



AT30kW/60kWh Outdoor Air Cooled Integrated Energy Storage Cabinet Specification

This manual is introduced by our company. Before installing the energy storage system, read this manual and follow the instructions carefully during the installation.

If you have any questions, please contact the company immediately for advice and technical support.

Contents

I. Description

1. Identification description.....	02
2. Indication before connection.....	02
3. During use.....	02
4. Important safety information.....	03
5. General safety regulations.....	03

II. Overview of energy storage system

1. System Introduction.....	04
2. System characteristics	04
3. Maintenance and service.....	04

III. Introduction to the structure of the energy storage system

1. System diagram.....	05
2. Introduction to system interface.....	06
3. Wiring method of photovoltaic inverter.....	08
4. Daily startup and shutdown of energy storage system	08
5. Cooling method.....	09
6. Firefighting plan.....	09
7. Lithium battery management system (BAMS)	10

IV. Technical Parameters

1. Technical parameters of energy storage system.....	12
-------------------------------------------------------	----

V. Faults and solutions

1. Common fault phenomena.....	13
2. Inverter fault warning code and solution measures.....	13

VI. Installation method












1. System installation method	15
-------------------------------------	----

VII. After-sale Warranty Regulations

1. Product Warranty.....	15
2. Warranty conditions.....	15
3. Scope of warranty.....	15

I. Description

1. Identification description

	Warning: Failure to follow the warnings indicated in this manual may result in injury.
	"High voltage and electric shock danger!"
	"High temperature!"
	"The components of the product are recyclable."
	"This side up! The packaging must always be transported, handled, and stored with the arrow pointing upwards."
	"Products should not be treated as waste in our daily lives."
	The packaging/product should be handled with care and should not be tipped or tilted.
	Please refer to the operation manual.
	Keep it dry! The packaging/product must be protected from excessive moisture and must be stored with a cover.
	After being closed or fully disconnected for at least 10 minutes, the inverter can be touched or operated if an electric shock or injury occurs.
	Grounding connection (mandatory)

2. Indication before connection

1. After unpacking, please check the product and packing list first. If the product is damaged or missing parts, please contact the seller;
2. Before installation, please ensure that the battery is in off mode;
3. The battery system must be well grounded with a resistance less than 100mΩ;
4. Please ensure that the electrical parameters of the battery system are compatible with related equipment;
5. Keep the system's battery away from water and fire.

3. During use

1. If it is necessary to move or repair the battery system, the power must be turned off and the battery fully closed.
2. Non-isolated inverter: Photovoltaic modules should have an IEC61730 Class A rating.
3. It is prohibited to disassemble this energy storage system.
4. In case of fire, only special sevoflurane/perfluorohexane can be used, and liquid fire extinguishers are strictly prohibited.
5. The N of the off-grid side is not connected to the grid-connected side of the inverter. Please refer to the requirements of the local power grid.

Please do not open, repair, or disassemble the multi-in-one energy storage system except for authorized personnel of our company. We are not responsible for any consequences or liabilities resulting from violating safety operations or design, production, and equipment safety standards.



Li-ion



4.Important safety information



Obtain permission from the local utility company before connecting the inverter to the grid and employing qualified personnel.

Prior to installation:

Inspect the installation location to avoid direct exposure of the product to sunlight. Check if the inverter and packaging are damaged. If there are any doubts, please contact the supplier before installing the inverter. Before connecting the photovoltaic panel, please check the voltage of the inverter and ensure it meets the specifications of the energy storage system. Follow all documents accompanying the energy storage system. The weight of the energy storage system exceeds 200kg, please handle with care during transportation/movement.

Installation:

All electrical installations must follow national wiring rules and local regulations. Only personnel who have been trained, authorized, and familiar with local electrical regulations can install the energy storage system. To ensure safety, please follow the steps described in this manual.



Grounding wire must be connected before connecting the DC input and AC output. After installation, the product identification must be clearly visible.

Disconnect the energy storage system:

First, disconnect the AC circuit, then the PV circuit, and finally the ground wire. Please note that even if the energy storage system has been disconnected from the power grid/main power supply and solar module, the voltage may still be very high and pose a risk. Please wait for at least 20 minutes after disconnecting from the power grid and photovoltaic panel.



Operation/Maintenance:

The maintenance and installation of the equipment should be carried out by qualified personnel who possess the necessary skills and have received safety training.

Before connecting the inverter to the power grid, please ensure that the cabinet door is closed. When the system is running, please do not open it. There is a danger of electric shock.

When the photovoltaic array is exposed to sunlight, it will provide DC voltage to the device. If there are any problems, you must contact a professional for maintenance.

Performance Safety Parameters:

Unauthorized modification of performance safety parameters may result in personal injury or damage to the inverter or other equipment, as well as system operation failure. In addition, this will lead to uncification of system operation. If non-original spare parts are used, compliance with electrical safety, EMC, and equipment safety cannot be guaranteed.

5.General safety regulations



Electrical equipment personnel should be responsible for the safety of personnel and property!

Partition

Before starting any work, please disconnect all cables that supply power to the workplace. Please note that no voltage does not mean that the cable is disconnected.

Prevent Reconnection

Prevent the reconnection of the system by marking or closing/blocking the work area. If accidentally reconnected, it may cause a serious accident.

Check for No Voltage in the System

Use a voltage tester to ensure there is no voltage in the system. Check all terminals to ensure there is no voltage on each conductor of the system.

Cover the Nearby Live Parts and Prevent Other Parts from Approaching

Cover all live system components that may cause injury during operation. Ensure that the danger area is clearly marked.

II. Overview of energy storage system

System Introduction

The energy storage system is a combined solution of photovoltaic inverter and lithium iron phosphate energy storage battery pack. It integrates the electrical components of inverter, lithium battery pack, monitoring, fire protection, etc. into a modular cabinet system, making installation more convenient and efficient. It is matched with photovoltaic power generation to form a green and energy-saving photovoltaic and energy storage system.

