



EN-Manual

Jun-2025 Version1.3



Low Voltage Battery System

Battery-Box LV5.0+



User Manual

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This document does not supersede and is not intended to supersede any local, state, provincial, federal, or national laws, regulations, or codes applicable to the installation, electrical safety, and use of the battery module. BYD is not responsible for compliance or non-compliance with such laws or regulations when installing the battery module.

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Limited Warranty Letter

You can download the latest warranty documents from the www.bydenergy.com on the Internet.

Product Datasheet

You can download the latest product datasheet from the www.bydenergy.com on the Internet.

Service Guide

You can download the latest Service Guide from a www.bydenergy.com on the Internet.

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Manufacturer

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Table of Contents

1. Information on this Document	5
1.1 Validity	5
1.2 Target groups	6
1.3 Content and structure of this document	6
1.4 Loading and unloading requirements	6
1.5 Declaration of Conformity	7
1.6 Warning level	7
1.7 Documentation symbols	7
1.8 Abbreviations and Definitions of Terms	8
2. Security	9
2.1 Intended Use	9
2.2 Important safety instructions	10
2.2.1 Battery Module Leakage.....	10
2.2.2 Fire fighting Measures.....	10
2.2.3 Guidelines for the handling and storage of battery modules.....	11
2.2.4 Overvoltage Warning.....	12
2.2.5 Caution of Weight.....	12
2.2.6 Property Loss Notification.....	13
3. Scope of Delivery	14
3.1 Battery	14
3.2 Optional Accessories	14
4. Battery System Overview	15
4.1 Structure Dimension Drawing	15
4.2 Battery System Description	15
4.3 Battery System Scalability	16
4.4 Interface	17
4.5 Symbols	18
4.6 Nameplate label	19
4.7 Warning label	19
4.8 LED indicator	20
5. Installation	21
5.1 Instruction	21
5.1.1 Installation requirements.....	21
5.1.2 Emergency measures for battery falling.....	21

5.1.3 Installation Scenario	21
5.1.4 Tools & Additional Accessories (not included in the scope of delivery)	23
5.1.5 Safety Gear & Required Personnel	23
5.2 Procedure of Installation	24
6. Electrical connections	28
6.1 Functional Area Overview	28
6.2 Topology Diagram	29
6.2.1 One Module	29
6.2.2 One Tower & Multiple Towers	29
6.3 Grounding connection	30
6.4 Data cable connection	31
6.4.1 Inverter cable connection between inverter and one battery system	31
6.4.2 Installation Terminal Resistor	32
6.4.3 Data cable connection between multiple towers	32
6.5 Power cable connection	33
6.5.1 single battery module connection	33
6.5.2 Connection diagram	34
6.6 BYD smart WIFI/LAN module installation (optional)	35
6.6.1 BYD Inverter with LV5.0+	35
6.6.2 Other brands of inverters with LV5.0+	35
7. Configuration	37
7.1 Operation	37
7.1.1 Switch on the Battery Module	37
7.1.2 Switch off the Battery Module	37
7.2 Configuration of battery system	38
7.2.1 BYD inverter with LV5.0+	38
7.2.2 Other brand inverter with LV5.0+	38
7.3 Protective Devices	39
8. Disassembly	40
9. Capacity Expansion	41
10. Fault Guide	42
10.1 LED failure indication	42
10.2 Service Guide	42
11. Storage	43
12. Maintenance and Replacement	44
13. Disposal of Battery Module	45
14. Technical Parameters	46

15. Contact Information47

1. Information on this Document

Disclaimer

When installing, operating, and maintaining the equipment, read this manual first and follow all safety precautions in the equipment and manual.

BYD shall not be liable for any of the following circumstances.

- Not operating under the conditions described in this manual.
- The installation and use environment does not comply with relevant international, national or regional standards.
- Unauthorized disassembly, alteration of the product or modification of the software code.
- Not following the safety instructions and precautions in the product and manual.
- Damage caused by abnormal natural environment (force majeure, such as earthquake, fire, wind, flood, mudslide, etc.).
- Losses due to customer transportation.
- Damage due to storage conditions not meeting the requirements of this manual.
- Hardware or data damage due to negligence, mishandling, or intentional damage by the customer.
- System damage caused by third parties or customers, including damage caused by improper transportation and installation that does not meet the requirements of this manual, and damage caused by adjustment, alteration, or removal of identification marks that do not meet the requirements of this manual.

* Reverse engineering, decompilation, disassembly, adaptation, implantation, or other derivative operations of the device software are prohibited. It is forbidden to study the internal implementation of the device, obtain the source code of the device software and steal intellectual property rights in any way. It is forbidden to disclose any performance test results of the equipment software.

1.1 Validity

This document applies to LV5.0+ battery module.

1.2 Target groups

Instructions in this document may only be performed by qualified personnel with the following skills:

- Understand how batteries work and operate.
- Understand the working principle and operation method of the inverter.
- Know and comply with locally applicable connection requirements, standards and directives.
- Understand and follow this document and related system documentation, including all safety instructions.
- Training to handle hazards associated with the installation and operation of electrical equipment and batteries.
- Training on installation and commissioning of electrical equipment.

Failure to do so will void any manufacturer's warranty, guarantee, or liability unless you can prove that the damage was not due to non-compliance.

1.3 Content and structure of this document

This document contains safety information and instructions, scope of delivery, battery module overview, installation, electrical connection, commissioning, operation, decommissioning, expansion, troubleshooting, maintenance and storage, battery module disposal, technical parameters and contact information. Read this document before performing any action on the battery module.

1.4 Loading and unloading requirements

Batteries need to be handled in accordance with local laws, regulations and industry standards. Improper loading and unloading can result in shorting or damage to the battery, which can lead to leakage, rupture, explosion, or fire. Transportation requirements.

Transport requirements:

- Before shipment, the battery must be checked to ensure that it is intact and free from unusual odors, smoke, fire, etc. Otherwise, shipment is prohibited.
- Packing must be secure. The product must be handled with care during transportation, and moisture-proof measures shall be taken. Considering the influence of external environment (such as temperature, transportation, storage, etc.), the specifications and parameters shall be subject to the date of manufacture.

- The following conditions must be prohibited during transportation: direct contact with rain, snow or immersion in water; falling or mechanical shock; Inverted or tilted.

1.5 Declaration of Conformity

The battery modules described in this document comply with applicable local directives. The certificate is available in the Downloads area of the www.bydenergy.com.

1.6 Warning level

The following levels of warning messages may appear when handling the battery module.

DANGER

Indicates a hazardous situation that, if not avoided, will result in death or serious injury.

WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

Indicates a situation that could result in property damage if not avoided.

1.7 Documentation symbols

QUALIFIED PERSON

Describe activities performed by qualified personnel only.

1.8 Abbreviations and Definitions of Terms

No.	Designation	Explanation
1	BMS	Battery Management System
2	Battery module	LV5.0+
3	Tower	Consists of multiple modules stacked up and down
4	Smart WIFI/LAN module	WIFI/LAN/Bluetooth module as an optional accessory

2. Security

Disclaimer

BYD shall not be liable for any functional failure, component damage, personal safety accident or property loss caused by the following reasons:

- The customer fails to charge the battery in time, resulting in loss of battery capacity or other irreversible damage.
- Falling, leaking or other damage caused by improper handling or connection.
- The user does not set the battery operation management parameters correctly.
- The customer or third party changes the battery usage scenario without consulting BYD.
- Mix the batteries provided by BYD with other batteries, including but not limited to: mixing with batteries of other brands, mixing with batteries of different rated capacities, etc.
- The working environment or external power supply parameters can not meet the requirements of the normal working environment, causing direct damage to the battery.
- The customer has not properly maintained the battery in accordance with the owner's manual.
- Out of warranty batteries.
- Battery damage due to the use of an inverter other than in the configuration list (Technical Information).
- Do not use accessories with recommended specifications.

2.1 Intended Use

The battery module is intended for residential use and for use with photovoltaic systems. It is a lithium iron phosphate (LFP) battery storage system with its own control module. It can operate in grid-connected, standby and off-grid modes with compatible inverters.

The battery module can be connected to the PC for maintenance and firmware update through the data cable, or the optional smart WIFI/LAN module can be used for maintenance and update through the APP.

The battery module can only be used as a fixed device.

The battery module is suitable for indoor use under the conditions described in Section 5.1.

