Product Specification

Model: YR-GJY125-L3-241

Customer:

Notes: After the sample is confirmed by the customer, detailed discussions must be held regarding technical specifications, interfaces, communication protocols, label, package, and other particulars for the production. This specification shall be confirm to enable our factory to proceed with manufacturing, inspection, and shipment Any modifications by either party must be notified to the other and this specification sheet shall be re-signed accordingly.

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Revision History

Version	Record	Prepared by	Approved	Date
A/0	First version	Li Qiqi		

1.Key Information

1.1 Scope

This installation and operation manual applies to modular battery energy storage systems. Please read this manual carefully to ensure the reliable operation of the equipment,installation, commissioning, and maintenance, which must be performed by qualified and authorized personnel. Please place this installation and operation manual and other applicable documents near the battery so that all personnel involved can refer to this installation and operation manual at any time.

This installation and operation manual is only applicable to countries/regions that meet the certification requirements. Please comply with applicable local laws, regulations, and standards. Standards and legal regulations in other countries may differ from the provisions and specifications outlined in this manual. In such cases, please contact our after-sales service.

1.2 System Component

Item	Quantity	Parameter
Battery Module	15	51.2V/314Ah
Main Control Box	1	1500V/250A
Cabinet	1	1200×1500×2350mm
Hybrid Inverter	1	125kW

1.3 Security Information

⚠ Danger! Failure to follow safety instructions could result in life-threatening situations

1. Improper use may cause safety incidents. Operators of this equipment must read this manual and comply with all safety information.
2. Operators must adhere to the specifications outlined in this manual.
3. This manual cannot cover all possible scenarios. Therefore, applicable standards and relevant occupational health and safety regulations always take precedence.

4. Furthermore, installation may pose safety hazards under the following circumstances:

4. Incorrect installation.
5. Installation performed by personnel without relevant training or instruction.
6. Failure to comply with warnings and safety information in this manual.

1.4 Disclaimer

Our company will not be liable for personal injury, property damage, product damage, or subsequent losses in the following circumstances.

1. Failure to comply with the provisions of this manual.
2. This product is used improperly.
3. Unauthorized or unqualified personnel repair products, disassemble racks, and perform other operations.
4. Use of unauthorized accessories.
5. Unauthorized action or technical modification of the product.

1.5 Correct Use

1. Battery energy storage systems can only be installed and operated in enclosed spaces. The operating ambient temperature range is -20℃~55℃, with a maximum humidity of 85%. The battery module should not be exposed to sunlight or placed directly next to a heat source
2. The battery module must not be exposed to corrosive environments.
3. When installing the battery storage system, ensure it is placed on a sufficiently dry and flat surface with adequate load-bearing capacity. Without written approval from the manufacturer, the height of installation site must not exceed 2000 meters. Battery output power decreases with increasing altitude.
4. In areas where flooding is possible, be careful to ensure that the battery module is installed at the appropriate height and to prevent it from water.
5. The battery energy storage system must be installed in a fireproof room. This room must be free of any source of ignition and must be equipped with independent fire-fighting devices.

6. Complying with the specifications in this manual is also part of proper use. This battery storage system must not be used in the following situations.
7. In common application scenarios, the operating strategies of photovoltaic storage systems are as follows:

Peak Shaving and Valley Filling:

During valley periods of time-of-use electricity pricing: The energy storage cabinet automatically charges and enters standby mode once fully charged.

During peak periods of time-of-use electricity pricing: The energy storage cabinet automatically discharges, enabling arbitrage through price differentials and enhancing the economic efficiency of the photovoltaic-storage-charging system.

Photovoltaic-Storage Integration:

Real-time monitoring of local load power ensures priority self-consumption of PV generation, with surplus electricity stored. When PV output is insufficient to meet local load demand, stored battery power is prioritized.

