SigenStack Energy Storage System Installation Guide

Version: Draft A
Release Date: 2025-01-07

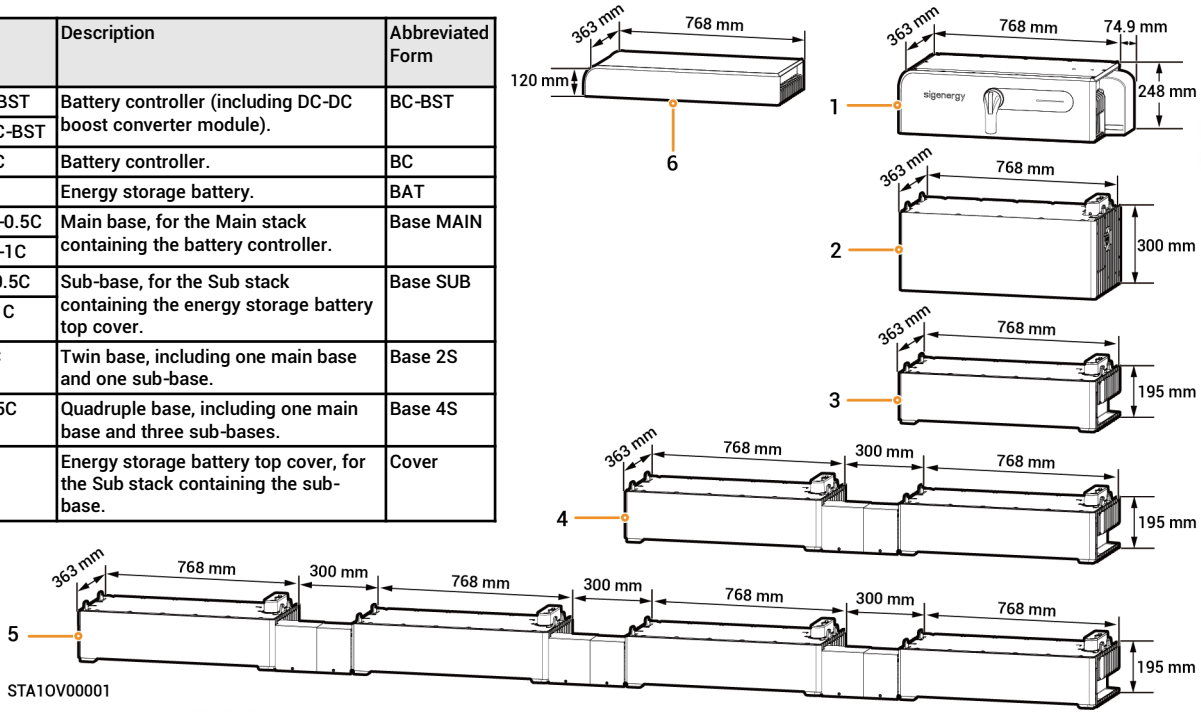
Caution

- Only trained or qualified persons with electrical engineering knowledge can work directly on the equipment.
- Operators should be familiar with national and local laws, regulations, and standards, and the compositions and operating principles of relevant systems.
- Before operations, please carefully read operating requirements and precautions in this document and User Manual. Any equipment damage caused by improper operation will not be covered under warranty.

