Stack100 Pro

USER MANUAL

Battery Module
51.2V100Ah

File version-20250701-V0-EN information might be subject to change without notice during product improving.

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Statement of Law

This product complies with the design requirements of environmental protection and personal safety. The storage, use and disposal of the products shall be carried out in accordance with the product manual, relevant contract or relevant laws and regulations.
You can check the related information on the website of Dyness Digital Energy Technology Co., LTD.when the product or technology is updated.
Web http://www.dyness.com/
Please note that the product can be modified without prior notification.

Revision History

Revision No.	Revision Date	Revision Reason
V0	2025.04.18	First Published.

Safe handling of lithium batteries guide

DANGER ⚠

Before installation or operation you must read the “STACK100 Pro User Manual” carefully.
The batteries will produce high-voltage DC power and might cause lethal voltage and electric shock.
Only qualified persons are allowed to wire the batteries.

WARNING ⚠

This product is a high-voltage DC system, and should be operated by authorized persons only.
Risk of battery system damage or personal injury.
DO NOT disconnect while the system is running!
Keep all power sources off and verify that they are de-energized.
Battery damage may result in electrolyte leakage. If the electrolyte is leaked, do not touch the leaked electrolyte or volatile gas, and contact the after-sales service team for help immediately. If leaked material was touched accidentally, please follow the steps below.
Inhalation of leaked material: Evacuate from the contaminated area and seek medical assistance immediately.
Eye contact: Flush with clean water for at least 15 minutes and seek medical assistance immediately.
Skin contact: Wash the contact area thoroughly with soap and clean water and seek medical assistance immediately.
Ingestion: Induce vomiting and seek immediate medical assistance.
Do not move the battery system if it is connected to an external expansion module.
If you need to replace or add a battery, please contact the after-sales service center.

CAUTION ⚠

Risk of battery system failure or life cycle reduction.

Before Connecting

Please check the product and packing list after unpacking. If the product is damaged or parts are missing, please contact the local dealer.

Before installation, make sure that the grid is disconnected and the battery is switched off.

Do not invert the positive and negative cables and ensure there is no short circuit to the external device.

It is prohibited to connect the battery to AC power directly.

The battery system must be properly grounded and the resistance must be less than 1Ω.

Ensure that the electrical parameters of the battery system are compatible with the respective equipment.

Keep the battery away from water and fire.

During Use

If the battery system needs to be moved or repaired, the power must be disconnected and the battery must be switched off.

It is prohibited to connect different types of batteries.

It is prohibited to connect the battery to incompatible or faulty inverters.

It is prohibited to disassemble the battery (to avoid the warranty sticker being removed or damaged).

In case of fire, dry powder extinguisher and foam extinguisher are prohibited.

Please do not open, repair or disassemble batteries; this is reserved for Dyness staff or authorized personnel. We do not take any responsibility caused by violation of safety operation or equipment safety standards.

Maintenance

Please read the user manual carefully.

If batteries are stored for a long time, it is required to charge them every 10~12 months, and the SOC should be no less than 50%.

Do not expose cables outside.

All battery terminals must be disconnected for maintenance.

Please contact the supplier within 24 hours if there is something abnormal.

Warranty claims are excluded for direct or indirect damage due to items above.

1 Introduction

1.1 Brief Introduction

STACK100 Pro is a high-voltage battery storage system based on lithium iron phosphate batteries, and it is one of the new energy storage products developed and produced by Dyness. It can be used to support reliable power for various types of equipment and systems. STACK100 Pro is especially suitable for application scenes of high power, limited installation space, restricted load-bearing and long cycle life.

1.2 Product Properties

- The entire module is non-toxic, non-polluting and environmentally friendly.
- Anode material is made from $LiFePO_4$ with safety performance and long cycle life.
- The Battery Management System (BMS) comes with protective functions including over-discharge, over-charge, over-current and high/low temperature.
- The system can automatically manage the charge and discharge state and balance the current and voltage of each cell.
- Flexible configuration, multiple battery modules can be connected in series for expanding voltage and capacity.
- 1C discharge, built-in natural cooling system.
- Each PACK has an independent fire extinguishing device.
- The module has less self-consumption, up to 10~12 months without charging; no memory effect, excellent performance of shallow charge and discharge.
- Working temperature range is from -20 to +55°C, with excellent discharge performance and cycle life.
- Small size and lightweight, standard module is easy to install and maintain.

1.3 Product Identity Definition

Figure 1-1 WiFi QR code label

Figure 1-2 Label with heating function

(Only systems with heating function will be labeled with this label)

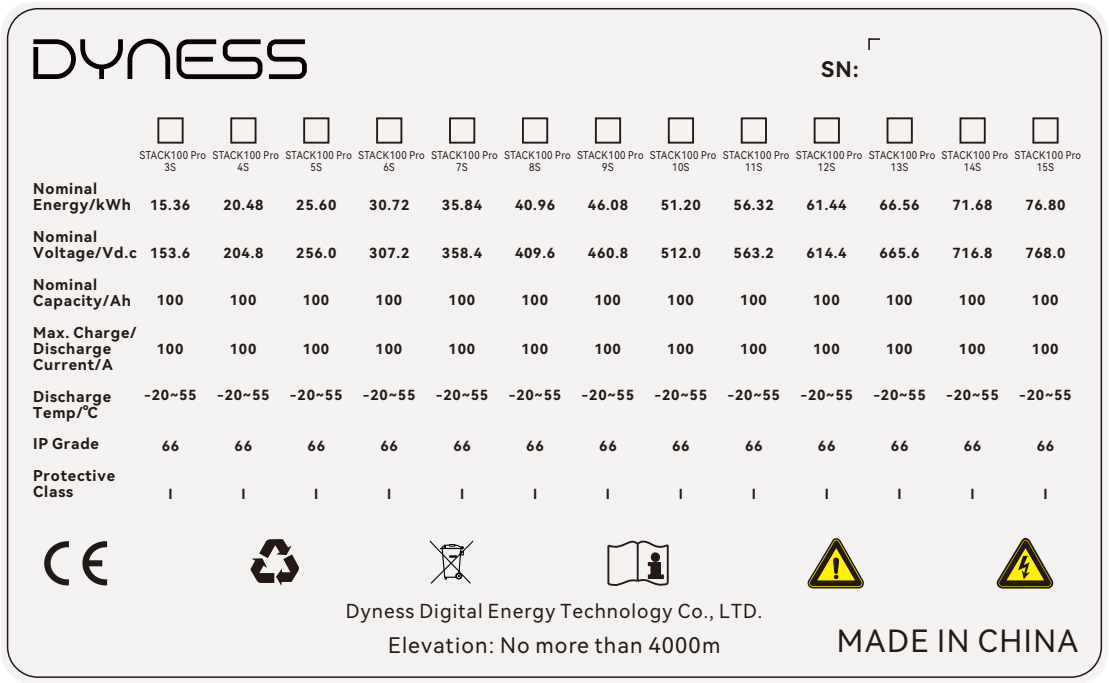


Figure 1-3 Battery energy storage system nameplate

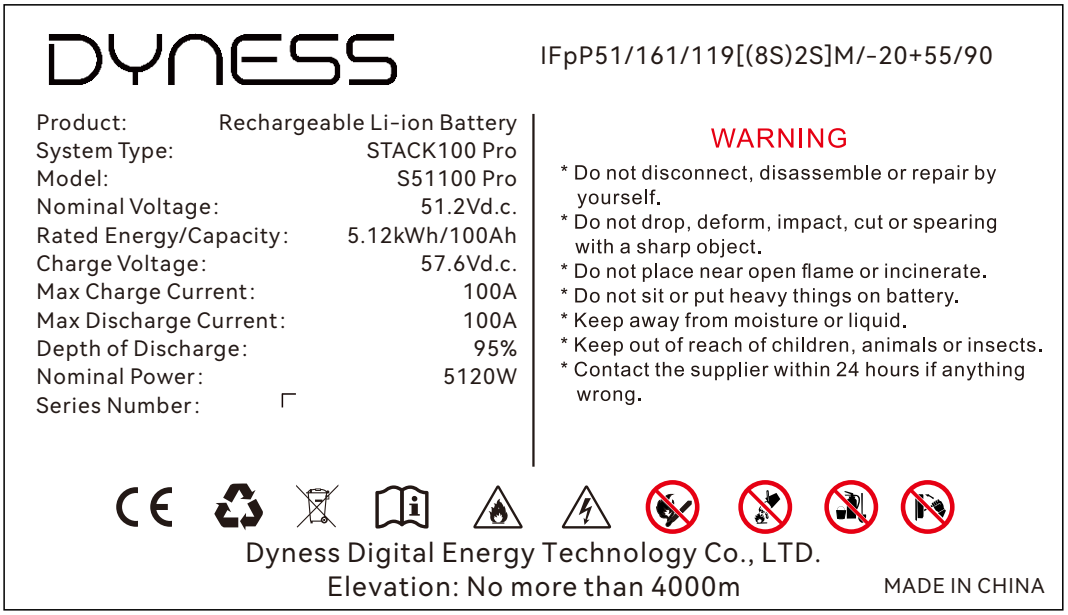


Figure 1-4 Battery module label

CE	This battery meets European directive requirements.
♻	After the useful life of the battery, it can continue to be used after being recycled by a professional recycling organization.
	Do not dispose of the scrapped batteries with household waste; they must be recycled by professional personnel or institutes.

	Read the user manual before use.
	Inflammable.
	Battery voltage is higher than safe voltage, direct contact with electric shock hazard.
	Do not place near open flame or incinerate.
	If catch fire, do not put out with water.
	If catch fire, do not put out with dry powder fire
	Do not cut or spear with sharp objects.

2 Product specifications

2.1System Performance Parameter

Table 2-1 Parameters of the STACK100 Pro system

	STACK100 Pro 3S	STACK100 Pro 4S	STACK100 Pro 5S	STACK100 Pro 6S	STACK100 Pro 7S
System Modules Serial Number	3	4	5	6	7
Operating Voltage(Vd.c.)	134.4-172.8	179.2-230.4	224-288	268.8-345.6	313.6-403.2
Capacity(Ah)	100	100	100	100	100
System Energy Range(kWh)	15.4	20.5	25.6	30.7	35.8
Recommended Charge Current(A)	50	50	50	50	50
Recommended Discharge Current(A)	50	50	50	50	50
Max. Charge Current(A)	100	100	100	100	100
Max. Discharge Current(A)	100	100	100	100	100
Peak Discharge Current(2min 25°C)(A)	125	125	125	125	125
Depth of Discharge	95%	95%	95%	95%	95%
Communication	CAN/RS485 TCP	CAN/RS485 TCP	CAN/RS485 TCP	CAN/RS485 TCP	CAN/RS485 TCP
Charging Temp. (°C)[1]	0~55 (-20~55)	0~55 (-20~55)	0~55 (-20~55)	0~55 (-20~55)	0~55 (-20~55)
Discharging Temp. (°C)	-20~55	-20~55	-20~55	-20~55	-20~55
Protection Level	IP66	IP66	IP66	IP66	IP66
Cycle Life [2]	⩾8000 CYCLES/10 YEARS				
Fire Protection System	AEROSOL FIRE EXTINGUISHER				
Installation method	STACK TYPE				
Cooling method	NATURAL WIND COOLING				
WIFI Module	BUILT-IN WLFL MODULE; APP OTA FUNCTION				
Certification & Safety Standard	CE-EMC/CE-RED/62619/63056/62477/62040 /UN38.3/VDE2510				
Compatible Inverters	GOODWE/SOLIS/DEYE/SOLPLANET/SOLINTEG/SUNWAYS /HOYMILES/SAJ/SINEXCEL/GROWATT/ATESS/MEGAREVO /SINENG ETC.				