All work must comply with local regulations and standards. Installation of this system may only be performed by an electrician with the following qualifications:

1.6 Operator Requirements

1. Have received training in handling hazards and risks associated with the installation and operation of electrical equipment, systems, and batteries
2. Have received training in electrical equipment installation and commissioning;
3. Have a better understanding and comply with technical connectivity conditions, standards, guidelines, regulations, and applicable laws;
4. Knowledge of handling lithium-ion batteries (transportation, storage, disposal, hazard sources);
5. Understand and comply with this document and other applicable documents.

2.Safety

2.1 Safety Rules

To avoid property damage and personal injury, the following rules should be observed when working on hazardous live parts of battery energy storage systems:

1. Equipment must operate normally and cannot run with faults;
2. Ensure equipment does not automatically restart;
3. Ensure operation is not possible under under-voltage conditions;
4. Ensure grounding protection and short-circuit protection are functioning properly;
5. Cover or insulate adjacent live metal components.

2.2 Safety Information

Please note that damaged parts or short circuits may cause electric shock and death. Directly connecting the battery's positive and negative terminals will cause a short circuit, which must be avoided under all circumstances. Therefore, please follow these instructions:

1. Use insulated tools and gloves when working;
2. Do not place any tools or metal parts on the battery module, high-voltage control box, or load (inverter);
3. Always remove your watch, ring, and other metal objects before handling the battery;
4. Do not install or operate this battery pack in explosive or high humidity areas;
5. When operating the energy storage system, first turn off the charge controller, then turn off the battery, and ensure they cannot be turned back on. Improper use of the battery energy system may result in electric shock. Improper operation of the energy storage battery may pose life-threatening risks, cause serious injury and even death.

Careful!

Warning: Improper use may damage the cells;

1.Do not expose the battery module to rainwater or immerse it in liquids;
2.Do not expose the battery module to corrosive environments such as ammonia gas and salt;
3.The energy storage battery system must undergo commissioning within three months of delivery and should not be stored long-term without installation and commissioning.

3. Transportation

3.1 Transportation Regulations of Pack

The relevant laws and regulations of the respective countries concerning the transport of battery must be complied with.

⚠ Smoking is prohibited inside the vehicle or nearby during transport and loading/unloading.

⚠ Vehicles of transporting dangerous goods should comply with relevant road transport regulations and be equipped with two tested carbon dioxide fire extinguishers.

⚠ Freight forwarders are prohibited from opening the outer packaging of the battery modules; the battery cabinet system may only be moved using approved lifting equipment.

⚠ Improper vehicle transport can cause personal injury and may cause the load to slip or tip over, resulting in personnel injury. If damaged, the battery packs should be placed vertically to prevent it from sliding inside the vehicle and secured with straps.

⚠ Tilting battery racks may cause personal injury. With a maximum weight capacity of approximately 3,300 kilograms, they may tip over when tilted, resulting in personal injury and damage. Ensure battery racks are positioned on a stable surface and cannot be tilted by external forces.

⚠ Improper transportation may damage the battery energy storage system. Battery modules can only be transported vertically.For parts that are heavy on the bottom and light on the top, failure to follow these instructions may result in damage to the parts.

⚠ During transportation, the battery storage rack installed with the battery modules may

become damaged. The battery storage rack is not designed for transport with installed battery modules. Ensure that battery modules, the main control box, and the battery rack are secured and transported separately. After installing the battery modules, do not move the battery rack or use lifting equipment to hoist it.

⚠ Do not remove the shipping packaging before arriving at the installation site. Before disassembling the shipping protector, check the shipping packaging for damage; otherwise it may be damaged during transportation.

⚠ Improper transport of battery modules can cause personal injury.A single battery module weighs more than 110 kg. If it falls or slips,it may cause personal injury and may damage the battery modules. So appropriate transportation and lifting equipment must be used to ensure safe transportation.

⚠ Wear safety shoes when transporting battery racks and modules, as components may be crushed due to excessive weight. Therefore, all personnel involved in the transportation must wear safety shoes.

⚠ The risk of injury increases during the transportation and installation of unpackaged battery storage cabinets, particularly due to sharp metal edges; therefore, all personnel involved in transportation and installation must wear protective gloves.