System Characteristics

- ① This system is non-toxic, non-polluting, and environmentally friendly.
- ② The battery system is made of LiFePO₄, which has good safety performance and long cycle life.
- ③ The BMS battery management system has functions such as over-discharge, over-charge, over-current, high/low temperature protection.
- ④ This system can automatically manage the charging and discharging status, and balance the current and voltage of each battery.
- ⑤ The system has pre-wired and tested in the factory, which can achieve fast installation.
- ⑥ The operating temperature range is -10°C to 50°C, with excellent discharge performance and cycle life.
- ⑦ It is suitable for load design of household appliances, communication base stations, photovoltaic and energy storage equipment, etc., and is easy to install and operate.

Maintenance and Upkeep

- ① This system requires minimal maintenance. Standard models simply need to be charged regularly to achieve the desired lifespan.
- ② If not in use for a long time, it is recommended to charge it once every three months.
- ③ Under normal conditions, the designed service life of the lithium battery pack is 5-15 years. If it is found to be in poor condition, it must be replaced in advance. Replacement of the battery must be carried out by professionals.
- ④ The lithium battery pack should not be replaced individually, but replaced as a whole in accordance with the user manual instructions of our company.
- ⑤ Normally, the lithium battery pack is charged and discharged once every three months, with the standard model charging for no less than 12 hours before shutdown.
- ⑥ In high-temperature areas, the battery is charged and discharged once every two months, with the standard model charging for no less than 12 hours each time.

Note: Before replacing the lithium battery pack, the inverter must be turned off and the mains input and PV input lines must be disconnected. Do not wear metal items such as rings or watches. Use an insulated handle tool and do not place tools or other metal items on the battery.



Warning: It is prohibited to short-circuit or reverse the connection of the battery's positive and negative terminals!