Table 2-1 Parameters of the STACK100 Pro system

	STACK100 Pro 8S	STACK100 Pro 9S	STACK100 Pro 10S	STACK100 Pro 11S	STACK100 Pro 12S
System Modules Serial Number	8	9	10	11	12
Operating Voltage(Vd.c.)	358.4-460.8	403.2-518.4	448-576	492.8-633.6	537.6-691.2
Capacity(Ah)	100	100	100	100	100
System Energy Range(kWh)	41	46.1	51.2	56.3	61.4
Recommended Charge Current(A)	50	50	50	50	50
Recommended Discharge Current(A)	50	50	50	50	50
Max. Charge Current(A)	100	100	100	100	100
Max. Discharge Current(A)	100	100	100	100	100
Peak Discharge Current(2min 25°C)(A)	125	125	125	125	125
Depth of Discharge	95%	95%	95%	95%	95%
Communication	CAN/RS485 TCP	CAN/RS485 TCP	CAN/RS485 TCP	CAN/RS485 TCP	CAN/RS485 TCP
Charging Temp. (°C)[1]	0~55 (-20~55)	0~55 (-20~55)	0~55 (-20~55)	0~55 (-20~55)	0~55 (-20~55)
Discharging Temp. (°C)	-20~50	-20~50	-20~50	-20~50	-20~50
Protection Level	IP66	IP66	IP66	IP66	IP66
Cycle Life [2]	⩾8000 CYCLES/10 YEARS				
Fire Protection System	AEROSOL FIRE EXTINGUISHER				
Installation method	STACK TYPE				
Cooling method	NATURAL WIND COOLING				
WIFI Module	BUILT-IN WLFL MODULE; APP OTA FUNCTION				
Certification & Safety Standard	CE-EMC/CE-RED/62619/63056/62477/62040 /UN38.3/VDE2510				
Compatible Inverters	GOODWE/SOLIS/DEYE/SOLPLANET/SOLINTEG/SUNWAYS /HOYMILES/SAJ/SINEXCEL/GROWATT/ATESS/MEGAREVO /SINENG ETC.				

Table 2-1 Parameters of the STACK100 Pro system

	STACK100 Pro 13S	STACK100 Pro 14S	STACK100 Pro 15S
System Modules Serial Number	13	14	15
Operating Voltage(Vd.c.)	582.4-748.8	627.2-806.4	672-864
Capacity(Ah)	100	100	100
System Energy Range(kWh)	66.6	71.7	76.8
Recommended Charge Current(A)	50	50	50
Recommended Discharge Current(A)	50	50	50
Max. Charge Current(A)	100	100	100
Max. Discharge Current(A)	100	100	100
Peak Discharge Current(2min 25°C)(A)	125	125	125
Depth of Discharge	95%	95%	95%
Communication	CAN/RS485 TCP	CAN/RS485 TCP	CAN/RS485 TCP
Charging Temp. (°C)[1]	0~55 (-20~55)	0~55 (-20~55)	0~55 (-20~55)
Discharging Temp. (°C)	-20~55	-20~55	-20~55
Protection Level	IP66	IP66	IP66
Cycle Life [2]	⩾8000 CYCLES/10 YEARS		
Fire Protection System	AEROSOL FIRE EXTINGUISHER		
Installation method	STACK TYPE		
Cooling method	NATURAL WIND COOLING		
WIFI Module	BUILT-IN WLFL MODULE; APP OTA FUNCTION		
Certification & Safety Standard	CE-EMC/CE-RED/62619/63056/62477/62040 /UN38.3/VDE2510		
Compatible Inverters	GOODWE/SOLIS/DEYE/SOLPLANET/SOLINTEG/SUNWAYS /HOYMILES/SAJ/SINEXCEL/GROWATT/ATESS/MEGAREVO /SINENG ETC.		

[1]The charging temperature of products with heating function is -20℃~50℃

[2]Test conditions: 0.2C Charging/Discharging, @25°C, 95% DOD

2.2Battery Module

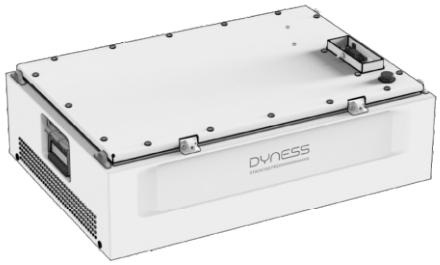
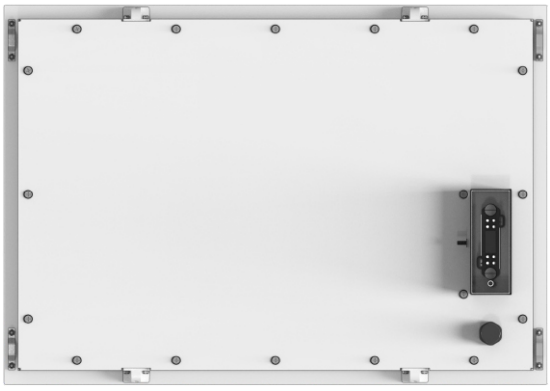


Figure 2-1 Battery module

Table 2-2 Battery parameters

Model name	S51100 Pro
Cell technology	Li-ion (LFP)
Battery module capacity (kWh)	5.12
Battery module voltage (Vd.c.)	51.2
Battery module capacity (Ah)	100
Number of battery module cells (pcs)	16
Battery cell capacity (Wh)	320
Battery cell voltage (Vd.c.)	3.2
Battery cell capacity (Ah)	100
Dimensions (W*D*H, mm)	657*459*191
Pollution degree (PD)	II
Weight (kg)	55



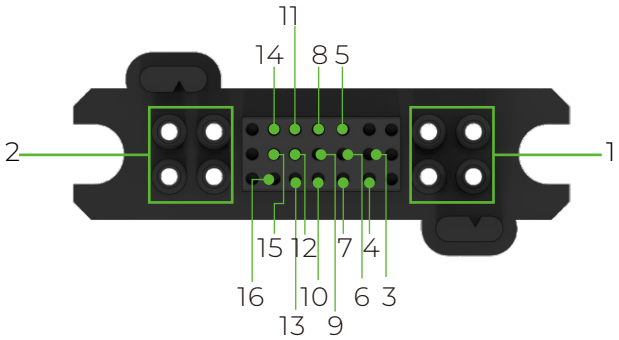


Figure 2-2 Top view of the battery

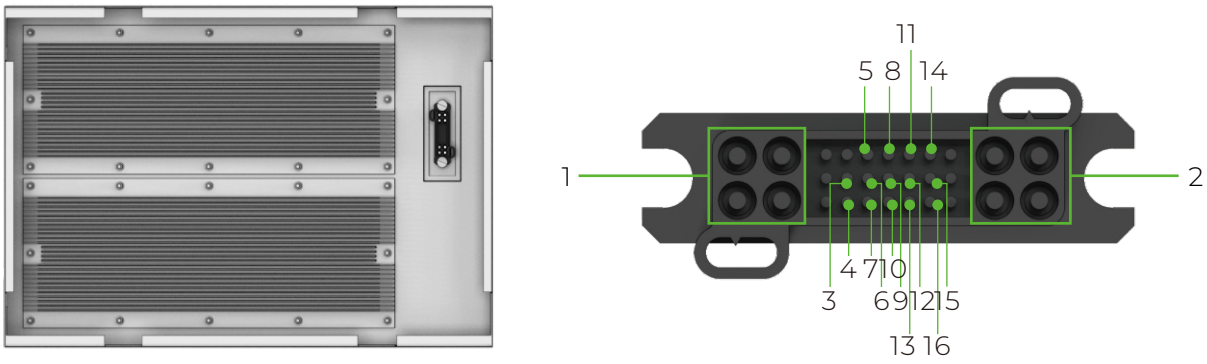


Figure 2-3 Bottom view of the battery

Table 2-3 Connector definition

PIN	Top connector	Bottom connector
1	Negative output	Negative output
2	Positive output	Positive output
3	B+	B+
4	B-	B-
5	VOUT1	VOUT1
6	GND	GND
7	IPA	IPA
8	IMC	IMC
9	RX	RX
10	HEAT-	HEAT-
11	IPC	IPC
12	TX	TX
13	HEAT+	HEAT+
14	24V-	24V-
15	24V+	24V+
16	IMA	IMA

2.3Battery controller

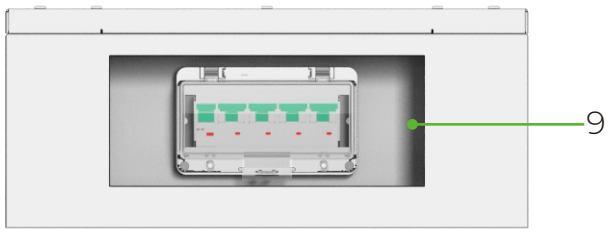


Figure 2-4 Left side interface

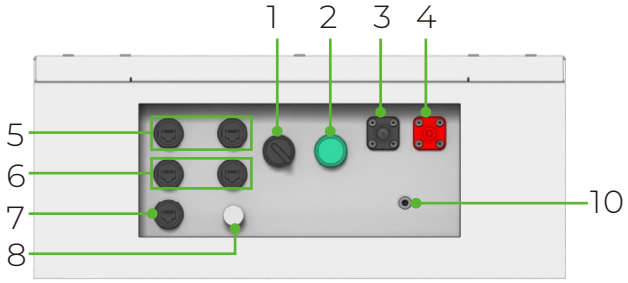


Figure 2-5 Right side interface

Table 2-4 BDU parameters

Item	Name	Definition
1	Dimensions (W*D*H, mm)	657*459*193
2	Weight (kg)	23.5
3	Output Voltage (Vd.c.)	134.4-864
4	Maximum Output Current(A)	125

