



Power Lite Plus(P200) Installation Manual

Ver 2.2



For the latest Power Lite Plus installation documents in all supported languages, visit:

www.uzenergy.com/

Warning: Read this entire document before installing or using Power Lite Plus. 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 Power Lite Plus, potentially rendering it 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, send an email to

wangyx@uzenergy.com



ELECTRONIC DEVICE: DO NOT THROW AWAY

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

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IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE IMPORTANT SAFETY INSTRUCTIONS

This manual contains important instructions for the Power Lite Plus that must be followed during installation and maintenance of the system.

Power Lite Plus installation and service require knowledge of high voltage electricity and should only be performed by UZ ENERGY Certified Installers. UZ ENERGY assumes no liability for injury or property damage due to repairs attempted by unqualified individuals or a failure to properly follow these instructions. These warning and cautions must be followed when using Power Lite Plus.

Symbols Used

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



WARNING: indicates a hazardous situation which, if not avoided, could result in injury or death.



CAUTION: indicates a hazardous situation which, if not avoided, could result in minor injury or damage to the equipment.

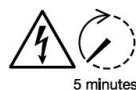
NOTE: indicate an important step or tip that leads to best results, but is not safety or damage related.



REFER TO OPERATING INSTRUCTIONS: indicates that user should refer to operating or installation instructions before proceeding.



RISK OF ELECTRIC SHOCK: indicates components that present risk of electrical shock.



CAUTION, RISK OF ELECTRIC SHOCK, ENERGY STORAGE TIMED DISCHARGE,
Discharge time is 5 minutes from de-energization.



BIDIRECTIONAL TERMINIAL: indicates location of combined input/output connector on the equipment.



PROTECTIVE CONDUCTOR TERMINAL: indicates location of grounding connection on the equipment.



General Information



WARNING: Reading this entire document before installing or using Power Lite Plus.

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 Power Lite Plus, potentially rendering it inoperable.



WARNING: A battery can present a risk of electrical shock, fire, or explosion from vented gases. Observe proper precautions.



WARNING: Power Lite Plus installation must be carried out only by UZ ENERGY Certified Installers who have been trained properly.



WARNING: Power Lite Plus is heavy. Use of Lift equipment is recommended.



WARNING: Use Power Lite Plus only as directed.



WARNING: Do not use Power Lite Plus if it is defective, appears cracked, broken, or otherwise damaged, or fails to operate.



WARNING: Before beginning the wiring portion of the installation, ensure that Power Lite Plus is switched off, and open any associated circuit breakers and disconnect switches (if applicable for the installation).



WARNING: Do not attempt to open, disassemble, repair, tamper with, or modify Power Lite Plus. Power Lite Plus and its components are not user serviceable. Batteries in Power Lite Plus are replaceable. Contact the UZ ENERGY Certified Installer who installed the system for any repairs.



WARNING: To protect Power Lite Plus and its components from damage when transporting, handle with care. Do not impact, Pull, drag, or step on Power Lite Plus. Do not subject Power Lite Plus to any strong force. To help Prevent damage, leave Power Lite Plus in its shipping packaging until it is ready to be installed.



WARNING: Do not insert foreign objects into any part of Power Lite Plus.



WARNING: Do not expose Power Lite Plus or its components to direct flame.



WARNING: Do not install Power Lite Plus near heating equipment.



WARNING: Do not immerse Power Lite Plus or its components in water or other fluids.



CAUTION: Do not use solvents to clean Power Lite Plus, or expose Power Lite Plus to flammable or harsh chemicals or vapors.



CAUTION: Do not use fluids, parts or accessories other than those specified in this



manual including use of non-genuine UZ ENERGY parts or accessories, or parts or accessories not purchased directly from UZ ENERGY or a UZ ENERGY-certified party.

! CAUTION: Do not place Power Lite Plus in a storage condition for more than one (1) month, or permit the electrical feed on the Power Lite Plus to be served for more than one (1) month, without placing Power Lite Plus into a storage condition in accordance with UZ ENERGY's storage specifications.

! CAUTION: Do not paint any part of Power Lite Plus, including any internal or external components such as the exterior shell or casing.

! CAUTION: Do not connect Power Lite Plus directly to photo voltaic (PV) solar wiring.

! CAUTION: When installing Power Lite Plus in a garage or near vehicles, keep it out of the driving path. If possible, install Power Lite Plus on a side wall and/or above the height of vehicle bumpers.

Environmental Conditions

! WARNING: Install Power Lite Plus in a location that prevents damage from flooding.

! WARNING: Operating or storing Power Lite Plus in temperatures outside its specified range might cause damage to Power Lite Plus.

! WARNING: Do not expose Power Lite Plus to ambient temperature above 40 °C or below -20 °C.

! CAUTION: Ensure that no water sources are above or near Power Lite Plus, including downspouts, sprinklers, or faucets.

! CAUTION: Ensure that snow does not accumulate around Power Lite Plus.

