

# TW-SK-HV BatterySystem

- Flexible capacity options, 10.25kWh to 51.2kWh
- Excellent safety of cobalt free LiFePO<sub>4</sub> battery
- Easy installation with modular and stacked design
- Remote firmware upgrade



## HVM HIGH VOLTAGE BATTERY CHARACTERISTICS

- Safe, reliable, and complete protection functions.BMS intelligent protection; brand new & grade A LiFePO<sub>4</sub> battery, Excellent safety performance; metal shell, waterproof and explosion-proof.
- Built-in fire extinguishing device, automatically handles thermal runaway conditions beyond early warning
- Modular stacking design, easy expansion, up to 5/10 battery packs can be connected in series.
- Capacity 5.12kwh.
- Compatible with various energy storage inverters on the market.
- Supports UPS function, 24-hour uninterrupted power supply, full power continuous output guarantee, and safe power consumption.
- Energy saving, environmental protection and long life.Battery usage rate is as high as 95% or more; deep cycle, the number of cycles is more than 3500 times.
- Multifunctional design, with LED power display, beautiful appearance, ON/OFF switch control output.



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# 1 Introduction

This document mainly introduces the product information, installation wiring, configuration testing, troubleshooting, and maintenance content of the battery system. Before installing and using this product, please carefully read this manual, understand product safety information, and familiarize yourself with the product's functions and features. The document may be updated periodically.

## 1.1 Applicable products

This document applies to the following models of products:

- TW-SK-HV10.24
- TW-SK-HV15.4
- TW-SK-HV20.5
- TW-SK-HV25.6
- TW-SK-HV30.7
- TW-SK-HV35.8
- TW-SK-HV41.0
- TW-SK-HV46.1
- TW-SK-HV51.2

## 1.2 Applicable personnel

Only applicable to professionals who are familiar with local regulations, standards, electrical systems, have undergone professional training, and are familiar with the relevant knowledge of this product.

## 1.3 Symbol Definition

To better utilize this manual, the following symbols are used to highlight important information. Please read the symbols and instructions carefully.

Danger
Indicates a highly potential danger that, if not avoided, could result in death or serious injury to personnel.
Warning
Indicates a moderate potential danger, which could lead to death or serious injury if not avoided.
Cautious
Indicates a low potential danger that, if not avoided, may result in moderate or mild injury to personnel.
Notice
Emphasizing and supplementing the content may also provide tips or tricks for optimizing product usage, which can help you solve a problem or save you time.

## 1.4 Version record

The latest version in the modification record contains updated content from all previous document versions.

### V1.0 2024-02-21

- First release.

## 2 Safety Precautions

Please always comply with the safety precautions contained in this document when operating the equipment.

### Notice

The equipment has been strictly designed and tested in accordance with safety regulations, but as an electrical equipment, relevant safety instructions must be followed before any operation on the equipment. Improper operation may cause serious injury or property damage.

### 2.1 General safety

#### Notice

- Due to product version upgrades or other reasons, the document content may be updated periodically. Unless otherwise agreed, the document content cannot replace the safety precautions on product labels. All descriptions in the document are for guidance only.
- Please read this document carefully before installing the device to understand the product and precautions.
- All equipment operations must be carried out by professional and qualified electrical technicians who are familiar with the relevant standards and safety regulations of the project location.
- When operating equipment, it is necessary to use insulated tools and wear personal protective equipment to ensure personal safety. Contact with electronic devices requires wearing static gloves, static wristbands, anti-static clothing, etc. to protect the equipment from static damage.
- Equipment damage or personal injury caused by failure to install, use, or configure batteries according to document requirements is not within the responsibility of the equipment manufacturer.

## 2.2 Battery safety

### Danger















- The battery system belongs to a high-voltage system, and there is high voltage during equipment operation. Before operating equipment in the system, please ensure that the equipment is powered off to avoid the risk of electric shock. During the operation of the equipment, it is necessary to strictly follow all safety precautions in this manual and the safety signs on the equipment.
- The inverter used in conjunction with the battery needs to be approved by the battery manufacturer. The approved inverter and battery matching list can be obtained by contacting us.
- Do not disassemble, modify, or repair batteries or control boxes without official authorization from the equipment manufacturer. Otherwise, there may be a risk of electric shock or equipment damage, and any losses caused by this are not within the responsibility of the equipment manufacturer.
- Do not hit, pull, drag, squeeze or step on the equipment, and do not place the battery in a fire, otherwise there is a risk of explosion.
- Do not place the battery in a high-temperature environment, ensuring that there is no heat source or direct sunlight near the battery. A fire may occur when the ambient temperature exceeds 60 °C.
- If there are obvious defects, cracks, damage or other conditions in the battery or control box, please do not use it. Battery damage may cause electrolyte leakage.
- To protect the battery pack and its components from damage during transportation, please ensure that transportation personnel receive professional training. Record the operating steps during transportation and maintain equipment balance to prevent equipment from falling.
- The battery equipment is heavy, please equip corresponding personnel according to the weight of the equipment to avoid exceeding the weight range that can be carried by the human body and injuring personnel.
- If the battery cannot start, please contact the after-sales service center as soon as possible. Otherwise, the battery may be permanently damaged.
- Do not move the battery system during battery operation. If you need to replace or add batteries, please contact the after-sales service center.

### Cautious

- Ensure that the battery system is not damaged during transportation and storage.