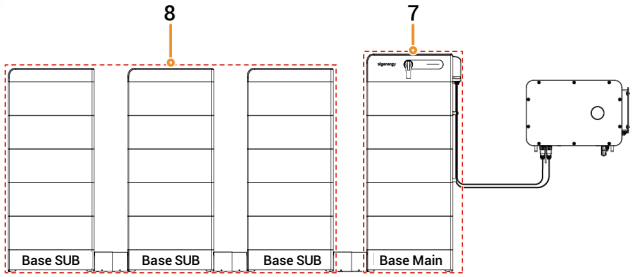
1 Introduction

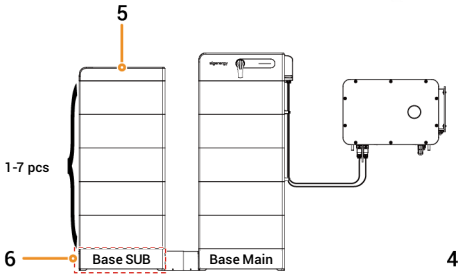
1.1 Appearance and Dimensions

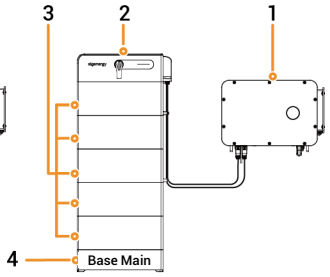
No.	Model	Description	Abbreviated Form
1	SigenStack BC M2-1C-BST	Battery controller (including DC-DC boost converter module).	BC-BST
	SigenStack BC M2-0.5C-BST		
	SigenStack BC M2-0.5C	Battery controller.	BC
2	SigenStack BAT 12.0	Energy storage battery.	BAT
3	SigenStack Base MAIN-0.5C	Main base, for the Main stack containing the battery controller.	Base MAIN
	SigenStack Base MAIN-1C		
	SigenStack Base SUB-0.5C	Sub-base, for the Sub stack containing the energy storage battery top cover.	Base SUB
	SigenStack Base SUB-1C		
4	SigenStack Base 2S-1C	Twin base, including one main base and one sub-base.	Base 2S
5	SigenStack Base 4S-0.5C	Quadruple base, including one main base and three sub-bases.	Base 4S
6	SigenStack Cover	Energy storage battery top cover, for the Sub stack containing the sub-base.	Cover

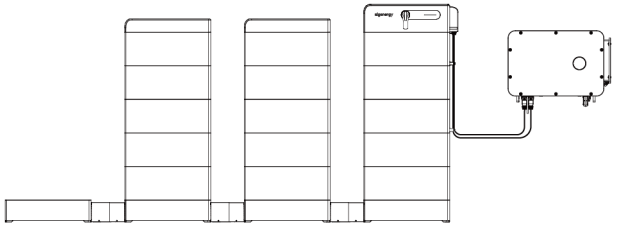


1.2 Configuration

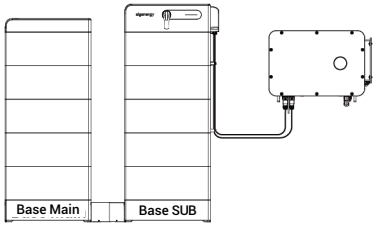




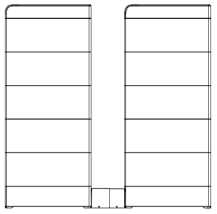




No equipment is installed on the Base



Incorrect mounting location of Base Main



No BC-BST/BC is mounted to the battery rack

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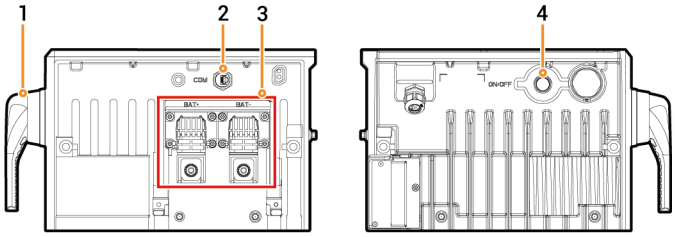
No.	Description	No.	Model
1	Sigen inverter/PCS	Sigen C&I series inverter/PCS	
7	Main Stack	2	SigenStack BC M2-0.5C/0.5C-BST/1C-BST
		3	SigenStack BAT 12.0
		4	SigenStack Base MAIN-0.5C/1C
8	Sub Stack	5	SigenStack Cover
		3	SigenStack BAT 12.0
		6	SigenStack Base SUB-0.5C/1C

Tips

- 4 to 21 batteries can be connected to each inverter/PCS.
- 1 to 7 batteries can be mounted onto both Main Stack and Sub Stack.
- Base MAIN works with BC-BST or BC, and Base SUB works with Cover.
- BC-BST is used when no more than 19 batteries are connected to the inverter/PCS or when the inverter/PCS is connected to a PV string.