Table 2-5 Side interface definition

Item	Name	Definition
1	Power On switch	Turn on the switch to power the BMS system
2	Power Wake Button	Long press this button to start the battery system
3	Negative female	Connect battery system to inverter negative terminal
4	Positive socket	Connect battery system to inverter positive terminal
5	Inverter CAN/RS485	RJ45 communication port between battery system and inverter
6	Parallel IN/OUT	Parallel communication connection of multi cluster systems
7	TCP	communication port between battery system and inverter or EMS
8	WiFi antenna	Receiving and sending WiFi signals
9	DC breaker	The master switch of the battery system, you must switch it on before switching on the Power On and Power WAKE switches; short circuit protection
10	Grounding	Shell ground connection

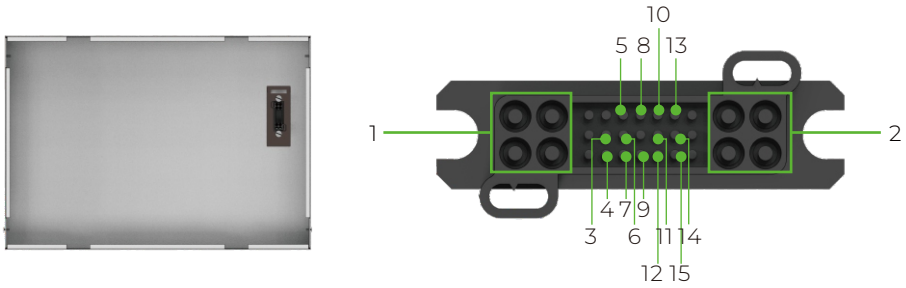


Figure 2-6 Bottom view of the BDU

Table 2-6 Connector definition

Item	Definition	Item	Definition
1	Negative output	7	HEAT+
2	Positive output	8	TX
3	IPB	9	IPC
4	HEAT-	10	IMB
5	RX	11	24V+
6	IMC	12	24-

Table 2-7 LED status indicators

LED status	Information
	SOC 50%
	SOC 100%
Current SOC increases to 100% ,then cycles	Charge
Drop from current SOC to 0%, then loop	Discharge
Green light flashing(Current SOC)	Standby

Table 2-7 LED status indicators

LED status	Information
Yellow light flashing	Failed to successfully allocate network address after booting up.
 Red light on	System protection

DANGER ⚠

Ensure ON/OFF switch is turned on before waking up the battery. Otherwise it will affect the auto test process and cause danger.
DO NOT switch off the ON/OFF switch during normal operation, only in emergencies. Otherwise it will cause the battery current to surge.

CAUTION ⚠

If the DC breaker trips because of over-current or short circuit, you must wait for 30 minutes to switch it on again, otherwise it may cause damage to the breaker.

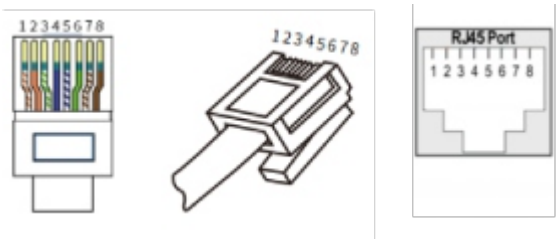


Figure 2-8 "Inverter CAN/RS485" port pins

Table 2-8 Definition of "Inverter CAN/RS485" port pins

PIN	Color	Definition
1	Orange/White	485B
2	Orange	485A
3	Green/White	Reserved
4	Blue	CANH
5	Blue/White	CANL
6	Green	NC
7	Brown/White	NC
8	Brown	NC

3 Product specifications

3.1 Environmental Requirements

DANGER

Cleanliness

The battery system has high voltage connectors. The environmental conditions will affect the isolation of the system.

Before installation and switch-on, dust and swarf must be removed to keep the system clean. The environment must be dust-proof to a certain extent.

Dust and humidity must be regularly checked during continuous operation of the system.

Fire Protection System

The room must be equipped with a fire protection system or fire extinguishers (Recommended: foam extinguisher). The fire protection system needs to be regularly checked to ensure its normal condition. Please refer to your local fire protection equipment for use and maintenance requirements.

Grounding System

Make sure that the grounding point for the battery system is stable and reliable before installation. If the battery system is installed in an independent equipment cabin (e.g. container), ensure that the grounding of the cabin is stable and reliable.

The resistance of the grounding system must be ≤1Ω.

CAUTION

Temperature

STACK100 Pro system working temperature range: -20℃to +55℃; Optimum temperature: 18℃ to 30℃; Exceeding the working temperature range will cause over-temperature/under-temperature alarms or protection of the battery system which may lead to the reduction of cycle lives.

Cooling System

It is essential to equip a cooling system to keep the battery system in a relevant temperature range. Over-temperature/under-temperature alarms or protection of the battery system may lead to the reduction of lifespan.

Heating System

It is essential to equip a heating system to keep the battery system in a relevant temperature range. If the environment is lower than 0oC, the system may be shut down for protection. It is necessary to open the heating system first. Exceeding the working temperature range will cause the battery system over-temperature/under-temperature alarm or protection of the battery system may lead to the reduction of cycle lives.

3.2 Installation location precautions

DANGER

Please note that the battery should be installed with a minimum safe clearance from the surrounding equipment or battery. Please refer to the minimum clearance diagram below.

Installation clearance

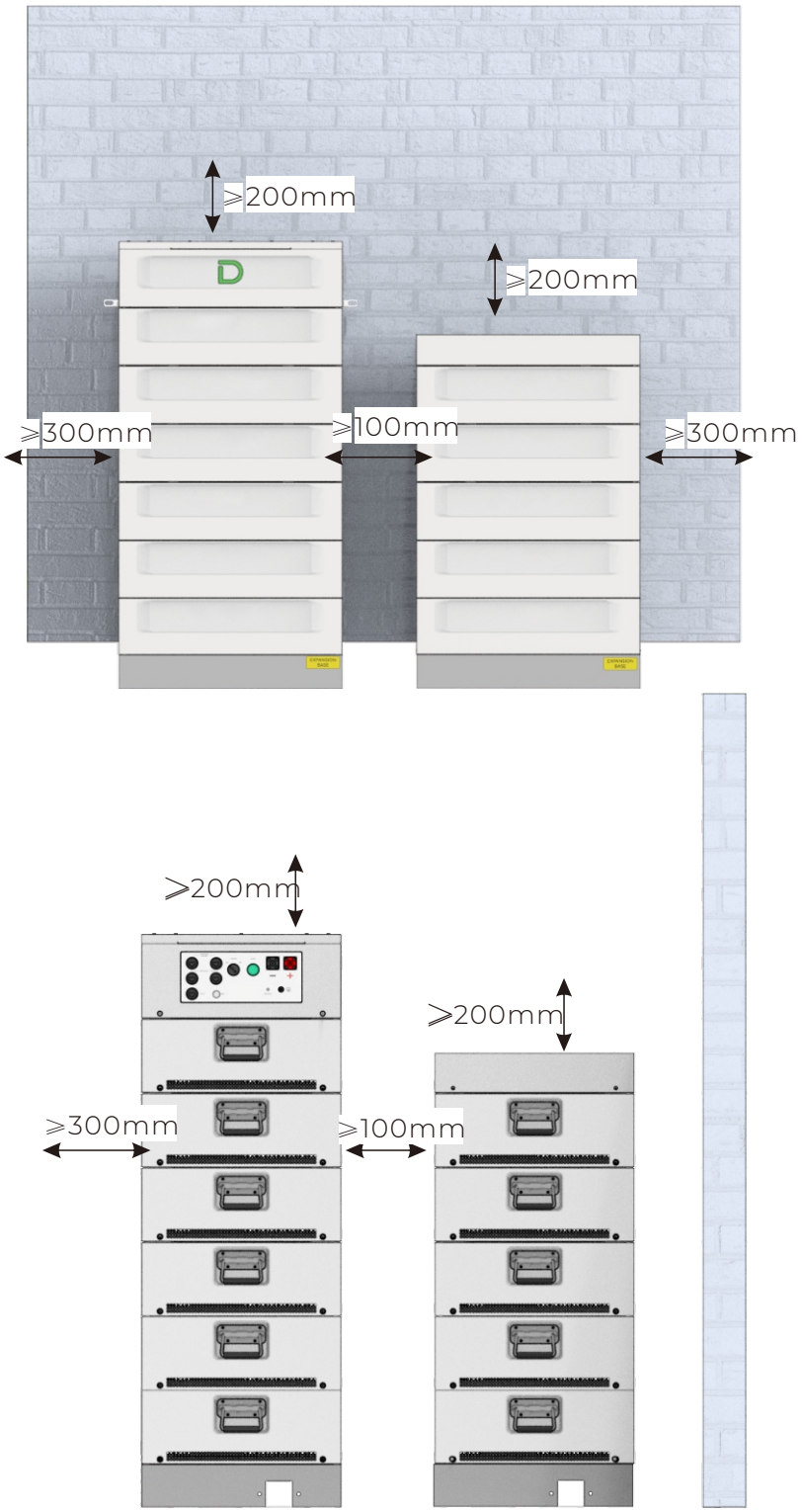


Figure 3-1 Minimum clearance

Installation location:

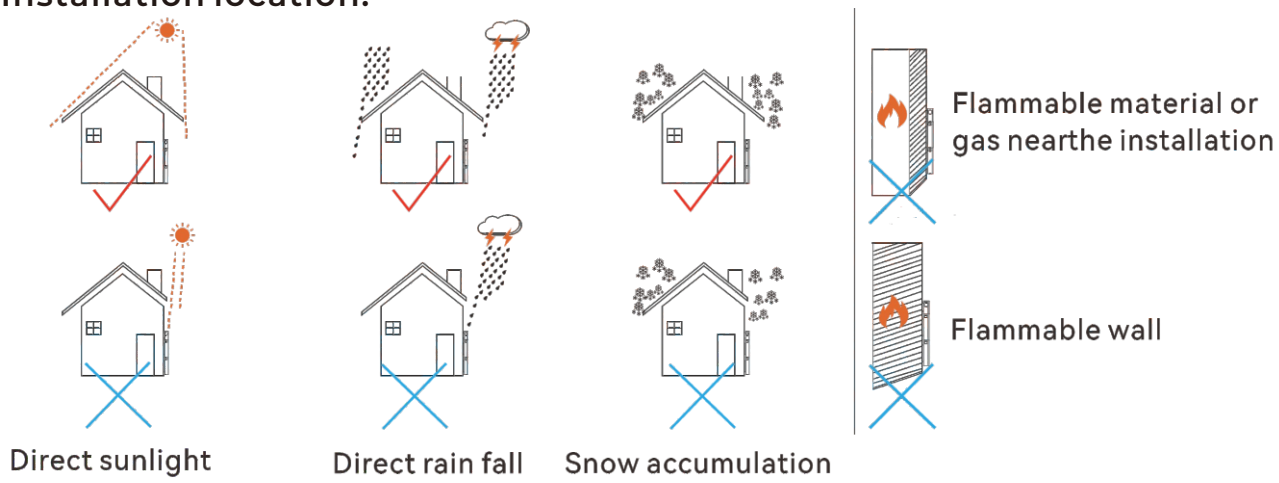


Figure 3-2 Suggested installation location

Tools:

The following tools are required to install the battery pack:

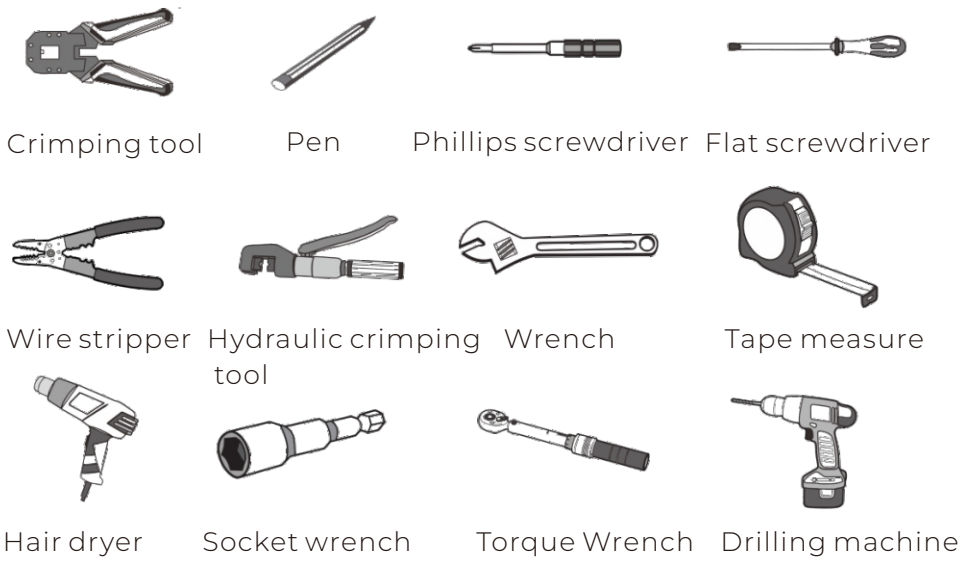


Figure 3-3 Installation tools

Safety Requirement

We recommend wearing the following safety gear when working with batteries:

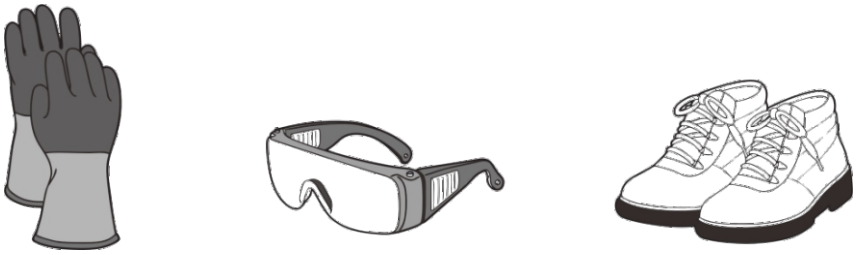


Figure 3-4 Safety gear

CAUTION ⚠

1.The system should be installed with the help of at least 2 grown-up males.
2.If more than 8 of the battery to be configured, It is suggested to divide into two columns.
3.The battery system should be installed indoors, away from flammable and explosive materials.

3.3 Unpacking inspection

- When the equipment arrives at the installation site, unloading should be performed according to rules and regulations, to prevent from being exposed to direct sunlight. The battery should not be installed in direct sunlight. Please refer to Section 3.2
- Before unpacking, the total number of packages shall be indicated according to the shipping list attached to each package, and all packages shall be checked for good condition.
- Handle with care and protect the surface coating of the goods.
- Upon opening the package, the installation personnel should read the technical documentation, verify the list according to configuration table and packing list and ensure that the goods are complete and intact. If the internal packing is damaged, goods should be examined and recorded in detail.

Table 3-1 Packing list

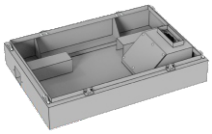
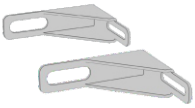
Package	Name	Specifications	Quantity	Image
A	BDU	657*459*193	1	
	Base	657*459*99	1	
	Fixing bracket	To secure with the wall	2	
	Expansion Bolt	M6*80	2	
	Expansion Bolt	M12*100	4	
	Waterproof Cover	PAG66 25% black	3	

Table 3-1 Packing list

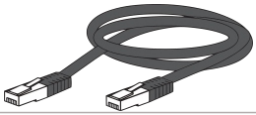
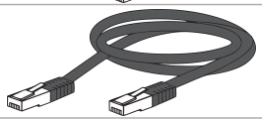
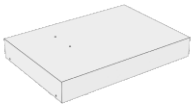
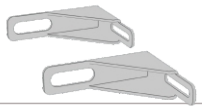
Package	Name	Specifications	Quantity	Image
A	CAN resistor	RJ45-CAN-120,Pin4&5	1	
	Grounding cable	L2050mm	1	
	Communication cable to inverter	L2000mm/RJ45 plug at both sides ,PIN4&5	1	
	Parallel communication cable	L2000mm/RJ45 plug at both sides ,PIN4&5&7&8	1	
	Negative cable[1]	UL10269 4AWG, black, 2050mm	1	
	Positive cable[1]	UL10269 4AWG , red, 2050mm	1	
	*Power cable-positive	Positive cable 8AWG, red, 2m	1	
	*Power cable-negative	Positive cable 8AWG, red, 2m	1	
	*Power cable-positive	Positive cable 10AWG, red, 2m	1	
	*Power cable-negative	Positive cable 10AWG, red, 2m	1	
	User Manual	/	1	
	Warranty Card	/	1	
	Letter to customer	/	1	
	Packing list	/	1	
B	S51100 Pro	657*459*191mm	1	
	Flat head Phillips screws	M5*12	4	

Table 3-1 Packing list

Package	Name	Specifications	Quantity	Image
	Packing list	/	1	
C	Expansion Base	657*459*99	1	
	Expansion Cover	657*459*91.5	1	
	Cover	657*459*91.5	1	
	Grounding cable	L2050mm	1	
	Expansion socket	/	1	
	Communication parallel cable	Communication between two cluster	1	
	Series cable	Two clusters in series UL10269 4AWG	2	
C	Fixing bracket	fix to the wall	2	
	Expansion Bolt	M6*80	2	
	Expansion Bolt	M12*100	4	
	Screw	M5*16	2	
	Nut	M5	2	
	Packing list	/	1	
	Label	/	1	

[1]Some models will be equipped with multiple types of power cables
*8AWG and 10AWG power cables are requirements for the European sales region.

Table 3-2 Scope of delivery

Model	Battery system capacity (kWh)	Configuration	Dimension (mm)	Weight (Kg)
STACK100 Pro-3S	15.36	A+B*3	657*459*799	199.6
STACK100 Pro-4S	20.48	A+B*4	657*459*968	254.6
STACK100 Pro-5S	25.60	A+B*5	657*459*1137	309.6
STACK100 Pro-6S	30.72	A+B*6	657*459*1306	364.6
STACK100 Pro-7S	35.84	A+B*7	657*459*1475	419.6
STACK100 Pro-8S	40.96	A+B*8	657*459*1644	474.6
STACK100 Pro-9S	46.08	A+B*9+C	657*459*1644 657*459*360	548.4
STACK100 Pro-10S	51.20	A+B*10+C	657*459*1644 657*459*529	603.4
STACK100 Pro-11S	56.32	A+B*11+C	657*459*1644 657*459*698	658.4
STACK100 Pro-12S	61.44	A+B*12+C	657*459*1644 657*459*867	713.4
STACK100 Pro-13S	66.56	A+B*13+C	657*459*1644 657*459*1036	768.4
STACK100 Pro-14S	71.68	A+B*14+C	657*459*1644 657*459*1205	823.4
STACK100 Pro-15S	76.80	A+B*15+C	657*459*1644 657*459*1374	878.4

3.4Equipment installation

CAUTION ⚠

1. If more than 8 battery modules are to be installed,you are advised to install them in two columns.
2. One battery column (8 Battery + 1 BDU&Base) is about 1644 mm in height. Please maintain a clearance of 200mm above the BDU. Namely, ensure that the distance between the floor and the ceiling is greater than 1844 mm for the convenience of installation and better heat dissipation . If the height is not enough,you are advised to install them in two columns.
3. The system should be installed with the help of at least 2 grown-up males.
4. If the use of a conduit is required, please install the bushing to the reserved hole before installing the expansion screw.

Installation Preparation:

1. Make sure that the environment meets all technical requirements.
2. Prepare equipment and tools for installation.
3. Confirm that the DC breaker is in the OFF position.

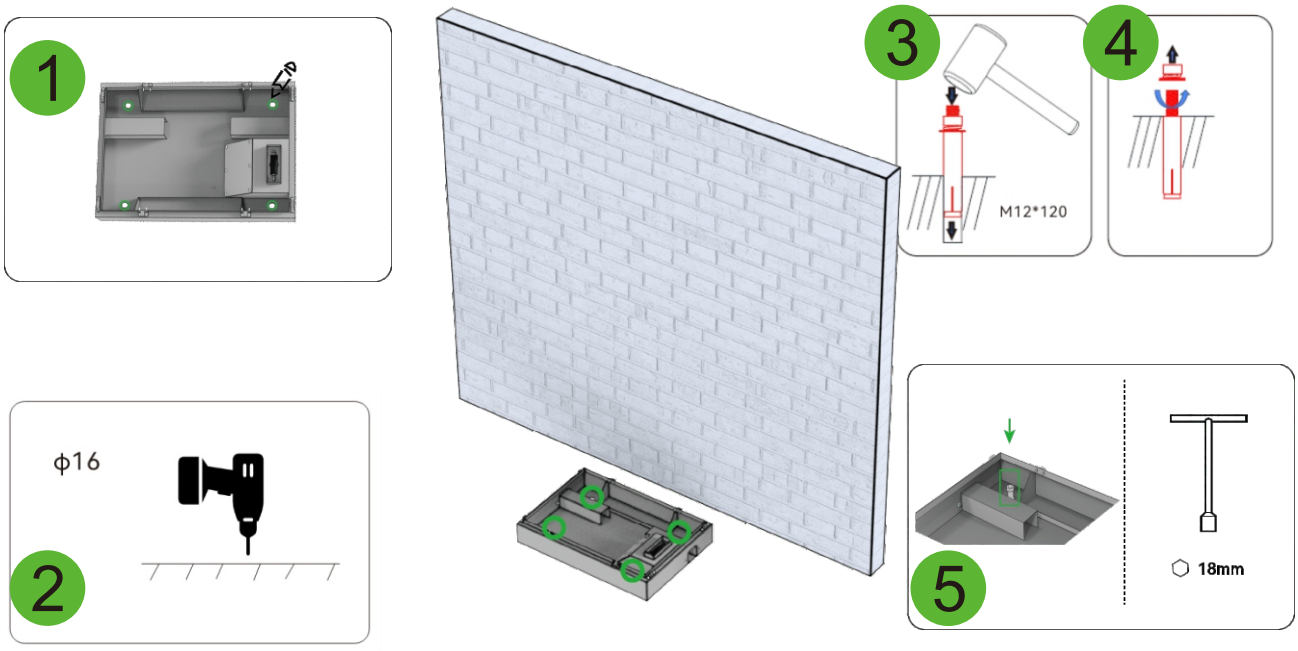
Mechanical Installation:

DANGER ⚠

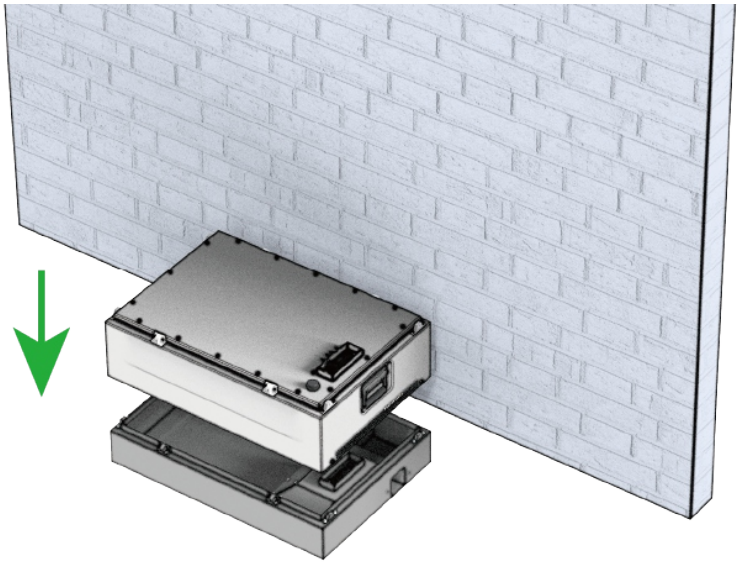
The battery system is a high-voltage DC system. Ensure that installation area of STACK100 Pro is stable and reliable.
Please confirm that the battery system is switched off before connecting. Electric shock and damage to the inverter may be caused if the battery is connected directly without being switched off.
Otherwise, the system cannot work properly. The voltage of the battery is too high, please pay attention to self-protection during measurement.

Step 1: Install the battery base.

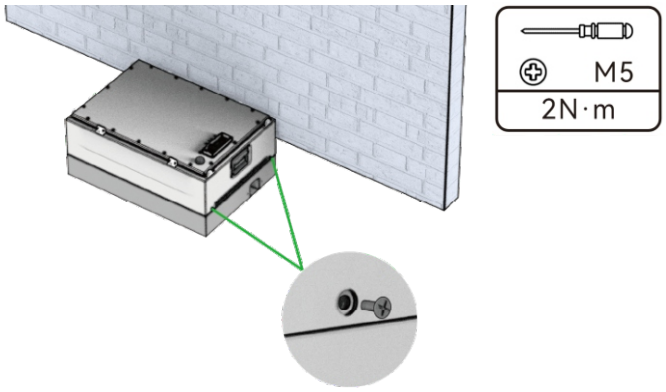
1. Place the base in the designated position.Mark the hole positions using a marker.
2. Move the base away.Drill holes at the marked positons to a depth of 90 mm.
3. Knock the expansion screws into the holes(M12x120).
4. Remove the flat washer, the spring washer and the nut.Place the base on the selected position, then install the flat washer, the spring washer and the nut.
5. Tighten the nut to secure the base.



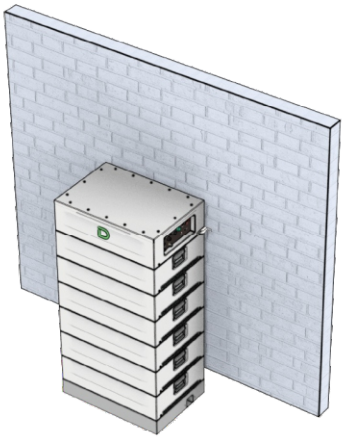
Step 2: Place the Battery Module onto the base, ensuring that the locating pins of the Battery with the locating points on the base.



Step 3: Install four M5*12 locking screws on the left and right sides.

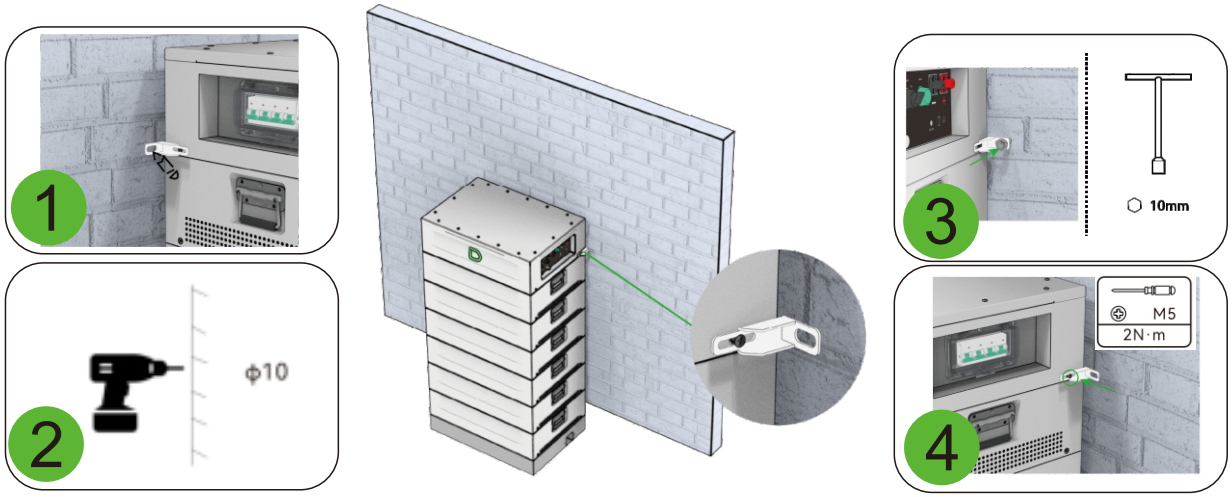


Step 4:Repeat steps 2 and 3 until the required batteries and BDU are installed.



Step 5: Installed hanging ear.

1. Mark the hole positions using a marker.
2. Drill holes at the marked positions to a depth of 90 mm.
3. Hanging ears are installed on the left and right sides respectively and locked to the wall with expansion screws(M6x80).
4. Use two M5*12 screws to fix the left and right Hanging ears to the chassis respectively.



Expansion package installation

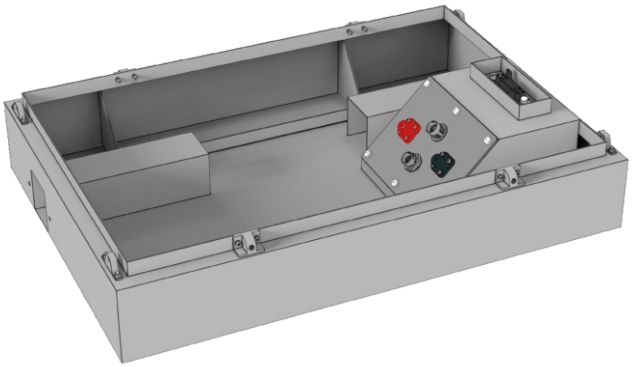


Figure 3-5 Expansion base

CAUTION

1. If the number of battery packs in a single cluster is greater than 8, it is recommended to use an expansion pack for installation.
2. After expansion, the standard base becomes an expansion base, and the yellow label needs to be pasted by the customer himself.
3. The operation guide for changing the standard base to an expanded base is attached in P26 step 3.

CAUTION

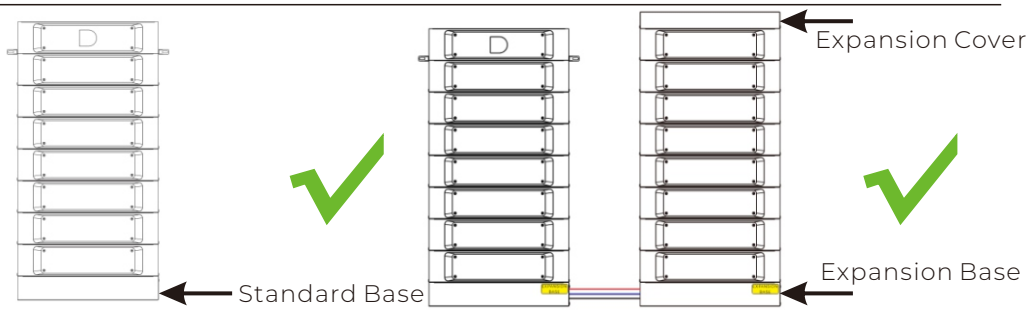
Install according to the minimum distance in Figure 3-1.

DANGER

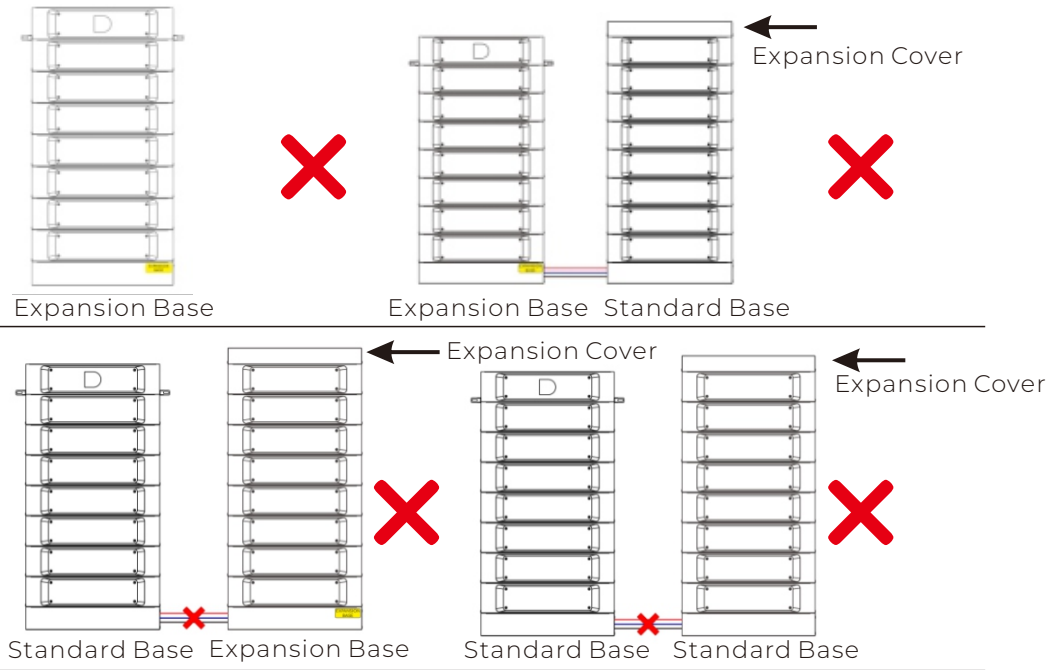
The Extended cover must be exclusively used with the expansion-labeled base.