III. Introduction to the structure of the energy storage system

1. Energy storage battery system diagram

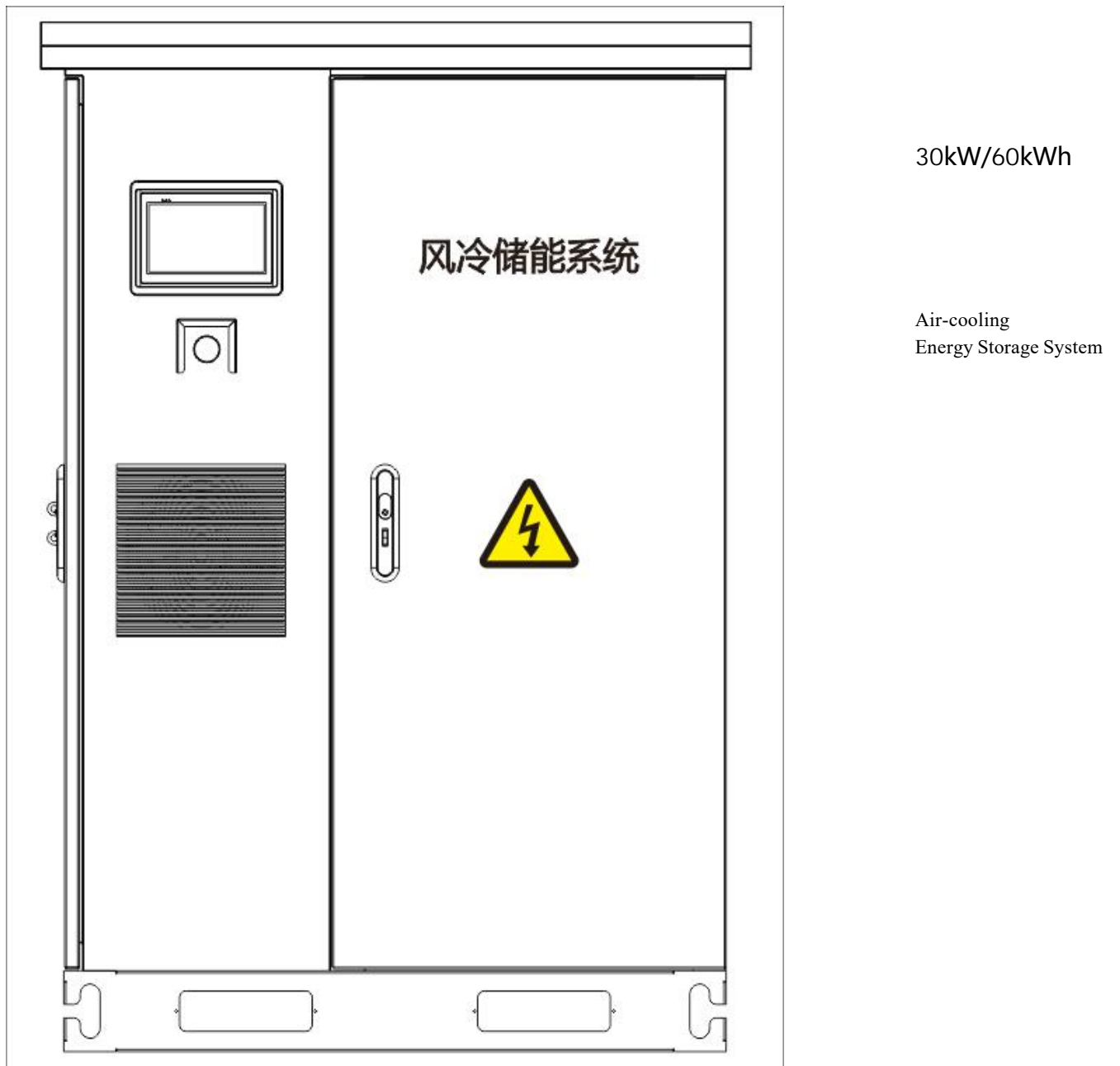


Figure 1 : Apperance of energy storage system

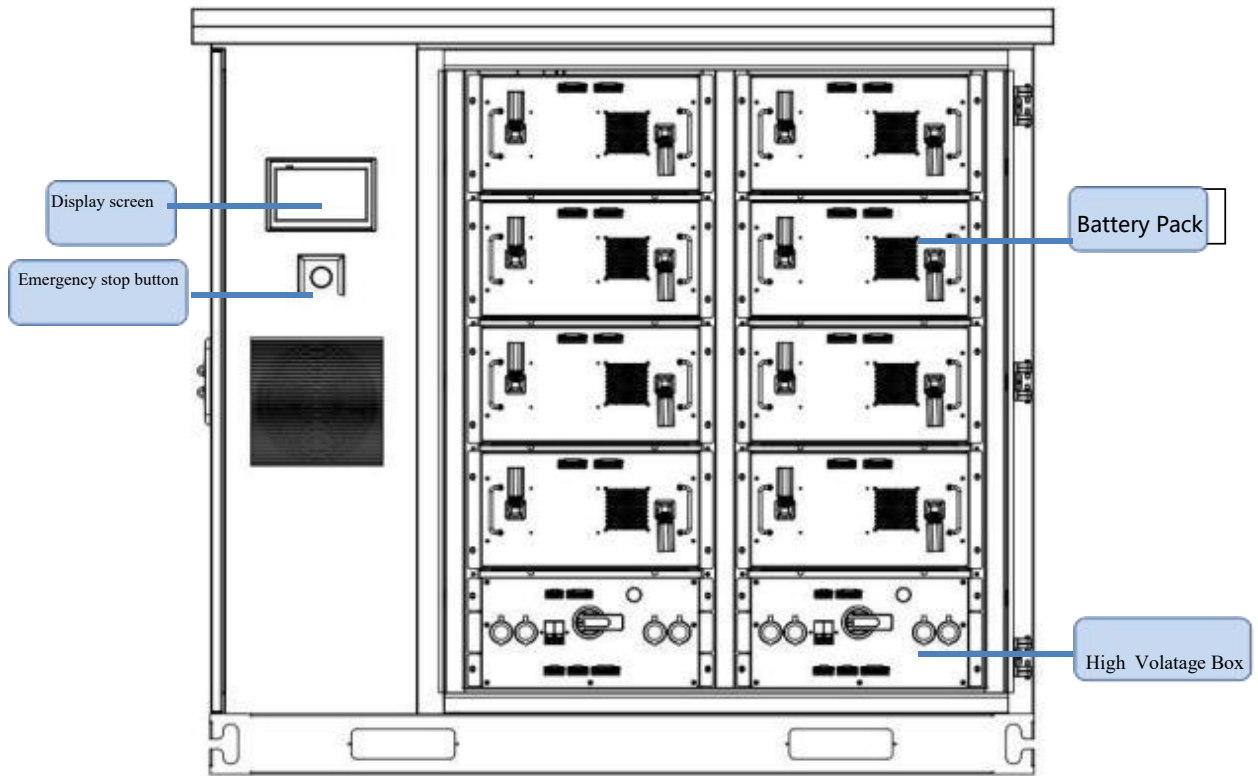


Figure 2: Diagram of energy storage lithium battery

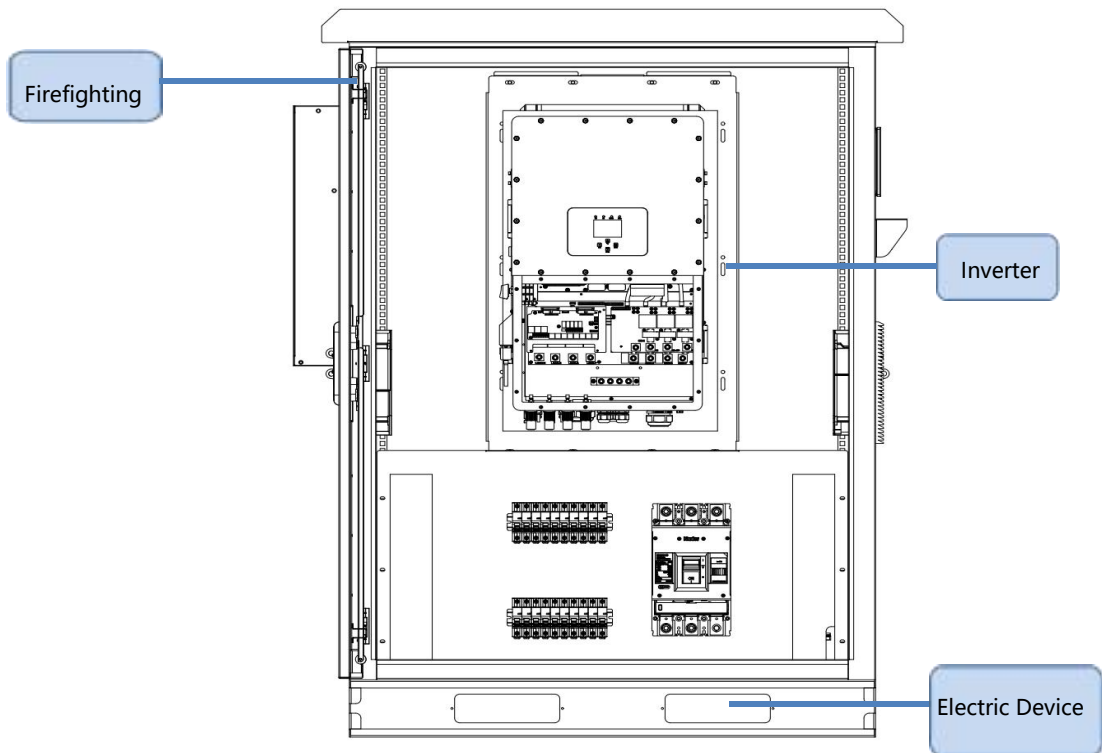
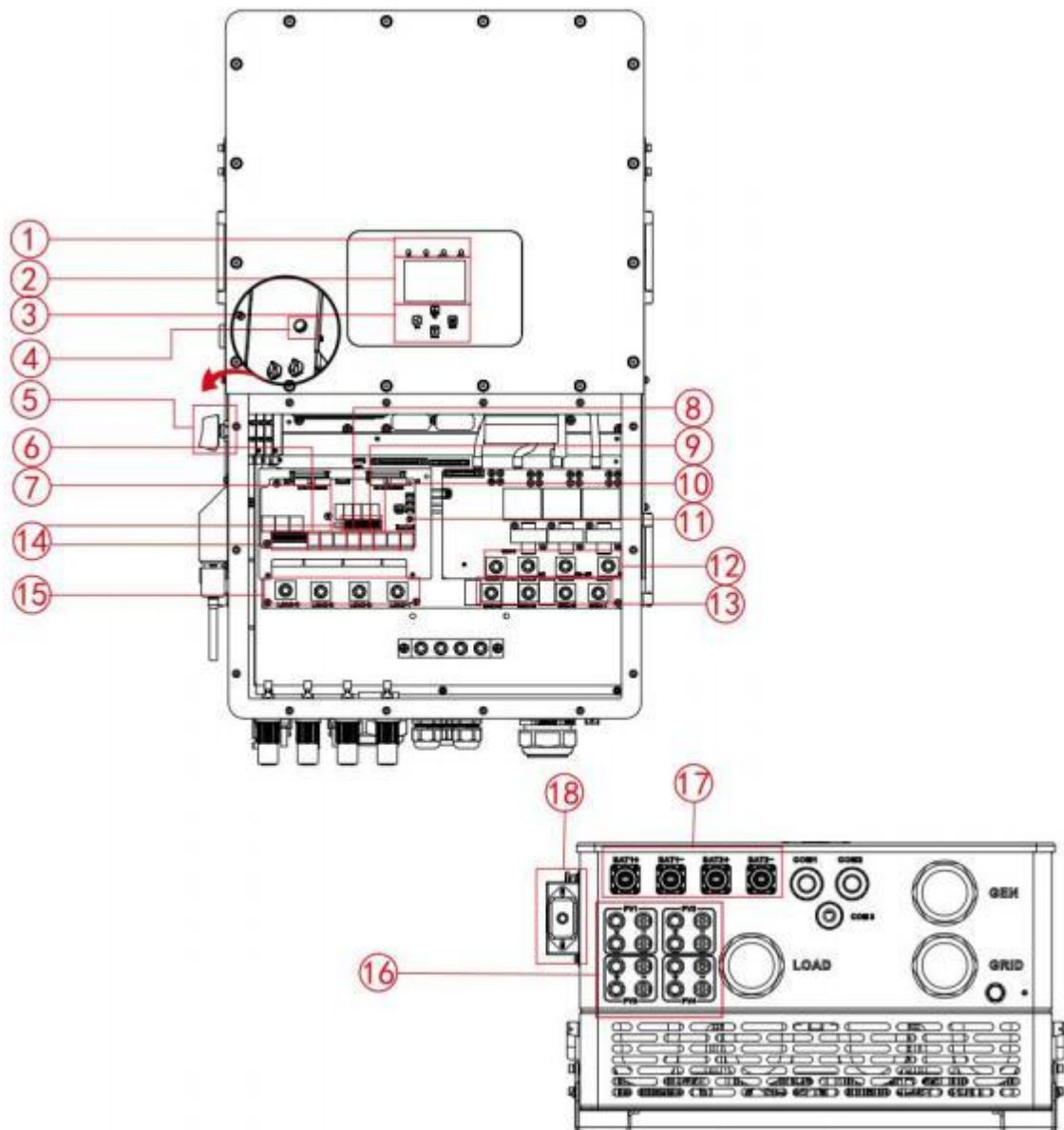


Figure 3 System diagram of photovoltaic inverter

2. Diagram of solar energy storage system



Solar Hybrid Inverter			
1	Inverter indicator light	10	BMS Terminal
2	LCD Display Screen	11	RS485 communication
3	Function Button	12	Dry Connect
4	Inverter switch button	13	Grid Tie
5	DC Switch	14	Communication Program
6	Instrumentation	15	Load Interface
7	Parallel operation	16	PV Input
8	CAN communication	17	DC Input
9	DRM	18	WiFi

3. Wiring connection of solar inverter

AC input and AC output connection

Attention! Please do not connect the input and output terminals incorrectly as the terminals are marked "INPUT" and "OUTPUT". Please follow the steps below to connect the AC power supply.

Input/output AC line:

- ※ Before connecting the AC power input and output, please ensure that the battery circuit breaker is disconnected.
- ※ Peel off the insulation of the five wires by about 10mm.
- ※ Insert the AC cable into the terminal block according to the polarity mark on the AC input terminal (INPUT), and lock the terminal block screws. Please connect the ground wire (PE) first.



Warning:
Please ensure that the AC power supply has been completely cut off before connecting the AC line

※ Connect the positive and negative wires of the solar module input according to the polarity mark on the terminal block of the AC output terminal (OUTPUT). Please ensure that the connection between the solar module and the solar input connector is secure.

Note! Important

Please ensure that the positive and negative wires of the AC input and output cables are connected correctly.

PV input connection

Please follow the steps below to connect the solar panel input:

- ※ Peel off the insulation of the positive and negative wires by about 10mm.
- ※ Check if the polarity of the cable connecting the solar panel to the solar input connector is correct. Then, connect the positive wire (+) of the cable to the PV+ terminal on the inverter. Connect the negative wire (-) of the cable to the PV- terminal on the inverter.
- ※ Confirm that the wiring polarity is correct and securely connected.