- Transportation must be carried out by trained professionals and the operations during the process must be recorded.
- Ensure that the equipment is placed firmly and not tilted, as tilting the equipment may cause damage and personal injury.
- The use of cables in high-temperature environments may cause aging and damage to the insulation layer, and the distance between the cable and the periphery of the heating device or heat source area should be at least 30mm.
- Similar cables should be tied together, and different types of cables should be laid at least 30mm apart. It is prohibited to wrap or cross lay each other.

## Logo Description

	There is a potential danger during the operation of the equipment. Please take protective measures when operating the equipment.		Equipment should be kept away from open flames or ignition sources.
	High voltage danger. There is high voltage during the operation of the equipment. When operating the equipment, please ensure that it has been powered off.		The equipment should be kept away from areas accessible to children.
	Please use the equipment reasonably. In extreme cases, there is a risk of explosion.		Do not lift the device after the battery system is connected or in operation.
	The equipment contains corrosive electrolyte. Please avoid contact with leaked electrolyte or volatile gases.		During the operation of the equipment, please do not directly disconnect or plug the DC terminals.
	Batteries contain flammable materials, be careful of fires.		Circular regeneration flag.
	Before operating the equipment, please read the product manual carefully.		CE certification mark.
	Personal protective equipment must be worn during installation, operation, and maintenance.		Protect the grounding wire connection point.

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The equipment cannot be treated as household waste. Please dispose of the equipment in accordance with local laws and regulations, or send it back to the equipment manufacturer.

## 2.3 Emergency measures for emergency situations

### ➤ Battery electrolyte leakage

If the battery module leaks electrolyte, avoid contact with the leaked liquid or gas. Electrolytes are corrosive and may cause skin irritation and chemical burns upon contact. If you accidentally come into contact with leaked substances, please perform the following actions:

- **Inhalation:** Evacuate from the contaminated area and seek medical assistance immediately.
- **Eye contact:** Rinse with water for at least 15 minutes and seek medical assistance immediately.
- **Skin contact:** Thoroughly wash the contact area with soap and water, and seek medical assistance immediately.
- **Accidental ingestion:** induce vomiting and seek medical assistance immediately.

### ➤ fire breaking out

- When the battery temperature exceeds 150 °C, there is a risk of ignition, and toxic and harmful gases may be released after the battery catches fire.
- To avoid a fire, please ensure that there are carbon dioxide, Novac1230, or FM-200 fire extinguishers near the equipment.
- When extinguishing fires, do not use ABC dry powder fire extinguishers. Firefighters must wear protective clothing and self-contained breathing apparatus.

## 3 Product Introduction

### 3.1 Product Introduction

#### FUNCTIONAL OVERVIEW

The battery system consists of battery modules and control boxes, which can store and release electricity according to the requirements of the photovoltaic energy storage system. The input and output ports of the energy storage system are both high-voltage direct current.

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## Model Description

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- TW-SK-HV15.4
- TW-SK-HV20.5
- TW-SK-HV25.6
- TW-SK-HV30.7
- TW-SK-HV35.8
- TW-SK-HV41.0
- TW-SK-HV46.1
- TW-SK-HV51.2

## Model Meaning

# TW-SK-HV 10.24

①      ②      ③      ④

Number	Meaning	Description
①	Company Code	Toway
②	Placement Type	SK: Stacked
③	Product characteristics	HV: High voltage battery
④	Available power	<ul style="list-style-type: none"> <li>• 10.24: The available power of the battery system is 10.24 kWh</li> <li>• 15.4: The available power of the battery system is 15.4kWh</li> <li>• 20.5: The available power of the battery system is 20.5 kWh</li> <li>• 25.6: The available power of the battery system is 25.6 kWh</li> <li>• 30.7: The available power of the battery system is 30.7 kWh</li> <li>• 35.8: The available power of the battery system is 35.8 kWh</li> <li>• 41.0: The available power of the battery system is 41.0 kWh</li> <li>• 46.1: The available power of the battery system is 46.1 kWh</li> <li>• 51.2: The available power of the battery system is 51.2 kWh</li> </ul>

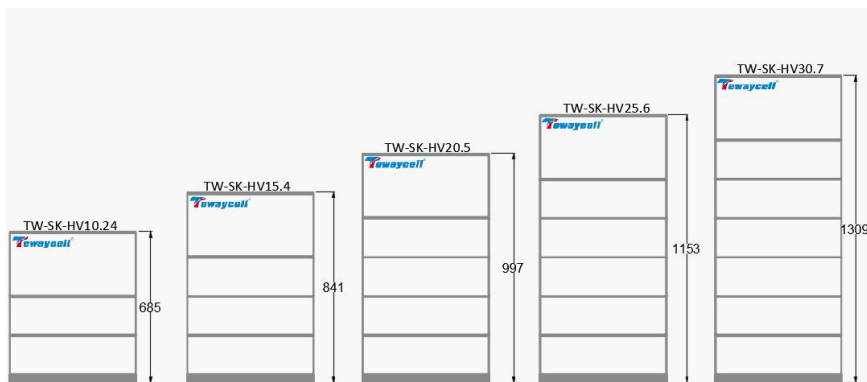
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## Description of available power