Battery modules can only be used with BYD inverters or other compatible inverters. A list of these inverters (BYD Battery-Box LV5.0+ Minimum Configuration list) can be found in the www.bydenergy.com

Battery modules are not suitable for supplying life-sustaining medical equipment. Make sure that loss of power to the battery system does not result in injury.

Alterations, such as alterations or modifications, to the battery are not permitted unless written permission is obtained from BYD. Unauthorized changes will invalidate warranty and warranty claims. BYD shall not be liable for any damage caused by such changes.

The type label should always be attached to the battery module.

2.2 Important safety instructions

The battery modules are designed and tested to meet international safety requirements. However, to prevent personal injury and property damage and to ensure long-term operation of the battery module, please read this section carefully and always observe all safety information.

2.2.1 Battery Module Leakage

If the battery module leaks electrolyte, avoid contact with the leaking liquid or gas. Electrolyte is corrosive and may cause skin irritation and chemical burns on contact. If you come in contact with leaking material, perform the following steps:

Accidental inhalation: Evacuate the contaminated area and seek medical attention immediately.

Eye exposure: Rinse eyes with running water for 15 minutes and seek immediate medical attention.

Skin contact: Wash the affected area thoroughly with soap and water and get medical help immediately.

Ingestion: Induce vomiting and seek medical help immediately.

2.2.2 Fire fighting Measures

When the battery module is put into a fire, the battery module may catch fire. In the event of a fire, make sure there is an ABC or CO₂ fire extinguisher nearby. Do not use water to extinguish the fire. Firefighters need to wear full protective clothing and self-contained breathing apparatus when fighting fires.

2.2.3 Guidelines for the handling and storage of battery modules

The battery module and its components shall be protected from damage during transportation and handling

- Do not hit, pull, or step on the battery module.
- Do not insert extraneous objects into any part of the battery module.
- Do not place the battery module in a fire.
- Do not immerse the battery module in water or seawater.
- Do not handle strong oxidizing agents.
- Do not short-circuit the battery module.
- The battery module cannot be stored at high temperatures ($\geq 50^{\circ}\text{C}$).
- The battery module cannot be stored directly in the sun.
- The battery module cannot be stored in a high humidity environment.
- Do not use cleaning solvents to clean battery module.
- Do not open or damage the battery. The released electrolytes are harmful to the skin and eyes and should be avoided.
- Do not stand, lean, or sit on the battery.
- Before touching any conductor surface or terminal, measure the voltage at the point of contact to confirm that there is no risk of electric shock.
- The terminal shall not be damaged during transportation. It is forbidden to lift the battery through the terminal bolt.
- Batteries must be stored separately in the package. Avoid storing the battery with other items. It is strictly prohibited to store in the open air and stack too high.
- Do not use a damaged battery (dropped, bumped, or otherwise damaged, such as a dent in the case).
- Do not store a damaged battery near a good product. Damaged battery storage locations shall not contain flammable materials. Only professionals can access it.
- Damaged batteries should be monitored during storage to ensure there are no signs of smoke, flame, electrolyte leakage, or heat.

2.2.4 Overvoltage Warning

DANGER

Danger to life due to electric shock in case of overvoltages and if surge protection is missing

Overvoltage (e. g. in the event of a flash of lightning) can be further conducted into the building and to other connected devices in the same network via the network cables or other data cables if there is no surge protection. Touching live parts and cables results in death or lethal injuries due to electric shock.

- Ensure that all devices and inverters in the same network are integrated into the existing surge protection.
- When laying network cables or other data cables outdoors, it must be ensured that a suitable surge protection device is provided at the transition point of the cable from the outdoor battery system or inverter to the interior of the building.

2.2.5 Caution of Weight

CAUTION

Risk of injury due to weight of the battery module

Injuries may result if the battery module is lifted incorrectly or dropped while being transported or installed.

- Carefully transport and lift the battery module. Consider the weight of the battery module.
- Wear appropriate personal protective equipment when performing all work on the battery system.

2.2.6 Property Loss Notification

NOTICE

Damage to the battery module due to sand, dust and moisture ingress

Sand, dust, and moisture penetration can damage the battery module and impair its function.

- Turn on the battery module only when the humidity is within the threshold range and the environment is free of dust and sand.

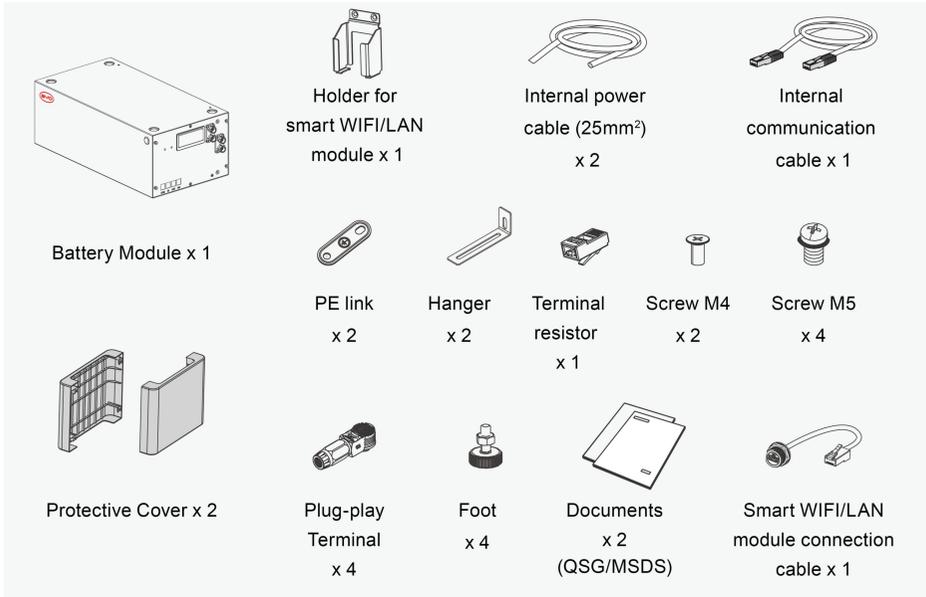
NOTICE

Low voltage can damage the battery system

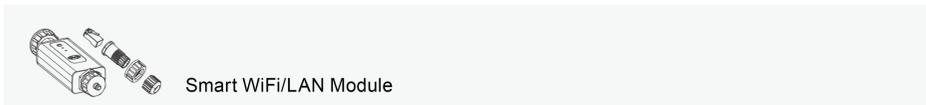
- If the battery system does not start at all, please contact BYD's local after-sales service team within 48 hours. Otherwise, the battery may be permanently damaged.

3. Scope of Delivery

3.1 Battery



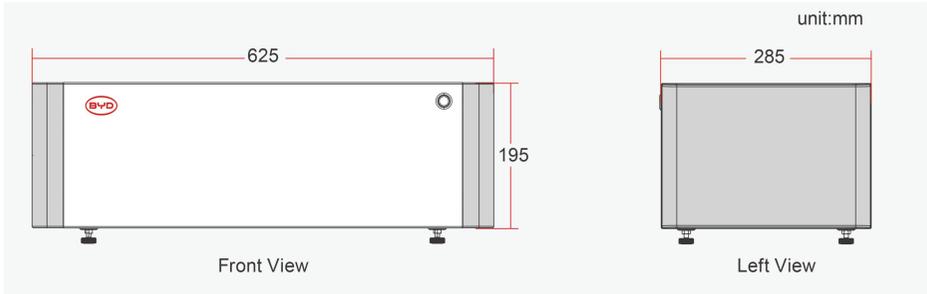
3.2 Optional Accessories



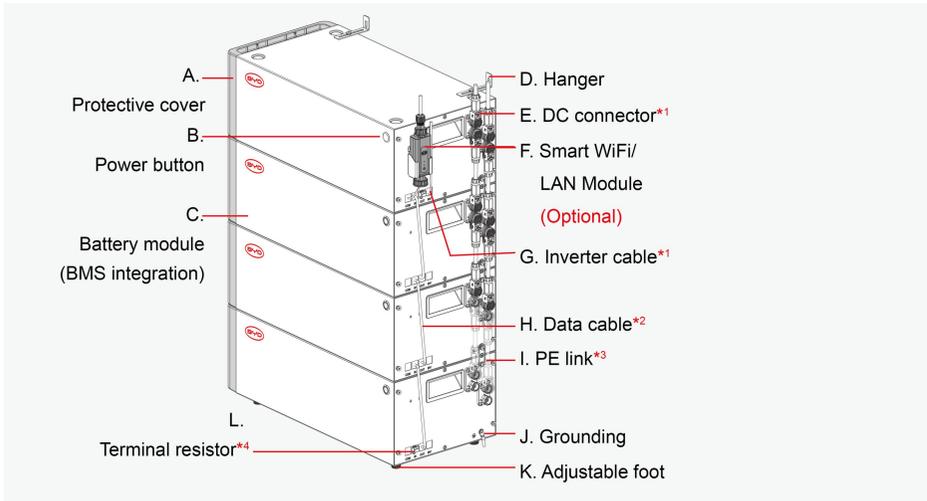
- (a) frequency band(s) in which the radio equipment operates (For 2.4GHz WIFI: 2412 MHz-2472 MHz; For Bluetooth LE: 2402 MHz-2480 MHz)
- (b) maximum radio-frequency power transmitted in the frequency band(s) in which the radio equipment operates; (For 2.4GHz WIFI: 18.08 dBm, For Bluetooth LE: 3.45 dBm)