CAUTION

The following illustrations depict the correct and incorrect connection methods.

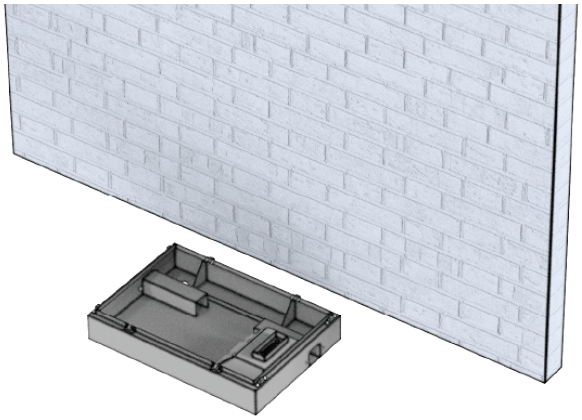
Expansion cover in conjunction with Expansion Base	

Expansion covers are prohibited from being used with standard bases.



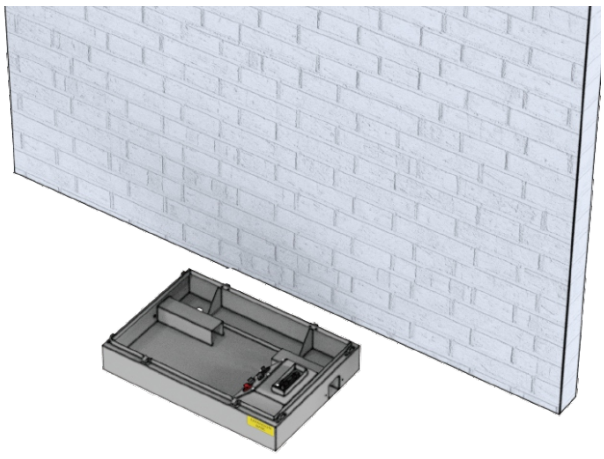
Step 1:Standard base installation .

1.Installation distance reference P22 step1.



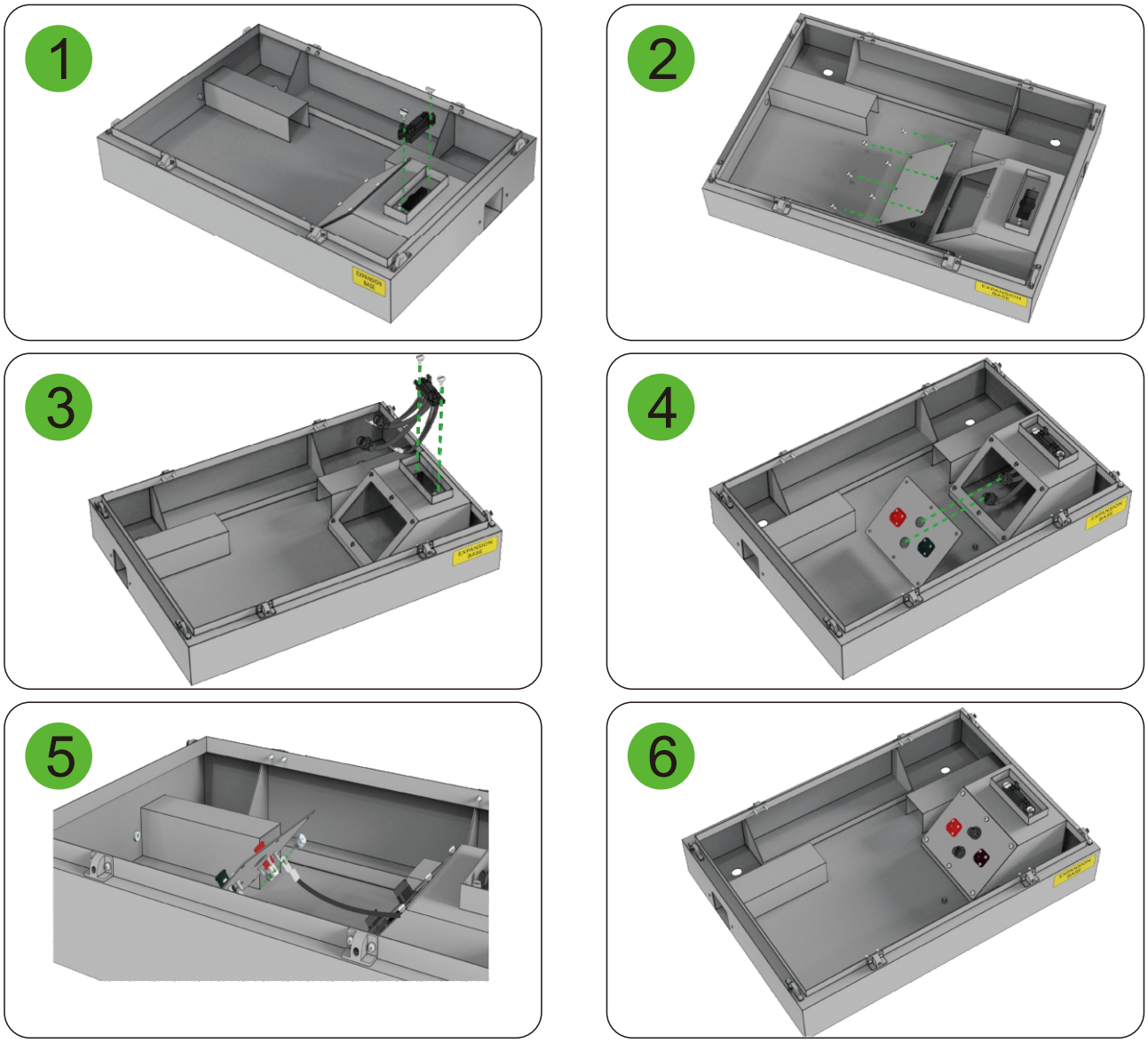
Step 2:Expansion base installation .

1.Installation steps refer to the installation of the standard base.
2.Installation distance reference P16.



Step 3:Change the standard base to an expansion base.

1.Remove the 2 fixing bolts, disassemble the plug-in from the original base.
2.Use a Phillips screwdriver to remove the screws, and remove the sealing cover.
3.Insert the new socket. Pay attention to the installation direction.
4.Install communication socket.
5.Install positive and negative pole cables.
6.Install the new sealing cover. Use the screws that were just removed to re secure the sealing cover.



CAUTION

Please strictly follow the installation direction of the positive and negative poles as shown in the diagram, otherwise it may cause a short circuit in the battery.

CAUTION

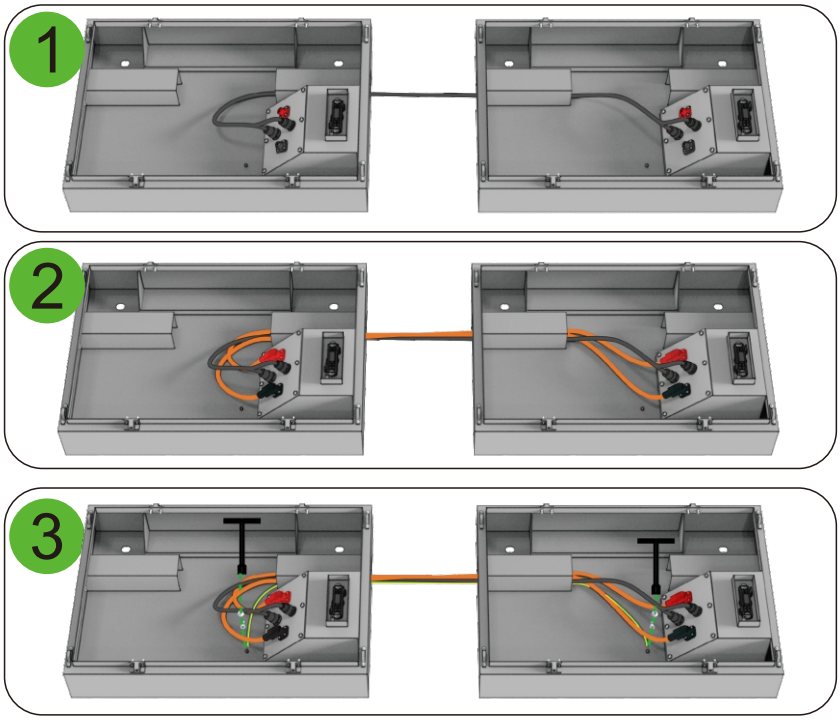
The positive and negative screws need to be tightened. Otherwise, poor contact may lead to heating and trigger a fire.

Step 4:Label pasting

After the standard base modification is completed, a label needs to be attached.

Step 5:Cable connection.

1. Install communication cables.
2. Install the serial cable.
3. Install grounding cables.



CAUTION ⚠

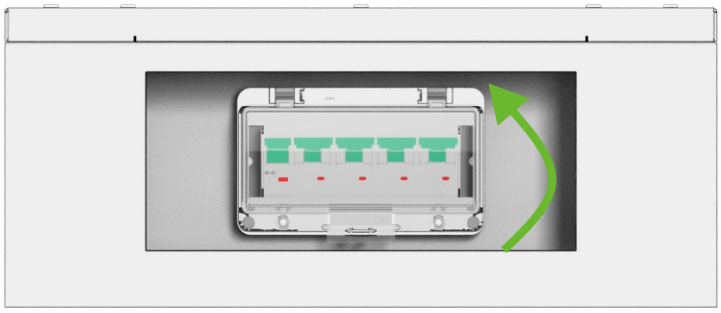
The color of the cable plug should be consistent with the socket. Otherwise, it may cause a short circuit in the battery.

Step6: Install the battery module & BDU .

