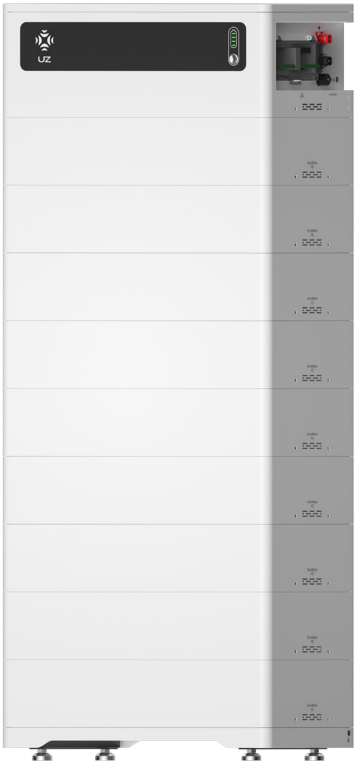

Rechargeable Lithium-Ion Battery System User Manual

WJ Series

Ver 1.0

For the latest product installation documents in all supported languages, visit: www.uzenergy.com.

> ***WARNING***
>
> Read this entire document before installing or using batteries. Failure to do so or to follow any of the instructions or warnings in this document can result in electrical shock, serious injury, or death, or can damage the batteries or attached power conversion systems, potentially rendering them inoperable.

Product Specifications

All specifications and descriptions contained in this document are verified to be accurate at the time of printing. However, because continuous improvement is a goal at UZ ENERGY, we reserve the right to make product modifications at any time.

The images provided in this document are for demonstration purposes only. Depending on product version and market region, details may appear slightly different.

Errors or Omissions

To communicate any inaccuracies or omissions in this manual, please send an email to: marketing@uzenergy.com

Electronic Device: Do Not Throw Away

Proper disposal of batteries is required. Refer to your local regulations for disposal requirements.

MADE IN CHINA

Revision History

Date	Revision	Description	Owner
2026-05-22	V1.0	Initial Release	Vera WU

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1. Preface

1.1 About This Manual

This manual provides instructions for installing, electrically connecting, commissioning, operating, and maintaining the WJ Series Rechargeable Lithium-Ion Battery System (hereinafter referred to as "the Product").

This document is intended for qualified personnel only. All diagrams and illustrations are for reference only. Product specifications and information are subject to change without prior notice. Always refer to the latest official product documentation for current requirements.

1.2 Intended Audience

Installation, commissioning, operation, and maintenance of the battery system shall only be performed by qualified personnel in compliance with applicable local electrical codes and regulations.

1.3 Scope

This manual is applicable to the following product:

- WJ-10
- WJ-15
- WJ-20
- WJ-25
- WJ-30
- WJ-35
- WJ-40
- WJ-45
- WJ-50

1.4 Symbols Used

These symbols indicate important safety information in this manual or on the equipment:

⚠ *DANGER*

Indicates an imminently hazardous situation which, if not avoided, will result in serious injury or death.

⚠ *WARNING*

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

⚠ *CAUTION*

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

⚠ *NOTICE*

Indicates a potentially hazardous situation which, if not followed, could result in equipment failure or property damage.

⚠ *DO NOT*

Indicates a potentially hazardous situation that, if not avoided, may result in damage to the equipment.

2. Safety

2.1 Installation Requirements

Before installing, operating, or maintaining the product, personnel must be properly trained and must understand all safety precautions and correct operating procedures.

- Installation, operation, maintenance, repair, and any modification of the product must be carried out by qualified personnel only. Safety features must not be disabled, bypassed, or removed unless explicitly instructed by the manufacturer.
- The product must be installed and used strictly in accordance with the instructions and specifications provided in this manual. Failure to comply with these requirements may lead to product malfunction or component damage, which is not covered under the product warranty.

2.2 Grounding Requirement

- When installing the product, connect the protective earth (PE) conductor first. When removing the product, disconnect the protective earth conductor last.
- Do not damage the protective earth conductor. The product must not be operated without a properly connected protective earth conductor. Before operating the product, verify that all electrical connections are secure and that the product is correctly grounded.

2.3 Personal Safety

- Do not install, operate, or service the product during thunderstorms.
- Before opening the product for maintenance, wear appropriate personal protective equipment (PPE), remove conductive objects such as jewelry and watches, and take appropriate electrostatic discharge (ESD) protection measures when required.
- In the event of a fire, immediately evacuate the building, activate the fire alarm if available, and contact the local fire department. Do not re-enter the building under any circumstances.
- Do not turn on the product until installation has been fully completed and all safety checks have been performed.

2.4 Mechanical Installation Requirements

- Do not energize the product until installation is complete and all external fasteners have been securely tightened in accordance with the installation instructions.
- After installation, remove all packaging materials from the installation area to maintain a safe working environment.
- Replace any damaged, missing, or illegible hazard labels on the product promptly.
- Do not modify the structure of the product or the approved installation procedures without prior written approval from the manufacturer.
- Do not use water or liquid cleaners to clean electrical components inside or outside the battery system under any circumstances.
- Do not drill holes or make any unauthorized modifications to the enclosure.

2.5 Heavy Lifting Safety

DANGER

The product is heavy. Improper handling or lifting may result in serious injury or equipment damage.

< 18 kg
< 40 lb

18 to 32 kg
40 to 70 lb

32 to 55 kg
70 to 121 lb

> 55 kg
> 121 lb

- Handling and lifting of the product must be performed in accordance with the transportation and handling methods and personnel requirements specified in this manual.
- When manual handling is required, use the number of personnel specified in the relevant handling instructions and follow proper lifting techniques. Do not attempt to lift or move the product alone.
- When handling the product manually, appropriate personal protective equipment (PPE), including protective gloves and safety footwear, must be worn.
- When lifting or moving the product, hold it only by the designated handles or bottom structural edges. Do not lift or support the product by installed modules or internal components.
- Avoid impact, dropping, or tipping of the product during handling and transportation. Prevent scratching or damage to the enclosure, components, and cables.
- When mechanical lifting equipment such as a forklift is used, secure the product with appropriate lifting straps and follow the handling procedures specified in this manual.
- Keep all personnel clear of the product during lifting and transportation.

2.6 Prohibited

- Do not damage cables. If you damage a cable, it can cause a fire or electric shock.
  1. Do not modify or damage a cable.
  2. Do not place heavy objects on a cable or pull the cable.
  3. Do not place a heater near the cable, which may result in the cable overheating.
  4. Do not tuck down a cable when installing in a rack.
  5. When you unplug a communication cable, be sure to hold the plug and pull it.
- Do not install in a tight closed area. If the module is installed in a closed area with no air-conditioning, heat may build up inside the module and cause a fire.
- Do not place in direct sunlight or near a heater. Doing so can cause deformation, a breakdown, or a fire. Pay extra attention when you place the unit near windows.
- Do not install the unit where the air is contaminated with excessive oil smoke, steam, moisture, or dust. If the unit is installed in such a place, it may cause a fire or electric shock.
- Do not place the set upside down or sideways.

- Do not place on a shag carpet or bed.
- Do not put anything on, stand or sit on the unit. If you put anything on the unit, it may fall and cause injury. Also, if it is used as a stool, for example, it may topple or crush and cause injury.

2.7 Precautions for Use

In the case of a failure, or any of the abnormalities shown below, turn off the Unit and contact customer services.

1. Abnormal sound, smell or smoke.
2. Water or particles inside the product.
3. The product is dropped, or the cabinet is damaged.

⚠ *DO NOT*

- Do not disassemble.
- Do not modify the product. Unauthorized modification can disable safety protections and may result in abnormal charging / discharging, overheating, gas venting, or fire.
- Do not touch the power output terminals except during installation.
- Do not expose to fire, heat, or open flame.
- Do not immerse in liquid or allow moisture ingress.
- Do not subject to impact, crushing, or dropping.
- Do not use for medical applications or life-support systems.
- Do not insert foreign objects into the product.
- Do not connect devices exceeding the specified voltage or current ratings.
- Do not disconnect the power connector while energized.
- Do not puncture, nail, or drill into the enclosure.

⚠ *DANGER*

If liquid is leaking from the module, observe the following measures.

Do not allow the liquid to come in contact with skin or clothing.

1. If liquid comes in contact with skin or clothing, wash thoroughly with plenty of water.
2. If liquid gets into the eyes or mouth, flush immediately with clean water, and immediately seek medical treatment.

