Dyness Battery System
QUICK INSTALLATION GUIDE
STACK100

File version-20241022-V1-EN information might be subject to change without notice during product improving.

V1.0

1.Checking before installation

Preparations for Installation

Environmental requirements

MAX. +50℃	MAX. −10℃ ❄	RH. 5% ~ 85%RH

Operating environment: Indoor installation, sites avoid the sunlight , no conductive dust and corrosive gas.

Tools

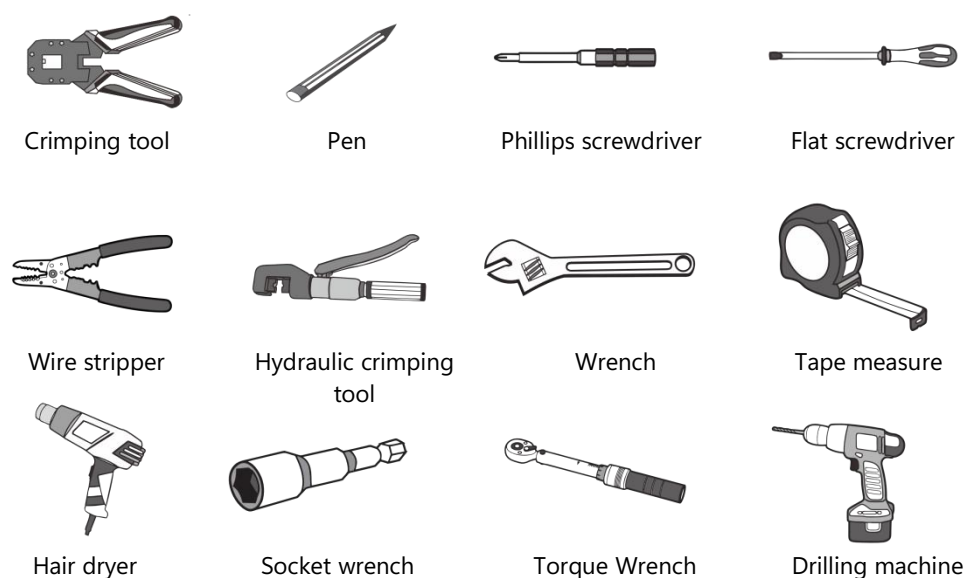The following tools are required to install the battery pack:

Crimping tool	Pen	Phillips screwdriver	Flat screwdriver
Wire stripper	Hydraulic crimping tool	Wrench	Tape measure
Hair dryer	Socket wrench	Torque Wrench	Drilling machine

Figure 1-1 Installation tools

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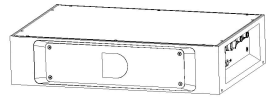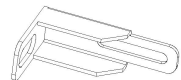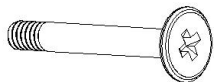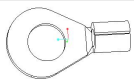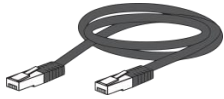
We recommend wearing the following safety gear when working with batteries:

Insulated gloves	Safety goggles	Safety shoes

Figure 1-2 Safety gear

Check the components of the STACK100 Battery System in different capacities

Table 1-1 Scope of delivery

Package	Name	Specifications	Quantity	Image
	SBDU100	590*390*133.5mm	1	
	STACK100 base	590*390*100mm	1	
	Hanging ear	To secure with the wall	2	
	Expansion screw	M6*80	2	
	Expansion screw	M12*100	4	
	RJ45 CAN resistor	RJ45-CAN-120, Pin4&5	1	
A	M5 3 sets of combination screws	M5*30	4	
	Terminal	OT4-6	2	
	Communication cable to inverter	Standard, b/L2000mm/RJ45 plug at both sides	1	
	Power cable	Positive cable, UL10269 4AWG , red, 2050mm	1	
	Power cable	Negative cable,UL10269 4AWG, black, 2050mm	1	
	User Manual	37pages	1	
	Warranty Card		1	
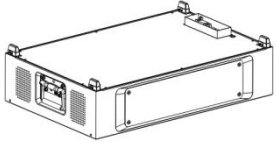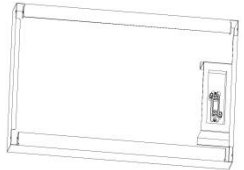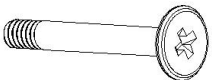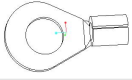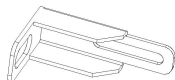
Package	Name	Specifications	Quantity	Image
B	S51100	590*390*133.5mm	1	
	M5 3 sets of combination screws	M5*30	4	
C (optional)	STACK100 base	590*390*100mm	1	
	STACK100 Extended cover	590*390*70mm	1	
	M5 3 sets of combination screws	M5*30	4	
	Terminal	OT4-6	2	
	Extended communication line	Communication between two cluster	1	
	Power cable	Two clusters in series UL10269 4AWG	2	
	Hanging ear	fix to the wall	2	
	Expansion screw	M6*80	2	
	Expansion screw	M12*100	4	