⚠ Energy storage system components are heavy. We recommend at least 2-3 people work together using equipment for installation. Lifting devices assist with handling heavy parts, while pulleys or carts help transport lighter components. Take care not to damage the products, and avoid stacking battery modules to excessive weights.

3.2 Handling Complete Battery Modules

4. Tool Preparation

Auxiliary Tools and Materials

Item	Function
Phillips screwdriver	Connect internal wiring
Allen wrench	Hex socket head cap screw for cabinet internal fastening
Item	**Function**
Fastening Materials (Hex Socket Cap Screw)	The assembled battery modules and high-voltage boxes are secured within the cabinet.

5.Installation Precautions

Warning! Static electricity or impact may damage the equipment

1. The total weight of the battery system is approximately 3200 kg, and it is necessary to ensure that the installation site has sufficient load-bearing capacity

2. When selecting an installation location, transportation routes and necessary site cleanup should be considered.

3.When installing the battery module and main control box, avoid collisions and friction with the product surface, as this may cause product damage or peeling of the surface coating and corrosion;

5.1 Battery Energy Storage System Description

Product Features

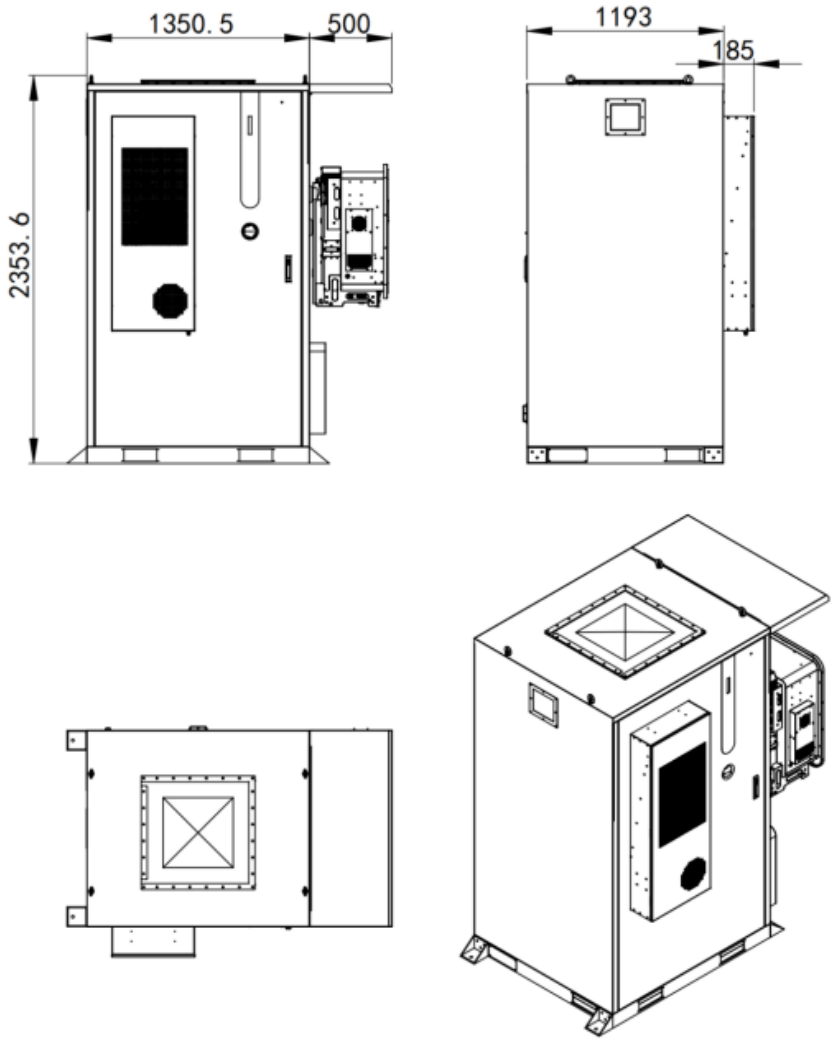
System productization integrates energy storage batteries, energy storage converters, photovoltaic inverters, energy management monitoring systems, power distribution systems, environmental control systems, and fire control systems to comprehensively monitor system operational status and risks.