3. Product Introduction

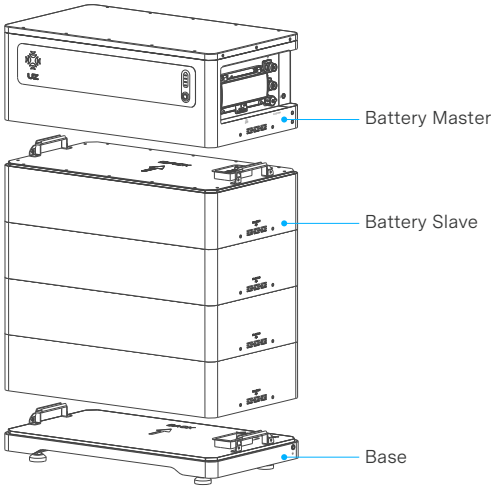
3.1 Technical Specifications

Table 3-1: Rechargeable Lithium-Ion Battery System Parameters

Model	WJ-10	WJ-15	WJ-20	WJ-25	WJ-30	WJ-35	WJ-40	WJ-45	WJ-50
Cell Type	LiFePO4								
Rated Capacity [Ah]	200	300	400	500	600	700	800	900	1000
Module Number	2	3	4	5	6	7	8	9	10
Rated Energy [kWh]	10.24	15.36	20.48	25.6	30.72	35.84	40.96	46.08	51.2
Usable Energy [kWh]	9.22	13.82	18.43	23.04	27.65	32.26	36.86	41.47	46.08
Rated Voltage [V]	51.2								
Voltage Range [V]	43.2 to 58.4								
Rated Charge/Discharge Current [A]	120	180	200	200	200	200	200	200	200
Max. Charge/Discharge Current [A]	120/200	180/200	200/200	200/200	200/200	200/200	200/200	200/200	200/200
Rated Charge/Discharge Power [kW]	6.1	9.2	10	10	10	10	10	10	10
Max. Charge/Discharge Power [kW]	6.1/10	9.2/10	10/10	10/10	10/10	10/10	10/10	10/10	10/10
Dimensions (WxDxH) [mm]	640 (W) × 360 (D)								
	462.8	601.6	740.4	879.2	1018	1,156.8	1,295.6	1,434.4	1,573.2
Weight [kg]	101	147	193	239	285	331	377	423	469
IP Rating	IP65								
Altitude [m]	3,000								
State of Charge (SOC) Range	10% to 100% (Operating)								
Warranty	10 years or 6,000 cycles, SOH ≥70% @ 25 °C								
Operating Temperature [°C]	-20 to 55								
Noise Emission	< 35 dB								
Operating Humidity	5% to 95% RH (Non-Condensing)								
Cooling Method	Natural Cooling								
Heating Power	Optional								
Communication	CAN / RS485 / Wi-Fi								
Fire Protection	Yes								
Certification	UN 38.3 / IEC 62619 / IEC 61000 / IEC 62040								

※ Information is subject to change without notice.

The following example uses four Battery Slaves:



3.2 Battery Master

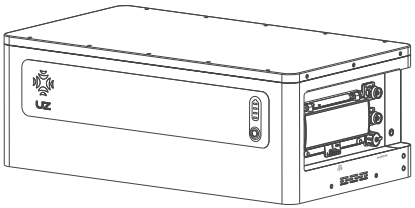
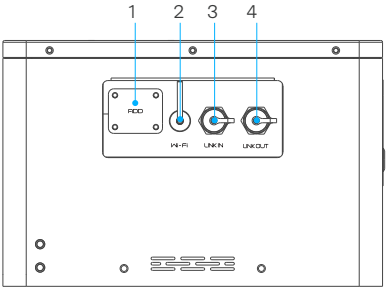


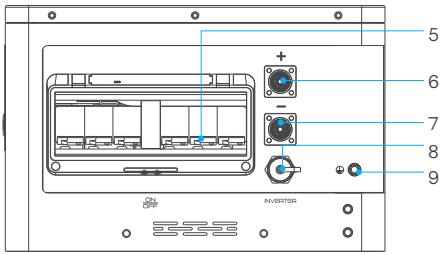
Table 3-2: Product Specifications

Model	M5
Cell Technology	LiFePO4
Energy [kWh]	5.12
Rated Voltage [Vdc]	51.2
Working Voltage Range [Vdc]	43.2 to 58.4
Rated Charge/Discharge Current [A]	60
Max. Charge/Discharge Current [A]	60 / 100
Communication Mode	CAN/RS485
Operating Temperature [°C]	-20 to 55
IP Grade	IP65 (Stacked)
Number of Parallel Units [PCS]	10
Maximum Terminal Output Current [A] / Power [kW]	200A / 10
Dimensions (W*D*H) [mm]	640 × 360 × 232
Weight [kg]	50

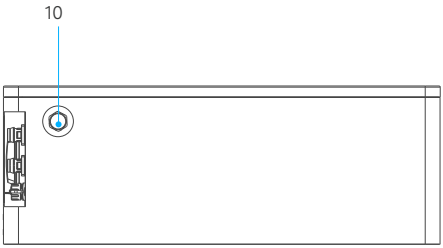
3.2.1 Battery Master Interface Definitions



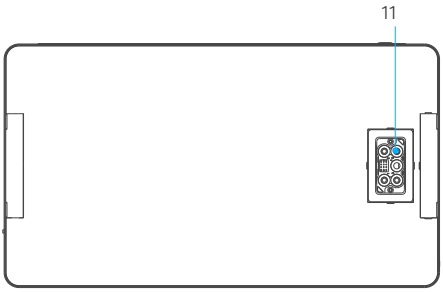
Left-Side Interfaces of the Battery Master



Right-Side Interfaces of the Battery Master



Rear Interfaces of the Battery Master



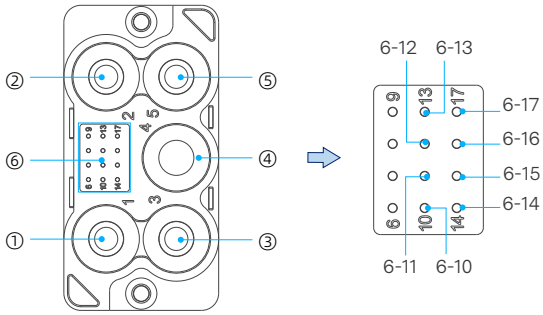
Bottom Interfaces of the Battery Master

Table 3-3: Interface Definitions

Item	Name	Definition
1	DIP Switch	Inverter Communication Protocol Settings,Battery Cluster Parallel Configuration
2	Wi-Fi Antenna	
3	LINK IN	Parallel Mode Communication Input
4	LINK OUT	Parallel Mode Communication Output
5	Circuit Breaker	3×125 A DC Breaker
6	Positive Terminal	Rated Current: 200A
7	Negative Terminal	Rated Current: 200A
8	INVERTER	Battery-to-Inverter Communication
9	Grounding Screw	
10	Pressure Relief Valve	
11	Connector – Plug	

Table 3-4: Battery Master Connector – Plug

Pin No.	Definition
1	Positive+
2	Negative-
3	Positive+
4	PE
5	Negative-
6	communication
6-10	485A
6-11	485B
6-12	DO+
6-13	DO-
6-14	DO2+
6-15	DO2-
6-16	CANH
6-17	CANL



3.2.2 Battery Master LED Indicator Definitions

Front Interfaces of the Battery Master

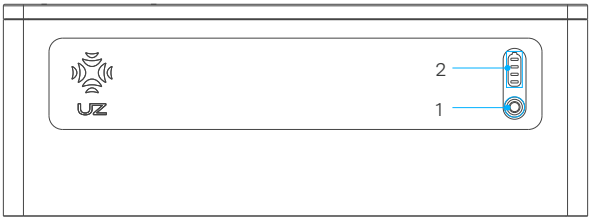


Table 3-5 Display Area Definitions

Item	Name	Definition
1	Power Switch / Status Indicator LEDs	Refer to Chapter 5.1 Troubleshooting for detailed light signal descriptions.
2	SOC LED	

SOC LED			
Real SOC	Real SOC	Real SOC	Real SOC
[0 to 24]	[25 to 49]	[50 to 74]	[75 to 100]

3.2.3 Communication Connector

CAUTION

When the DC breaker trips due to overcurrent or short circuit, wait at least 30 minutes before attempting to close it again. Failure to do so may cause damage to the breaker.

DANGER

- Ensure the ON/OFF switch is turned on before waking up the battery. Otherwise, the automatic detection process may be affected and hazards may occur.
- Do not turn off the ON/OFF switch during normal operation. It should only be turned off directly in emergency situations.