Revision History:

Date	Revision	Description	Owner
2020-11-30	V1.0	Initial Release	TangXX
2021-7-30	V2.1	1.Update Grounding installation Diagram; 2.Update the table for Cables prepared by the customer;	TangXX
2021-08-24	V2.2	1.Update Cable definition; 2.UL1973/ UL9540A (Pending);	TangXX

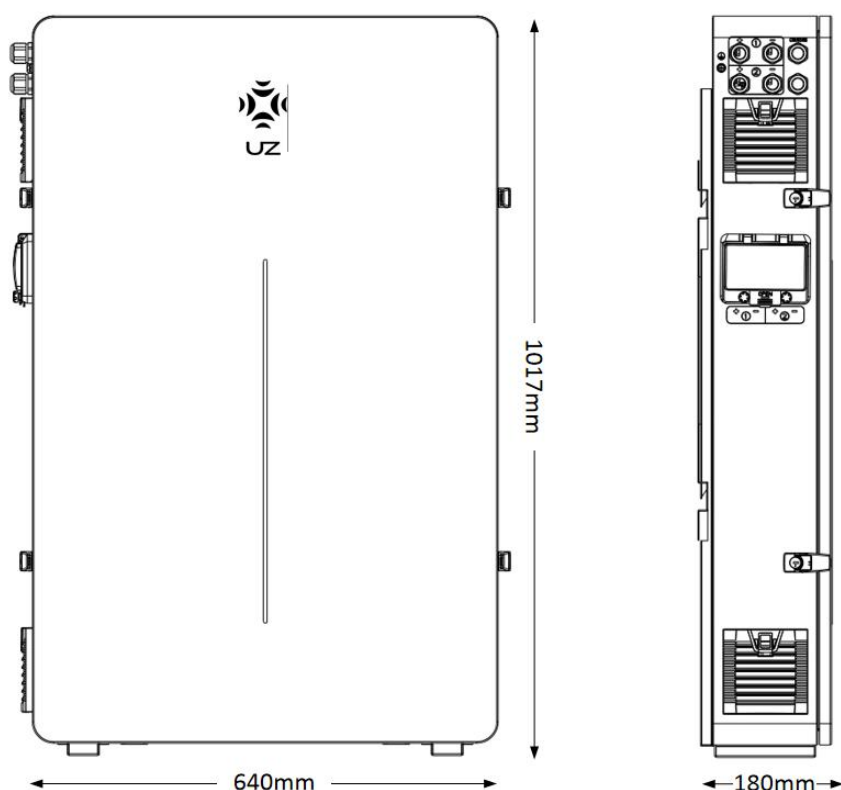


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1. Specifications

Power Lite Plus Electrical Specifications



Battery Enclosure	
Battery Type	LiFePO4
Number of Battery Units	1 or 2 sets of Power Lite (L051100-A)
Nominal Battery Energy	5.12 kWh, 1 set of 5.12 kWh Power Lite inside 10.24 kWh, 2 sets of 5.12 kWh Power Lite inside
Nominal Voltage	51.2 V
Working Voltage Range	48-57.6 V
Nominal Current (Recommended) ¹	50 A , 1 set of 5.12 kWh Power Lite inside 100 A, 2 sets of 5.12 kWh Power Lite inside
Rated Power ¹	2.5 kW, 1 set of 5.12 kWh Power Lite inside 5 kW, 2 sets of 5.12 kWh Power Lite inside
Cable Specification	
Battery Cable Rating	100 A, each cable
Battery Cable Type	25 mm ² OR 4AWG
General Data	
Dimension [W*D*H]	640*180*1017 mm
Mounting and Weight- Empty	Approx. 25 Kg rear fixing
Mounting and Weight- w/ Battery	Approx. 70 kg, 1 set of Power Lite inside Approx. 115 kg, 2 sets of Power Lite inside
Working Temp. Range	Based on battery (Power Lite Series) Specification
Ingress Type	IP54



Communication	CAN/RS485/RS232/Dry Contact
Certificate (Battery, Power Lite Inside)	TUV/IEC 62619/CE-IEC 61000/IEC 62040/UN38.3/UL1973/ UL9540A (Pending)
Calendar Life ²	10 Years
Supply	Ships pre-assembled (excluding batteries)

¹: Performance may be de-rating in extreme ambient environmental conditions

²: Working Condition 0.5 C @ 25 deg C, 80% DoD, 1 cycle per day

2. Site Requirements

Power Lite Plus Physical Requirements

Power Lite Plus can be mounted on a floor or wall, it must also be anchored to an adjacent wall. In both types of installation, the wall must be capable of supporting the full weight of Power Lite Plus and its mounting hardware. The wall must extend to all edges of the system, allowing no access to the back of the unit once it is mounted.



Fig. 1 IP54 Case(P200)