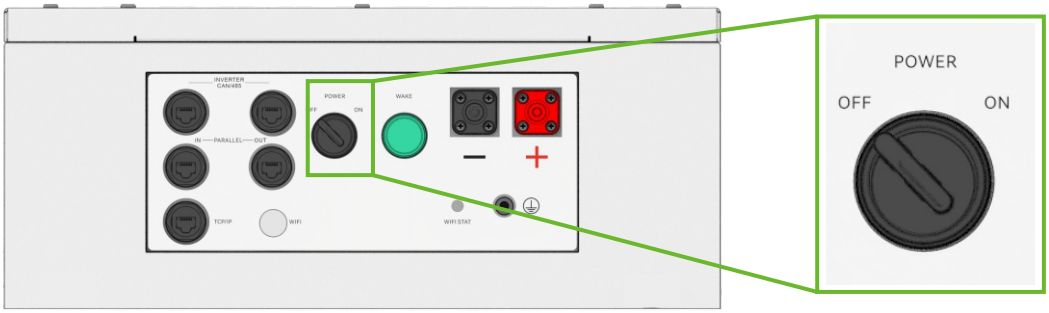
Refer to Step 3 & 4 & 5 of P23.

Battery system self-test

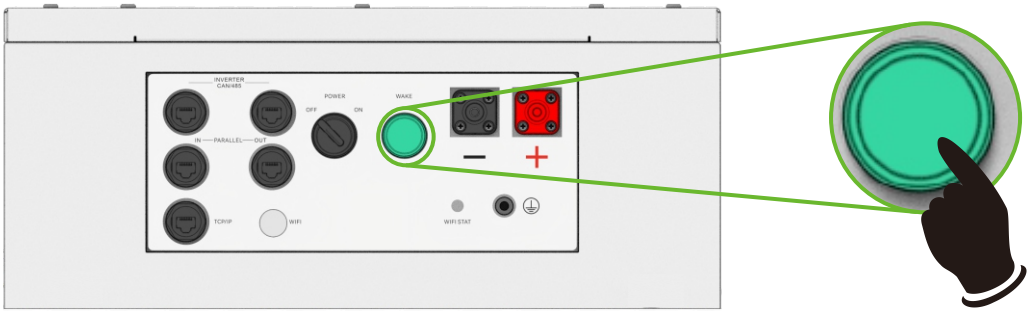
1.Switch on the DC breaker of the BDU.



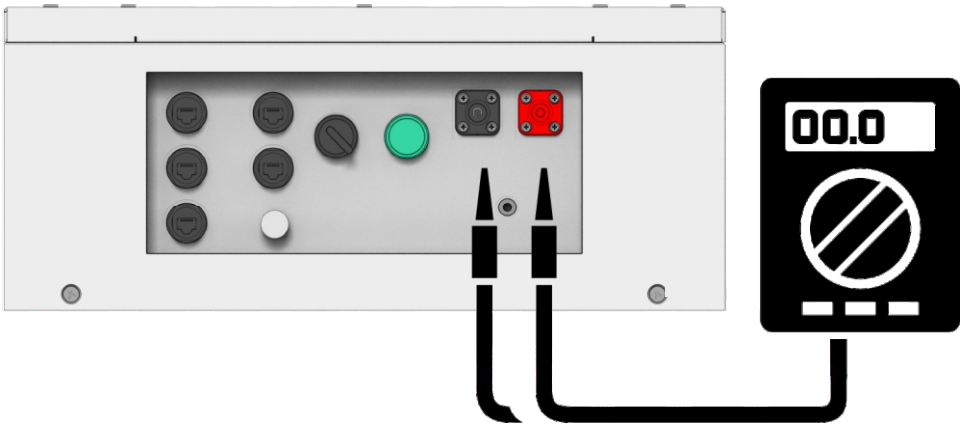
2.Turn the POWER ON knob to ON.



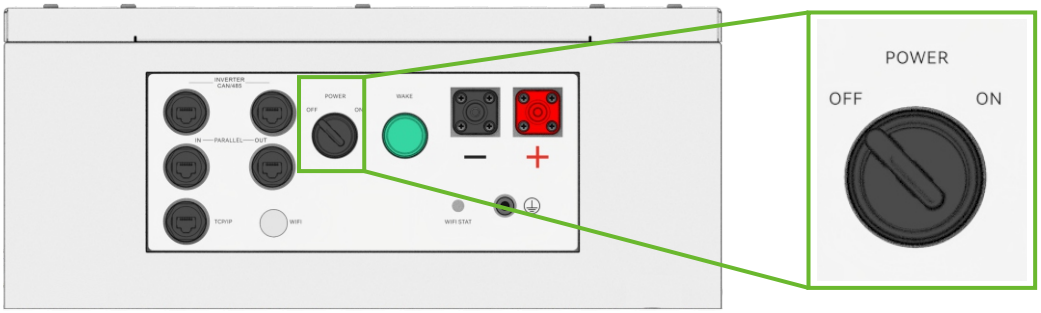
3.Press the “POWER WAKE” button for about 5secs.



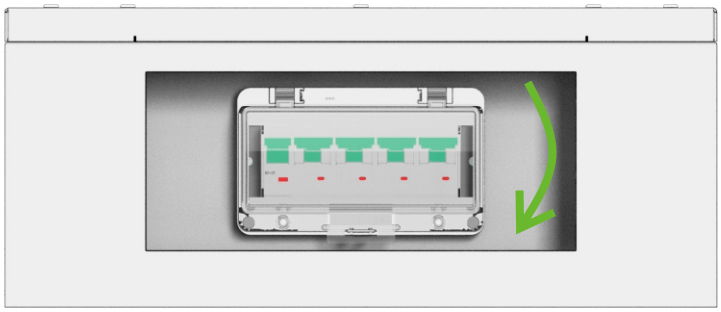
4.Check the system output voltage.
Use a multi-meter to measure the output voltage on the positive and negative ports of the BDU.
The output voltage should conform to the voltage range in the table “P7 Table 2-1 The parameter of the system”.



5. Turn the POWER ON knob to OFF, battery shutdown.

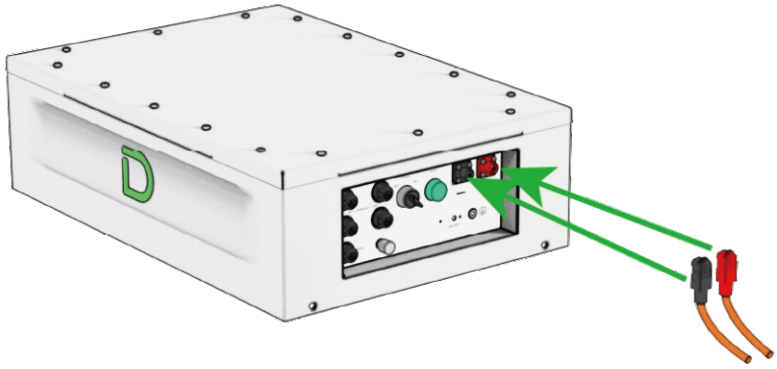


6. Switch the BDU DC BREAKER to OFF position.

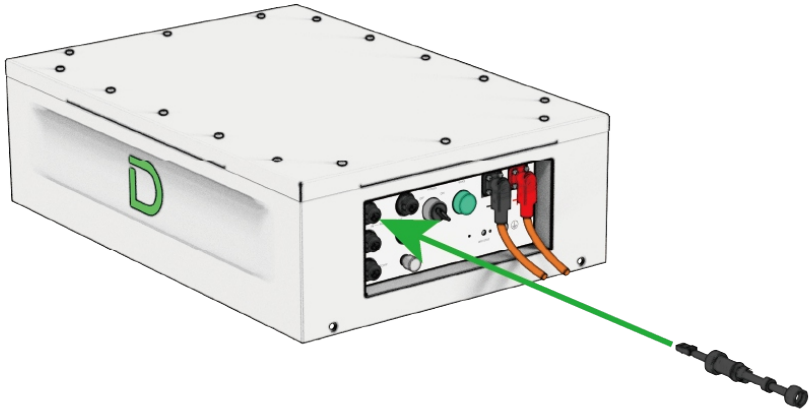


Connecting inverter

1.Connect the external power cable to the inverter.
If the 2m power cable is not long enough, please find another power cable of the same specification.

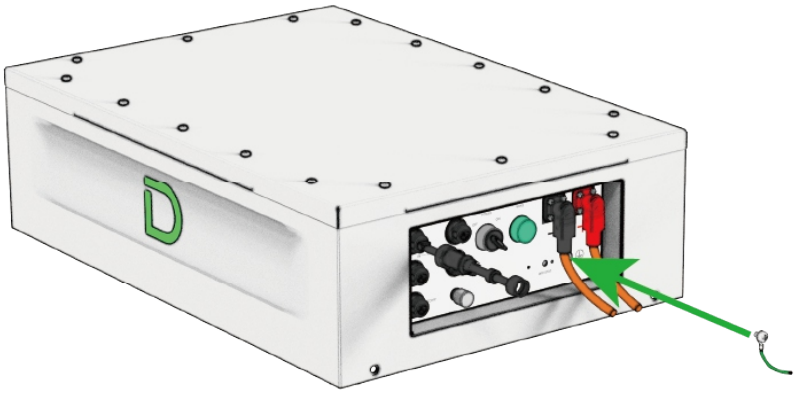


2.Connect the Inverter CAN/RS485 communication cable to the inverter RJ45 CAN/RS485 port.



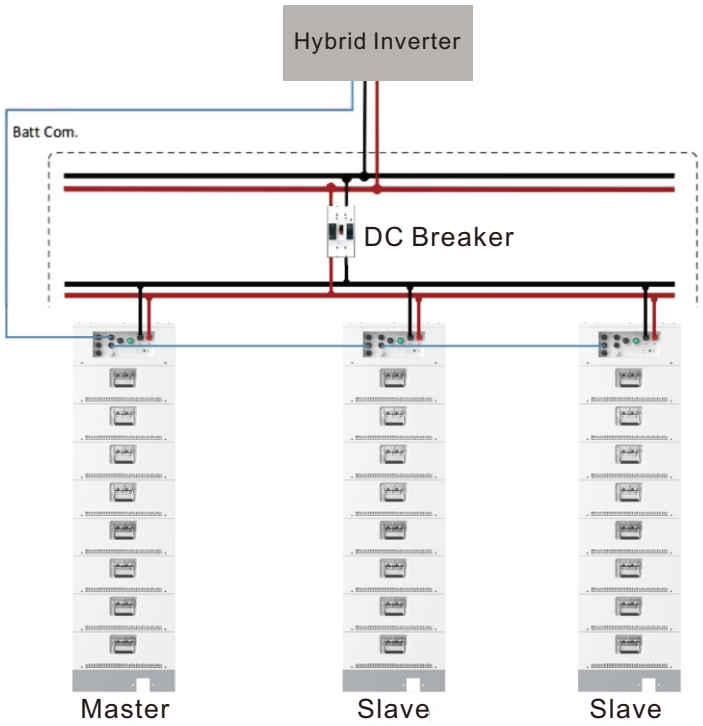
Installation of grounding wire

Grounding After the system installation is completed. There is a touch down point at the top of the BDU, as shown in the figure below.