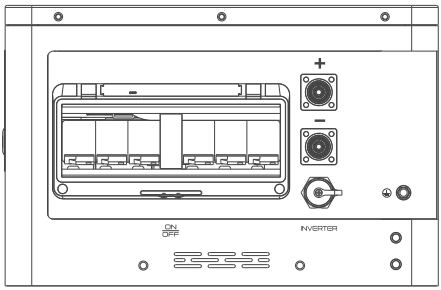
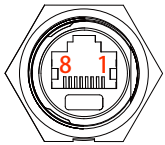


Table 3-6: Interface Definitions

Inverter Communication Port		
Inverter 	PIN 1	NC
	PIN 2	NC
	PIN 3	NC
	PIN 4	CANH
	PIN 5	CANL
	PIN 6	NC
	PIN 7	NC
	PIN 8	NC

3.3 Battery Slave

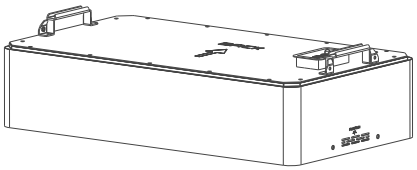
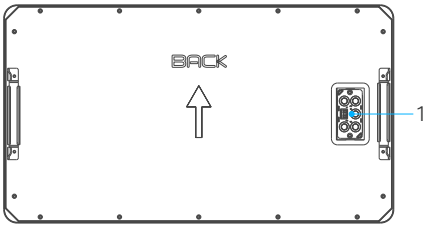


Table 3-7: Product Specifications

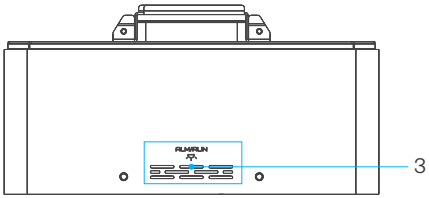
Model	S5
Cell Technology	LiFePO4
Energy [kWh]	5.12
Rated Voltage [V]	51.2
Working Voltage Range [V]	43.2 to 58.4
Rated Charge/Discharge Current [A]	60
Max. Charge/Discharge Current [A]	60 / 100
Communication Mode	CAN/RS485
Operating Temperature [°C]	-20 to 55
IP Grade	IP65 (Stacked)
Dimensions (W*D*H) [mm]	640 × 360 × 146
Weight [kg]	46

3.3.1 Battery Slave Interface Definitions



Battery Slave top interface

Battery Slave bottom interface

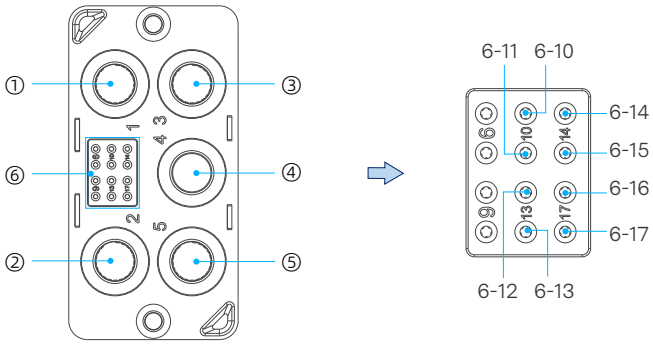


Battery Slave – Right Side

Table 3-8: Interface Definitions

Item	Name	Definition
1	Socket interface definition	Battery Slave input and communication interface
2	Plug interface definition	Battery Slave output and communication interface
3	Status Indicator LED	Refer to Chapter 5.1 Troubleshooting for detailed light signal descriptions

Socket interface definition



Plug interface definition

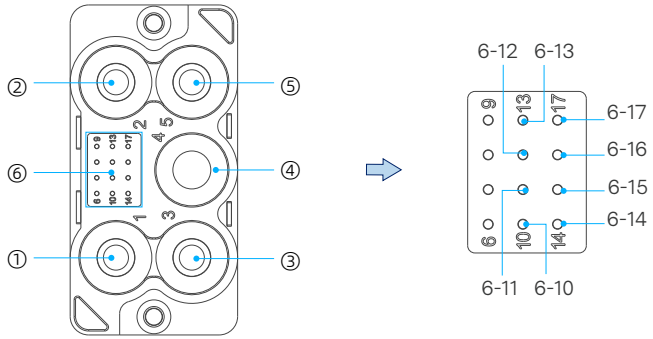


Table 3-9: Port Definitions

Pin No.	Socket interface definition	Plug interface definition
1	Positive+	Positive+
2	Negative-	Negative-
3	Positive+	Positive+
4	PE	PE
5	Negative-	Negative-
6	—	—
6-10	485A	485A
6-11	485B	485B
6-12	DO+	DO+
6-13	DO-	DO-
6-14	DO2+	DO2+
6-15	DO2-	DO2-
6-16	CANH	CANH
6-17	CANL	CANL

3.4 Base

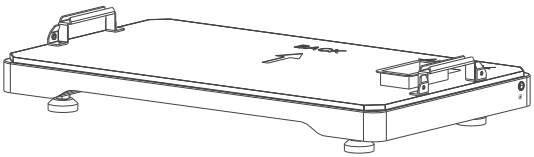


Table 3-10: Product Specifications

Model	S5
IP Grade	IP65 (Stacked)
Dimensions (W*D*H) [mm]	640 × 360 × 49
Weight [kg]	5

Top Interfaces of the Base

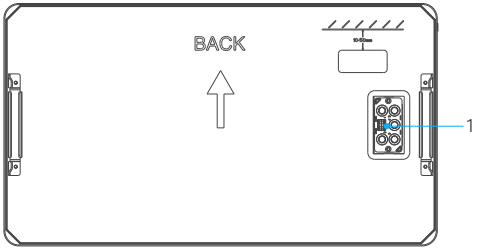
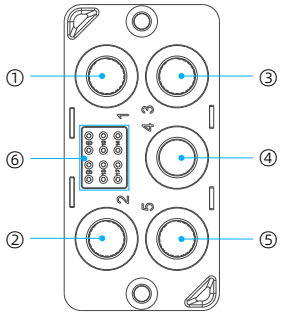


Table 3-11: Interface Definitions

Pin No.	Definition
1	NC
2	NC
3	NC
4	PE
5	NC
6	—



4. Product Installation

4.1 Environmental Requirements

4.1.1 Cleaning

Before installation and energization, ensure that all dust and conductive particles (e.g., metal shavings) are removed to maintain a clean environment. The installation area must be kept dust-free. During operation, periodically inspect the area for dust accumulation and humidity levels to ensure ongoing safe performance.

4.1.2 Temperature

The working temperature ranges for the Battery System are as follows:

- Operating Temperature: -20 °C to 55 °C

> ⚠ *CAUTION*
>
> Operating the battery system outside the specified temperature range may trigger over-temperature or under-temperature alarms and protection mechanisms, which can reduce the product's service life.

4.1.3 Cooling System

Cooling System: It is recommended to keep the battery system within the recommended temperature range.

> ⚠ *CAUTION*
>
> Operating outside the working temperature range will cause the battery system to trigger alarms or protection mechanisms, which could reduce its cycle life.

4.1.4 Heating System

When equipped, the heating function is automatically activated when the ambient temperature falls below 5 °C and charging is required. The heating function is automatically deactivated once the battery temperature reaches approximately 15 °C.

The heating function is an optional feature. Actual availability and configuration depend on the delivered product.

4.1.5 Fire-extinguisher System

If the product is installed indoors, a fire protection system must be installed in accordance with applicable local codes and regulations for safety purposes. The fire protection system shall be inspected regularly to ensure it remains in proper working condition. Inspection, operation, and maintenance of fire protection equipment shall comply with all applicable local requirements.

4.1.6 Grounding System

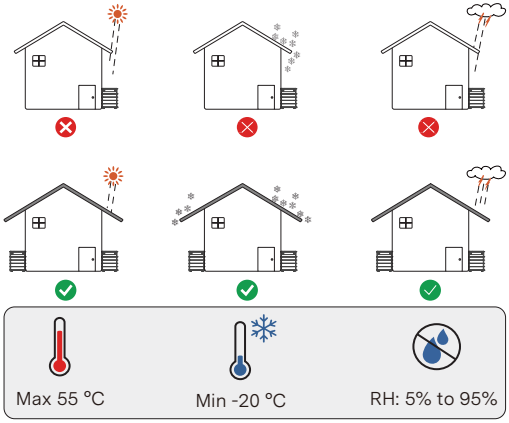
Before installation, ensure that the battery system is properly grounded in accordance with local electrical codes and regulations.
If the battery system is installed in a separate enclosure (e.g., a containerized enclosure), ensure that the enclosure itself is also properly grounded.

4.1.7 Low Battery Voltage Warning

When the battery is depleted, turn off the main battery switch.
If the battery will not be used for an extended period, turn off its main switch. Otherwise, the battery voltage may drop too low, preventing the system from starting up.

4.1.8 Requirements for Installation Location

- A solid and level support surface (e.g., concrete or masonry) is required.
- The installation location must be out of reach of children.
- The installation location must be suitable for the weight and dimensions of the product.
- The installation location must be protected from direct sunlight.
- Keep away from metal dust or conductive particles.
- Keep away from water sources, heat sources, flammable materials, and explosive materials.
- The installation location must be away from fire.
- The operating temperature should be between -20 °C to 55 °C.
- The ambient humidity should be between 5% to 95% RH (non-condensing).
- Installation altitude: ≤ 9,842 feet (≤ 3,000 m) above sea level.