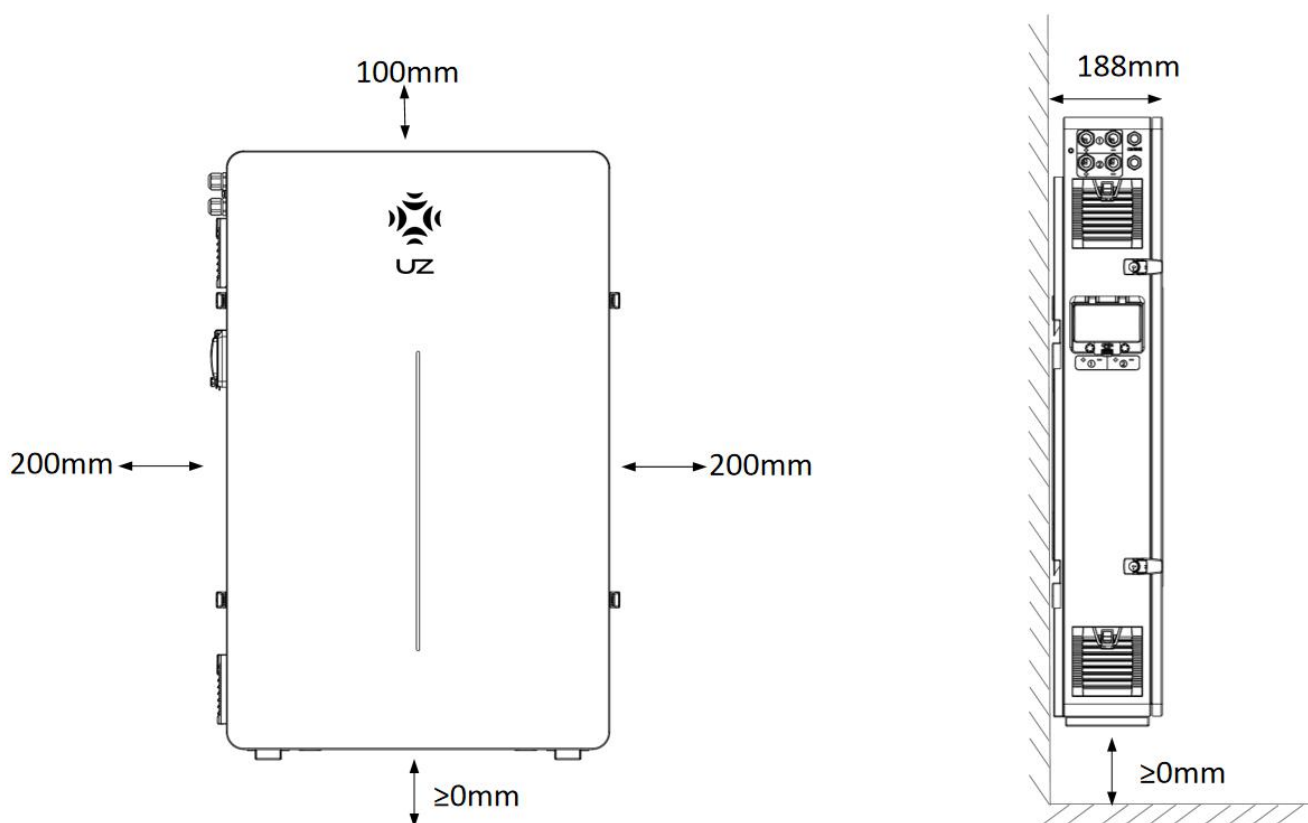
Power Lite Plus includes a mounting bracket (Fig. 2), that supports the unit in both floor- and wall-mount configuration, and includes shims to level the unit in floor-mount configurations. Do not use other hardware to anchor Power Lite Plus to the wall or floor.



Fig.2 P200 Bracket

Power Lite Plus requires adequate clearance for installation, cabling and airflow. Do not mount any other objects within the clearance space (Fig. 3), except those explicitly required by the installation (e.g. conduit, a junction box, or an electrical disconnect depending on local installation codes). Do not install anything above Power Lite Plus that limits access to the unit or that might fall and damage the unit. Do not mount Power Lite Plus horizontally or upside down.

Power Lite Plus Dimensions and Space Requirements



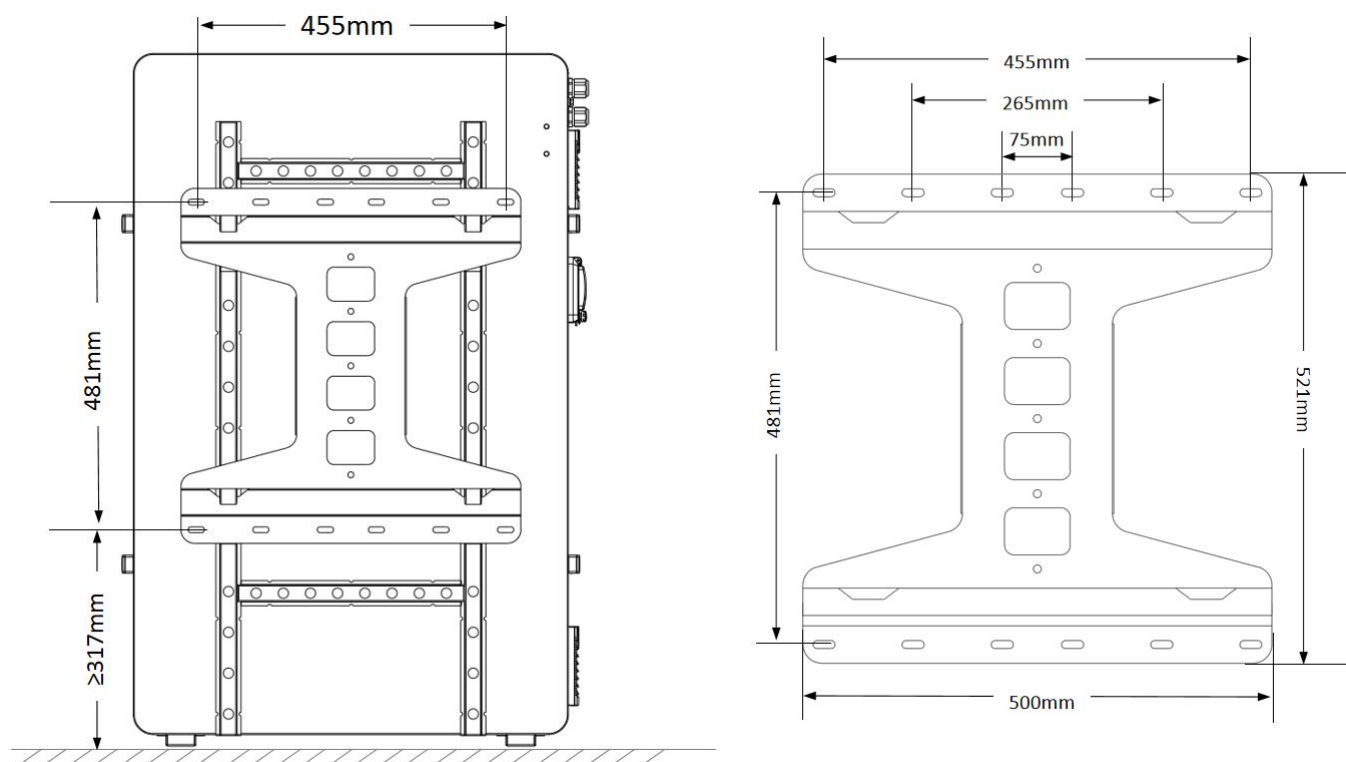


Fig. 3 Space Requirements Schematics

Space Requirements	
Min. clearance from left side	200
Min. clearance from right side	200
Min. clearance above Power Lite Plus	100 mm
Min. clearance between side-by-side Power Lite Plus	200mm
Min. clearance at the bottom	≥ 0 mm
Max. slope	+/- 2 degree side-to-side +/- 5 degree front-to-back

Power Lite Plus Temperature Requirements

Power Lite Plus is capable of charging and discharging within the full ambient temperature range listed in the Specifications section. At the high and low ends of the temperature range, Power Lite Plus may limit charge or discharge power based on battery cell temperature to improve battery lifespan.