### Notice

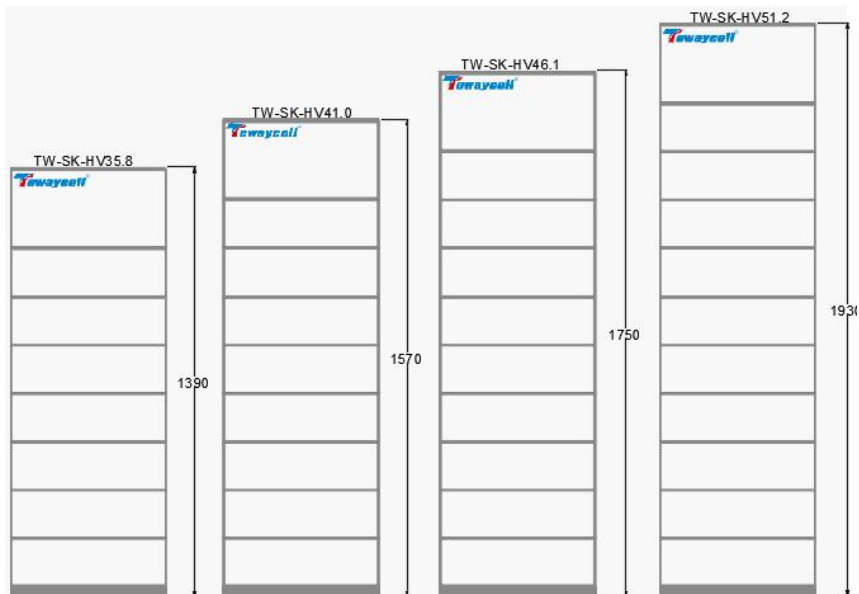
- The battery system supports available power expansion, with a maximum of 9 battery modules supporting available power expansion. The expansion conditions must be strictly followed. For more details, please contact your dealer or equipment manufacturer. If the expansion operation is not carried out as required, it may lead to undervoltage, overvoltage, or differential pressure faults in the battery system.
- There is a slight difference in actual height, please refer to the actual installation height.



Model	TW-SK-HV10.24	TW-SK-HV15.4	TW-SK-HV20.5	TW-SK-HV25.6	TW-SK-HV30.7
Energy Capacity	10.4kWh	15.4kWh	20.5kWh	25.6kWh	30.7kWh
Dimension (W/D/H)	650/450/685mm	650/450/841mm	650/450/997mm	650/450/1153mm	650/450/1309mm
Nominal voltage	102.4V	153.6V	204.8V	256.0V	307.2V
Operating voltage range	86.4V-113.6V	129.6V-170.4V	172.8V-227.2V	216.0V-284.0V	259.2V-340.8V

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Model	TW-SK-HV35.8	TW-SK-HV41.0	TW-SK-HV46.1	TW-SK-HV51.2
Energy Capacity	35.8kWh	41.0kWh	46.1kWh	51.2kWh
Dimension (W/D/H)	650/450/1390mm	650/450/1570mm	650/450/1750mm	650/450/1930mm
Nominal voltage	358.4V	409.6V	460.8V	512.0V
Operating voltage range	302.4V-397.6V	345.6V-454.4V	388.8V-511.2V	432.0V-568.0V

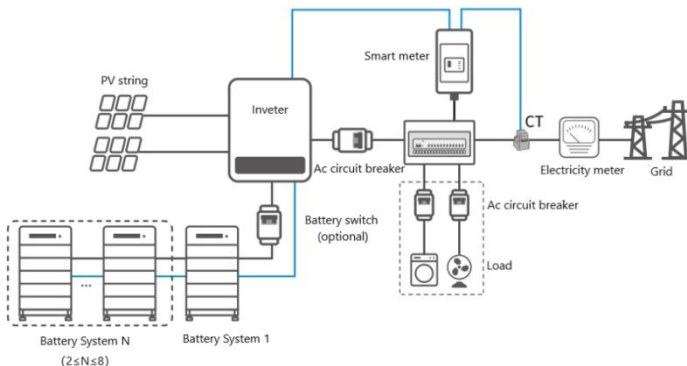
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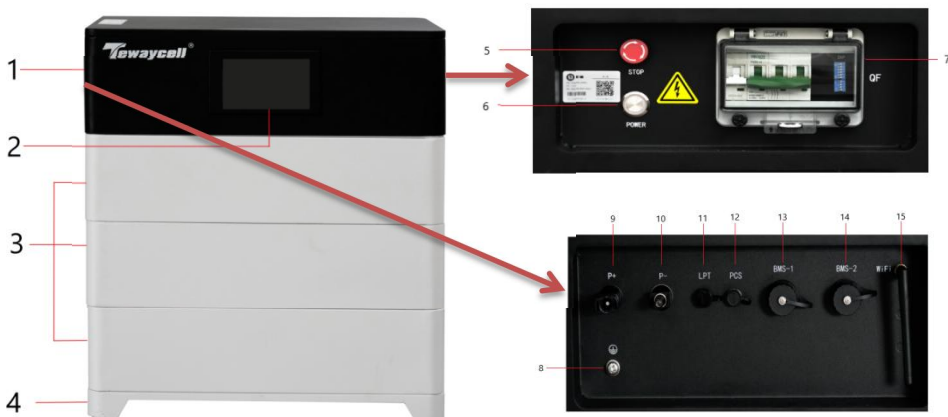
## 3.2 Application scenarios

### Notice

- The same energy storage system supports battery system clustering, with a maximum support of 8 battery systems clustering. When clustering, it is necessary to ensure that the available power of each battery system is consistent.
- The circuit breaker between the inverter and the battery, as well as the circuit breaker between the battery system, must be installed in accordance with local laws and regulations. Recommended specifications:
  - Rated voltage  $\geq 750V$ .
  - When the battery system is used in a single cluster: the rated current of the switch between the inverter and the battery is  $\geq 50A$ .
  - When the battery system is used in two clusters: the rated current of the switch between the inverter and the battery is  $\geq 100A$ ; The rated current of the switch between battery clusters is  $\geq 50A$ .
  - When the battery system is used in three or more clusters: the rated current of the switch between the inverter and the battery is  $\geq 125A$ ; The rated current of the switch between battery clusters is  $\geq 50A$ .