Configure hybrid inverters supporting multi-unit parallel operation for excellent scalability; select inverter power and total battery capacity based on system capacity requirements for scenarios like micro-grids; IP65 protection rating ensures flawless performance in all outdoor weather conditions; features door-mounted embedded integrated air conditioning that saves cabinet space, maximizes usable area in outdoor

enclosures, enhances top structural integrity, and delivers superior waterproofing.

The local control panel enables diverse functions including system operation monitoring, energy management strategy formulation, and remote equipment upgrades. The battery energy storage system features a modular design, with each battery module offering a capacity of 16.08 kWh. It supports the connection of 15 battery modules in series, delivering a total energy capacity of 241kWh.

5.2 System Parameters



Battery Cabinet Parameters

NO.	Item	Parameter	Notes
1	Battery type	LiFePO4	0.5P/0.5C
2	Cell specification	3.2V/314Ah	
3	Pack composition	1P16S	
4	Pack rated voltage	51.2V	
5	Pack rated capacity	16.08kWh	
6	Pack quantity	15	
7	System rated voltage	768V	
8	System Max. charging voltage	864V	
9	System discharge cut-off voltage	672V	
10	System rated energy	241kWh	0.5P/0.5C
11	Recommended Max. DOD	95%	
12	Max. efficiency	94% (DC-side)	0.5P/0.5C
13	Air conditioner power	3kW((cooling capacity)，2kW (heating capacity)	
14	Communication method	CAN/RS485	
15	Cooling method	Intelligent air cooling	
16	Fire safety configuration	Aerosols, explosion-proof ventilation	
17	Operating temp.	Charging: 0–60°C (Derating above 45°C)	
		Discharging: -20～65℃ （Derating above 45°C)	
18	Operating humidity	0-95%（non-condensing）	
19	Altitude	≤3000 m	
20	IP Level	IP55	
21	Corrosion resistance	C4	
22	Cabinet dimensions（W×D×H）	1200×1500×2350mm	
23	Weight	About 3000kg	
24	Compatible inverters	Solis/DEYE/Growatt/GoodWe/Afore/ SOLINTEG	

Inverter Parameter

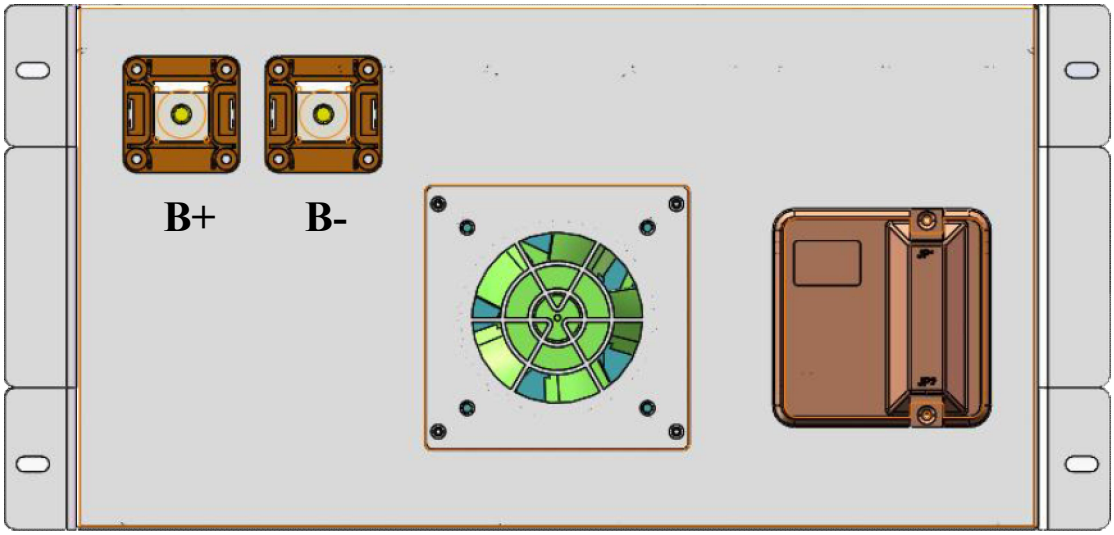
1	Inverter model	S6-EH3P125K10-NV-YD-H	Solis Inverter