Installation in full sun raises the temperature inside the enclosure above ambient temperature. This temperature rise is not a safety risk, but may impact battery performance. To optimize performance, avoid installing Power Lite Plus in locations that are exposed to the sun for extended periods.

Do not install Power Lite Plus in locations with sustained high or low temperatures. The average ambient temperature over the system's life should be between 0 and 30 °C.



Power Lite Plus Installation Requirements

All installation must conform to the laws, regulations, codes, and standards applicable in the jurisdiction of installation.

3. Installation Components and Tools Instructions

Required Tools

- ✧ Personal protective equipment (safety glasses, gloves, protective footwear)
- ✧ Drill and drill bit for drilling pilot holes in mounting surface
- ✧ Torque screwdriver
- ✧ Large flathead driver bit (for ground bar)
- ✧ Small flathead screwdriver (for wiring connector spring terminals)
- ✧ Wire strippers/cutters for 0.2 mm² to 120 mm² wires
- ✧ Installation tools (level, stud sensor, tape measure, pencil, painter's tape, flashlight)
- ✧ Lift equipment capable of lifting and supporting 130 kg
- ✧ Ratcheting strap to secure Power Lite to lift equipment
- ✧ Digital camera or smart-phone for documenting the installation



WARNING: Power Lite is heavy. Wear appropriate personal protective equipment (such as gloves and protective footwear) when handling the unit. Only a sufficient number of the trained movers should lift Power Lite. Use of lift equipment is recommended.

Required Supplies

- ✧ Power Lite mounting bracket hardware
- ✧ Conduit fitting or cable gland (depending on local electrical requirements)
- ✧ Conduit or raceway (depending on local electrical requirements)
- ✧ Conduit adapter (if necessary for cable entry into Power Lite wiring compartment)

4. Installation Instructions

Step 1. Plan the installation Site

Choose a Location

If installing horizontally, choose a level surface capable of supporting the full weight of Power Lite.

If wall-mounting Power Lite, choose a wall capable of supporting the full weight of Power Lite, with one of the following characteristics:

- ✧ Wood studs at regular intervals
- ✧ Plywood sheeting of sufficient thickness
- ✧ Solid concrete or masonry
- ✧ Metal studs of sufficient gauge

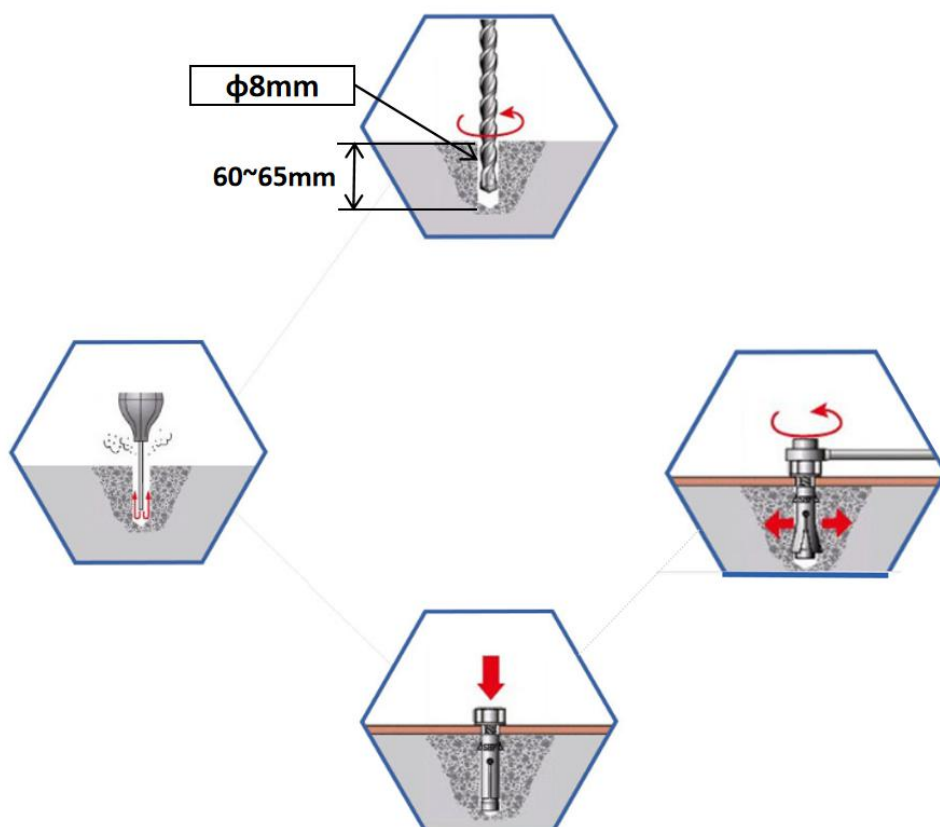
If floor-mounting Power Lite, choose a level surface adjacent to a wall space that meets the above requirements.

Make sure the area is isolated from hazards that could damage Power Lite, such as vehicle traffic or flooding. Consider the spacing requirements for Power Lite.