### 3.3 Appearance Description



No.	Component Name	Description
1	Controller Box	Control battery system operation
2	Display screen	Display battery parameters
3	Battery Module	5.12kWh,51.2V
4	Battery base	-
5	Emergency stop	Emergency stop button, used to press the button in case of an emergency, the circuit breaker will trip and cut off the main circuit, and the system will shut down after 3 seconds
6	Power button	-
7	Air Switch	-
8	Protective earth terminal	Connect the battery system protective grounding cable.
9	DC port/P+	Connect the DC cable of the battery system
10	DC port/P-	Connect the DC cable of the battery system
11	Communication Port	Connecting inverters
12	Communication Port	Parallel communication interface
13	Communication Port	Connecting to the upper computer
14	Communication Port	
15	WiFi module	-

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## 4 Equipment inspection and storage

### 4.1 Pre delivery inspection

Before signing for the product, please carefully check the following contents:

1. Check if there is any damage to the outer packaging, such as deformation, holes, cracks, or other signs that may cause damage to the equipment inside the packaging. If there is any damage, do not open the packaging and contact your dealer.
2. Check if the device model is correct. If there is any discrepancy, do not open the packaging and contact your dealer.
3. Check whether the type and quantity of deliverables are correct, and whether there is any damage to the appearance. If there is any damage, please contact your dealer.

### 4.2 Deliverables

No.	Name	Picture	Quantity
1	Controller Box	-	1
2	Battery base	-	1
3	Battery Module	-	Determined by model
4	DC wiring terminal		one each
5	Communication line wiring terminals		Aviation plug 6-core 1pcs Aviation plug 8-core 1pcs

### 4.3 Device storage

If the device is not immediately put into use, please store it according to the following requirements:

1. Ensure that the outer packaging box is not removed and that the desiccant inside the box is not lost.
2. It is recommended to remove the packaging box and complete the equipment

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installation within 3 days. If the equipment is not installed, it needs to be repackaged using the original packaging box for storage.

3. Ensure that the stacking height and direction of the equipment are placed according to the instructions on the label on the packaging box.

4. Ensure that there is no risk of tipping over after stacking the equipment.

5. Ensure that the equipment is stored away from flammable, explosive, and corrosive materials.

6. Ensure that the device is stored in a cool and shaded place, avoiding direct sunlight.

7. Ensure that the storage environment is clean, the temperature and humidity range is appropriate, and there is no condensation.

8. Storage battery SOC range: 25%~50% SOC, charging and discharging cycles are required every 6 months of storage.

9. Description of storage temperature range:

- When  $-20\text{ }^{\circ}\text{C} \leq \text{temperature} < 0\text{ }^{\circ}\text{C}$ , the storage time cannot exceed 1 month.
- When  $0\text{ }^{\circ}\text{C} \leq \text{temperature} \leq 35\text{ }^{\circ}\text{C}$ , the storage time cannot exceed 1 year.
- When  $35\text{ }^{\circ}\text{C} < \text{temperature} \leq 45\text{ }^{\circ}\text{C}$ , the storage time should not exceed one month.

10. Storage humidity range requirement: 0~95% RH without condensation. If moisture condensation is found at the battery interface, the battery system should not be installed.

## 5 System installation

### 5.1 Installation Requirements

#### Installation environment requirements

1. Equipment should not be installed in flammable, explosive, or corrosive environments.

2. The installation position should be away from the range that children can reach, and should be avoided from being installed in easily accessible positions. There may be high temperatures on the surface of the equipment during operation to prevent burns.

3. The installation position should avoid water pipes, cables, etc. inside the wall to avoid danger during drilling.

4. The installation environment should avoid direct sunlight, rain, snow, etc. It is recommended to install in a covered installation location. If necessary, a sunshade can be built.

5. The installation space must meet the requirements of equipment ventilation and heat dissipation, as well as the requirements of operating space.

6. The equipment protection level should meet the requirements for indoor and outdoor installation, and the installation environment temperature and humidity