4. Daily startup and shutdown of energy storage system

Startup steps:

When connected to a battery or utility power that meets the requirements (utility power needs to confirm the appropriate input range based on the output mode), you can perform a startup operation.

Utility power startup:

Connect to normal utility power, press the switch, and turn it to the ON position. The system will start up. If utility power output priority is set, after a short time, the panel will display utility mode to indicate that the startup is complete and enter utility mode.

Battery startup:

Connect to normal battery, press the switch, and establish power supply for the inverter. After a short time, the panel will display battery mode to indicate that the startup is complete and enter battery inverter mode.

Shutdown steps:

When the system is in battery inverter mode or utility power mode output, disconnect utility power and photovoltaic power, press the switch again, and turn it to OFF position. The inverter will shut down.

Operation under fault mode:

When the inverter beeps and the LED fault light is on, it indicates that the inverter is working in fault mode. You can contact the supplier or repair personnel for fault alarm information to assist in trouble shooting.

Parameter query operation:

Under normal circumstances, there are 9 display pages. Pressing the query button(ENTER)or PAGE button for 0.2 to 1 second will flip through the display pages, displaying input and output voltage, input and output frequency, battery, PV voltage and current, load, software version, and other information.

5.Cooling method

The cooling method of this system uses an Inventec AC power-type refrigeration air conditioner with a cooling capacity of 600W and a heating capacity of 500W. It integrates system temperature control and can provide a suitable temperature and humidity inside the energy storage system to ensure its use for a long life and high reliability.

Cooling system characteristics

1. Professional dehumidification design, effectively reducing the relative humidity inside the cabinet
2. Standard fan speed regulation function
3. Equipped with electric heating function
4. Support 4~20mA temperature and humidity signal output
5. The alarm dry contact supports DC220V and AC250V.
6. Normal operation at 55°C high temperature environment
7. R134a environmentally friendly refrigerant, in line with RoHS requirements
8. Protection class IP55
9. Optional smoke detection, access control, and water immersion alarm signal output
10. With the function of automatic start-up of incoming current , and providing various alarm and protection functions



6.Firefighting plan

The fire protection plan for this system uses aerosol automatic fire extinguishing devices (here inafter referred to as fire extinguishing devices) with hot aerosol gas fire extinguishing technology. It is based on national and industry standards XF499.1-2010 and is developed through extensive experiments according to the internal environment and its own characteristics of the protected object.

It is the latest generation of intelligent and fast-acting fire extinguishing products with strong extinguishing effects. This device can efficiently and quickly extinguish fires in B, D, and E categories at the beginning of the fire and can also effectively suppress deep fires in category A, creating favorable conditions for the elimination of hidden dangers.

The main fire extinguishing components of the device are connected by hot-wire linkage. When the hot-wire is ignited by an open flame or the installation environment temperature reaches its starting temperature, the fire source signal is transmitted to the main component equipped with fire extinguishing agent, and the device is activated to release fire extinguishing gas.

The installation of the device has no impact on the protected object; the gas generated after activation has no damage or corrosion to the protected object and is non-toxic and harmless to the atmosphere.

Hot aerosol automatic fire extinguishing devices feature multi-point sensing design and have the characteristics of small size and flexible mobility, making it a clean and efficient automatic fire extinguishing product.



7. Lithium battery management system (BAMS)

This energy storage system uses a three-tier architecture (bottom battery management unit BMU, middle battery cluster management unit BCMU, and top energy storage management unit BAMS).

The BAMS, which is at the top layer of the main control system of the power station, is mainly responsible for real-time data acquisition, real-time calculation, and performance monitoring of the battery cluster management unit BCMU.

Analyzing, alarm processing, protection processing, and record storage. Allows each group of batteries to achieve equal output, ensuring the system achieves optimal operating conditions and maximum operating time. The master control system BAMS is also responsible for communicating with the energy storage converter (PCS), inverter, and energy storage scheduling monitoring system (EMS).

Realize linkage. The battery management unit BAMS provides accurate and effective battery management information, which is an important basis for the load control strategy of the energy storage system.

Through battery equalization management, it can greatly improve the energy utilization efficiency of batteries and optimize load characteristics. At the same time, it can maximize the service life of batteries, the stability, safety and reliability of the energy storage system are guaranteed.

Characteristics of BAMS system

The BAMS connects to one or more battery cluster management units (BCMUs) through the CAN bus to collect data, calculate the total amount of each sink and evaluate the status in real time, and forward the data to the back office (EMS) and the energy storage converter (PCS)/inverter.

The BAMS software system is based on Qt 4.8.6 and can run on Windows, Linux, and embedded Linux platforms. The BAMS software system block diagram is shown below:

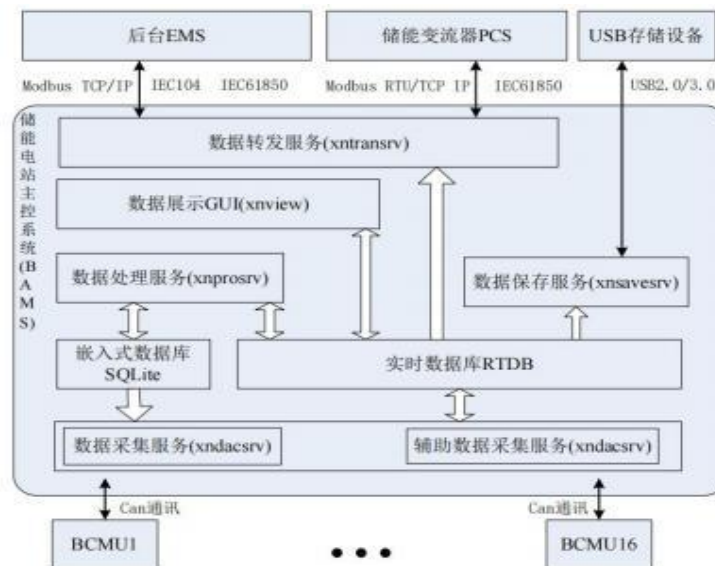


Diagram of the BAMS software system for the energy storage system

As can be seen from the figure, the BAMS of the energy storage power station is mainly divided into five modules, namely data acquisition service, data processing service, data storage service, data display, and data forwarding service. Data acquisition service includes acquisition service and auxiliary acquisition service. It collects battery cluster management unit (BCMUs) data to the real-time database, reads the configuration of embedded data, and creates a real-time database (RTDB).