Conduit or raceway

Calculate the amount and size of conduit or raceway needed for the installation, based on fill limits and local code requirements. With conduit, an adapter may be required between the entry into the Power Lite wiring compartment and the conduit.

Installing expansion Bolts



Step 2. Installation

A. IP54 Case (Floor and Wall-mounting Installation)

The following image gives the indication of how it would be when single or multiple units are installed.

The specification of the Wall-mounting Accessories (P200) can be found at link (Click Spec. button): <https://uzenergy.com/products/power-lite-series/>

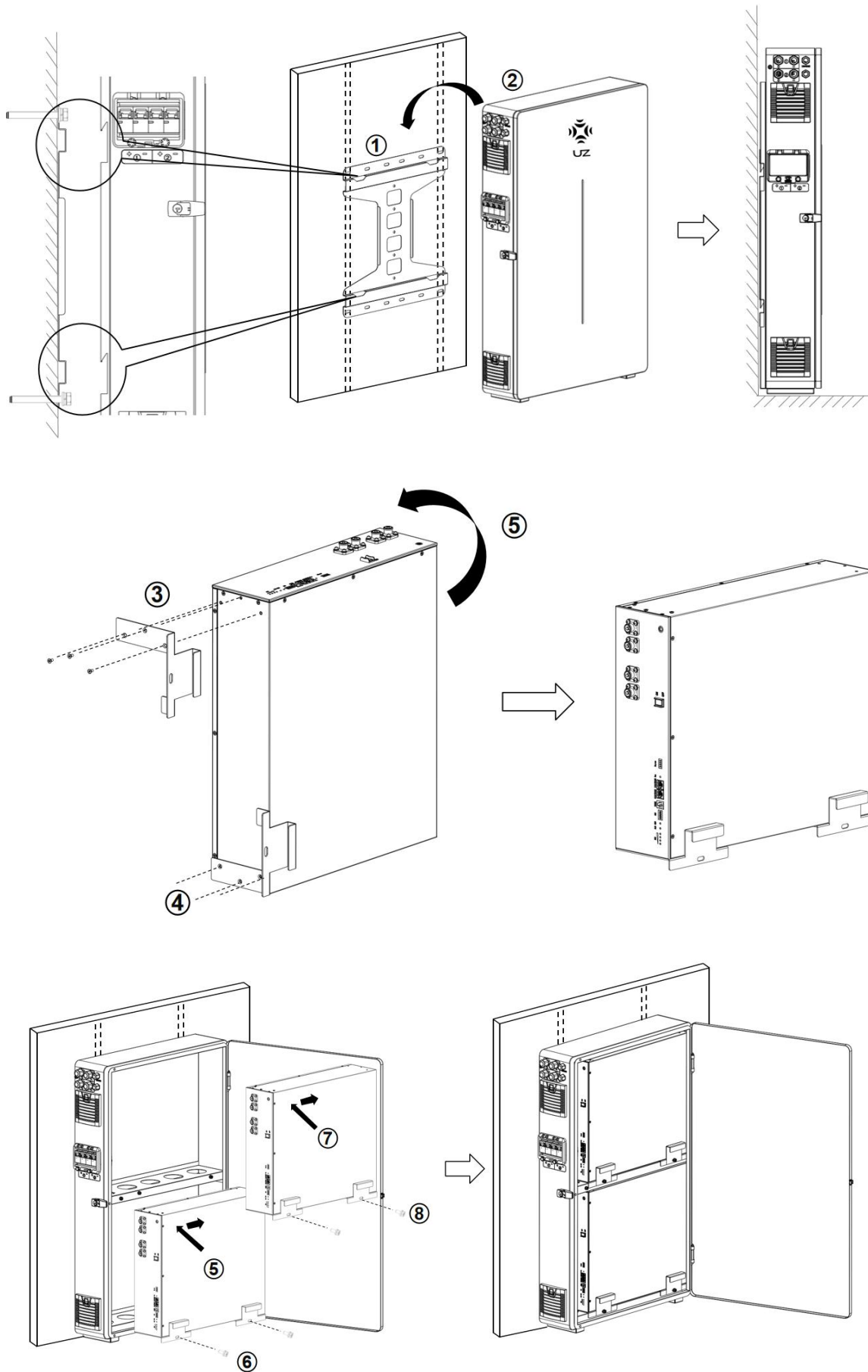


Fig. 4 P200 Assembling Demo

Step 3. Cable and Isolation Device Connection

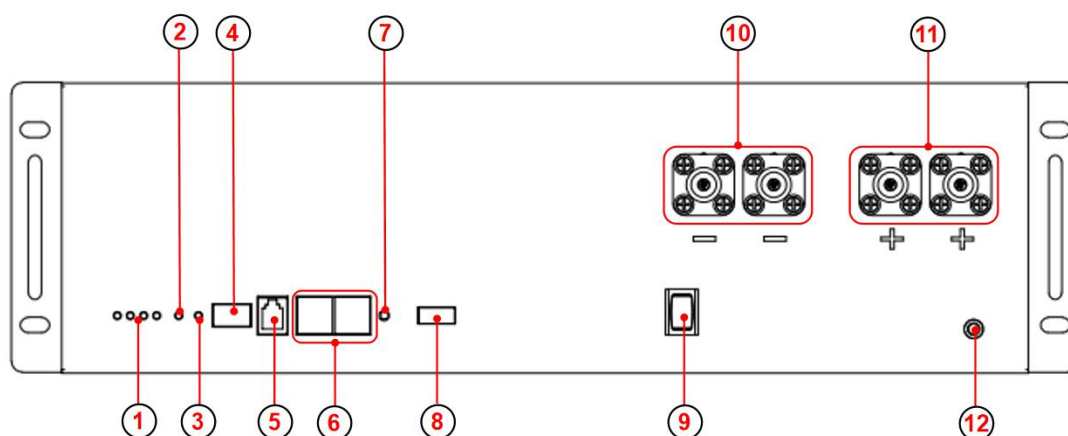


Fig. 5 Front Panel Interface

Table 4-1 Interface definition

Item	Name	Model	Remarks
1	SOC LED x4		
2	Alarm LED		
3	RUN LED		
4	Dialler		
5	Communication port	RJ11	RS232 To upper machine
6	Communication port *2	RJ45	CAN To PCS RS485 Internal Connection
7	Reset		Waken system from malfunction status
8	Dry Contact		
9	Power On/Off Switch		
10	Port Negative x2	PSR6XAB	Black 5.7mm, 25 mm ²
11	Port Positive x2	PSR6XBB	Orange 5.7mm, 25mm ²
12	GND	M6	Yellow-Green, 10 AWG