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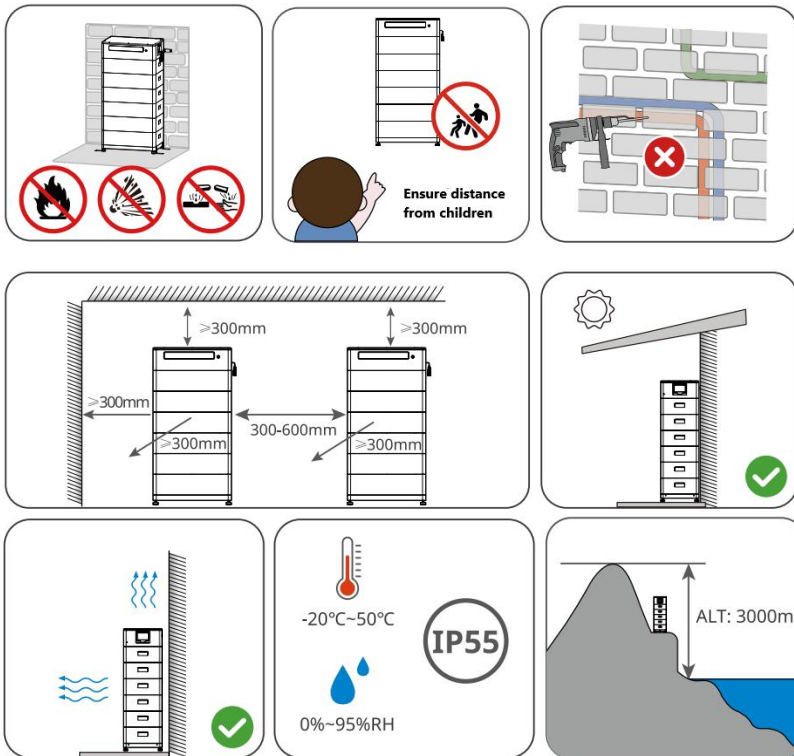
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should be within a suitable range.

7. The installation height of the equipment should be easy to operate and maintain, ensuring that the equipment indicator lights, all labels are easy to view, and the wiring terminals are easy to operate.

8. The installation altitude of the equipment is lower than the maximum working altitude of 3000m.

9. Stay away from strong magnetic field environments and avoid electromagnetic interference. If there is a wireless radio station or wireless communication equipment below 30MHz near the installation location, please ensure that the distance between the battery and the wireless electromagnetic interference equipment is greater than 30m.



### Installation carrier requirements

- The installation carrier must not be flammable materials and must have fire resistance.
- Please ensure that the installation carrier is sturdy and reliable, capable of carrying the weight of the equipment.

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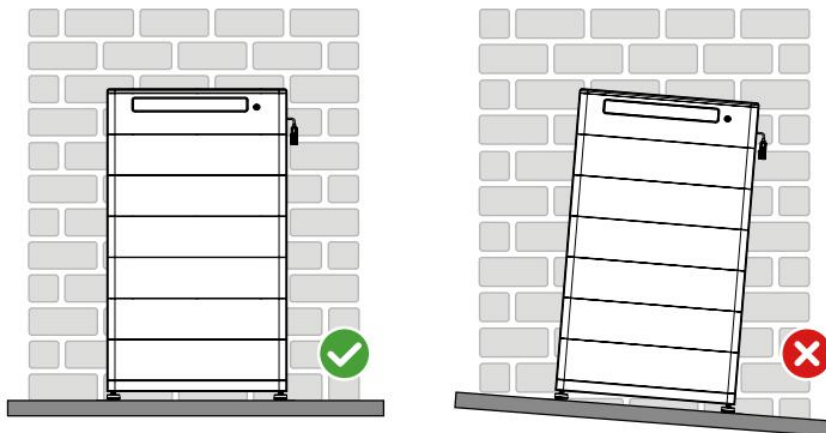
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- When installing the battery system, it is necessary to be close to the wall and install anti tipping brackets to prevent the battery from tipping over

### Installation angle requirements

Ensure that the equipment is installed horizontally and not tilted or inverted.



## 5.2 Installing battery system

### 5.2.1 Handling equipment

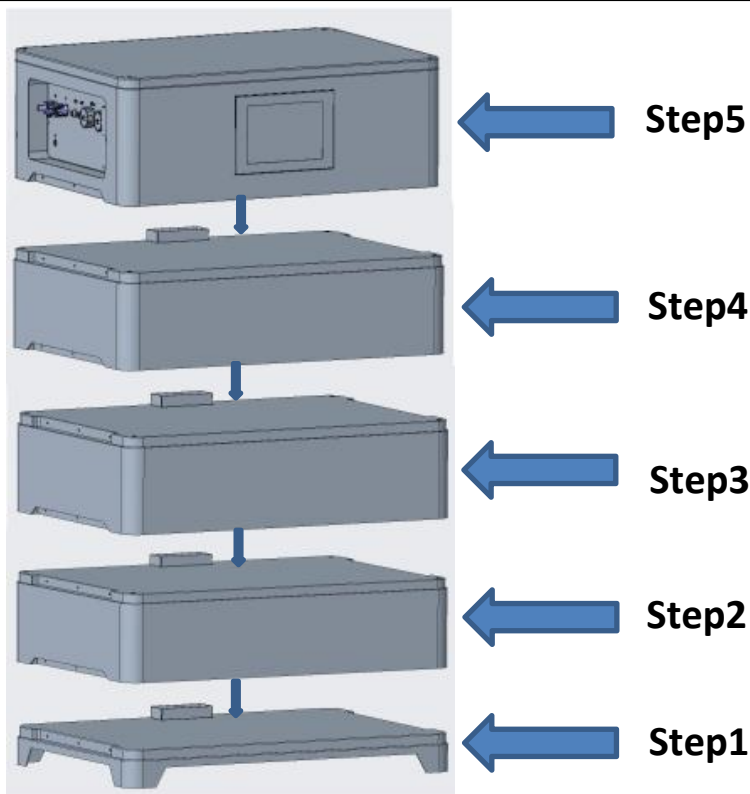
#### Cautious

- When carrying out transportation, turnover, installation, and other operations, it is necessary to comply with the laws, regulations, and relevant standards of the country and region where it is located.
- Before installation, the equipment needs to be transported to the installation site. To avoid personal injury or equipment damage during the transportation process, please pay attention to the following:
  1. Please equip corresponding personnel according to the weight of the equipment to avoid exceeding the weight range that can be carried by the human body and injuring personnel.
  2. Please wear safety gloves to avoid injury.
  3. Please ensure that the equipment is balanced during transportation to avoid falling.