2	**DC Input(PV-Side)**		
2.1	Recommended Max. PV power	250kW	
2.2	Max. PV input power	250kW	
2.3	Max. input voltage	1000V	
2.4	Rated input voltage	600V	
2.5	Starting voltage	180V	
2.6	MPPT voltage range	150～950V	
2.7	Max. input current	10×42A	
2.8	Max. input short-circuit current	10×60A	
2.9	Quantity of MPPTs / Max. input group serial channels	10/20	
3	**Battery**		
3.1	Battery type	Lithium battery	
3.2	Battery voltage range	300～950V	
3.3	Max.charge/discharge current	200A/100A+100A	
3.4	Battery input interface quantity	2	
3.5	Max. operating current of battery interface	100A	
3.6	Communication method	CAN/RS485	
4	**AC Output (Grid-side)**		
4.1	Rated output power	125kW	
4.2	Max. output apparent power	125kVA	
4.3	Rated grid voltage	3/N/PE, 220V / 380V, 230V / 400V	
4.4	Rated power grid frequency	50Hz/60Hz	
4.5	Rated grid output current	189.9 A / 180.4 A	

4.7	Power factor	> 0.99 (0.8 Leading... 0.8 Lagging)	
4.8	Total current harmonic distortion rate	< 3%	
5	**AC Input (Grid Side)**		
5.1	Max. Input current	250A	
6	**AC Input (Generator)**		
6.1	Max. input power	125kW	
6.2	Rated input current	189.9 A / 180.4 A	
6.3	Rated input voltage	3/N/PE, 220V / 380V, 230V / 400V	
6.4	Rated input frequency	50Hz/60Hz	
7	**AC output (off-grid side)**		
7.1	Rated output power	125kW	
7.2	Max.output apparent power	1.2 times rated overload, 100 seconds; 1.4 times rated overload, 10 seconds; 1.6 times rated overload, 200 milliseconds;	
7.3	On-grid and off-grid handover time	< 10 ms	
7.4	Rated output voltage	3/N/PE, 220V / 380V, 230V / 400V	
7.5	Rated frequency	50Hz/60Hz	
7.6	Total voltage harmonic distortion rate	< 2%	
8	**Efficiency**		
8.1	Max. efficiency	97.6%	
8.2	European efficiency	97.2%	
8.3	Max. Operating efficiency of the battery	97.0%	
9	**Protection**		
9.1	Isolated island protection	YES	
9.2	AC output over-current protection	YES	
9.3	AC short circuit protection	YES	

9.4	Integrated DC Switch	YES	
9.5	DC reverse connection protection	YES	
9.6	Surge Protection	DC two-stage / AC two-stage	
9.7	DC arc fault protection	Optional	
9.8	Protection level/Over-voltage type	First-Level / DC second level , AC third level	
10	**Basic parameter**		
10.1	Max. allowable phase imbalance (Grid-connected and off-grid)	100%	
10.2	Max. power per phase (grid-connected and off-grid)	41.66kW	
10.3	Dimensions (W× H× D)	1174 × 814 × 400 mm	
10.4	Weight	170kg	
10.5	Topology	No Transformer	
10.6	Ambient temp. /humidity	-25 ～ +60℃ / 0 ～100%	
10.7	Protection level	IP66	
10.8	7 Cooling method	Intelligent air cooling	
10.9	Max. working altitude	3000 m	
10.10	Grid Connection Standard	G99, VDE-AR-N 4105/VDE V 0124, EN 50549-1/EN 50549-10, VDE 0126/UTE C 15/VFR:2019,NTS 631/RD 1699/RD 244/UNE 206006/UNE 206007-1, CEI 0-21, C10/11, NRS 097-2-1, TOR, EIFS 2018.2,IEC 62116, IEC 61727, IEC 60068, IEC 61683, EN 50530, MEA, PEA,PORTARIA Nº 140, DE 21 DE MARÇO DE 2022	
10.11	Safety/EMC Standards	IEC/EN 62109-1/-2, IEC/EN 61000-6-2/-4, EN 55011	
11	**Features**		
11.1	PV interface	MC4 Quick Connector	
11.2	Battery interface	Terminal blocks	
11.3	Communication interface	terminal block	
11.4	Display	7"display, Bluetooth + APP	
11.5	Communication	CAN / RS485 / / Ethernet/ Wi-Fi (Optional) / Cellular (Optional) / LAN (Optional)	
11.6	Max. Parallel quantity	6 sets	