1.3 Introduction to Ports

SigenStack BC M2-0.5C/0.5C-BST/1C-BST



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No.	Description	Marking
1	Disconnecting switch	-
2	Communication port	COM
3	Power port	BAT+/BAT-
4	Power button	ON/OFF

2 Inspections Before Installation

- Check whether the components are entirely supplied against the packing list and whether the appearance is in good condition. For any problem, contact your sales representative.
- Parts and accessories supplied with the packing box are personal assets of the owner and must not be taken away from the installation site.
- Check and ensure the completeness of personal protective equipment and installation tools; replenish if necessary.
- Check and ensure the correctness of quantity and specifications of the installer-provided cables; re-prepare if necessary.

Personal Protective Equipment


Safety hat


Goggles


Dust mask

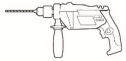

Protective gloves


Insulating gloves

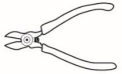

Insulating shoes

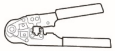

Safety vest

Installation Tools


Power drill


Vacuum cleaner


Wire cutter


Crimp tool

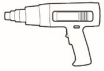

Crimping pliers

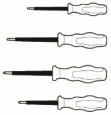

Wire stripper


Scissors


Cable ties


Heat shrinkable sleeve


Heat gun


Insulated screwdriver set


Digital torque socket wrench


Marker

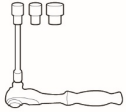

Rubber mallet


Level


Tape measure


Forklift


Stainless steel plastic-covered wire rope


Insulated socket wrench

Installer-provided Cables

No.	Cable Name	Recommended Specification
1	Base MAIN PE cable	Outdoor single-core copper cable Cross-sectional area of cable: ≥ 25 mm^2
2	Power cable between inverter/PCS and BC-BST/BC	Outdoor single-core copper cable Cross-sectional area of cable: 50 mm^2 to 70 mm^2 Cable OD: 11 mm to 22 mm Single cable length: ≤ 25 m
3	Signal cable between inverter/PCS and BC-BST/BC	Outdoor eight-core shielded twisted pair, EIA/TIA 568B standard network cable Cross-sectional area of conductor: 0.13 mm^2 to 0.2 mm^2 Cable OD: 4 mm to 7.5 mm Single cable length: ≤ 25 m[1]

Note [1]: The cable length should be limited for good communication. Too long cable degrades the communication effect.

Tips

- The warranty applies when the equipment has been installed properly for its intended use and in accordance with the operating instructions.
- Prior to your installation, select the mounting location in strict accordance with your local building, fire protection, environmental protection regulations and specifications, including but not limited to GB 51048 Design Code for Electrochemical Energy Storage Station, GB 50016 Code for Fire Protection Design of Buildings, and NFPA 855 Standard for the Installation of Stationary Energy Storage Systems. The final planning of the mounting location should be determined by the installer or EPC (Engineering, Procurement, Construction).