4. Battery System Overview

4.1 Structure Dimension Drawing



4.2 Battery System Description



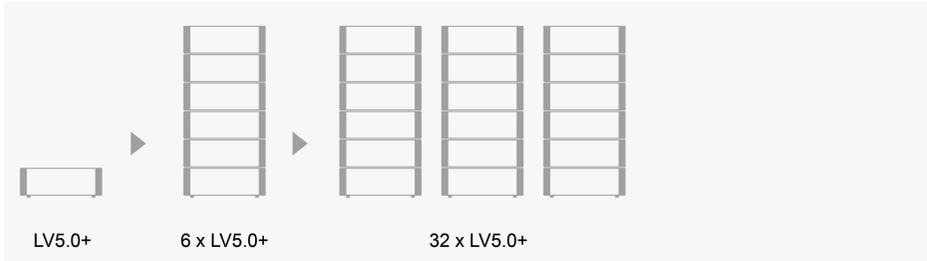
*1.The cable (power cable/communication cable) between the battery module and the inverter needs to be customized.

*2.Internal communication cables are suitable for towers (2 to 6 modules).

*3.The PE link must be used for multiple battery modules.

*4.The terminal resistor must be used for a plurality of battery modules.

4.3 Battery System Scalability



One to six battery modules form a tower, and up to 32 modules can be connected in parallel.

4.4 Interface

BYD Energy

Through the APP, you can realize intelligent battery management, including remote data monitoring, firmware upgrade and troubleshooting.

- Android users : Search for “BYD Energy” on Google Play
- iPhone users : Search for “BYD Energy” in the App Store



iOS



Android

Configuration steps:



The battery system doesn't have a wireless communication function. Through the USB, the battery system supports the expansion of connection with the Smart WiFi/LAN Module to implement the wireless function, and the Smart WiFi/ LAN Module had obtained individual cyber security certification in accordance with EN 18031 series.

For detailed configuration steps, please refer to the user manual and APP instructions,
Website: www.bydenery.com.

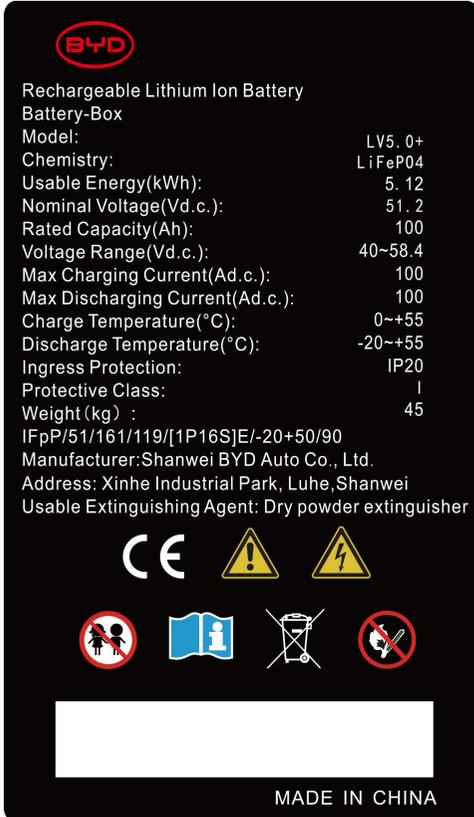
Scan the QR code below to obtain the corresponding video manual. ▶



4.5 Symbols

Symbol	Explanation
	Observe the documents Observe all documents supplied with the system.
	WEEE designation Do not dispose of the system together with the household waste but in accordance with the disposal regulations for electronic waste applicable at the installation site.
	CE marking The system complies with the requirements of the applicable EU directives.
	Keep the battery modules away from open flame or ignition sources.
	Beware of electrical voltage.
	Beware of a danger zone This symbol indicates that the system must be additionally grounded if additional grounding or equipotential bonding is required at the installation site.
	Keep the battery modules away from children.
	Grounding conductor This symbol indicates the position for connecting a grounding conductor.
	This side up.
	Handle with care.
	Keep dry.

4.6 Nameplate label



BYD

Rechargeable Lithium Ion Battery
Battery-Box

Model:	LV5_0+
Chemistry:	LiFeP04
Usable Energy(kWh):	5.12
Nominal Voltage(Vd.c.):	51.2
Rated Capacity(Ah):	100
Voltage Range(Vd.c.):	40~58.4
Max Charging Current(Ad.c.):	100
Max Discharging Current(Ad.c.):	100
Charge Temperature(°C):	0~+55
Discharge Temperature(°C):	-20~+55
Ingress Protection:	IP20
Protective Class:	I
Weight (kg) :	45

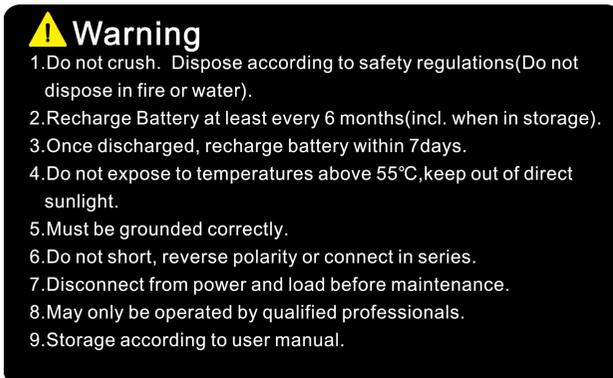
IFpP/51/161/119/[1P16S]E/-20+50/90
Manufacturer: Shanwei BYD Auto Co., Ltd.
Address: Xinhe Industrial Park, Luhe, Shanwei
Usable Extinguishing Agent: Dry powder extinguisher

CE  

MADE IN CHINA

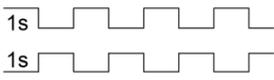
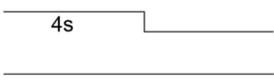
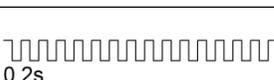
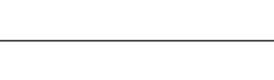
4.7 Warning label



Warning

1. Do not crush. Dispose according to safety regulations (Do not dispose in fire or water).
2. Recharge Battery at least every 6 months (incl. when in storage).
3. Once discharged, recharge battery within 7 days.
4. Do not expose to temperatures above 55°C, keep out of direct sunlight.
5. Must be grounded correctly.
6. Do not short, reverse polarity or connect in series.
7. Disconnect from power and load before maintenance.
8. May only be operated by qualified professionals.
9. Storage according to user manual.