The acquisition service connects to the Can0 port and the auxiliary acquisition service connects to the Can1 port. The data processing service processes battery pack alarms and protections, and calculates the total amount and status amount. The data storage service stores the real-time collected data to the U disk. Supports USB2.0/3.0 protocol.

The data display module displays the operation of the main control system (BAMS) of the energy storage power station. The data forwarding service provides standard Mod-bus TCP/IP protocol, standard IEC104 protocol, and IEC61850 protocol to the outside world. It is also responsible for communicating with the energy storage converter (PCS)/inverter, and supports the standard IEC61850 protocol, Mod-bus TCP/IP protocol, and Mod-bus RTU protocol for communication with the energy storage converter (PCS)/inverter.

The main functions of the BAMS are: real-time data display, alarm reminder and query, access to one or more battery cluster management units (BCMU) (up to 36 groups), allowing up to 17 Mod-bus TCP/IP master stations to connect simultaneously. It is connected to the PCS/inverter using RS485 or network connection.

RS485 adopts standard Mod-bus RTU, while network adopts standard Mod-bus TCP or IEC104 protocol or IEC61850 (MMS+GOOSE) protocol, supporting 8-way IEC61850 data concurrency.

Hardware port description:

J4 RS232	J3 Rs485	J2 CAN	J1 EARTH
① ttySAC0-RX	① NC	① CAN0-H	① EARTH
② NC	② ttySAC2-D-	② NC	② NC
③ ttySAC0-TX	③ NC	③ CAN0-L	③ NC
④ 232-GND	④ ttySAC2-D+	④ CAN-GND	④ NC
⑤ 232-GND	⑤ NC	⑤ CAN-GND	⑤ NC
⑥ ttySAC3-RX	⑥ NC	⑥ CAN1-H	⑥ NC
⑦ NC	⑦ ttySAC5-D-	⑦ NC	⑦ NC
⑧ ttySAC3-TX	⑧ NC	⑧ CAN1-L	⑧ NC
	⑨ ttySAC5-D+		⑨ NC
	⑩ NC		⑩ NC

Port	Port Description	Function Description	Definition of wire harness
24VDC/GND	24VDC INPUT	Provide power supply for BAMS	1-mm2 copper core wire
J1(1-10NC)	Optional	backup interface	
J2-1(CAN_H) J2-3(CAN_L)	CAN0 Communication 250Kbps	BAMS communicates with BCMU through CAN bus for data transmission and control.	0.3-mm2 shielded twisted pair
J2-6(CAN_H) J2-8(CAN_L)	CAN1 Communication(optional) 250Kbps	BAMS communicates with BCMU through CAN bus for data transmission and control.	0.3-mm2 shielded twisted pair
J3-2(485-2B) J3-4(485-2A)	RS485 2.4Kbps~19.2Kbps	BAMS communicates with PCS through RS485 data transmission and control	0.3-mm2 shielded twisted pair
J4-1(232-RX) J4-3(232-TX)	RX data receiving TX data transmission		
J4-6(232-RX) J4-8(232-TX)	RX data receiving TX data transmission		
LAN1	RJ45, 10/100M	BAMS communicates with the backstage through Ethernet	Beyond type 5 shielded twisted pair
LAN2	RJ45, 10/100M(optional)	BAMS communicates with the backstage through Ethernet	Beyond type 5 shielded twisted pair
SD	SD card interface	Used for operating system recovery	
USB flash disk	USB interface	Program upgrade, data export	

IV. Technical Parameters

Product model:		30kW/60kWh energy storage system
Rated power:		30kW
Rated capacity:		307.2V200Ah/61.44kWh
DC system voltage range:		240-345.6VDC
AC system voltage range:		380VAC
PV:	Working mode:	MPPT
	Rated PV input voltage:	500VDC
	MPPT tracking voltage range:	200V-850V
	Maximum PV input voltage Voc (under lowest temperature conditions):	500V
	Maximum PV input power:	39kW
	MPPT tracking paths (input paths):	6 paths
Input:	DC input voltage range:	200-700V
	Rated grid input voltage:	220/380VAC 3L/N/PE 50/60Hz
Output:	Inverter output efficiency:	97% (peak)
	Inverter output voltage:	220/380VAC 3L/N/PE 50/60Hz
	Inverter output waveform:	pure sine wave
	Grid output efficiency:	>97%
	Grid output voltage range:	follow the input
	Grid output frequency range:	follow the input
	Inverter output waveform distortion:	≤3% (linear load)
	Battery mode no-load loss:	≤1% rated power
	AC output rated current:	45.4/43.4A
	Maximum AC current:	45.4/43.4A
	Maximum three-phase unbalanced output current:	60A
	Charging mode:	Three-stage charging (constant current, constant voltage, float charging)
	Lithium battery:	Standard discharge current:
Maximum discharge current:		100A
Working voltage range:		200-288VDC
System standard voltage:		256VDC
Maximum charging current per pack:		50A
Maximum charging voltage per pack:		57.6V
System recommended discharge depth:		DOD 80%
Working mode:		Grid priority / PV priority / battery priority (can be set)
Conversion time:		≤10ms
Panel display:		LCD+LED
Cooling method:		intelligent fan control
Communication function (optional):		RS485/CAN communication interface / mobile phone APP (WIFI monitoring)
Environment:	Operating temperature:	-10°C~40°C
	Storage temperature:	-15°C~60°C
	Noise:	≤55dB
	Altitude:	2000m (exceeding this requires derating)
	Relative humidity:	0%~95%; no condensation

Note: The above parameters are subject to change without notice!