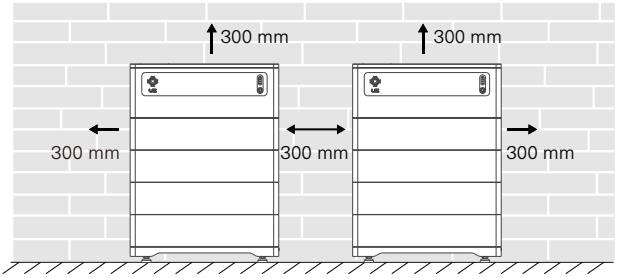


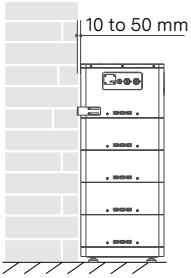
4.2 Recommended Installation Clearance

NOTICE

Please ensure that a minimum safe clearance is maintained between the battery system and surrounding equipment or other batteries during installation. Refer to the figure below for minimum clearance requirements.

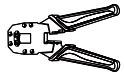
Space Requirements	
Minimum clearance on the left side	300 mm
Minimum clearance on the right side	300 mm
Minimum clearance above the battery system	300 mm
Minimum clearance between battery systems installed side by side	300 mm
Minimum clearance at the rear	10 to 50 mm

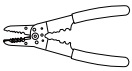


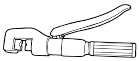


4.3 Tools and Instruments Preparation

The following tools may be required for installation:


Network Wire Clamp


Wire Stripper


Crimping Pliers


Phillips Screwdriver

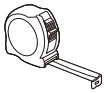

Torque Wrench


Hexagon Socket


Pen


Wire Cutter


Wrench


Tape Measure


Drill


Hammer


Level

⚠ *NOTICE*

Always use properly insulated tools to prevent electric shock or short circuits. Do not use damaged or inadequately insulated tools.

The following personal protective equipment (PPE) must be worn when working with the battery system:


Insulated gloves

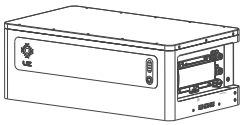
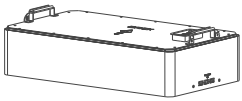
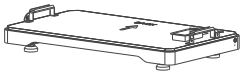
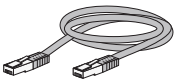

Safety goggles

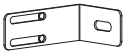
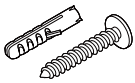

Safety shoes

4.4 Unpacking and Handling

Upon arrival at the installation site, transport and unload the product in accordance with applicable regulations and handling requirements. Prevent the product from being exposed to direct sunlight during transportation, storage, and installation.

- Before unpacking, verify that the total number of packages matches the shipping documents and inspect the packaging for any visible damage.
- During unpacking, handle the product with care and protect the enclosure surface from scratches or impact.
- After unpacking, the installer shall review the technical documentation and verify the completeness of all delivered items by checking the packing list against the configuration table. If any internal packaging or components are found to be damaged, a detailed inspection shall be performed and the findings documented. Contact Customer Support using the contact information provided in this document.

Item	Item name	Quantity		Remarks
a	Battery Master	1 PC		
b	Battery Slave	N PCS		According to the customer-selected power configuration
c	Base	1 PC		
d	Positive DC Cable Negative DC Cable	1 SET		Positive: orange plug, 50 mm² or 1/0 AWG, L:1.5 m to SC70-10 ring terminal. Negative: black plug, 50 mm² or 1/0 AWG, L:1.5 m in to SC70-10 ring terminal.
e	Grounding Cable	1 PC		
f	Communication Cable	1 PC		

g	RJ45 waterproof wiring cover	2 PCS		
h	Fixed bracket	2 PCS		
i	Expansion Screw M6*60 mm	2 PCS		
j	Self-tapping Screw	2 PCS		
k	Screw M6*14 mm	4 PCS		
l	Screw M4*12 mm	4 PCS		
m	Leveling Foot	4 PCS		
n	User Manual / Packing List / Outgoing Inspection Report	3 PCS		

***Note:** This list is for reference only. For detailed accessory specifications, always refer to the Packing list. Updates to the Packing list will not be notified in this manual.

4.5 Installation

Installation steps

Step 1	Installation Preparation	1. Ensure that the environment meets all requirements (refer to Section 4.1).
Step 2	Mechanical Installation	1. Determine the placement location of the battery system.
		2. Install the Base (c).
		3. Install the Battery Slave (b).
		4. Install the Battery Master (a).
		5. Install the securing bracket (h).
		6. Mark the system configuration.
Step 3	Battery System Self-Check	1. Turn on the DC breaker of the Battery Master (a).
		2. Turn on the ON/OFF switch.
		3. Check the system output voltage.
		4. Turn off the battery system.
Step 4	Connect to Inverter	1. Connect the grounding wire to the earth.
		2. Connect the output power cable to the inverter.
		3. Connect the output communication cable to the inverter.

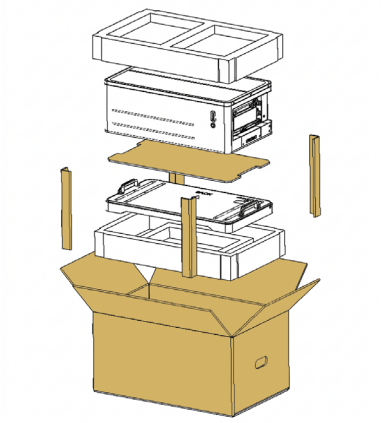
4.5.1 Installation Preparation

- Ensure that the environment meets all requirements specified in Section 4.1.
- Prepare all equipment and tools required for installation.
- Verify that the DC breaker is in the OFF position to ensure de-energized operation.

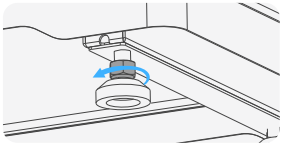
4.5.2 Mechanical Installation

4.5.2.1 Placing the Base (c)

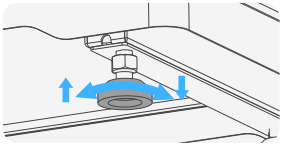
- Select an appropriate location to place the Base (c).
- Remove the Battery Master (a) and the Base (c) from the packaging box.



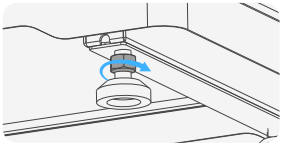
- Adjustable Feet Instructions



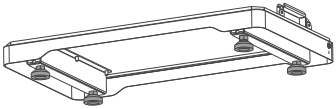
① Loosen the nut – rotate counterce.



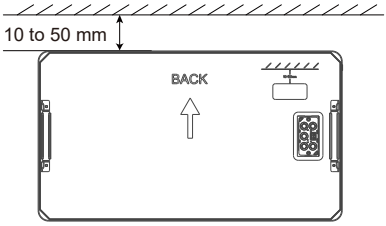
② Adjust the height of the foot cup – turn counterclockwise to raise, clockwise to lower.



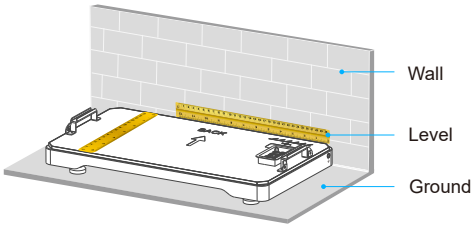
③ After ensuring the Base is level, secure the nut.



Place the installed Base (c) along the wall together with the anchor feet, maintaining a distance of 10 to 50 mm from the wall.



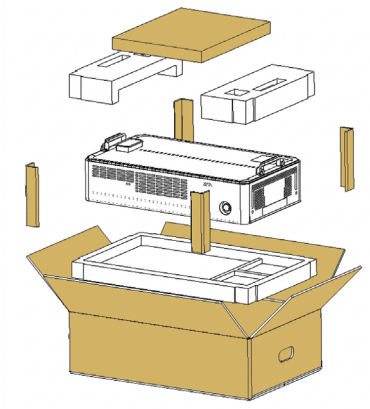
*Ensure the Base (c) is level



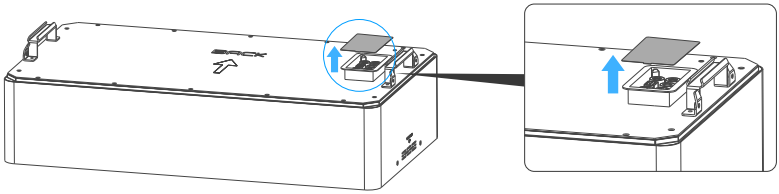
*Use a spirit level to verify that the Base (c) is level in both the X and Y directions.

4.5.2.2 Installing the Battery Slave (b)

- Remove the Battery Slave (b) from the packaging box.



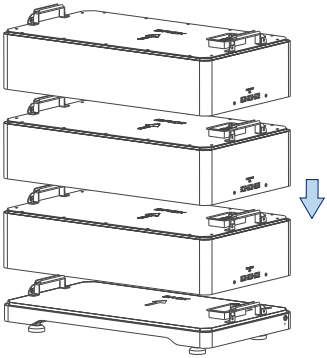
- Before installing the Battery Slave (b), the plastic protective cover must be removed.