4.8 LED indicator

Indicator	Status	Description
White and blue 1Hz flicker alternately	White <input type="radio"/> ON <input type="radio"/> OFF Blue <input checked="" type="radio"/> ON <input type="radio"/> OFF	 <p>1s</p> <p>1s</p> <p>System initialization</p>
Lights off	White <input type="radio"/> ON <input type="radio"/> OFF Blue <input checked="" type="radio"/> ON <input type="radio"/> OFF	 <p>Hibernation / Shutdown / Power-Down State</p>
White light 0.25 Hz flashing	White <input type="radio"/> ON <input type="radio"/> OFF Blue <input checked="" type="radio"/> ON <input type="radio"/> OFF	 <p>4s</p> <p>Charging state</p>
white light flashes at 0.5Hz	White <input type="radio"/> ON <input type="radio"/> OFF Blue <input checked="" type="radio"/> ON <input type="radio"/> OFF	 <p>2s</p> <p>Discharging state</p>
white light is always on	White <input type="radio"/> ON <input type="radio"/> OFF Blue <input checked="" type="radio"/> ON <input type="radio"/> OFF	 <p>Idle</p>
White and blue 0.5Hz flicker alternately	White <input type="radio"/> ON <input type="radio"/> OFF Blue <input checked="" type="radio"/> ON <input type="radio"/> OFF	 <p>2s</p> <p>2s</p> <p>SOC < 15%</p>
white light flashes at 5Hz	White <input type="radio"/> ON <input type="radio"/> OFF Blue <input checked="" type="radio"/> ON <input type="radio"/> OFF	 <p>0.2s</p> <p>The battery system firmware updating</p>
Blue light flashes at 5Hz	White <input type="radio"/> ON <input type="radio"/> OFF Blue <input checked="" type="radio"/> ON <input type="radio"/> OFF	 <p>0.2s</p> <p>The battery system shutdown</p>
Blue light is always on	White <input type="radio"/> ON <input type="radio"/> OFF Blue <input checked="" type="radio"/> ON <input type="radio"/> OFF	 <p>Failure / master communication timeout / slave communication timeout</p>
Blue light flashes at 0.5Hz	White <input type="radio"/> ON <input type="radio"/> OFF Blue <input checked="" type="radio"/> ON <input type="radio"/> OFF	 <p>2s</p> <p>Battery protection state</p>

5. Installation

5.1 Instruction

5.1.1 Installation requirements

- Before installing the battery, check that the packaging is intact. Batteries with damaged packaging cannot be used.
- Pay attention to the positive and negative terminals during installation. Do not short the positive and negative terminals.
- Be sure to tighten the screws during installation and check them regularly.
- After installation, the remaining packing materials, such as packaging, foam board, plastic, ties, etc., should be removed.

5.1.2 Emergency measures for battery falling

- When installing the battery, dropping or mechanical shock may cause internal damage to the device. If these situations occur, it is strictly prohibited to continue to use, otherwise it may cause potential safety hazards.
- After the battery is dropped, if there is obvious smell, damage, smoke, fire and other phenomena, immediately evacuate the personnel and contact professionals. Use fire fighting facilities to extinguish fire under the guidance of professionals.
- After the battery is dropped, if there is no obvious smell, smoke or fire, and there is no obvious deformation or damage, please contact a professional to move it to an open and safe place or contact a recycling company for disposal.

5.1.3 Installation Scenario

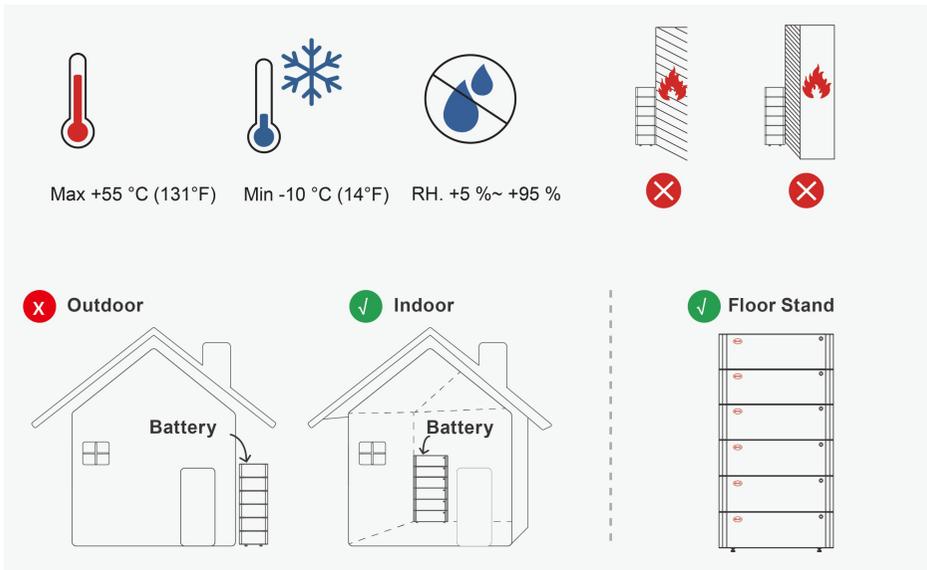
Note: The battery module must be installed indoors, not outdoors.

Installation and Operating Environment

The installation and operating environment needs to comply with local laws and relevant international, national and regional standards for lithium-ion products.

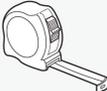
- When installing equipment in the basement, ventilation and air exchange must be ensured. It is forbidden to place inflammable and explosive articles around the equipment. Avoid water retention.

- Ensure that the environment is clean and free from large amounts of infrared radiation, organic solvents and corrosive gases.
- Stay away from water sources such as faucets, drains, sprinklers, etc. To avoid water penetration.
- Do not install the battery in a place where it is easily accessible because of its high temperature during operation.
- Do not expose the equipment to flammable and explosive gases or fumes. You should not do anything in such an environment.
- There must be a solid supporting surface (such as concrete or masonry).
- The installation location must be inaccessible to children.
- The mounting location must be suitable for the weight and dimensions of the battery system.
- Do not install near a source of ignition.
- The altitude of the installation site shall be less than 4000 m.
- Operating temperature should be between $-20\text{ }^{\circ}\text{C}$ and $+55\text{ }^{\circ}\text{C}$. (charge $0\sim 55\text{ }^{\circ}\text{C}$, discharge $-20\sim 55\text{ }^{\circ}\text{C}$)
- Ambient humidity should be between 5-95%.



5.1.4 Tools & Additional Accessories (not included in the scope of delivery)

You may need to use the tools in the following table during the installation process.

				
Wire Stripper	Network wire clamp	Phillips Screwdriver Bit	Wrench	Heat gun
				
Knife	Gradienter	Tape measure	Rubber mallet	Hydraulic clamp
				
Pen	Drill			
				
DC Cable 4AWG / 25mm ² Ø:9-10.5mm	RJ45 Connector	Data Cable CAT5E Ø:5-6mm	OT Terminal 10mm ² -M5	PE 8AWG / 10mm ²
				
Heat shrink tube Ø:8-10mm	Anchor Bolt	Busbar Box		

5.1.5 Safety Gear & Required Personnel

			
Insulated gloves	Safety shoes	Goggles	
			2 qualified installers

5.2 Procedure of Installation

 **QUALIFIED PERSON**

 **CAUTION**

Risk of injury due to weight of the battery module

Injuries may result if the battery module is lifted incorrectly or dropped while being transported or installed.

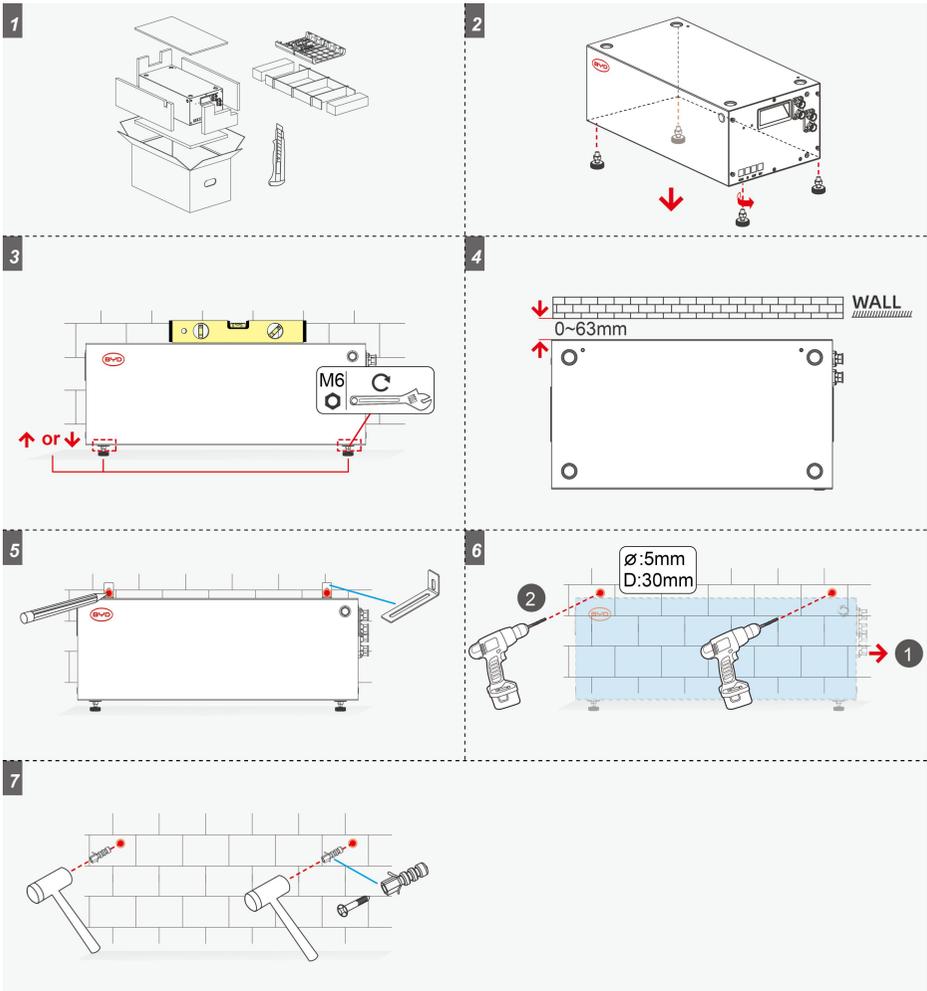
- Carefully transport and lift the battery module. Consider the weight of the battery module.
- Wear appropriate personal protective equipment when performing all work on the battery module.work on the battery system.