## 5.2.2 Installing battery system

### Warning

- Ensure that the control box is installed above the battery, and do not install the battery above the control box.
- When installing the battery system, it is necessary to ensure that the installation is horizontal and firm. When placing the battery base, battery, or control box, it is necessary to confirm that the upper and lower holes are aligned;
- The anti tipping bracket is vertically attached to the ground, wall, or battery system surface.
- When using an impact drill to drill holes, it is necessary to cover the battery system with cardboard or other obstructions to prevent foreign objects from entering the interior of the equipment and causing damage.
- Before installing the battery system, the cover plate of the battery module wiring port needs to be removed.



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## 6 Electrical connections

### 6.1 Safety precautions

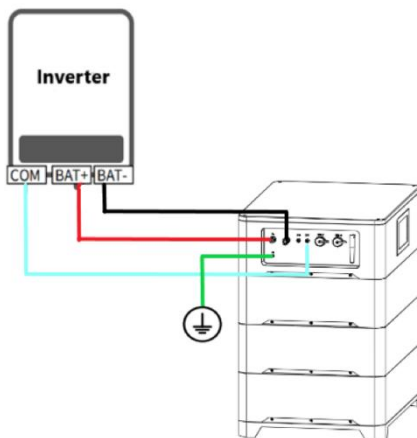
#### Danger

- The battery system belongs to a high-voltage system, and there is high voltage during equipment operation. Before operating the devices in the system, please ensure that the devices have been powered off to avoid errors.
- Danger of electric shock. During the operation of the equipment, it is necessary to strictly follow all safety precautions in this manual and the safety signs on the equipment.
- All operations, cables, and component specifications used during the electrical connection process must comply with local laws and regulations.
- Similar cables should be tied together and arranged separately from different types of cables, and intertwining or cross arrangement is prohibited.
- When crimping the wiring terminals, please ensure that the conductor part of the cable is in full contact with the wiring terminals. Do not crimp the insulation skin of the cable together with the wiring terminals, otherwise it may cause the equipment to be unable to operate, or the inverter terminal block may be damaged due to unreliable connection and overheating after operation.

#### Notice

- When making electrical connections, please wear personal protective equipment such as safety shoes, protective gloves, and insulated gloves as required.
- Only professional personnel are allowed to perform electrical connection related operations.
- The cable colors in the graphics in this article are for reference only, and the specific cable specifications must comply with local regulatory requirements.

## 6.2 Electrical connections



## 6.3 Connect the protective ground wire

### Notice

- When installing equipment, the protective ground wire must be installed first; When dismantling equipment, the protective ground wire must be removed last.
- Please ensure that the pulling force after cable crimping is greater than 400N.
- Please bring your own protective ground wire. Recommended specifications:  
Type: Outdoor single core copper wire  
Conductor cross-sectional area: 4-6 mm<sup>2</sup>



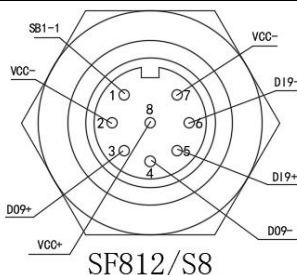
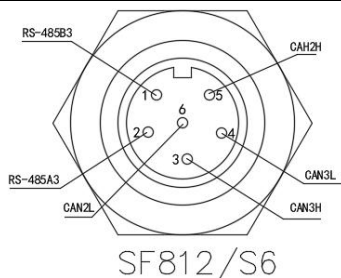
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## 6.4 Communication line connection

### Warning

- If the matching inverter model has been equipped with a communication line between the inverter and the battery at the factory, it can be determined whether to use the provided cable based on the actual situation. For detailed cable specifications, please refer to the corresponding inverter user manual.
- If the communication cable needs to be provided by oneself, the recommended specifications are standard network cable and RJ45 crystal connector.



## 7 System operation

### 7.1 Inspection before power on

When the battery system is powered on, please make sure to check the following contents to prevent system damage.

No.	Inspection items
1	The equipment is firmly installed, the installation position is easy to operate and maintain, the installation space is convenient for ventilation and heat dissipation, and the installation environment is clean and tidy.
2	The protective grounding wire, power line, communication line, and terminal resistor are connected correctly and firmly.
3	The cable binding meets the routing requirements, is reasonably distributed, and has no damage.
4	Unused ports are blocked.

## 7.2 Power on battery system

### Notice

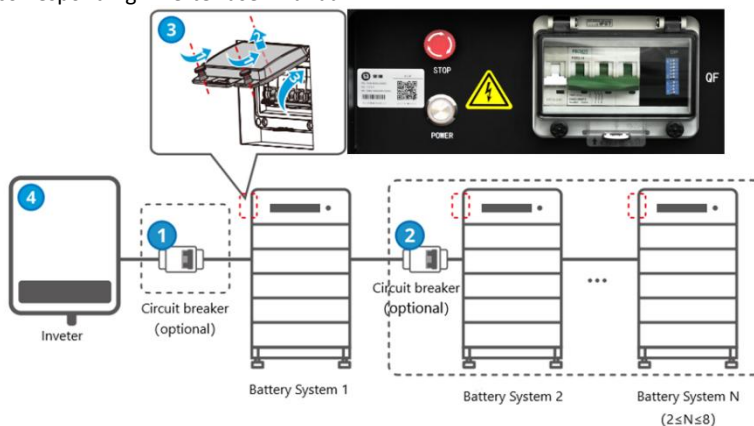
- The dashed box is an optional configuration.
- The circuit breaker between the inverter and the battery, as well as the circuit breaker between the battery system, must be installed in accordance with local laws and regulations.
- When shutting down the battery system, please strictly adhere to the battery system powering on requirements to prevent damage to the battery system.
- To ensure effective protection of the battery system, the cover plate of the battery system switch remains closed, and the protective cover can automatically close when opened. If the battery system switch is not used for a long time, it needs to be tightened with screws.