- Install all ESS Battery Slave (b) units and the Battery Master (a) onto the Base (c) from bottom to top, following the sequence from B1 to B9. Refer to the figure below.

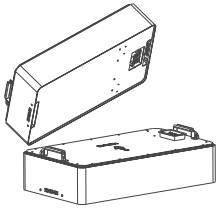
⚠ *WARNING*

Each Battery Slave (b) weighs approximately 46 kg. If lifting equipment is not available, at least two people are required for installation.

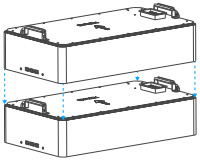


Install the Battery Slave (b) units one by one onto the Base (c) from bottom to top.

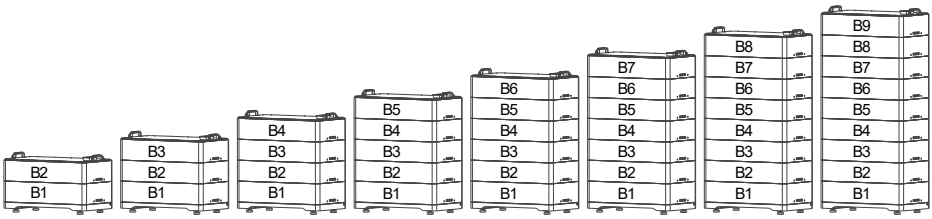
Do not tip the Battery Slave (b) on one side during installation.



(Prohibit)



(Recommend)

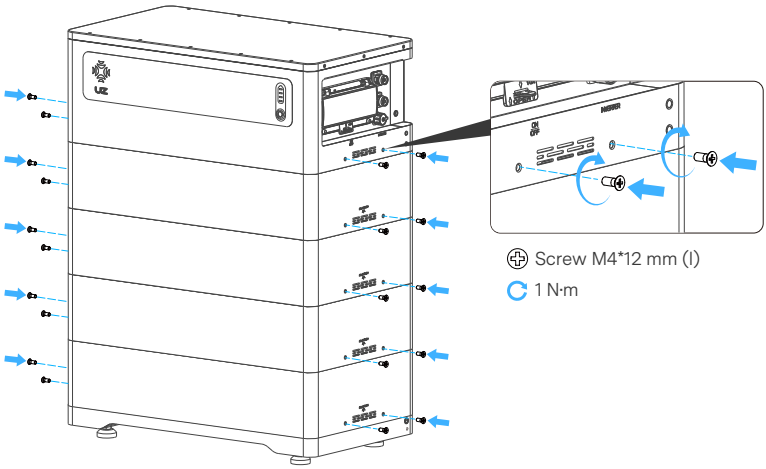


⚠ *WARNING*

During the initial installation, the voltage difference (ΔV) of a single Battery Slave (b) unit should be less than 3 V.

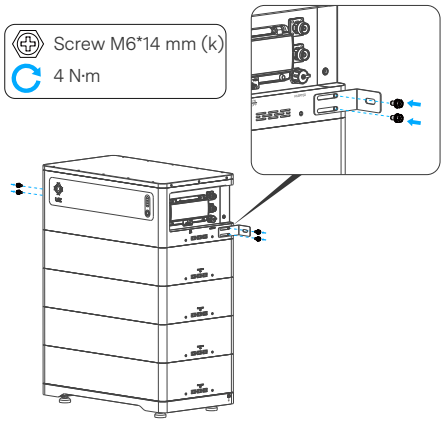
4.5.2.3 Battery Stacking and Connection Securing

1. Stack the Battery Slave (b) units onto the Base (c).
2. Stack the Battery Master (a) on top of the Battery Slave (b) units.
3. Secure the units sequentially using M4 × 12 mm screws (l):
   - Between the Battery Slave (b) and the Base (c)
   - Between adjacent Battery Slave (b) units
   - Between the Battery Master (a) and the Battery Slave (b)

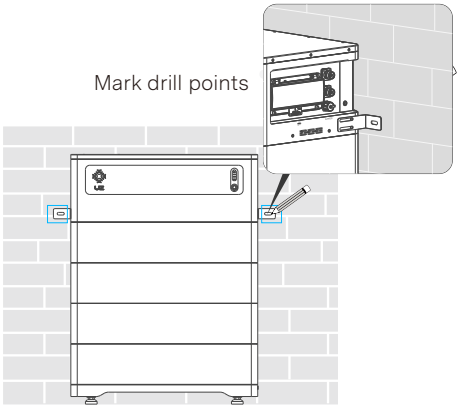


4.5.2.4 Installing the Wall-Mount Bracket

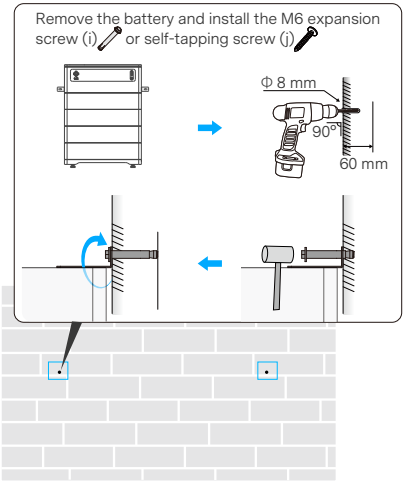
1. Install the wall-mount bracket (h) onto the Battery Master (a) and secure it using M6 × 14 mm screws (k).
2. Position the wall-mount bracket (h) at the pre-determined installation location on the wall and mark the drilling positions. Note: There may be power cables or other pipelines (e.g., gas or water pipes) embedded in the wall. Ensure that no pipelines are present at the drilling points to avoid damage.
3. Remove the wall-mount bracket (h) and drill holes at the marked locations.
4. Insert the sleeve of the M6 × 60 mm expansion bolt (i) —or the self-tapping screw (j)— into the drilled holes.
5. Mount the wall-mount bracket (h) onto the M6 × 60 mm expansion bolts (i) —or the self-tap ping screws (j)— fixed in the wall.


Screw M6*14 mm (k)
4 N·m

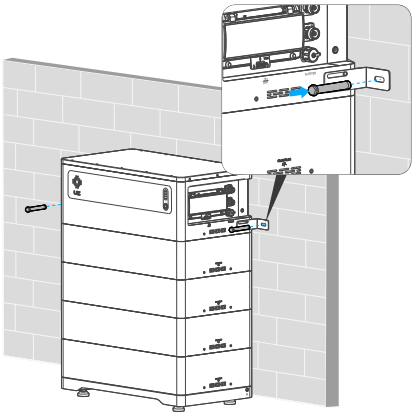
1


Mark drill points

2


Remove the battery and install the M6 expansion screw (i) or self-tapping screw (j)
Φ 8 mm
90°
60 mm

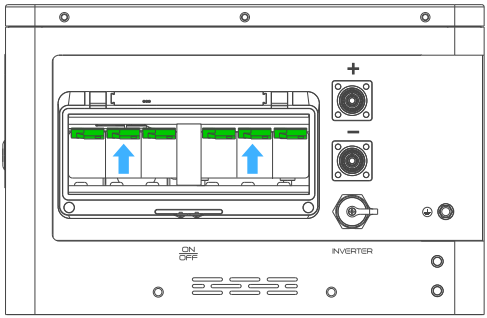
3



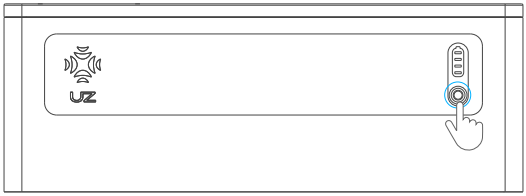
4

4.5.3 Battery System Self-Check

4.5.3.1 Switch the DC breaker of the Battery Master to the ON position.



4.5.3.2 Press the ON/OFF switch. The SOC indicator LEDs (LED1–LED4) on the panel will light up green sequentially, with each LED illuminated for 1 second. When the Operation indicator changes to the Standby state, the system self-check is complete.



4.5.3.3 Use a multimeter to measure the output voltage at the positive and negative terminals of the Battery Master.

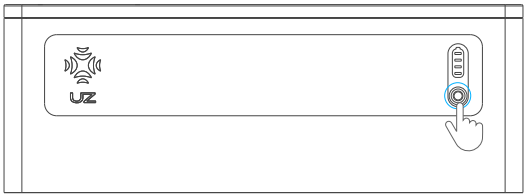
4.5.3.4 The output voltage should be within the range specified in Table 3-1: Rechargeable Lithium-Ion Battery System Parameters.
If the voltage is outside this range, the system will not operate correctly.

⚠ *DANGER*

When measuring the battery voltage, exercise caution and use proper personal protective equipment, as the battery voltage may be high.