Additionally required installation material (not included in the scope of delivery):

1. Four screws suitable for the support surface (diameter: 8 mm)
2. Where necessary, four screw anchors suitable for the support surface and the screws.

Procedure:

1. Open the box and remove the battery module and accessories.
 2. Install the feet on the battery module. When stacking 2 or more modules, only the bottom module mounts the feet.
 3. Adjust the feet to make sure the battery is level (**tilt is not allowed!**).
 4. Place the battery module along the wall at a distance of 0 to 63 mm.
- 5~7. Install the expansion bolt on the wall. Floor Installation



5.2.1 Installation of single battery module

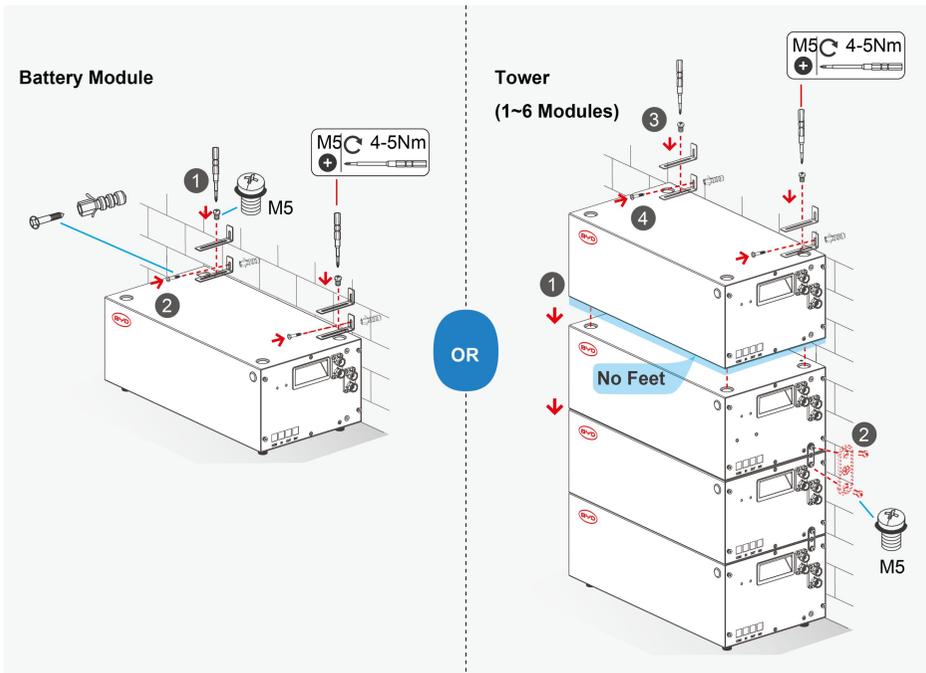
1. The fixing lug is installed on the battery module through a bolt.
2. Secure the battery to the wall.

5.2.2 Single tower (1 ~ 6 battery modules) floor installation

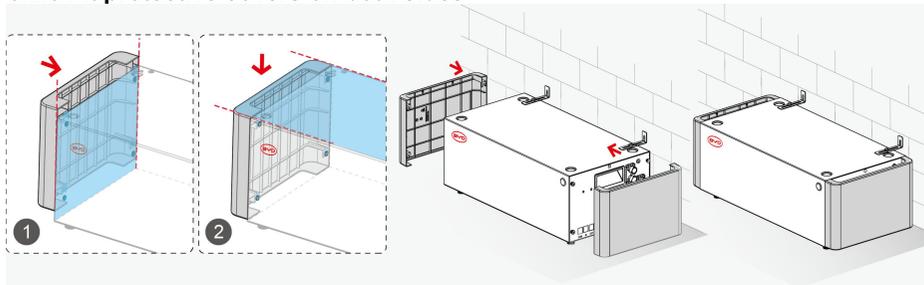
1. Stack the battery modules one by one.
2. Connect the battery module with the PE link.
3. The fixing lug is installed on the top battery module by a bolt.
4. Then fix the battery module to the wall.



PE link has the function of connecting battery and grounding

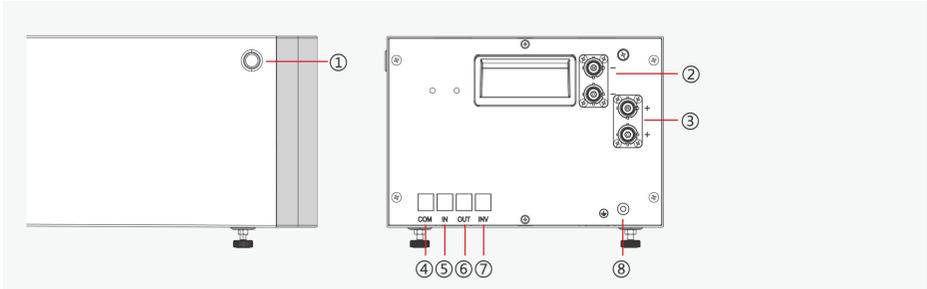


5.2.3 Fit protective covers on both sides



6. Electrical connections

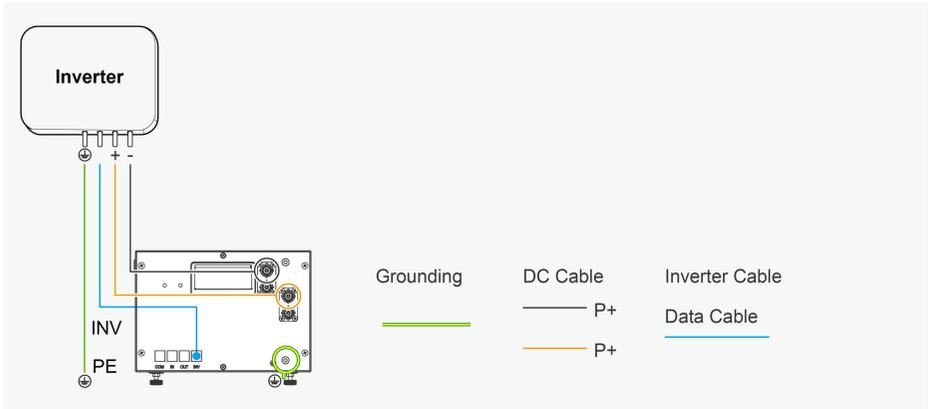
6.1 Functional Area Overview



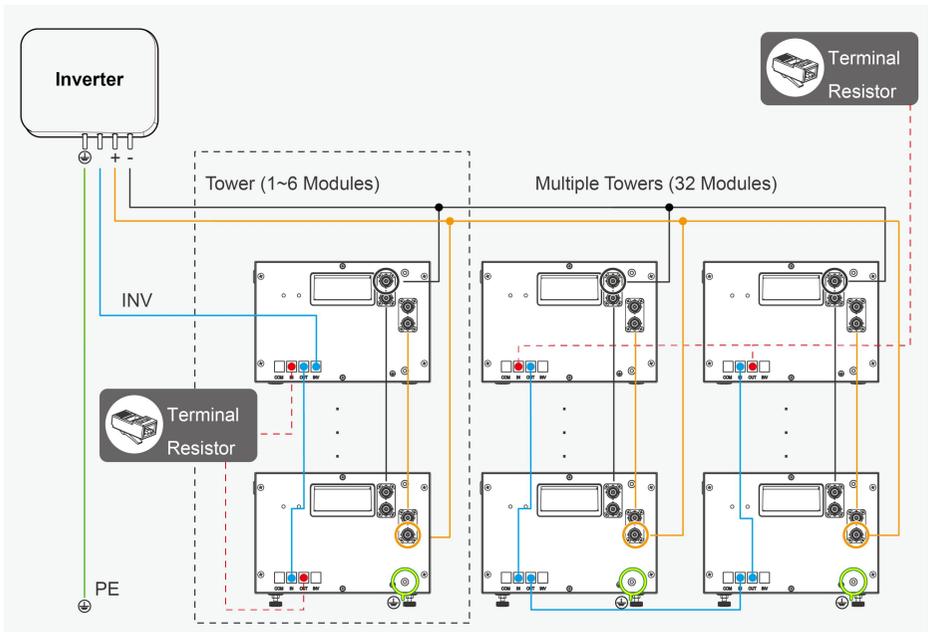
No.	Terms	Description
①	ON/OFF	Power on/power off
②	P-	Connect to negative terminal of external device.
③	P+	Connect to positive terminal of external device.
④	COM	Port for smart WIFI/LAN module
⑤	IN	Port for data cable in.
⑥	OUT	Port for data cable out.
⑦	INV	Port for data cable in, Connect to inverter.
⑧	Grounding	Grounding connection.