**Step 1:** Close the circuit breaker between the inverter and the battery system.

**Step 2:** (Optional) If it is a parallel cluster system, the circuit breakers between the battery systems need to be closed sequentially.

**Step 3:** Close the battery system switch. If it is a clustered system, the battery system switch needs to be closed in sequence and the switch of the control box needs to be pressed and held for more than 5 seconds.

**Step 4:** Power on the inverter in the system. For detailed instructions, please refer to the corresponding inverter user manual.



### Notice

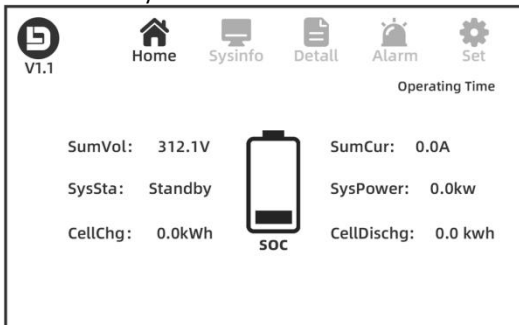
After the battery system is started, please ensure that the communication between the inverter and the battery system is normal within 15 minutes. If the inverter cannot communicate with the battery system normally, the battery system switch will automatically disconnect and the battery system will be powered off.

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## 7.3 Display screen operation instructions


- Long press the control box switch (for more than 5 seconds), the display screen will light up, on the main interface of the display screen, you can view the basic information of the battery.








- Click on the "Settings" option, and in the "Settings" section, you can choose to switch language types, adjust brightness, clear, adjust time, upgrade software and device.




- Click "Sysinfo" to view the system information of the battery.






 V1.1
 

 Home
  Sysinfo
  Detail
  Alarm
  Set

SysSta:Standby	BCMUol: Online
Supplyol:23.9 V	BoardTemp:35.9°C
Totalchg: 0.0 kwh	TotalDischg:0.0 kwh
Posvol: 156.1 V	NegVol: 156.0V
PosCur: 0.0A	NegCur: 0.0A
VolDiff: 18 mV	TempDif: 1.0°C


- Click "Details" to view detailed information about the battery.






 V1.1
 

 Home
  Sysinfo
  Detail
  Alarm
  Set













<b>StaInfo</b>	VolDiff:17mV	TempDiff:1.0°C
ModuleInfo	AverVol:3235 mV	AverTemp:24.7°C°C
SingleVol	MaxSingleVol:3242 mV	MinSingleVol:3225 mV
CellTemp	MaxVolNum:26	MinVolNum:80
SetCell	MaxSingleTemp25.0 °C	MinSingleTemp24.0°C
	MaxTempNum: 1	MinTempNum: 19

- Click "Alarm", you can view the battery's alarm information and also view historical alarm information

 V1.1
 

 Home
  Sysinfo
  Detail
  Alarm
  Set

Yes

SumVol		SumVol	
SingleVol		SingleVol	
CellVolDif		CellVolDif	
PoleTemp		PoleTemp	
CellTemp		CellTemp	
CellTempDif		CellTempDif	



## 8 Maintenance

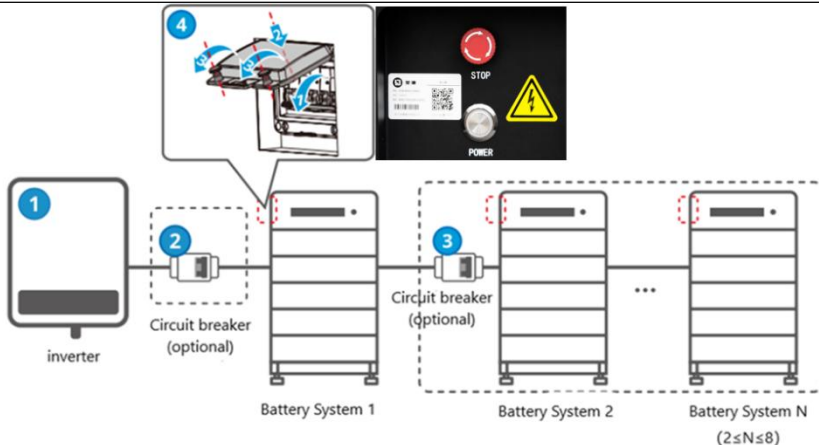
### 8.1 Battery system power-off

#### Danger

- When operating and maintaining the battery system, please turn off the battery system. Operating the equipment with power may cause damage to the equipment or pose a risk of electric shock.
- When shutting down the battery system, please strictly follow the battery system power-off requirements to prevent damage to the battery system.

#### Notice

- The dashed box is an optional configuration.
- The circuit breaker between the inverter and the battery, as well as the circuit breaker between the battery system, must be installed in accordance with local laws and regulations.
- To ensure effective protection of the battery system, the cover plate of the battery system switch remains closed, and the protective cover can automatically close when opened. If the battery system switch is not used for a long time, it needs to be tightened with screws.