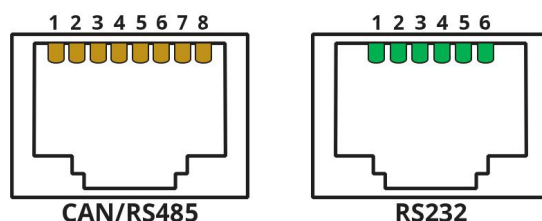


Fig. 6 RJ45 Port Interface

Table 4-2 RJ45 Port Definition

	Description
CAN	Pin 1: CAN-H Pin 5: CAN-L Pin 2, 3, 4, 6, 7: NC Pin 8: GND
RS485	Pin 1, 4, 5: NC Pin 2, 7: RS485-A Pin 3, 6: RS485-B Pin 8: GND
RS232	Pin 1, 2, 6: NC Pin 3: BMS transmit; Computer receiver Pin 4: BMS receiver; Computer transmit Pin 5: GND

Table 4-3 Communication Cable Requirements

Cable Gauge	Strip Length	Maximum Cable Length
CAT5 or better (24 AWG)	RJ-45 connector	45 m

Table 4-4 Power Cable Requirements

Size	Outer Diameter	Max. Voltage	Max. Current
21-33 mm ²	10-12 mm	1000 V	120 A

Table 4-5 DC Breaker Recommendation

The following circuit breaker models (purchased separately) are supported:

Circuit Breaker Model	Rating	Certificate
Nader NDB1-125	100 A	CCC, CE, CB, TUV, UL1077

NOTE: a DC Breaker is required for each positive and negative terminal connecting


Table 4-6 Output/Internal cable definition

Cable	Type	Recommended Specification	Length(m)	Source
DC output power cable(inverter to battery ,Negative)	Common outdoor DC cable in the industry	Conductor cross-sectional area: 25mm ² or 4AWG; Cable outer diameter: 11 – 13mm; Both terminals use OT25-6	Depends	Prepared by the customer
DC output power cable(inverter to battery ,Positive)			Depends	Prepared by the customer
Signal cable(inverter to battery)	Outdoor shielded twisted pair cable: Pin 1, 4, 5: NC Pin 2, 7: RS485-A Pin 3, 6: RS485-B Pin 8: GND	CAT5 or better,Conductor cross-sectional area: 0.20 – 0.35mm ² ; Cable outer diameter: 6.2 – 7mm;	1.5m	Delivered with the Battery
Signal cable(Battery to battery)	Outdoor shielded twisted pair cable : Pin 1: CAN-H Pin 5: CAN-L Pin 2, 3, 4, 6, 7: NC Pin 8: GND	CAT5 or better,Conductor cross-sectional area: 0.20 – 0.35mm ² ; Cable outer diameter: 6.2 – 7mm;	Depends	Prepared In P200 Case
DC input power cable(Battery to battery , Negative)	Common outdoor DC cable in the industry	Conductor cross-sectional area: 25mm ² or 4AWG; Cable outer diameter: 11 – 13mm;	1.5m	Prepared In P200 Case
DC input power cable(Battery to battery , Positive)			1.5m	Prepared In P200A Case
Ground cable (Battery to Case)	Single-core outdoor copper cable	10AWG Both terminals use OT10-6;	1m	Delivered with the Battery
Ground cable (P200 to Out GND)			Depends	Prepared by the customer

A. IP54 CASE(Floor and Wall-mounting Installation)

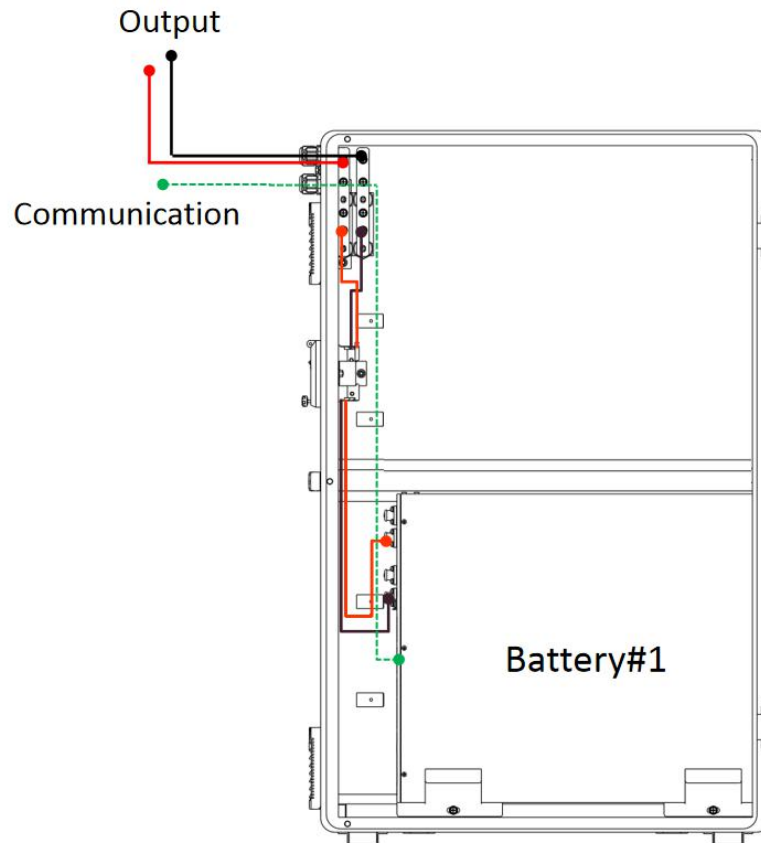


Fig. 7 Cable Connection Of PACK Internal(5KWh)

