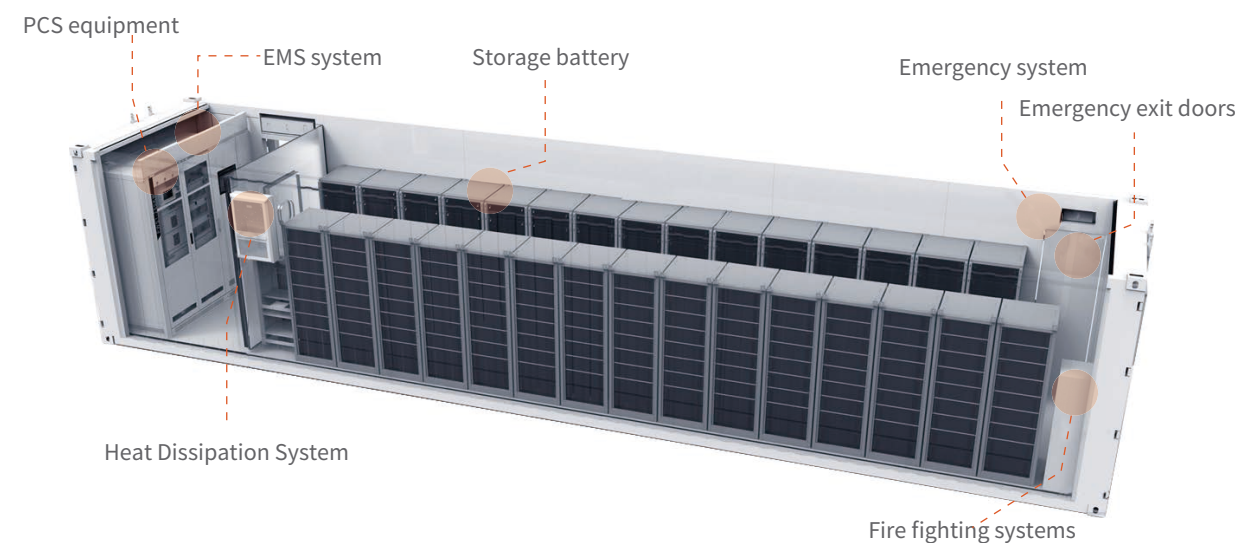
Product introduction

The container energy storage system includes: energy storage battery system, PCS booster system, fire fighting system, monitoring system, etc. It is widely used in scenarios such as power security, back-up power, peak shaving and valley filling, new energy consumption and grid load smoothing, etc.

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 multiple 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.

Energy storage container structure distribution map



Technical parameters

Model	20ft	40ft
Output volt	400V/480V	
Grid frequency	50/60Hz(±2.5Hz)	
Output power	50-300kW	250-630kW
Bat capacity	200-600kWh	600-2MWh
Bat type	LiFePO4	
Size	Inside size (L*W*H):5.898*2.352*2.385	Inside size (L*W*H)::12.032*2.352*2.385
	Outside size (L*W*H):6.058*2.438*2.591	Outside size (L*W*H):12.192*2.438*2.591
Protection level	IP54	
Humidity	0-95%	
Altitude	3000m	
Working temperature	-20~50℃	
Bat volt range	500-850V	
Max. DC current	500A	1000A
Connect method	3P4W	
Power factor	-1~1	
Communication method	RS485,CAN,Ethernet	
Isolation method	Low frequency isolation with transformer	