Table 1-2 Scope of delivery

Model	Battery system capacity	Configuration	
STACK100-3S	15.4kWh		A+B*3
STACK100-4S	20.5kWh		A+B*4
STACK100-5S	25.6kWh		A+B*5
STACK100-6S	30.7kWh		A+B*6
STACK100-7S	35.8kWh		A+B*7
STACK100-8S	41kWh		A+B*8
STACK100-9S	46.1kWh		A+B*9
STACK100-10S	51.2kWh		A+B*10
STACK100-11S	56.3kWh		A+B*11
STACK100-12S	61.4kWh		A+B*12
STACK100-13S	66.6kWh	A+B*13	A+B*13+C （Recommend two columns）
STACK100-14S	71.7kWh	A+B*14	A+B*14+C （Recommend two columns）
STACK100-15S	76.8kWh	A+B*15	A+B*15+C （Recommend two columns）

2. Equipment installation

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.
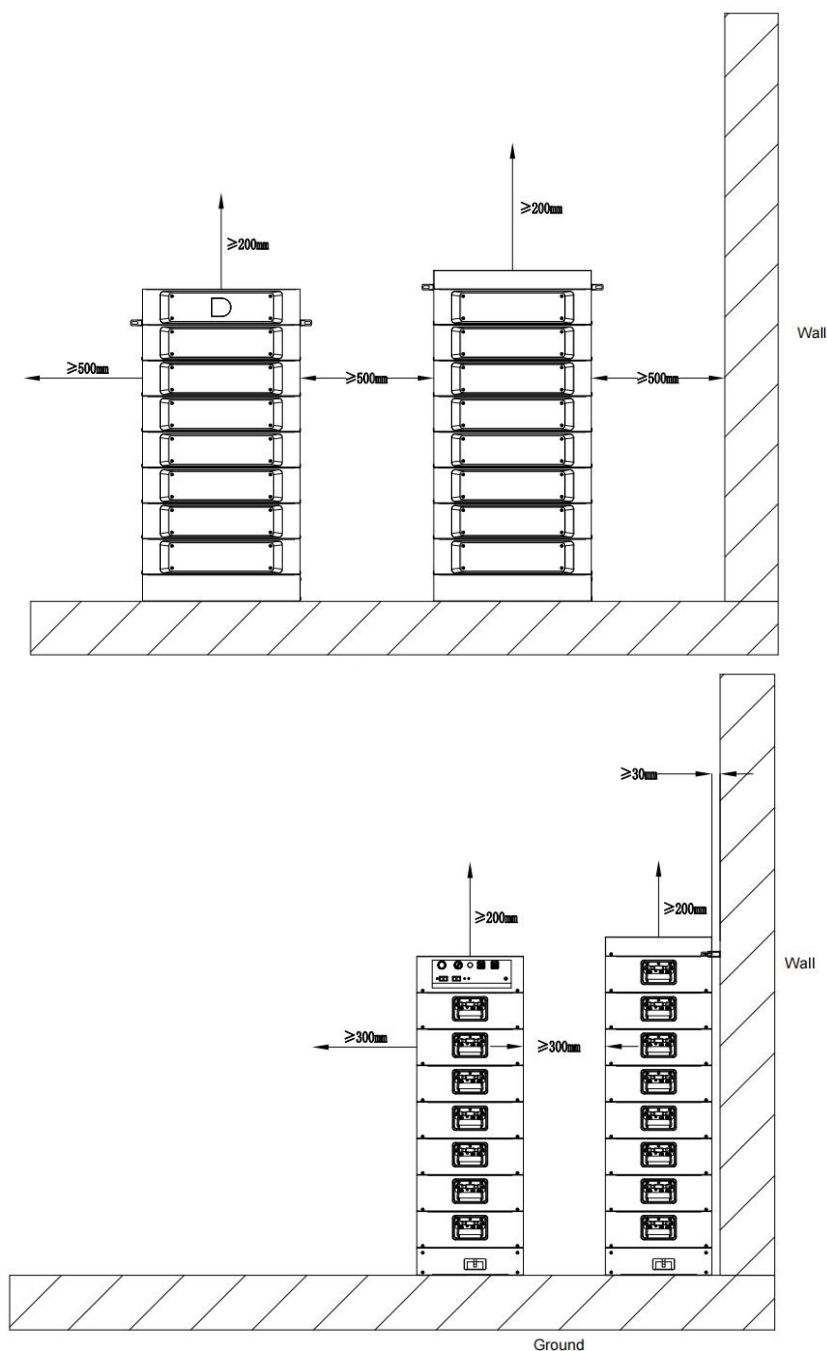