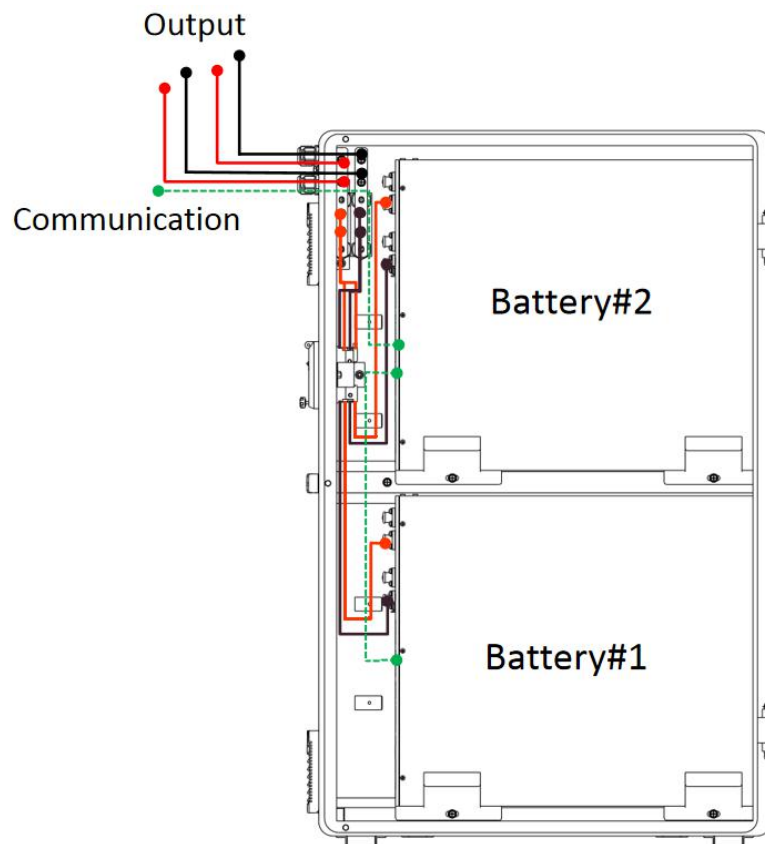


Fig. 8 Cable Connection Of PACK Internal(2*5KWh)

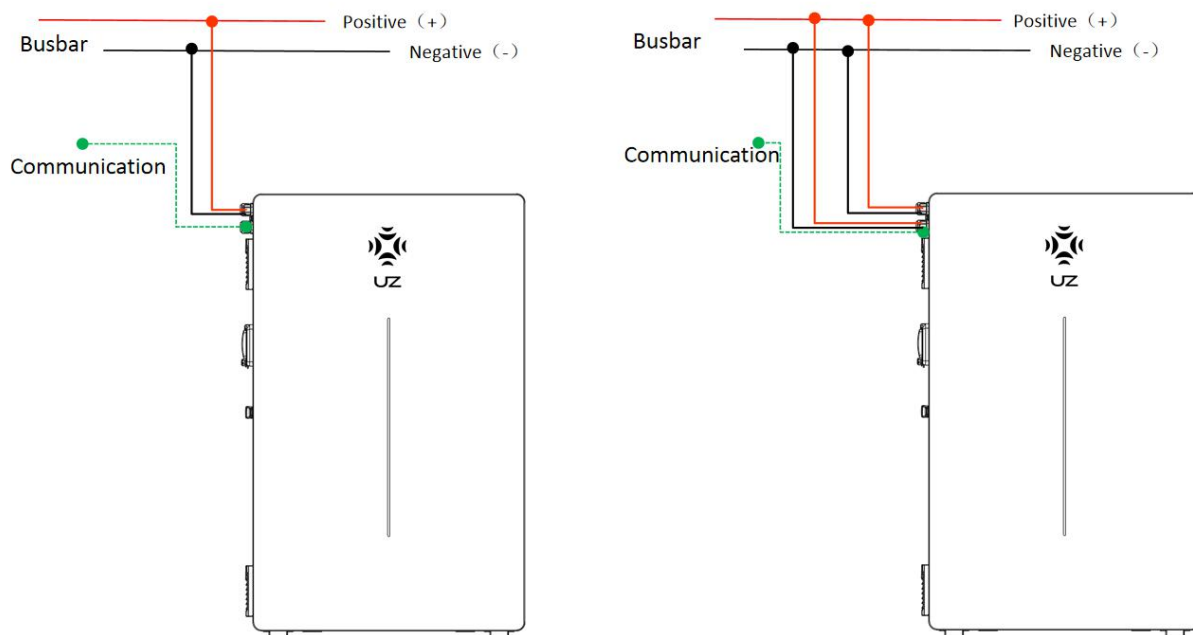


Fig. 9 Cable Connection Single Unit(5KWh/10KWh)