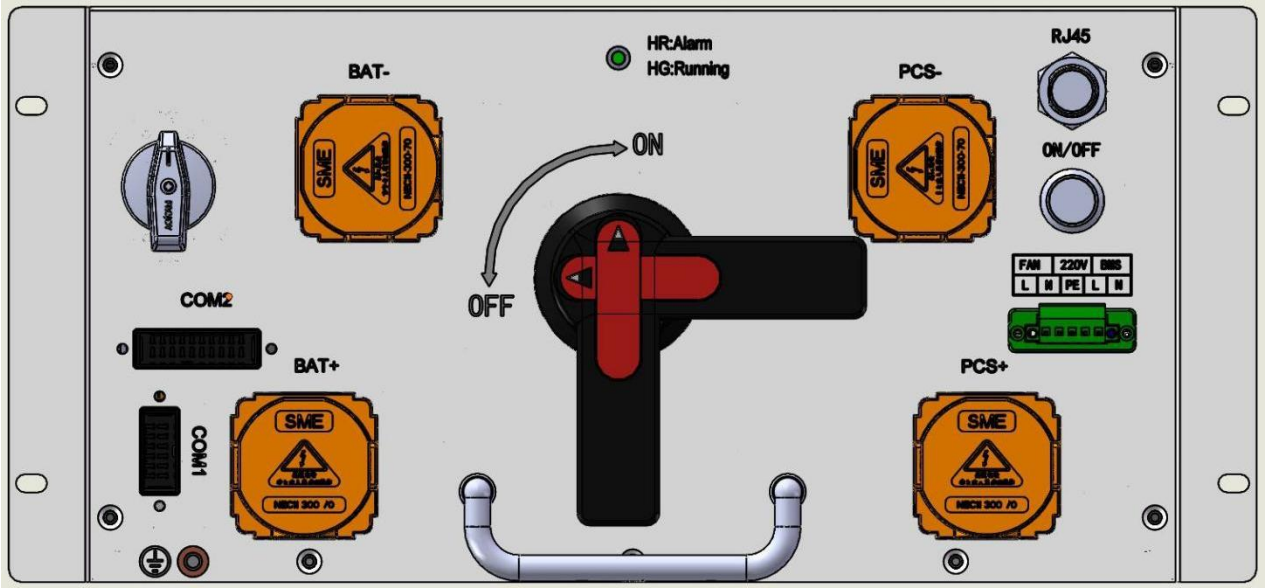
5.3 Battery Module Description



Battery Module (HVM16S314BL-U)Interface Description		
No.	**Item**	**Notes**
1	B+	Battery pack positive terminal (Orange)
2	B-	Battery pack negative terminal (Black)
3	JP1 Cascade Output	Communication connection ports between battery modules
4	JP2 cascade input	Communication connection ports between battery modules
5	Fan	Battery module cooling

Battery Module (HVM16S314BL-U)parameters			
No.	**Item**	**Notes**	**No.**
1	Battery type	Lithium iron phosphate batteries	
2	Rated voltage	51.2V	
3	Rated capacity	314Ah	
4	Energy	16.08kWh	
5	Standard charge/discharge current	157A	
6	Max.operating current	179A	
7	IP level	IP 20	
8	Dimensions (Wx D x H)	800×440×240 mm	
9	Pack weight	About 112kg	