6.2 Topology Diagram

6.2.1 One Module



6.2.2 One Tower & Multiple Towers



6.3 Grounding connection

When installing, the grounding wire must be installed first; when removing the equipment, the grounding wire must be removed last.

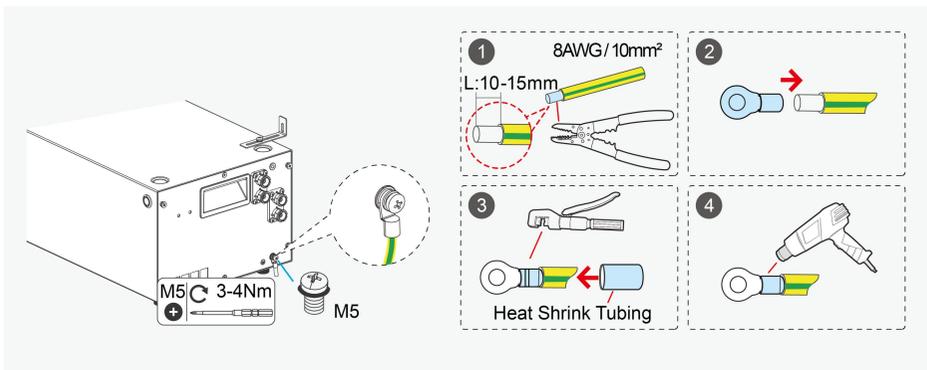
Additional required installation materials (not included in the scope of delivery): PE with terminals.

PE and terminal requirements:

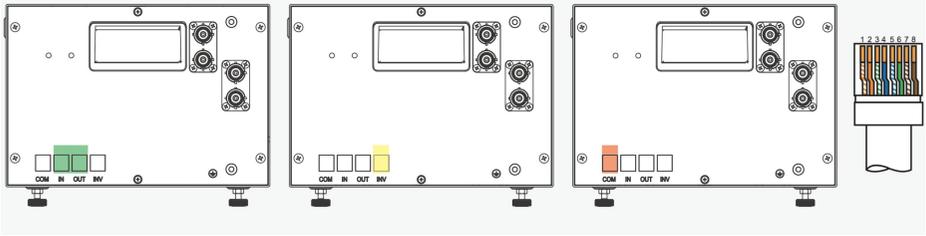
- Terminals, 5mm.
- Minimum terminal cross-section: 10 mm²
- The cross section of the earth terminal must comply with the applicable local standards and directives
- PE section ≥ 6 mm²
- PE material: copper wire terminal
- OT-Termal: 10-5

Steps:

1. Connect the ground wire and the OT terminal together.
2. Fix the ground wire on the battery module and tighten it (torque, 3-4 Nm).



6.4 Data cable connection



No.	1	2	3	4	5	6	7	8
INV	RS485_B	RS485_A	Unused	CAN_H	CAN_L	Unused	Unused	Unused
IN/ OUT	Unused	Unused	CAN_H	Unused	Unused	CAN_L	CAN_L	CAN_H

6.4.1 Inverter cable connection between inverter and one battery system

⚠ QUALIFIED PERSON

Additional required installation materials (not included in the scope of delivery), one data cable
Data cable requirements:



The length and quality of the cable affect the quality of the signal.

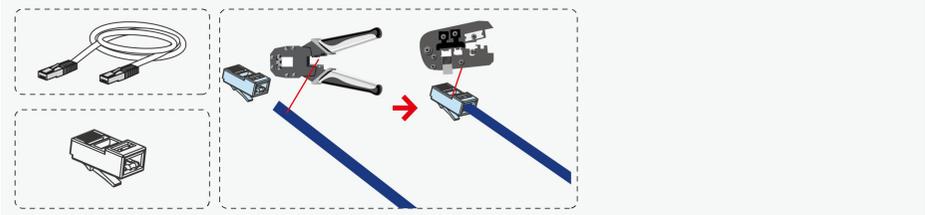
- Cable category: CAT5, CAT5e or higher
- Plug type: CAT5, CAT5e or higher metal shield RJ45
- Shield: Yes
- UV protection for outdoor use
- Straight-through cable
- Maximum cable length: 10 meters.

Steps:

Read the inverter port name on the battery module and the inverter manual to decide whether to modify the data cable. The definition of the inverter port on the battery module can be seen above.

1. Please cut the cable, arrange the cable position, and crimp the RJ45 connector with the network cable clamp.

2. Insert the RJ45 connector into the battery module INV port.
3. Insert the other end of the connector into the corresponding port of the inverter.



6.4.2 Installation Terminal Resistor

Insert the termination resistors into the remaining input and output ports of the battery module. Two (2) or more battery modules require two (2) terminating resistors.



Individual one battery system do not require terminal resistors.

6.4.3 Data cable connection between multiple towers

This only applies when there are multiple towers in parallel. Data Cable Requirements: The length and quality of the cable affects the quality of the signal.

- Observe the following cable requirements.
- Cable category: CAT5, CAT5e or higher
- Plug type: CAT5, CAT5e or higher metal shield RJ45
- Shield: Yes
- UV protection for outdoor use
- Straight-through cable
- Maximum cable length between two towers: 10 m

Steps:

1. Remove the terminal resistor from the OUT port of the first tower.
2. Plug the RJ45 connector into the output port of the battery module of the first tower and into the input port of the battery module of the second tower.
3. Repeat step 2 for the following columns.

4. Cover the terminal resistors on the battery module tower, refer to the 6.4.2 in this manual.

6.5 Power cable connection

⚠ QUALIFIED PERSON

When connecting multiple towers, the length of the positive power cable should be approximately equal for all towers, and the negative power cable should also be approximately equal. A combiner box is required to combine these cables. Follow your local, state, provincial, federal, or national laws, regulations, and inverter manufacturer's instructions to select the appropriate combiner box.

Additional required installation materials (not included in the scope of delivery): Two DC cables (connecting battery system and inverter)

6.5.1 single battery module connection

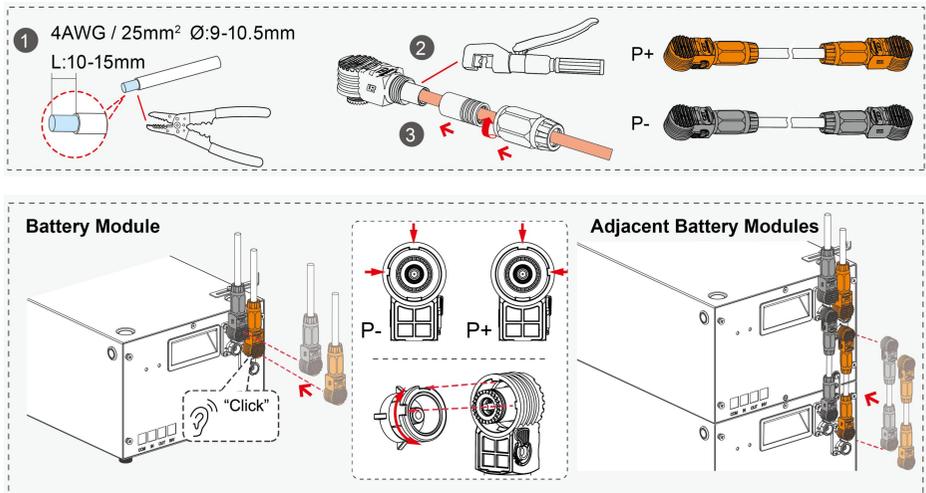
Additional required installation materials (not included in the scope of delivery):