Figure 2-1 Minimum clearance

Note:

1.The system should be installed with the help of at least 2 grown-up males.

2.If more than 12 of the mare to be configured, It is suggested to divide into two columns.

The battery system should be installed indoors, away from flammable and explosive materials.

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 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.Mark the hole positions using a marker.

2.Drill holes at the marked positons to a depth of 95 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 was her and the nut.

5.Tighten the nut to secure the base.

6.When installing in two columns, you need to remove the cover on the side of the base and install the communication line and power line between two columns.
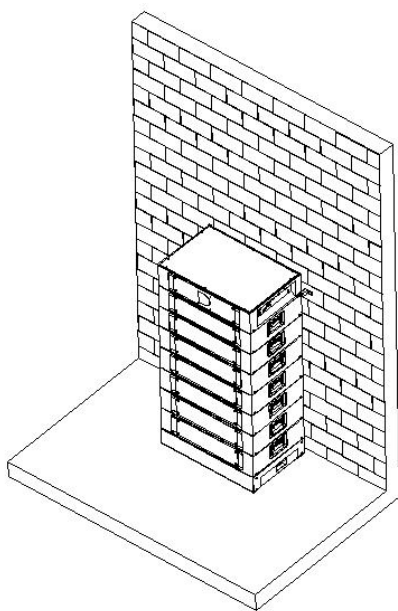
Step 2: Place the Battery Module onto the base, ensuring that the locating pins of the Battery with the locating points on the base.
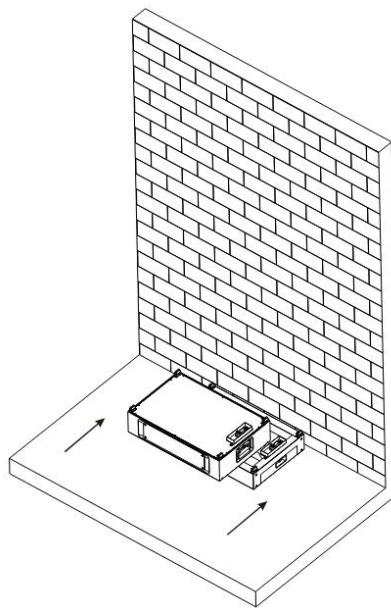
Step 3: Install four M5*30 locking screws on the left and right sides.
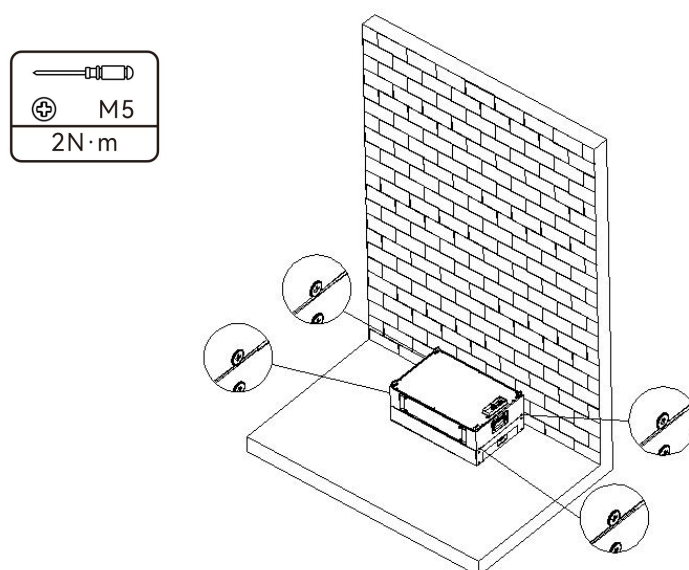
Step 4: Repeat steps 2 and 3 until the required batteries and BDU are installed.