V. Faults and solutions

1.Common fault phenomena

Fault Symptom	Probable Cause	Remedy
Inverter won't start	Battery voltage is too low or overloaded	Battery charging or reducing load
Shutdown with load	Battery voltage is too low or overloaded	Battery charging or reducing load
Alarm on start-up	Battery voltage is too low or overloaded	Battery charging or reducing load
Terminal heating	Poor contact	Inspect and tighten screws

2.Inverter fault warning code and solution measures

Error Code	Device Description	Solution
F01	DC_Inversed_Failure	- Check the polarity of the PV input - If it can't return to normal state, seek help from us
F07	DC_START_Failure	1. The bus-voltage can't be formed by PV or battery 2.Reboot the frequency converter, if the fault still exists, please reset and seek help from us
F13	Working Mode change	- It will report F13 when the grid type and frequency change - It will report F13 when the battery mode changes to "no battery" mode - For some old FW versions, it will report F13 when the system working mode changes - Generally speaking, when F13 is displayed, it will disappear automatically - If it remains unchanged, turn on the DC and AC switches for a minute, then turn them on again -If it can't return to normal state, please seek help from us
F15	AC_OverCurr_SW_Failure	AC over-current fault on the backup load side - Please check if the backup load power and common load power are within the range - Reboot and check if it's normal - If it can't return to normal state, please seek help from us
F16	GFCI_Failure	Leakage current fault - Check the grounding connection of the PV side cables - Reboot the system 2-3 times - If the fault still exists, please contact us for help.
F18	Tz_Ac_OverCurr_Fault	AC over-current fault on the grid side - Please check if the backup load power and common load power are within the range - Reboot and check if it's normal - If it can't return to normal state, please seek help from us.
F20	Tz_Dc_OverCurr_Fault	DC over-current fault on the backup load side - Check the PV module connection and battery connection - When there is a large load in off-grid mode and the inverter starts, it will report F20. Please reduce the connected load power. - If it remains unchanged, turn on the DC and AC switches for a minute, then turn them on again. - Seek help from us if it can't return to normal state.
F21	Tz_HV_Overcurr_fault	Bus over-current fault - Check the PV input current and battery current settings 2. Reboot the system 2~3 times.- If the fault still exists, please contact us for help.
F22	Tz_EmergStop_Fault	Remote shutdown - It means that the inverter is remotely controlled.
F23	Tz_GFCI_OC_Fault	Leakage current fault - Check the grounding connection of the PV side cables. - Reboot the system 2~3 times. - If the fault still exists, please contact us for help.
F24	DC_Insulation_Fault	PV insulation resistance is too low - Check if the connection between the PV panel and inverter is firm and correct; - Check if the PE cable of the inverter is grounded; - Seek help from us if it can't return to normal state.
F26	BusUnbalance_Fault	- It will report F26 when the load power of the three phases is small. - It will report F26 when there is DC leakage current. - Reboot the system 2 to 3 times. - Seek help from us if it can't return to normal state.