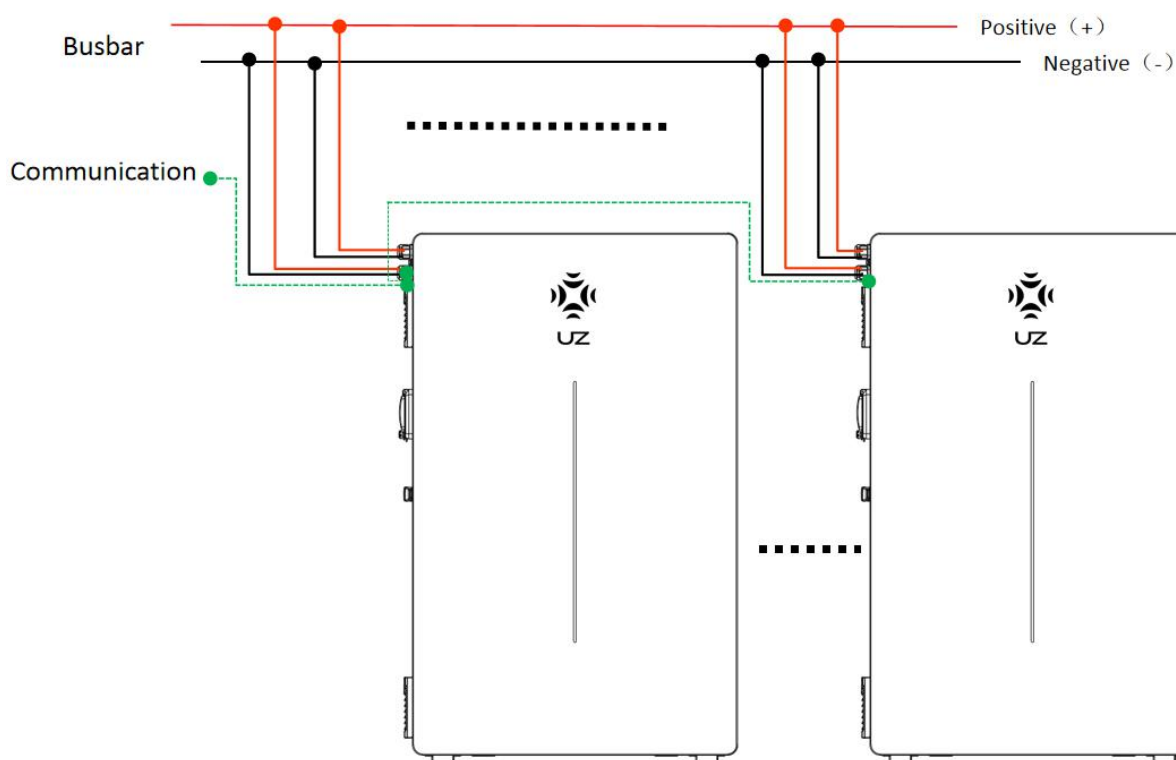


Fig. 10 Cable Connection Multiple Units

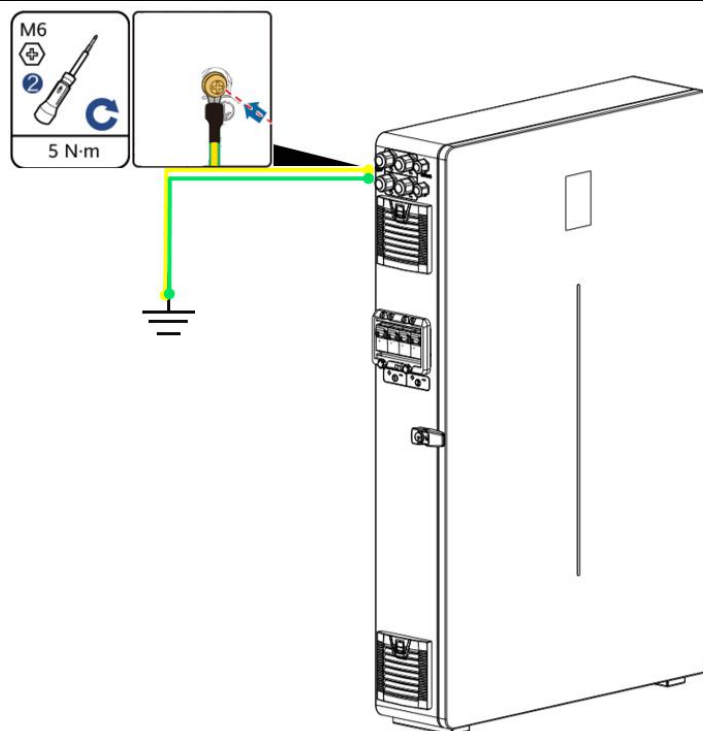


Fig. 11 Cable Connection Of GND

Step 4. Turn On the System

1. Arrange the communication/power wire properly.
2. Ensure that all conduit or cable gland junctions are properly dealt.
3. Switch on button on each Power Lite and then the external circuit breaker.
4. Turn on the circuit breaker to ON “side”.
5. When Power Lite establishes communication with the Inverter, the info shall be properly green from the Inverter software or its screen.

Trouble shooting

If Power Lite is not working correctly, perform the following steps:

Check the status of the LED on the panel. The indication status can be referred in **Power Lite User's Manual** in battery package.

Technical Support

Further support can be achieved via UZ ENERGY Service Team. Please contact the sales person when needed. The following information is useful to have ready when contacting UZ ENERGY:

- ✧ Owner Name
- ✧ Power Lite part number and serial number
- ✧ Brief description of the issue



Maintenance

Power Lite does not require pre-scheduled preventative maintenance. The only maintenance required by an owner is to keep the unit free and clear of debris, especially around the air intake and exhaust.

To clean Power Lite, use a soft, lint-free cloth. If needed, the cloth can be dampened with mild soap and water only. Do not use cleaning solvents to clean Power Lite, or expose Power Lite to flammable or harsh chemicals or vapors.