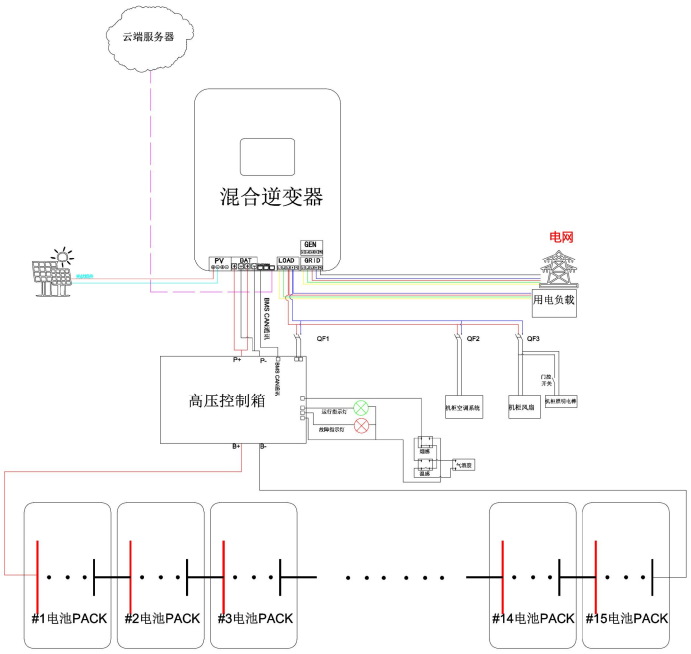
5.4 High-voltage main control box description

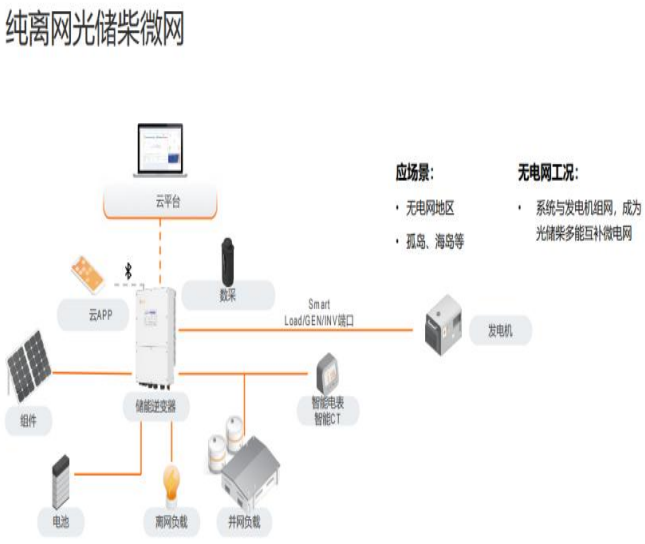


High Voltage Main Control Box (UDUDPDU10SC10A1403P750)Port Description			
NO.	**Interface Definition**	**Function Description**	**Notes**
1	BAT+	Battery cluster input positive terminal	Connected to the positive terminal of battery cluster; the interface is M8 bolt.
2	BAT-	Battery cluster input negative terminal	Connected to the negative terminal of battery cluster; the interface is M8.
3	PCS+	PCS Input Positive Terminal	Connected to the positive terminal of PCS; the interface is M8.
4	PCS-	PCS input negative terminal	Connected to the negative terminal of PCS; the interface is M8.
5	Power	Power ON	Control the power on/off of the BMS system
6	QF	Battery cluster switch	Manual control of battery cluster high-voltage output (circuit breaker handle)
7	QS	Manual control of DC side power supply	Manual control of DC-side power extraction
8	JP1	AC220V power input	
9	COM1	BMU Communication	
10	COM2	Main communication port, debug interface, red, Green indicator light	