Two DC power cables (connecting battery and inverter)

Cable requirements:

- Conductor section: 25 mm. Select the correct option based on the application and the inverter manufacturer's requirements
- Maximum cable length: 10m

Steps:



6.5.2 Connection diagram

Caution:

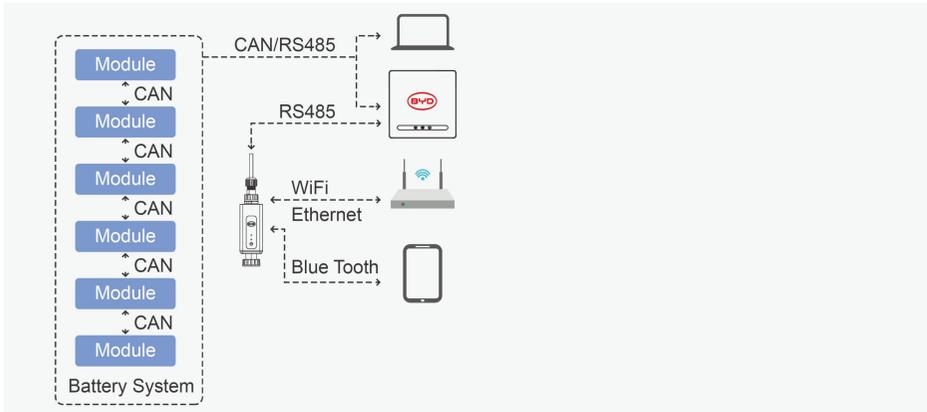
1. The cable, 1 sets of power cable hold maximum 120A current.
2. Maximum power of inverter or DC load.

One Tower	1	2	3	4	5	6
1 set of cable						
Max. Capacity & Power	5.12kW h / 5kW	10.24kWh / 6kW	15.36kWh / 6kW	20.48kWh / 6kW	25.60kWh / 6kW	30.72kWh / 6kW
2 set of cable						
Max. Capacity & Power	/	10.24kWh / 10kW	15.36kWh / 12kW	20.48kWh / 12kW	25.60kWh / 12kW	30.72kWh / 12kW
n set of cable (n=modules)						
Max. Capacity & Power	/	/	15.36kWh / 15kW	20.48kWh / 20kW	25.60kWh / 25kW	30.72kWh / 30kW

6.6 BYD smart WIFI/LAN module installation (optional)

6.6.1 BYD Inverter with LV5.0+

- The smart Wifi/LAN module is an accessory included with the inverter.
- A residential energy storage system requires only one module..
- The module is installed on the inverter..

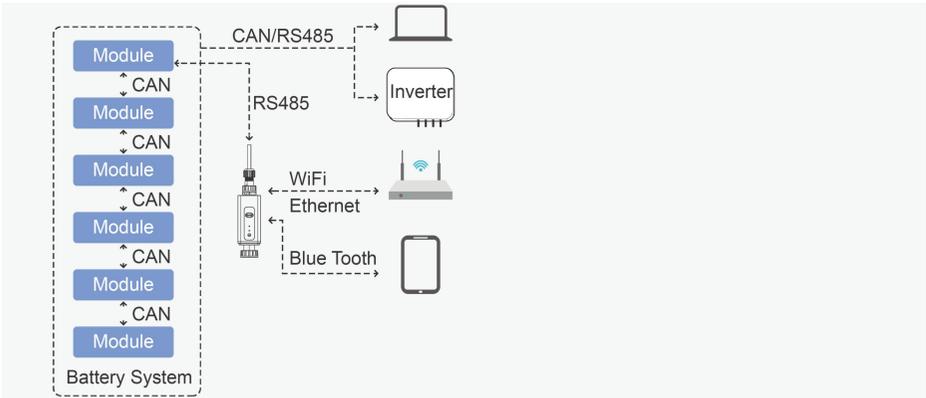


6.6.2 Other brands of inverters with LV5.0+



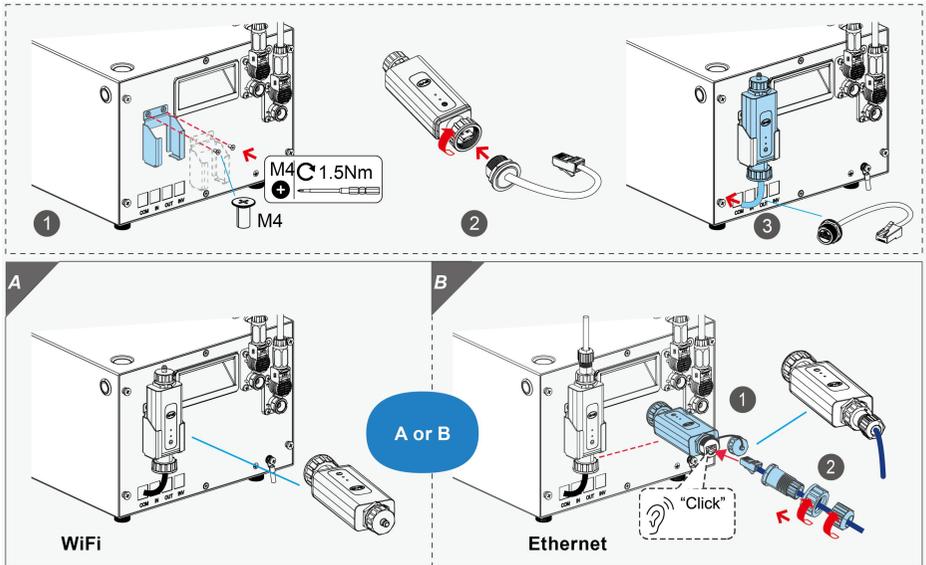
Smart WiFi/LAN module needs to be purchased separately.

- If the battery does not have the module:
 - The battery cannot connect to the Internet.
 - (RS485-USB) adapter is required for after-sales and debugging.
- If the battery is equipped with the module:
 - The whole energy storage system only needs one smart Wifi/LAN module and is installed on the master.
 - The battery can be connected to the Internet.
 - Can use smart services (apps, remote functions and configuration).
 - Required accessories (included in the scope of delivery): data cable / holder



Steps:

1. Please install the holder on the side of the master.
2. Fix the smart Wifi/LAN module with the holder.
3. Connect the module to the battery through the prefabricated data cable.



7. Configuration

7.1 Operation

7.1.1 Switch on the Battery Module

1. After the battery and inverter are installed, the equipment starts in the following order:

Circuit Breaker * → battery → inverter.

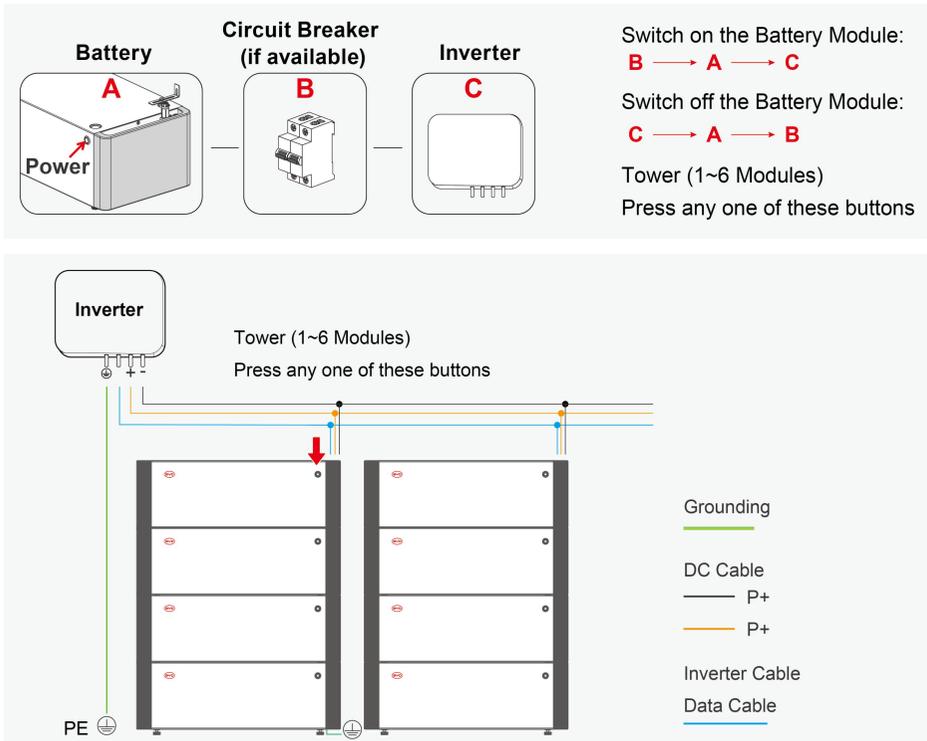
** If yes, turn on the circuit breaker between the battery module and the inverter.*

2. Press any one of buttons, the battery module or tower will be activated. The white LED indicates that the battery is operating normally.