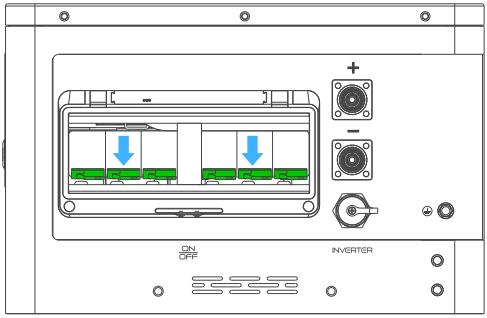
4.5.4 Shutting Down the System

- Turn OFF the ON/OFF switch.



Press and hold on 1 s

- Switch the DC breaker of the Battery Master to the OFF position.

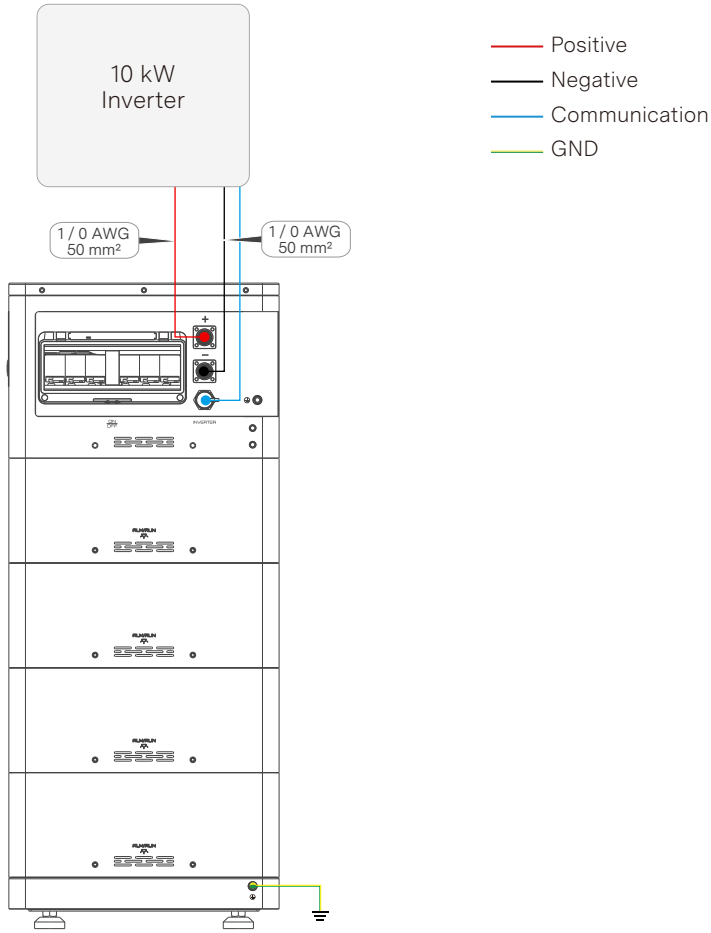


4.5.5 Connecting to the Inverter

DANGER

Before making any connections, ensure that the Battery Slave system is shut down. Connecting the Battery Slave system while it is energized may result in electric shock or damage to the inverter.

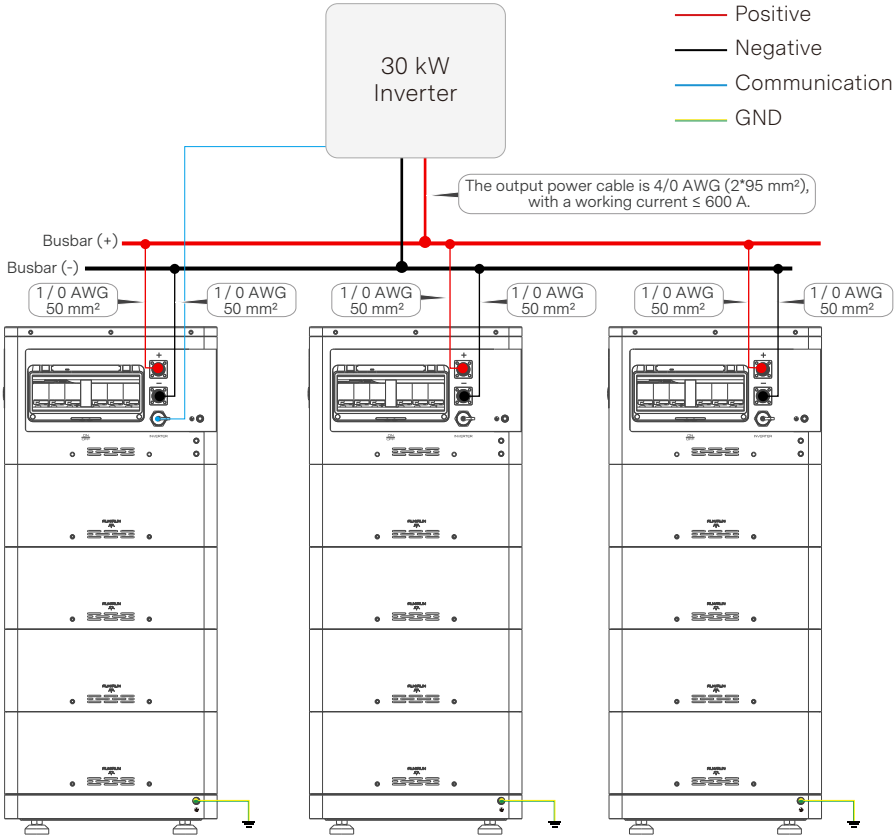
- Single-Cluster Wiring Diagram (example using 4 Battery Slave units)
  Right-side interfaces of the battery System



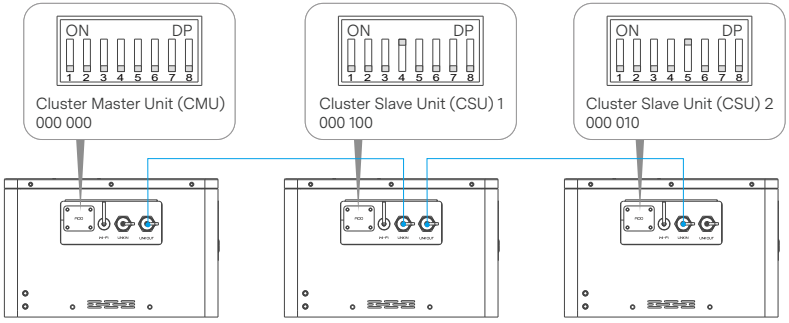
NOTICE

Maximum output: 200 A, 10 kW. ≤10 kW inverter is recommended.

- Multi-Cluster Parallel Wiring Diagram (Example with 3 Clusters)
  Right-side interfaces of the battery system



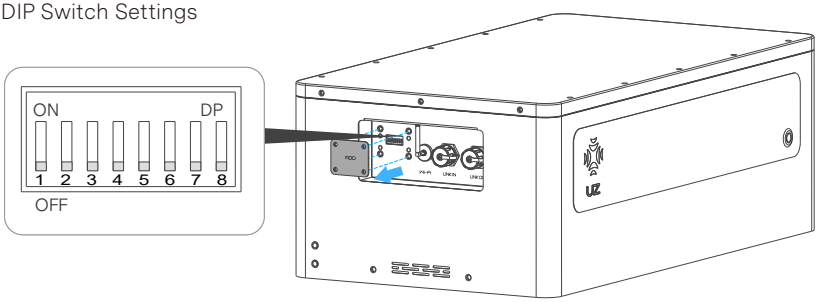
Left-side interfaces of the battery system



⚠ CAUTION

- Parallel connections between clusters must follow the required DIP switch settings. If DIP switches are not set or are set incorrectly, the system will not operate properly.
- Maximum supported clusters: 6 clusters (300 kWh).
- Maximum output: 600 A, 30 kW. ≤30 kW inverter is recommended.
- DIP switch settings for parallel operation must be configured while the device is powered on; otherwise, parallel operation will fail.

- DIP Switch Settings



DIP Switch Address Definitions:

No.	1	2	3	4	5	6	7	8
Default	0	0	0	0	0	0	0	0
Function	Inverter Communication Protocol Settings			Inter-Cluster Parallel Address Settings			NA	NA

Inverter Communicating via DIP Switch Settings

DIP Switch	Protocol	Remarks
000 000	UZ	Cluster Address0
100 000	SENERGY	Cluster Address0
010 000	AISWEI	Cluster Address0
110 000	SMA	Cluster Address0
001 000	VICTRON	Cluster Address0
101 000	VOLTRONIC	Cluster Address0
011 000	PYLON	Cluster Address0
111 000	NC	Cluster Address0

Inter-Cluster Parallel Addresses via DIP Switch Settings
(Example: SE-Nengjie Inverter + 6-Cluster Battery Parallel Setup)

DIP Switch	Protocol	Remarks
100 000	Default UZ	Cluster Address 0 (Default Cluster Master)
100 100	Default UZ	Cluster Address 1 (Cluster Slave 1)
100 010	Default UZ	Cluster Address 2 (Cluster Slave 2)
100 110	Default UZ	Cluster Address 3 (Cluster Slave 3)
100 001	Default UZ	Cluster Address 4 (Cluster Slave 4)
100 101	Default UZ	Cluster Address 5 (Cluster Slave 5)

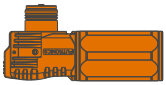
4.5.6 Connecting the Battery Slave

DANGER

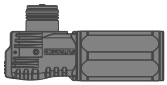
Before making any connections, ensure that the Battery Slave system is shut down. Connecting the Battery Slave system while it is energized may result in electric shock or damage to the inverter.