Step 5: Installed hanging ear.
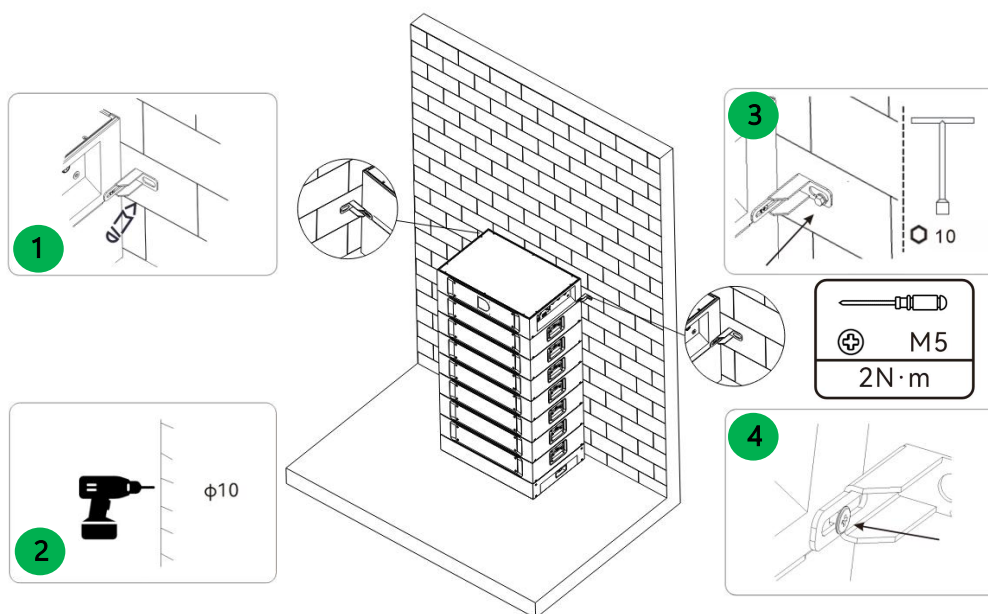
1.Mark the hole positions using a marker.

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*30 screws to fix the left and right Hanging ears to the chassis respectively.

Step 1 Electrical installation

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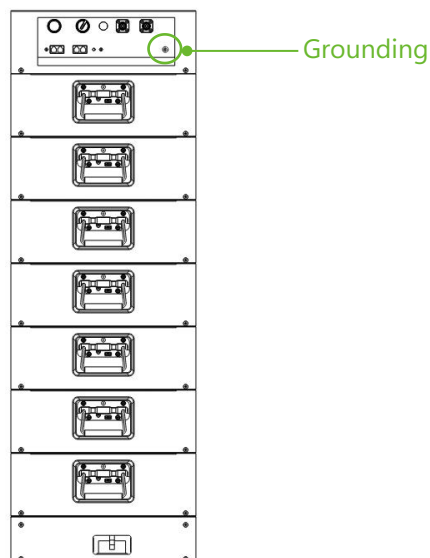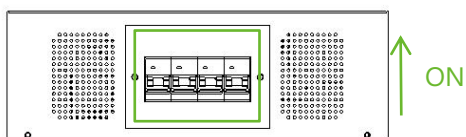
Grounding

Step 2 Battery system self-test

1. Switch the DC breaker of the BDU on.

ON

2. Turn the POWER ON knob to ON.

OFF   ON
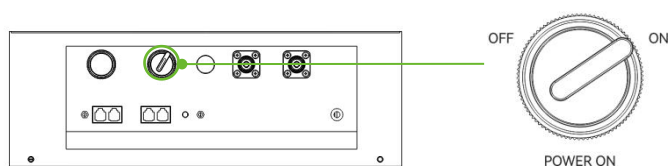
POWER ON

3. Press and hold the WAKE button for approx 5s, battery power on.

Press and hold for 5s
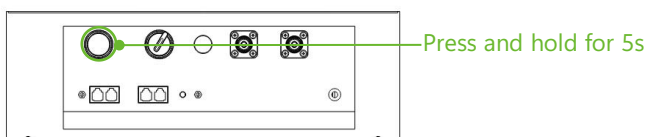
4. Check the system output voltage.
   - Use a multimeter to measure the output voltage on the positive and negative ports of the BDU.
   - The output voltage should conform to the Operating Voltage range Parameter of the

Step 2 Battery system self-test

STACK100 system.