Installation Environment

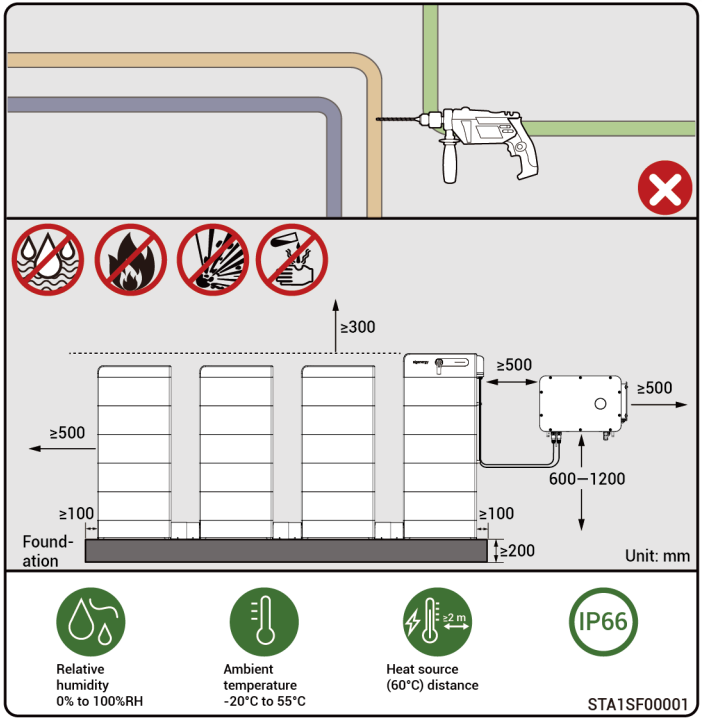
- Do not install the equipment in a smoky, flammable, or explosive environment.
- Do not install the equipment in an environment with conductive metal dust or magnetic dust.
- Do not install the equipment in an environment that is prone to mold and fungi.
- Do not install the equipment in an environment with strong electromagnetic interference.
- The temperature and humidity of the installation environment should meet equipment requirements.
- The equipment should be installed in an area that is at least 2000 m away from corrosion sources that may result in salt or acid damage (corrosion sources include but are not limited to seaside, thermal power plants, chemical plants, smelters, coal plants, rubber plants, and electroplating plants).

Installation Location

- Do not tilt the equipment or place it upside down. Ensure that the equipment is horizontally installed.
- Do not install the equipment in a place with fire hazards or is prone to moisturizing.
- Do not install the equipment in a sealed, poorly ventilated location without fire protection measures and difficult access for firefighters.
- Do not install the equipment under water sources, including but not limited to water pipes and air conditioner outlet windows, where condensate or water leakage may occur. Otherwise, liquid may enter the equipment and cause short circuit.
- Do not install the equipment in mobile scenarios such as recreational vehicles, cruise ship. The equipment is hot when it is operating. Please ensure that the installation environment is well ventilated and avoid significant temperature rise by more than 3°C while the equipment is operating. Otherwise, the equipment will be derated.
- Do not install the equipment in mobile scenarios such as RVS, cruise ships, and trains.
- The equipment generates heat when it is operating. Do not install the equipment in areas easily accessible to heat dissipation surfaces.
- You are advised to install the equipment in a location where you can easily access, install, operate, maintain it, and view the indicator status.

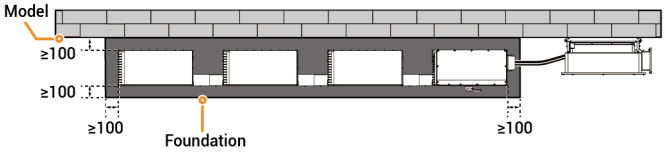
Installation Base

- The equipment must be installed on concrete or other non-combustible surfaces, and the mounting location must be level, solid, and flat and feature sufficient load-bearing capacity.
- The equipment foundation should be prepared according to the total weight of the equipment. Recheck the foundation design if the load-bearing capacity is insufficient.
- The equipment foundation can be drilled for the installation of expansion bolts.
- Ensure that the height of the equipment base is above the highest recorded water level in the area and at least 200 mm above ground level, and avoid installing the equipment in low-lying areas prone to waterlogging.
- The foundation should not have a contact surface level error of greater than 3 mm with the equipment. Avoid local stress that may lead to instability.
- The installation base should be flat, and the installation area should meet the installation space requirements.
- No plumbing or electrical alignments should be inside the installation base to avoid potential drilling hazards during equipment installation.