4.5.6.1 DC Cable Description
DC Power Cable Material Preparation
Material List(The plug assembly can be purchased separately from the supplier.)

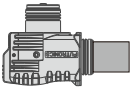
- Crimping the Plug Assembly (A)



Positive Connector
PN: 2030010001-00



Negative Connector
PN: 2030010002-00

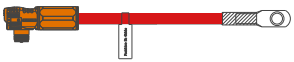


Plug (A-1)

Waterproof ring (A-2)

Plug protection cover (A-3)

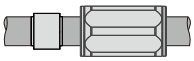
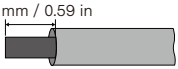
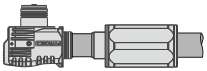
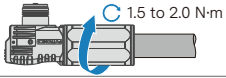
- DC Positive Cable and DC Negative Cable (B)
  * This cable is already included in the accessories list.



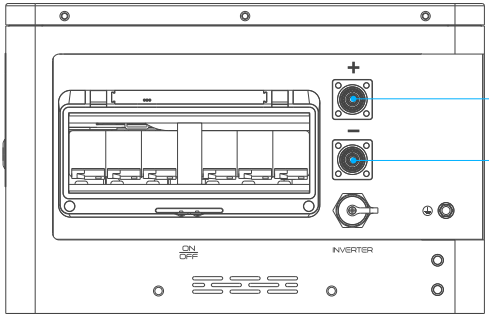
Positive DC Cable
PN: 3110010001-00

Positive DC Cable
PN: 3110010002-00

Crimping the Plug Assembly (A)

Procedure	Diagram
1. Pass the cable through the nut rear cover and the gland sealing ring in sequence.	
2. Strip 15.0 mm of the cable insulation (+0.5 / −0).	
3. The red plug is used for the positive, and the black is for the negative power cable. The end of the cable is crimped at the terminal using a crimping clamp.	
4. Tighten the isolation cap.	

4.5.6.2 Connecting the Output Power Cable to the Inverter



P+, Connect to inverter DC+ terminal

P-, Connect to inverter DC- terminal

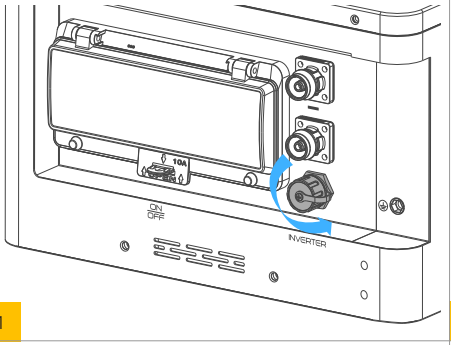
4.5.6.3 Connect the output communication cable to the inverter's RJ45 CAN interface.

(1) Remove the RJ45 waterproof cap.

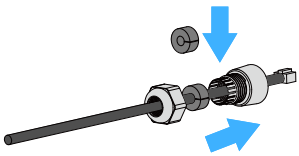
(2) Pass the communication cable through the RJ45 cable gland.

(3) Insert the communication cable into the corresponding RJ45 interface.

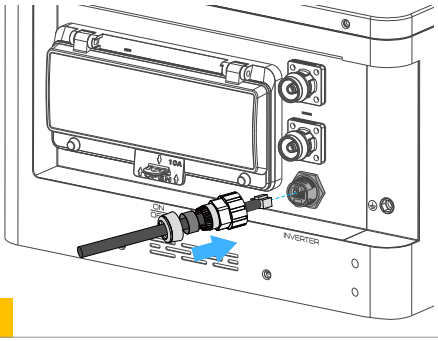
(4) Tighten the RJ45 cable gland securely.



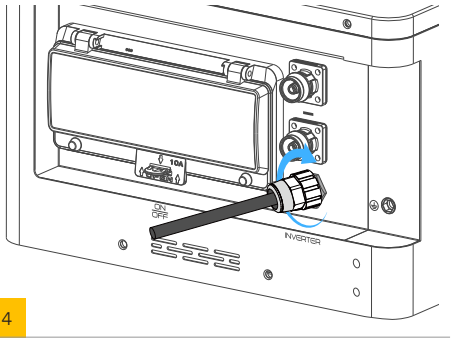
1



2 RJ45 Water-proof Wiring Terminal (g)

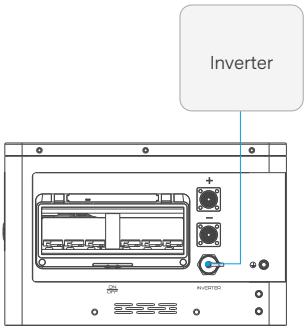


3



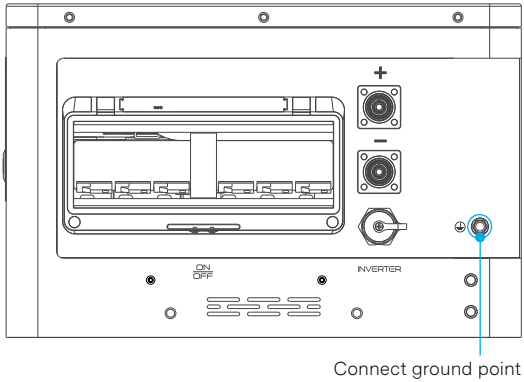
4

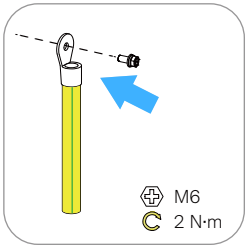
5



INVERTER	
PIN 1	NC
PIN 2	NC
PIN 3	NC
PIN 4	CANH
PIN 5	CANL
PIN 6	NC
PIN 7	NC
PIN 8	NC

- Connecting the External Grounding Cable





WARNING

Carefully check all power cables and communication cables.
Ensure that the inverter voltage is at the same level as the battery system voltage.

(1) Turn on the inverter and ensure that all connected electrical loads operate normally.
(2) Start up the battery system.

5. Maintenance and Storage

5.1 Troubleshooting

DANGER

The ESS battery system is a high-voltage DC system and may only be operated by qualified and authorized personnel.
Before troubleshooting, check that all cable connections are correct, the switch status is normal, and the battery system can be properly awakened.

Status	Normal/Warning/ Protection	Battery Master Status LED	Battery Slave Status LED	Battery Master SoC				Remarks
			ALM/RUN					
Power Off	Hibernate	OFF	OFF	OFF	OFF	OFF	OFF	
Standby	Normal	Green ON	Green ON	Real SoC				
	Warning	Green ON	Green ON					
Charging	Normal	Green ON	Green ON	Real SoC				The LED corresponding to the SOC level blink 2.
	Warning	Green ON	Green ON					
	Overcharging	Green ON	Green ON					
	Overheat, Low Temp, Over-current	Red Blink 2	Red Blink 2					
Discharging	Normal	Green ON	Green ON	Real SoC				All LEDs blink 1 s
	Warning	Green ON	Green ON					
	Over-discharging	Green ON	Green ON					
	Overheat, Low Temp, Over-current, Shortcut	Red Blink 2	Red Blink 2					
Standby, Charging, Discharging	Communication Fault	Red Blink 3	Red Blink 3					
Failure	Warning	Red ON	Red ON	OFF	OFF	OFF	OFF	BMS Damage, MOS Damage, Temp. sampling malfunction

Notes:
Blink descriptions: Blink 1: "0.25s on/3.75s off"; Blink 2: "0.5s on/0.5s off"; Blink 3: "0.5s on/1.5s off".

Please refer to the troubleshooting methods mentioned below. Please read Table 7-1 and Table 7-2 of this manual before troubleshooting to prevent false operations. For example, it does not indicate the battery is faulty if the ALM alarm red light is blinking or constantly on.
When there is an "alarm" indication, it usually works well and needs no troubleshooting. When there is a "protection" indication, the battery will work normally automatically after the "protection" status is released.