Model	STACK 100-3s	STACK 100-4s	STACK 100-5s	STACK 100-6s	STACK 100-7s	STACK 100-8s	STACK 100-9s
Operating Voltage	134-175V	179-233V	224-292V	268-350V	313-408V	358-467V	403-525V
Model	STACK 100-10s	STACK 100-11s	STACK 100-12s	STACK 100-13s	STACK 100-14s	STACK 100-15s	
Operating Voltage	448-584V	492-642V	537-700V	582-759V	627-818V	672-876V	

Table 2-1   Operating Voltage range

5. Turn the POWER ON knob to OFF, battery shutdown.
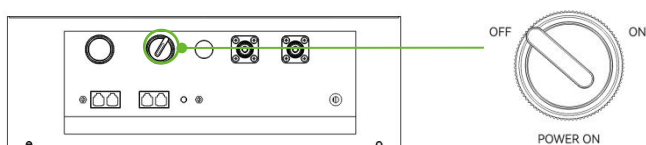
6. Switch the BDU DC BREAKER to OFF position.
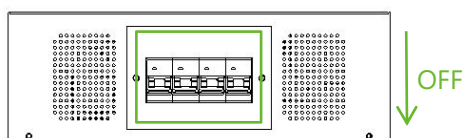
Step 3 Connecting inverter

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, but the length is not to exceed 3m.)

Connect to inverter DC- terminal   Connect to inverter DC+ terminal
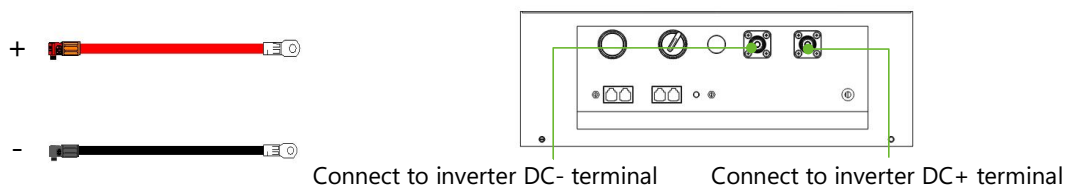
2. Connect the Inverter CAN/RS485 communication cable to the inverter RJ45 CAN/RS485 port.

Connect to the inverter RJ45 CAN/RS485 communication port
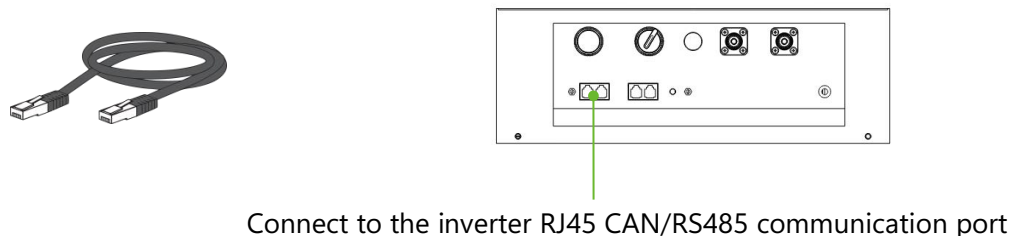
Step 4 Parallel system

Important:

The parallel connection of the STACK100series 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 6 months.
Maximum 12 STACK100clusters are allowed to be connected in parallel.

1. Parallel wiring
The general configuration diagram of the STACK100 in parallel connection is as under. Take three clusters for example:
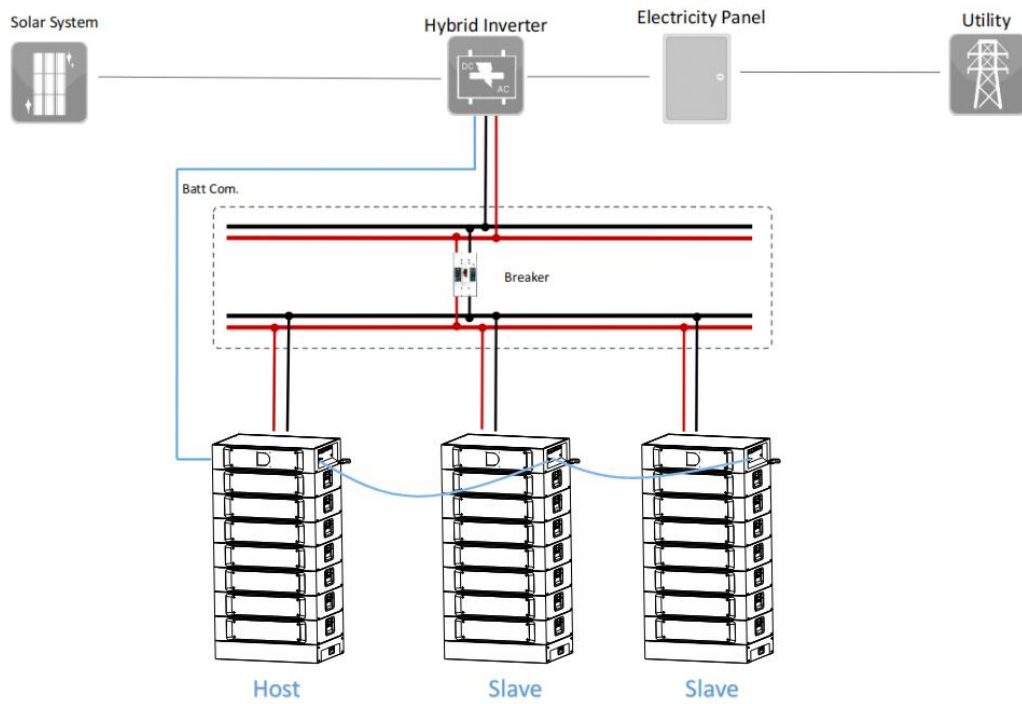
Step 4 Parallel system