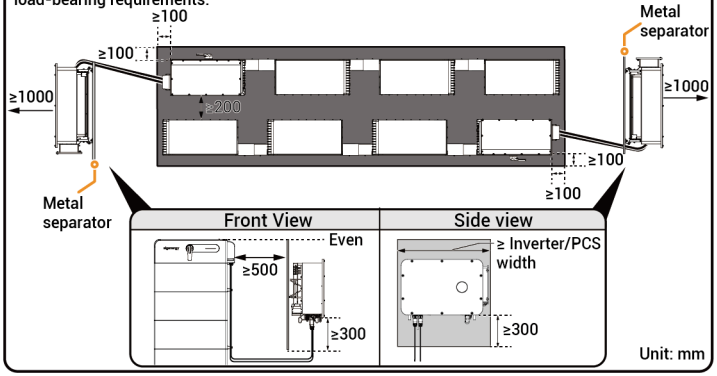


Mounting Space (top view)

In this scenario, select a wall that meets the requirements based on the fire resistance rating defined by local codes.



In this scenario, when the installation height of the inverter/PCS is lower than that of the Main Stack, to avoid derating due to heat exchange between the inverter/PCS and BAT during operation, a metal separator must be added between them. The metal separator must meet load-bearing requirements.

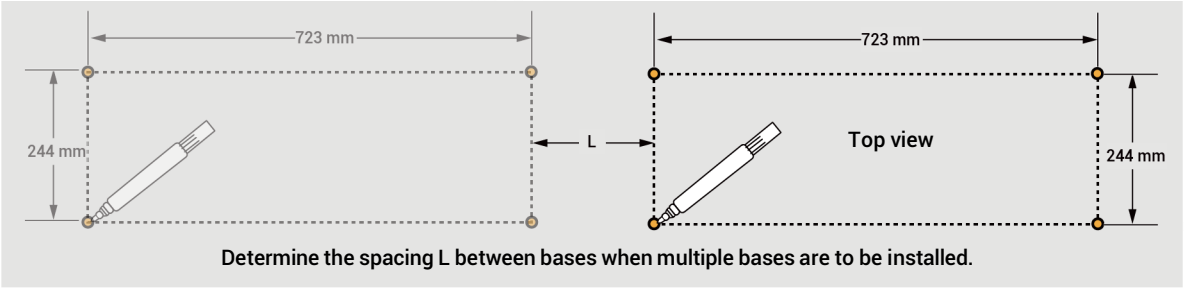


4 Installation

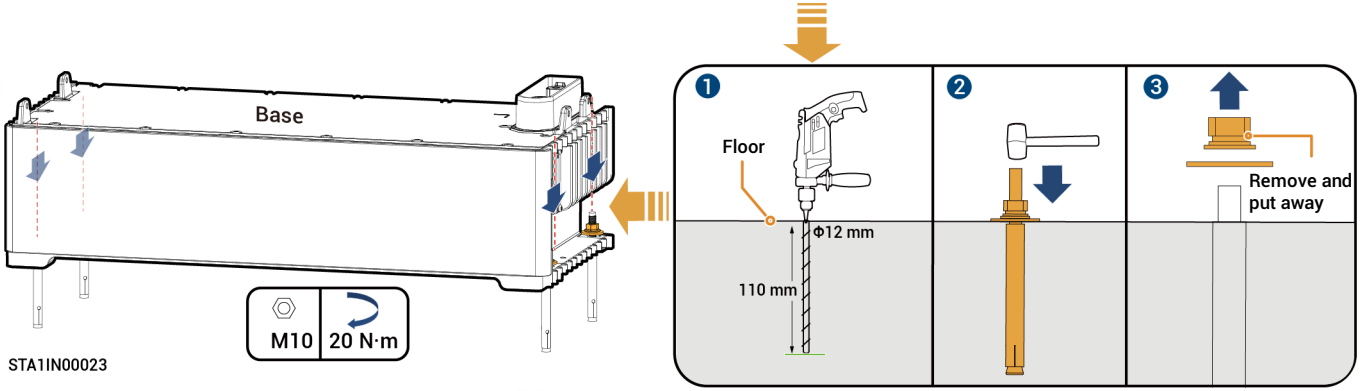
Caution

The equipment is heavy. Handle the equipment with due care to avoid falling or injuring the operator.