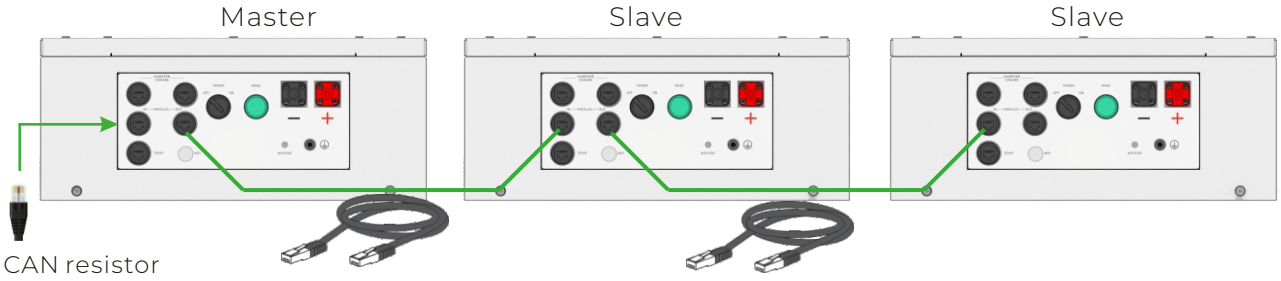
Parallel system

The parallel connection of the STACK100 Pro series and all other related work are only allowed by professional and qualified electricians.
The total voltage difference between clusters is less than 20V; SOC of each cluster should be 100% and time interval between newly added cluster and existing cluster should be less than 3 years.
Maximum 12 STACK100 Pro clusters are allowed to be connected in parallel.
For parallel operation, the communication cable can only be used with the CAN cable label.
The general configuration diagram of the STACK100 Pro in parallel connection is as under.
Take three clusters for example:



Communication network cable connection between STACK100 Pro and STACK100 Pro:

For multi cluster parallel systems, the communication line connection between clusters is Host's Parallel OUT to the second cluster's(Slave) Parallel IN and so on.Then connect a 120 Ω CAN resistor to the port of the host parallel IN.Ensure the stability of CAN communication.



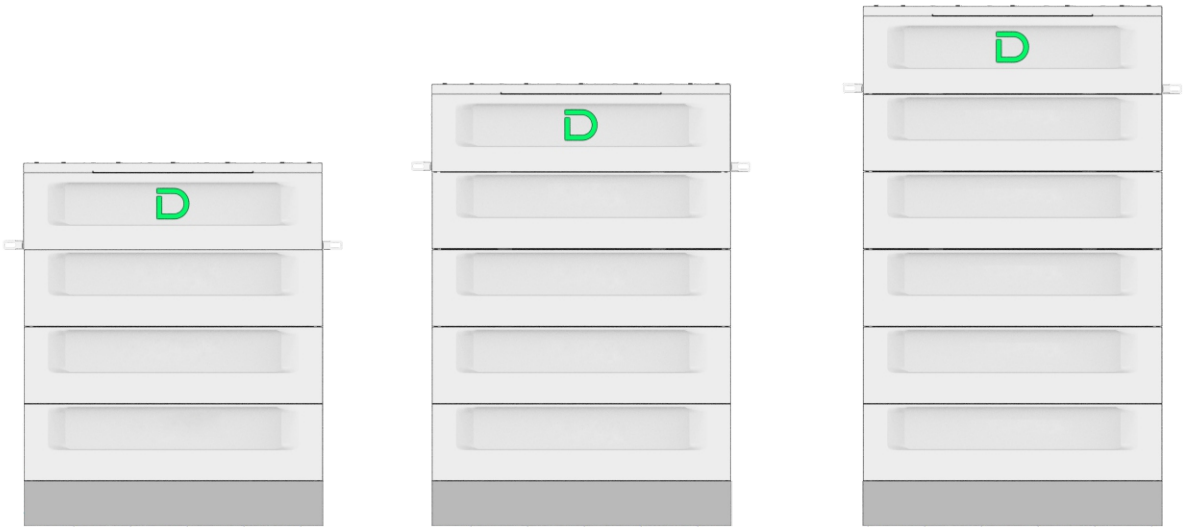
CAUTION ⚠

Choose the correct communication cable.

PIN	Color
1	/
2	/
3	/
4	Blue
5	Blue/White
6	/
7	Brown/White
8	Brown

PIN	Color
1	/
2	/
3	/
4	Blue
5	Blue/White
6	/
7	Brown/White
8	Brown

3.5Battery Capacity Description



15.4kWh 20.5kWh 25.6kWh

30.7kWh

35.8kWh

41.0kWh

46.1kWh

51.2kWh

56.3kWh

61.4kWh

66.6kWh

71.7kWh

76.8kWh

4 Maintenance

4.1Troubleshooting

DANGER ⚠

The battery system is a high-voltage DC system. Ensure that the installation area of the STACK100 Pro is stable and reliable.
Please confirm that the battery system is switched off before connecting. Electric shock and damage to the inverter may be caused if the battery is connected to the inverter directly without being powered off.
Otherwise, the system cannot operate properly. The voltage of the battery is too high, please pay attention to self-protection during measurement.

No.	Problem	Possible Reason	Solution
1	Pressing the "WAKE" button does not turn on the device, and the “D” light remains off.	The BDU DC breaker is not switched on.	Switch the BDU DC breaker on.
		The ON/OFF switch of the BDU is not switched on.	Switch the ON/OFF switch on.
		The battery voltage is severely low (<100V) or damaged.	Contact the battery manufacturer for further inspection.
2	Pressing the "WAKE" button turn on the device, the “D” light will turn on, but the display status of the light is yellow or red.	Improper placement of batteries and BDU during installation, resulting in misalignment of blind insertion pins.	Check the blind insertion pin and reset the misplaced blind insertion pin.
		Battery system protection.	Charge the battery to leave protection mode or contact the battery manufacturer for further inspection.
3	The battery has no voltage output.	Battery changes into over-discharged	Charge the battery to leave protection mode.
		Communication failure with inverter.	Check if the connection of the communication cable and PIN definition are correct.
		Inverter has an error.	Check for inverter errors and restore the inverter.

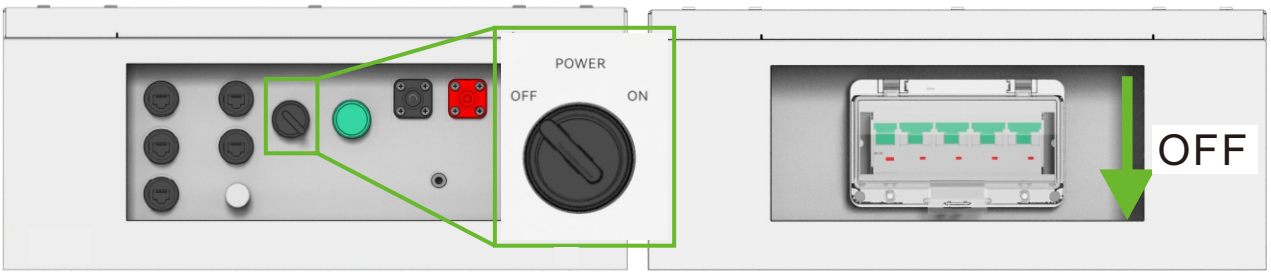
No.	Problem	Possible Reason	Solution
4	Battery shutdown.	BDU DC circuit breaker open circuit.	Switch the BDU DC breaker on.
		Battery changes into over discharged.	Charge the battery to leave protection mode.
		Battery is in sleep mode.	Press and hold the WAKE button for approx. 15s.
5	SOC jump during battery charging and discharging process.	The battery system has not undergone full charge calibration for a long time.	Press and hold the WAKE button for approx. 15s.
		Inconsistent SOC of battery module.	The system performs 10 ~ 50 full charge balancing cycles (depending on the SOC difference of the module, the number of full charge balancing will vary); or fully charge each battery module separately with BDU and DC power supply.
		Differences in battery cell consistency or damage.	Contact the battery manufacturer for further inspection.

4.2Replacement of Main Components

Replacing the Battery Controller (BDU)

Turn off the entire battery system. Ensure that the negative and positive terminals are de-energized.

1. Turn the POWER ON knob to OFF, battery shutdown.
2. Switch the BDU DC BREAKER to OFF position.



3.Disconnect the connecting cable.
4.Remove the 4 screws on the BDU and remove the BDU from the system.
5.Exchange BDU. Then fix it with 4 screws.
6.After replacing the new BDU, the battery self-test needs to be performed again (Refer to P28 Battery system self-test).

4.3Battery Maintenance

DANGER ⚠

Battery maintenance should only be carried out by professional and authorized persons.
Turn off the battery system first carrying out maintenance.

Voltage check:
[Periodical maintenance] Check the voltage of the battery system with the monitoring software. Check whether the system voltage is normal. For example: Check whether the single cell voltage is out of range.

Voltage check:
[Periodical maintenance] Check the SOC of the battery system with the monitoring software. Check whether the SOC of the batteries is normal.

Cable check:
[Periodical maintenance] Visually inspect all cables of the battery system. Check whether the cables are broken, aging or loose.

Balancing:
[Periodical maintenance] The battery system will become unbalanced if it has not been charged fully for a long time. Solution: Perform balancing maintenance (fully charge) every 10~12 month. Generally this maintenance progress needs to be completed when external devices such as the monitoring software and battery and inverter have proper communication.

Output relay check:
[Periodical maintenance] Under low load (low current), check the output relay OFF and ON condition; listen if the relay clicks, which means that it switches off and on normally.

5 Storage

For long-term storage (more than 3 months), the battery cells should be stored within the temperature range of 5 to 45°C, relative humidity <65% and non-corrosive gases.
The battery module should be stored within the temperature range of 5 to 45oC, dry, clean and well ventilated environment. The battery should be charged to 50 - 55% SOC before storage.
We recommend activating the battery system (discharge and charge) every 10~12 months.

CAUTION ⚠

The lifespan of the battery will be greatly reduced if you do not follow above instructions to store the battery for a long term.

CAUTION ⚠

Corresponding to the battery system that has been installed and used normally, it is necessary to regularly fully charge the battery to calibrate the SOC. It isrecommended to fully charge and calibrate at least once every 2 weeks.

6 Shipment

The battery module is pre-charged to 30% SOC or according to customer requirements before shipment. The remaining capacity of battery cells is determined by the storage time and condition after shipment.
The battery modules meet UN38.3 certificate standard.
In particular, special rules for the carriage of goods on the road and the current dangerous goods law, specifically ADR (European Convention on the International Carriage of Dangerous Goods by Road), as amended, must be observed.

DYNESS

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