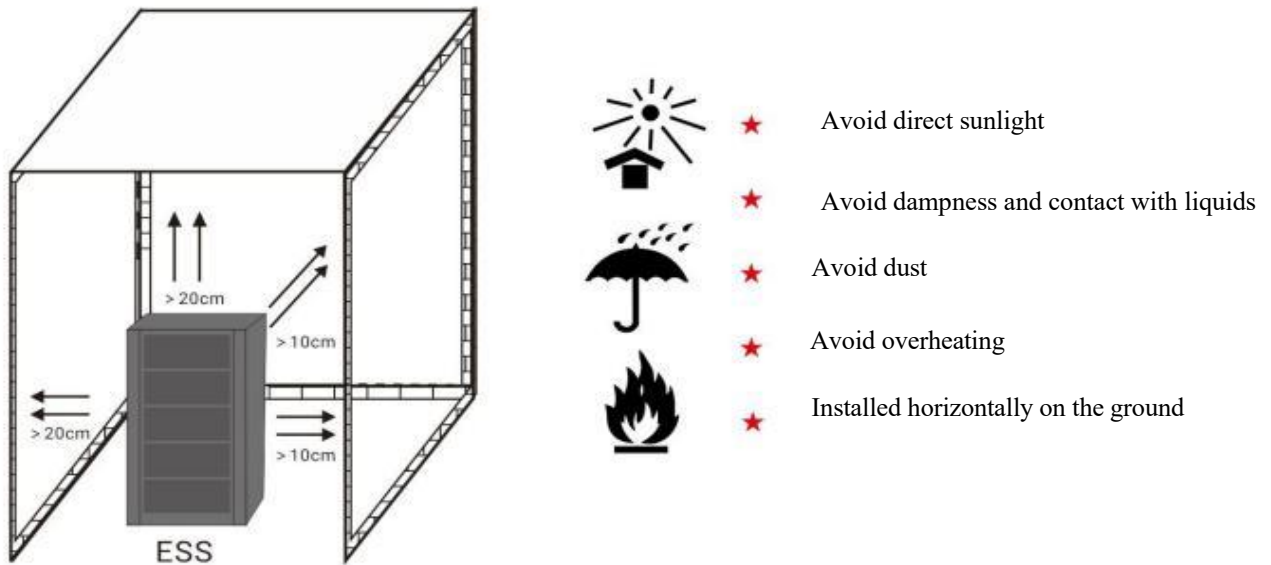
F29	Parallel communication fault	<ul style="list-style-type: none"> - When in parallel mode, check the parallel communication cable connection and the communication address setting of the hybrid inverter; - During the start-up of the parallel system, the inverter will report F29. However, when the inverters are in ON state, it will disappear automatically; - If the fault still exists, please contact us for help.
F34	AC_Overload_Fault	<ul style="list-style-type: none"> - Check the backup load connection to ensure it is within the allowable power range - If the fault still exists, please contact us for help
F41	Parallel system stop	<ul style="list-style-type: none"> - Check the working status of the hybrid inverter. If one hybrid inverter is turned off, all hybrid inverters will report a F41 fault. - If the fault still exists, please contact us for help
F42	Parallel version fault	<ul style="list-style-type: none"> Grid voltage fault - Check if the AC voltage is within the grid standard protection range - Check if the grid AC cable connection is firm and correct; - If it can't return to normal state, please seek help from us
F47	AC_OverFreq_Fault	<ul style="list-style-type: none"> Grid frequency out of range - Check if the frequency is within the specification range; - Check if the AC cable connection is firm and correct; - If it can't return to normal state, please seek help from us.
F48	AC_UnderFreq_Fault	<ul style="list-style-type: none"> Grid frequency below range - Check if the frequency is within the specification range; - Check if the AC cable connection is firm and correct; - If it can't return to normal state, please seek help from us.
F52	DC_VoltHigh_Fault	<ul style="list-style-type: none"> Bus voltage too high - Check if the battery voltage is too high; - Check the PV input voltage to ensure it is within the allowable range; - If it can't return to normal state, please seek help from us.
F53	DC_VoltLow_Fault	<ul style="list-style-type: none"> Bus voltage too low - Check if the battery voltage is too low; - If the battery voltage is too low, use photovoltaic or grid to charge the battery; - If it can't return to normal state, please seek help from us.
F54	BAT2_VoltHigh_Fault	<ul style="list-style-type: none"> - Check if the voltage of battery 2 terminal is too high; - Restart the inverter 2 times to restore factory settings; - If it can't return to normal state, please seek help from us.
F55	BAT1_VoltHigh_Fault	<ul style="list-style-type: none"> - Check if the voltage of battery 1 terminal is too high; - Restart the inverter 2 times to restore factory settings; - If it can't return to normal state, please seek help from us.
F56	BAT1_VoltLow_Fault	<ul style="list-style-type: none"> - Check if the voltage of battery 1 terminal is too low; - Restart the inverter 2 times to restore factory settings; - If it can't return to normal state, please seek help from us.
F57	BAT2_VoltLow_Fault	<ul style="list-style-type: none"> - Check if the voltage of battery 2 terminal is too low; - Restart the inverter 2 times to restore factory settings; - If it can't return to normal state, please seek help from us.
F58	Battery communication loss	<ul style="list-style-type: none"> - When "BMS_Err-Stop" is activated, notify the hybrid inverter that communication with the battery BMS has been disconnected; - If you don't want this to happen, you can disable the "BMS_Err-Stop" item on the LCD screen; -If the fault still exists, please contact us for help.
F62	DRMs0_stop	<ul style="list-style-type: none"> - The DRM function is only available for the Australian market; - Check if the DRM function is activated; - If it can't return to normal state after restarting, seek help.
F63	ARC_Fault	<ul style="list-style-type: none"> - The ARC fault detection is only available for the US market; - Check and clear any ARC faults by checking PV module cable connections; - If it can't return to normal state, please seek help from us.
F64	Heatsink_HighTemp_Fault	<ul style="list-style-type: none"> Heat sink temperature too high - Check if the working environment temperature is too high; - Turn off the inverter for 10 minutes and restart it; - If it can't return to normal state, please seek help from us.

VI. Installation method

- 1.Before connecting the load and energy storage system, please turn off all loads;
- 2.To ensure safety, please confirm that the product is properly grounded before use and before turning on the power.

3. When the load is a motor/compressor/laser printer/special lighting load, the inverter power should be calculated based on the load starting power due to the high starting power of the operation. The load starting power is generally 2-3 times the rated power.

4. The placement location of the energy storage system



VII. After-sale Warranty Regulations

1. Product Warranty

The system is integrated with a photovoltaic inverter and an energy storage lithium battery, and is specifically designed to ensure the performance of the battery module for five years from the date of manufacture. This warranty does not include any accessories or tool kits that come with the product.

This warranty covers only the repair or replacement of defective products. We will repair or replace the product (if the product is defective and returned within the warranty period). The repaired or replaced product will continue to have the original remaining warranty period. In either case, it should not be used as a reason for renewing the warranty period.

2. Warranty conditions

The product-related guarantees only apply in the following circumstances:

1. Purchased from the company or its authorized dealer.
2. Have an official serial number;
3. Install, operate, and maintain the product according to the Product Manual;
4. Use photovoltaic (PV) energy storage at 80% depth of discharge on a daily basis.

3. Scope of warranty

To the extent permitted by law, the company does not assume any liability for damages caused by the product or defects caused or contributed to by the following reasons:

1. The product is installed with an inverter/PCS/EMS that has not been certified by the company;
2. Failure to correctly install or operate the system/battery according to the product manual;
3. Neglect or treat the product in any other inappropriate way, including using the product beyond the recommended environmental, temperature, and humidity conditions;
4. Transportation, including but not limited to dropping, trampling, deformation, impact, or puncturing sharp objects;
5. Storage, installation, debugging, modification or repair of products performed by other personnel: other personnel outside the company's certified installation procedures;
6. Abuse, misuse, negligence, accident or force majeure events, including but not limited to lightning, floods, fires, extreme cold weather, or other events that the company cannot reasonably control;
7. Any attempt to extend or shorten the product life without the written confirmation of the company, whether through physical means, programming, or other means;
8. Water, conductive dust or corrosive gases; normal wear or deterioration, or surface defects, dents or marks that affect product performance
9. The product has been connected to different types of battery modules;
10. Failure to install, operate, or maintain the product in accordance with the product manual; theft or intentional destruction of the product or any of its components.