Figure 2-2 The general configuration diagram of the STACK100

Step 4 Parallel system

Communication network cable connection between STACK100 and STACK100: standard network cable

For multi cluster parallel systems, the communication line connection between clusters is Host's Parallel 2 to the second cluster's(Slave) Parallel 1 and so on.Then connect a 120 Ω CAN resistor to the port of the host parallel 1 and the last slave parallel 2. Ensure the stability of CAN communication.

Host

Slave

Last Slave
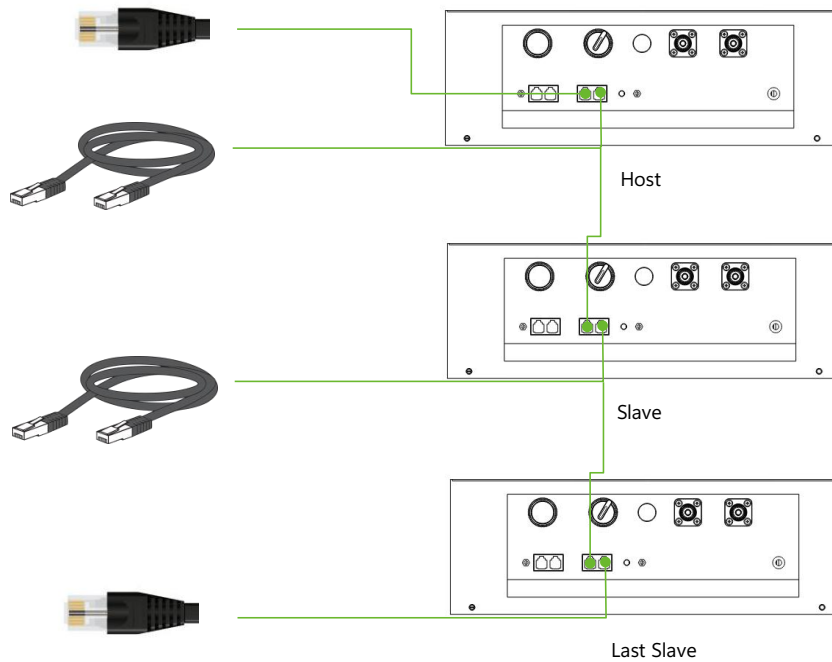
Communication network cable connection between inverter and STACK100(Host):
CAN/RS485 of the BDU of STACK100 to the communication port of the inverter.

Host

Connect to the inverter RJ45 CAN/RS485 communication port
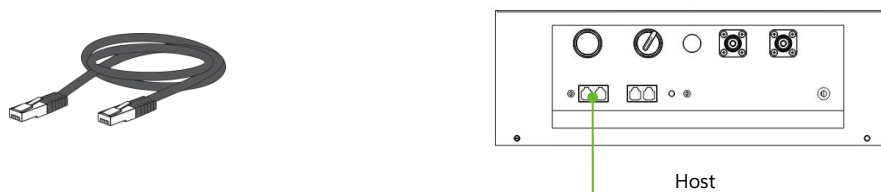
Attention

- The STACK100 in parallel must be of the same model and same capacity.
- During capacity expansion, make sure SOC of each module is 100%.
- Power on sequence of multiple clusters: Start the Slave first, then start the Host last.

DYNESS

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