#### Method 2:

**Step 1:** Power off the inverter used in the system. For detailed instructions, please refer to the corresponding inverter user manual.

**Step 2:** Disconnect the circuit breaker between the inverter and battery system

**Step 3:** (Optional) If it is a clustered system, the circuit breakers between the battery

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systems need to be closed sequentially

**Step 4:** Disconnect the battery system switch, long press the Power button or press the emergency stop switch.

## 8.2 Regular maintenance

### Warning

- If any issues are found that may affect the battery or energy storage inverter system, please contact after-sales personnel. Unauthorized disassembly is prohibited.
- If exposed copper wires are found inside the conductive wire, do not touch them. High voltage danger, please contact after-sales personnel. Unauthorized disassembly is prohibited.
- If other unexpected situations occur, please contact the after-sales personnel as soon as possible, operate under the guidance of the after-sales personnel, or wait for the on-site operation of the after-sales personnel.

Maintenance content	Maintenance Cycle
Check if the anti tipping bracket is installed loose, and if so, tighten the corresponding position.	Every 6 months
Check if the shell is damaged. If so, please repaint or contact the after-sales service center.	Every 6 months
Check if there is any wear on the exposed wires. If there is, please replace the corresponding cable or contact the after-sales service center.	Every 6 months
Check if there is any debris accumulation around the battery. If there is, please clean it to avoid affecting the battery's heat dissipation.	Every 6 months
Check for water or pests to avoid long-term intrusion into the battery.	Every 6 months

## 9 Technical Parameter

Technical Parameter	TW-SK-HV10.24	TW-SK-HV15.4	TW-SK-HV20.5	TW-SK-HV25.6	TW-SK-HV30.7
Power module	HVB-75100U				
Number of power modules	1				
Battery Module	TW-SK-HV5.12-A1(5.12kWh,51.2V,56.86kg)				
Number of modules	2	3	4	5	6
Energy Capacity	10.4kWh	15.4kWh	20.5kWh	25.6kWh	30.7kWh
Usable Capacity	9.2kWh	13.8kWh	18.4kWh	23.0kWh	27.6kWh
Max. Output power	5kW	7.7kW	10.2kW	12.8kW	15.4kW
Peak output power	10kW,10s	15.4kW,10s	20.4kW,10s	25.6kW,10s	30.8kW,10s
Dimension (W/D/H)	650/450/68 5mm	650/450/84 1mm	650/450/99 7mm	650/450/11 53mm	650/450/13 09mm
Weight	144.6Kg	201.5Kg	258.4Kg	315.3Kg	372.2Kg
Nominal voltage	102.4V	153.6V	204.8V	256.0V	307.2V
Operating voltage range	86.4V- 113.6V	129.6V- 170.4V	172.8V- 227.2V	216.0V- 284.0V	259.2V- 340.8V
Battery Type	Cobalt Free Lithium Iron Phosphate (LFP)				
IP Protection	Ip55				
Installation	Wall-mounted or Floor installation				
Operation Temperature	-10°C ...~50°C				
Relative humidity	10%~90%				
Cooling	Natural				
Warranty	3 years				
Power modules	HVB-75100U				
Dimension(W/D/H)	630/450/130mm				
Weight	17.2kg				
Communication Port	CAN/RS485				
Nominal voltage	102.4V~512V				
Operating voltage range	86.4V-568.0V				
Maximum current	50A				
Peak current	100A,10s				
Monitoring Parameters	SOC, System voltage, current, cell voltage, cell temperature, PCBA temperature				

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Technical Parameter	TW-SK-HV35.8	TW-SK-HV41.0	TW-SK-HV46.1	TW-SK-HV51.2
Power module	HVB-75100U			
Number of power modules	1			
Battery Module	TW-SK-HV5.12-A1(5.12kWh,51.2V,kg)			
Number of modules	7	8	9	10
Energy Capacity	35.8kWh	41.0kWh	46.1kWh	51.2kWh
Usable Capacity	32.1kWh	36.8kWh	43.4kWh	46.0kWh
Max. Output power	17.9kW	20.5kW	23.0kW	25.6kW
Peak output power	35.8kW,10s	41.0kW,10s	46.0kW,10s	51.2kW,10s
Dimension (W/D/H)	650/450/1390mm	650/450/1570mm	650/450/1750mm	650/450/1930mm
Weight	429.1Kg	486.0Kg	542.9Kg	599.8Kg
Nominal voltage	358.4V	409.6V	460.8V	512.0V
Operating voltage range	302.4V-397.6V	345.6V-454.4V	388.8V-511.2V	432.0V-568.0V
Battery Type	Cobalt Free Lithium Iron Phosphate (LFP)			
IP Protection	Ip55			
Installation	Wall-mounted or Floor installation			
Operation Temperature	-10℃ ...~50℃			
Relative humidity	10%~90%			
Cooling	Natural			
Warranty	3 years			
Power modules	HVB-75100U			
Dimension(W/D/H)	630/450/130mm			
Weight	17.2kg			
Communication Port	CAN/RS485			
Nominal voltage	102.4V~512V			
Operating voltage range	86.4V-568.0V			
Maximum current	50A			
Peak current	100A,10s			
Monitoring Parameters	SOC, System voltage, current, cell voltage, cell temperature, PCBA temperature			

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