7.1.2 Switch off the Battery Module

1. Press the button for about 2 ~ 3 seconds to shut down the equipment. The shutdown sequence of the equipment is: **inverter → battery → Circuit Breaker ***.

** If there is a circuit breaker between the battery and the inverter, turn it on.*



7.2 Configuration of battery system

7.2.1 BYD inverter with LV5.0+

Automatic adaptation of BYD inverter and battery;

Refer to BYD Inverter User Manual and APP < BYD Energy > User Manual for configuration steps.

7.2.2 Other brand inverter with LV5.0+

One-button adaptation (battery side).

Install and connect the inverter according to the inverter manufacturer's instructions.

Commission and configure the inverter according to the inverter manufacturer's instructions.

If the battery information can be read correctly, it means that the connection between the battery system and the inverter is normal. Normally, the LED light will also turn white and the battery system is ready to work.

7.2.3 * If the battery is equipped with a smart Wifi/LAN module (only if the battery works with other brands of inverters and requires Ethernet connection),

Refer to the APP < BYD ENERGY > User Manual for configuration

7.3 Protective Devices

If the LV5.0+ battery module configuration list is not met, the battery module can protect itself (shut down). If external protection is required, follow local, state, provincial, federal, or national laws, regulations, and the inverter manufacturer's instructions.

8. Disassembly

 **QUALIFIED PERSON**

 **CAUTION**

Due to the weight of the battery module, personal injury may result if the battery module is improperly lifted or dropped during transportation or installation..

- Carefully transport and lift the battery module. Consider the weight of the battery module.
- Wear appropriate personal protective equipment when performing all work on the battery module.

Steps:

1. Close the inverter;
2. Close the battery module;
3. If yes, please disconnect the circuit breaker between the inverter and the battery module;
4. Disconnect the cables between the inverter and the battery module, PE, and the data cables between the battery module, inverter, and router (if applicable);
5. Loosen the screws on the fixing tabs between the module and the wall and remove the fixing tabs.
6. Release the interlocks between the battery modules;
7. Make sure that the bolts on both sides of the battery module are removed before lifting it.

If you want to store or transport battery modules, modularize the system. Use the original packaging or packaging appropriate for the weight and dimensions of the system. Dispose of battery modules in accordance with applicable local e-waste disposal regulations.

9. Capacity Expansion

The battery module can be expanded at any time. The original SOC of the new battery module is around 30%. To avoid capacity loss, a SOC difference of approximately 5% is recommended.

Steps:

1. Switch off the inverter.
2. Turn off the battery module.
3. If so, disconnect the circuit breaker between the inverter and the battery module.
4. Add the new module on top of the other battery modules.
5. If so, open the circuit breaker between the inverter and the battery module.
6. Open the battery module.
7. If so, open the circuit breaker between the inverter and the battery module.
8. Start the inverter.

10. Fault Guide

10.1 LED failure indication

Indicator	Status	Description
Lights off	White <input type="radio"/> ON <input type="radio"/> OFF	Hibernation/Shutdown/Power -Down State
	Blue <input checked="" type="radio"/> ON <input type="radio"/> OFF	
Blue light is always on	White <input type="radio"/> ON <input type="radio"/> OFF	Failure/master communication timeout/slave communication timeout
	Blue <input checked="" type="radio"/> ON <input type="radio"/> OFF	
Blue light flashes at 0.5Hz	White <input type="radio"/> ON <input type="radio"/> OFF Blue <input checked="" type="radio"/> ON <input type="radio"/> OFF 	Battery protection state

10.2 Service Guide

In addition to the LED light, we can also get the fault information of the battery through the mobile phone application. Please refer to the latest Service Guide for detailed steps. Website: www.bydenergy.com.

The battery module cannot be turned on/off. Check that the system has been built according to the <BYD Battery-Box LV5.0+ Minimum_Configuration list>. If the problem still cannot be solved, please contact the local BYD after-sales service within 48 hours.

NOTICE

Battery module is damaged due to too low voltage.

- If the battery module does not start at all, please contact BYD's local after-sales service within 48 hours. Otherwise, the battery may be permanently damaged.

11. Storage

The battery module shall be stored in a clean, dry, ventilated and non-corrosive gas warehouse with an ambient temperature of -5 °C to 35 °C and a relative humidity of not more than 75% at a state of charge of 20% to 30%. It shall be protected from direct sunlight and contact with corrosive substances. During storage, the battery module shall not be placed upside down or horizontally, and mechanical impact and heavy pressure shall be avoided. The battery module shall be recharged every 6 months from the date of manufacture. The follow table shows that long storage non-charge interval period of the battery module..

Storage temperature	Storage humidity	Storage time	SOC
<-20°C	/	Avoid	/
-20~25°C	5%~95%	≤ 12 months	25%
25~35°C	5%~95%	≤ 6 months	25%
35~45°C	5%~95%	≤ 3 months	25%
45~50°C	5%~95%	≤ 15 Days	25%
Above 50°C	/	Avoid	/

NOTICE

Module damage due to undervoltage.

- If the battery module cannot be started at all, please contact BYD's local after-sales service within 48 hours. Otherwise, the battery may be permanently damaged.

12. Maintenance and Replacement

- Do not perform maintenance on the equipment unless you are familiar with the contents of this manual and have the proper tools and test equipment.
- Professional technicians and operators shall be fully trained and have knowledge of safe operation and maintenance of the equipment. They should take adequate precautions and personal protective equipment while operating.
- Before the equipment is repaired, the power must be cut off and the safety precautions in this manual and other relevant documents must be strictly observed.
- During maintenance, try to avoid irrelevant personnel entering the site.
- The unit cannot be powered up again until all faults have been resolved. Failure to do so may result in more problems or damage to the device.
- Do not open the cover without authorization, otherwise there is a risk of electric shock. Any faults caused by the above reasons are not covered by the warranty.
- Replace the battery with the same type.
- Immediately after completing maintenance, check to make sure no tools or other parts are left in the equipment.
- When the battery is idle for a long time, it must be stored and charged according to this manual

13. Disposal of Battery Module

Modules must be disposed of in accordance with applicable local regulations for the disposal of electronic waste and used batteries.

- Do not dispose of the battery module with household waste.
- Avoid exposing the battery to heat or direct sunlight.
- Avoid exposing the battery to high humidity or corrosive environments.

For more information, please contact BYD.

14. Technical Parameters

PERFORMANCE	LV5.0+
Usable Energy ^[1]	5.12 kWh
Max. Charge and Discharge Current ^{[2] [3]}	100 A
Peak Charge and Discharge Current ^[3]	200 A, 10 s
Dimensions(H/W/D)	195 x 625 x 285 mm
Weight	45 kg
Nominal Voltage	51.2 V
Operating Voltage	40 - 58.4 V
Charge Cut-Off Voltage	58.4 V
Discharge Cut-Off Voltage	40 V
Scalability	Max. 32 in Parallel (163.84 kWh)
Installation Mode	Floor installation
Communication	CAN / RS485
Round-trip Efficiency	≥ 95%
Applications	On Grid / On Grid + Backup / Off Grid
Operating Temperature ^[4]	Charge 0~55°C & Discharge -20~55°C
IP Class	IP20
Storage Humidity	5%~95%
Altitude	< 4000 m
Warranty	10 years
Certification	CE / IEC62619 / UN38.3
Accessories(Optional)	BYD smart WIFI/LAN Module
Compatible Inverter	BYD Inverter / Others (Minimum Configuration list)

[1] DC Usable Energy, Test conditions: Subject to the date of manufacture, 100% DOD, 0.2C charge & discharge at +25°C. System Usable Energy may vary with different inverter brands.

[2] Charge & discharge current at +25°C.

[3] The current varies with different compatible inverters.

[4] Charge derating will occur between -10°C and +5°C.

15. Contact Information

South Africa

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