Electrical parameters of the main control box			
No.	**Item**	**Parameter**	**Notes**
1	Applicable Platforms	DC 1500V	
2	Power supply voltage	12～32V	
3	Power consumption	1.92～3.36W	
4	Current detection accuracy	±0.5% @-75～-3mV&3～75mV ±30uV @-3～3mV	
5	High voltage acquisition accuracy	±0.5% @200～1500V ±1V @50～200V	
6	Insulation testing accuracy	±10% @75k～20MΩ ±10kΩ @0～75kΩ	
7	SOC estimation accuracy	⩽5%	
8	IP level	IP 20	

5.5 Electrical Diagram





Notes: The above diagram shows a system solution with grid connection and photovoltaic input. The configuration and wiring may vary slightly depending on the project. Please refer to the attached diagram for the actual shipment.

5.6 Fire Fighting Configuration

1. High-Spec CE Fire Protection Solution (Optional):

Cabinet-Level Aerosol + Gas Detector + Explosion Ventilation Fan + Temperature Sensor + Smoke Detector + Battery Module Aerosol + Cabinet-Level Explosion Relief Panel

2. Mid-Spec CE Fire Protection Solution (Optional):

Cabinet-Level Aerosol + Gas Detector + Explosion Ventilation Fan + Temperature Sensor + Smoke Detector + Battery Module Aerosol

3. Low-Spec CE Fire Protection Solution (Optional):

Cabinet-Level Aerosol + Temperature Sensor + Smoke Sensor + Battery Module Aerosol

4. National Standard GB Fire Protection Solution (Optional):

Cabinet-Level Aerosol + Temperature Sensor + Smoke Sensor + Battery Module Aerosol

5.7 Introduction to Inverter Human-Machine Interface

The homepage displays real-time system information such as power, voltage, current, power generation, operating mode, and working status.

5.8 Install battery modules and main control box.

⚠ Insufficient grounding or lack of grounding may result in electric shock, equipment failure, or other life-threatening electric shocks.

⚠ Notes: Before installing the battery, please turn the manual switch of the high-voltage control box to the off position.

Insert the first battery module into the second layer position of the battery rack; then continue installing from bottom to top in the same manner until the eighth layer. Insert

the high-voltage control box into the bottom layer. The cabinet interior has a total of eight layers.

After inserting the battery module and high-voltage control box into the rack, secure them to the cabinet rack using M6*14mm hex socket head cap screws.

6.Maintenance and upgrades

Notes: All maintenance work should comply with applicable local laws and standards.

6.1 System Maintenance

To ensure safe operation, all plug connections must be checked, and if necessary, the relevant operator should push them back into place at least once a year;

The following checks or maintenance must be performed annually:

1. A general visual inspection of all connecting harnesses and terminals showed no abnormalities.
2. Inspect all tightened electrical connections; any loose connections must be re-tightened
3. Use monitoring software to check for any abnormalities in the battery module's overall voltage,cell voltage, temperature, SOC, SOH, and other data.
4. Turn off and restart the battery system once a year.

Notes: If the system is installed in a contaminated environment, it must be maintained and cleaned briefly. Clean the battery cabinet with a dry cloth, ensuring no moisture comes into contact with the battery connections. Do not use solvents during the process.

6.2 System Upgrade

Please contact the manufacturer for relevant upgrade documentation and complete the upgrade under their guidance.

7. Battery Pack Storage

1. To ensure battery lifespan, the storage temperature should be maintained

between 10℃ and 35℃.

2. For long-term storage, the battery pack should be charged and discharged at least once every 3-6 months.

3. To minimize self-discharge during long-term storage, disconnect the B+/B- terminals of the high-voltage control box from the battery pack terminals

8. Disposal of Used Batteries

Notes: Comply with regulations regarding the disposal of used batteries and immediately stop using damaged batteries. Before disposal, please contact your installer or sales partners to ensure that the battery packs are not exposed to moisture, direct sunlight, or high temperatures.

1. Do not dispose of batteries as household waste! You have a legal obligation to return used batteries and rechargeable batteries.

2. Used batteries may contain pollutants, which may harm the environment or health if not stored or disposed of properly

3. Batteries also contain important raw materials that can be recycled.