No	Problem	Possible Reason	Solution
1	The Battery Pack has no voltage output, and ON/OFF Switch Light is off.	The DC breaker of the Battery Controller didn't be turned on	Turn on the Battery Master DC breaker
2		The ON/OFF Switch of the Battery Controller was not switched on	Press the ON/OFF switch for about 1 s
3		The battery pack is in sleep mode	Press the ON/OFF switch for about 1 s
4		The battery pack has entered over-discharge protection	Charge the battery to release the protection state
5		Internal relay fault in the Battery Master	Replace the Battery Master with a new unit
6	The DC breaker trips automatically when the battery pack is connected to the inverter.	Short circuit exists in the circuit between the Battery Pack and the inverter	Step 1: Check that the connections between the Battery Pack and the inverter are correct. If they are incorrect, reconnect them properly. Step 2: Disconnect the Battery Pack from the inverter and check if the battery operates normally. If the battery is functioning properly, the inverter may be faulty—please contact the inverter service center.
7	Battery pack fails to communicate with the inverter.	Incorrect Battery Pack type selected on the inverter	Select the correct Battery Pack type on the inverter.
8		Communication cable is disconnected	Replace the cable with the corresponding CAN cable (Battery-side CAN: 4H5L).
9	When using inter-cluster parallel operation, the inverter does not recognize the full capacity of all battery clusters.	Parallel operation (multi-cluster) unsuccessful	1. Check parallel communication cable connections: the Link OUT of the first battery should connect to the Link IN of the next battery. 2. Check DIP switch settings: refer to Section 4.5.5 for cluster DIP switch configuration.

Note: If the above does not resolve the issue, please contact after-sales service

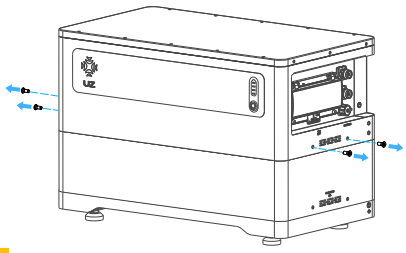
5.2 Replacement of Major Components

DANGER

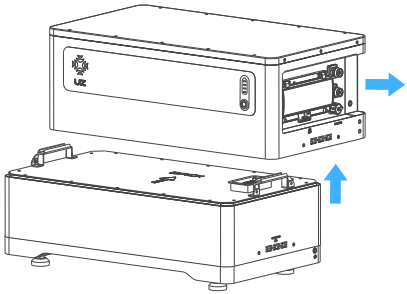
The ESS battery system is a high-voltage DC system and may only be operated by qualified and authorized personnel.

5.2.1 Replacing the Battery Master

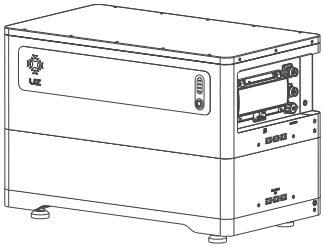
Note: Turn off the entire battery system and ensure that both the negative and positive terminals are de-energized before performing replacement.



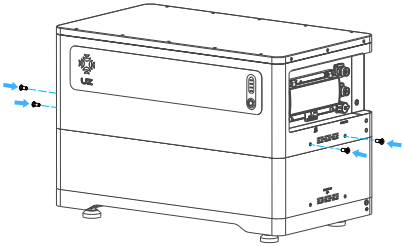
1 Remove the screws on both sides of the Battery Master.



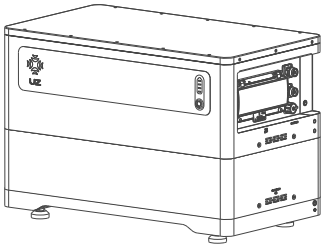
2 Remove the Battery Master from the system.



3 Install the new Battery Master.



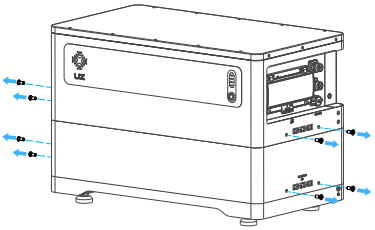
4 Secure the screws on both sides of the Battery Master.



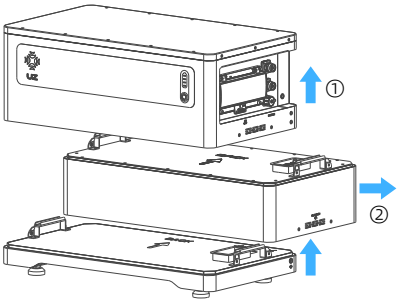
6 Secure the screws on both sides of the Battery Master.

5.2.2 Replacing the Battery Slave

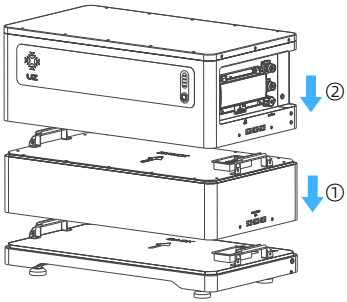
Note: Turn off the entire battery system and ensure that both the negative and positive terminals are de-energized before performing replacement.



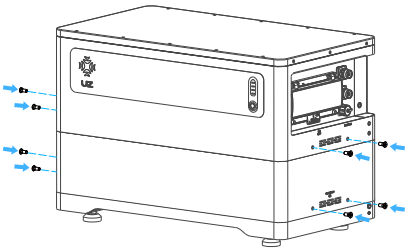
1 Remove the screws on both sides of the Battery Master and Battery Slave.



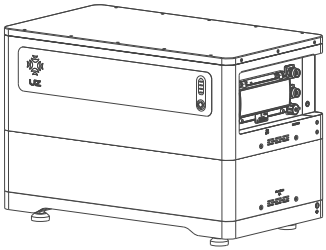
2 Remove the Battery Master and Battery Slave from the system in sequence.



3 Install the new Battery Slave, then reinstall the existing Battery Master.



4 Secure the screws on both sides of the Battery Master and Battery Slave.



6 Battery Slave replacement completed.

5.3 Battery Maintenance

⚠ DANGER

Battery maintenance may only be performed by qualified and authorized personnel.
Before performing any maintenance, turn off the battery system.

5.3.1 Voltage Check

[Periodic Maintenance] Check the battery system voltage via the monitoring software. Verify that the system voltage is within the normal range. For example, check that individual cell voltages do not exceed their rated limits.

5.3.2 SOC Check

[Periodic Maintenance] Check the State of Charge (SOC) of the battery system via the monitoring software. Ensure that the battery pack SOC is within the normal range.

5.3.3 Cable Inspection

[Periodic Maintenance] Visually inspect all cables of the battery system. Check for any signs of damage, aging, or looseness.

5.3.4 Cell Balancing

[Periodic Maintenance] If the battery system has not been fully charged for a long time, cell imbalance may occur.
Solution: Perform a balancing cycle every 6 months (one full charge-discharge cycle). This maintenance is typically performed when the monitoring software or other external devices are communicating properly with the battery and inverter.

5.3.5 Output Relay Check

[Periodic Maintenance] Under low-load (small current) conditions, operate the control output relay and listen for a clicking sound to verify that the relay operates correctly.

5.4 Storage Recommendations

It is recommended that batteries not be stored for a long period. They should be used soon after being deployed onsite. The batteries should be handled according to the following requirements.

Required Storage Temperature	Actual Storage Temperature	Recharge Interval	Remarks
–20 °C < T ≤ 55 °C	T ≤ –20 °C	Not allowed	Not reaching the time for recharge: Use the batteries as soon as possible. Reaching the time for recharge: Recharge the batteries.
	–20 °C < T ≤ 0 °C	≤ 6 months	
	0 °C < T ≤ +25 °C	6 to 12 months	
	25 °C < T ≤ 55 °C	≤ 6 months	
	55 °C < T	Not allowed	

⚠ *CAUTION*

Failure to follow the above storage instructions will significantly reduce the battery's cycle life.

6. Decommissioning and Disposal

6.1 Decommissioning

Before decommissioning the battery system, all operations shall be performed by qualified personnel in accordance with local regulations and applicable safety standards.

1. Switch off the system using the Power Switch and confirm that all status indicators (LEDs) are off.
2. Disconnect the system from all external power sources, including the inverter, grid, and loads, and switch off all related DC and AC circuit breakers.
3. After shutdown, wait at least 5 minutes to allow internal capacitors to fully discharge.
4. Disconnect all power and communication cables in the reverse order of installation, and protect all connectors against short circuits.
5. If the battery shows signs of damage (such as deformation, leakage, overheating, smoke, or abnormal odor), immediately stop operation and isolate the battery. Do not open, disassemble, or attempt to repair the battery. Contact the installer, distributor, or manufacturer for further instructions.
6. Store decommissioned batteries in a dry, well-ventilated location, protected from moisture, direct sunlight, high temperatures, and mechanical impact.

6.2 Disposal

This section specifies mandatory legal and environmental requirements for the disposal of used or decommissioned batteries.

- Batteries, including rechargeable batteries, must not be disposed of in household or general waste.
- Used or damaged batteries shall be delivered to authorized collection or recycling facilities in accordance with applicable local regulations.
- Batteries may contain hazardous substances as well as valuable recyclable materials; improper disposal may harm human health and the environment.
- During storage and transportation, batteries shall be protected against short circuits, leakage, and mechanical damage.

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