4.1 Base Securing



Determine the spacing L between bases when multiple bases are to be installed.



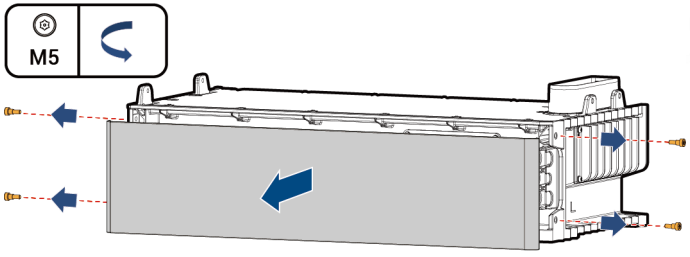
- If you purchased the Base 2S or Base 4S, please move the base with multiple people to the mounting location.
- If you purchased the Base 2S or Base 4S, please tighten the nuts in this step.
- If you did not purchase the Base 2S or Base 4S base, please tighten the nuts when assembling the base. For details, see 4.2 Assembling the Base.

4.2 Assembling the Base

With Sub stack

If you purchased the Base 2S or Base 4S, please ignore this section.

1



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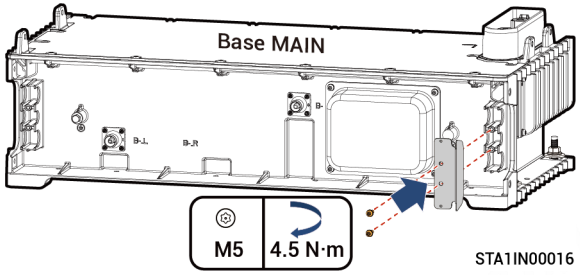
2



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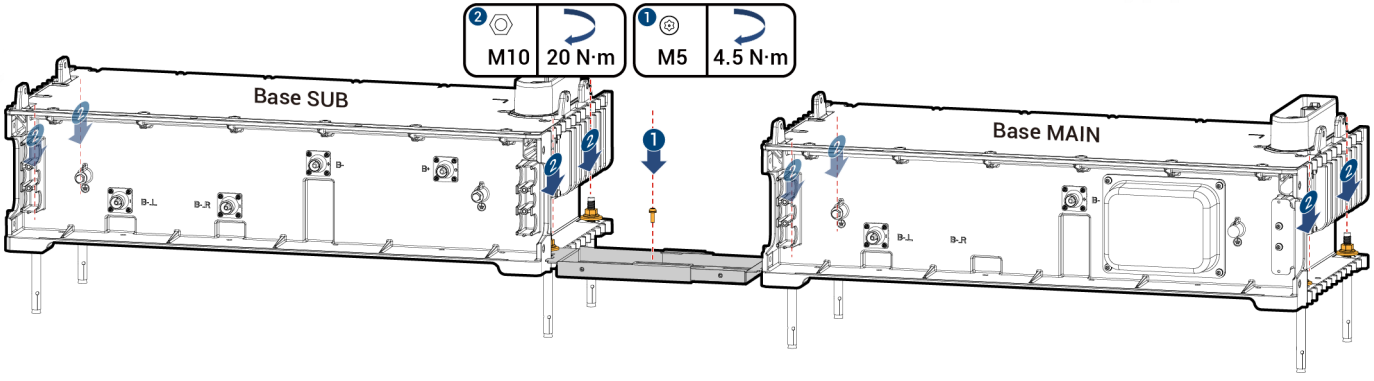

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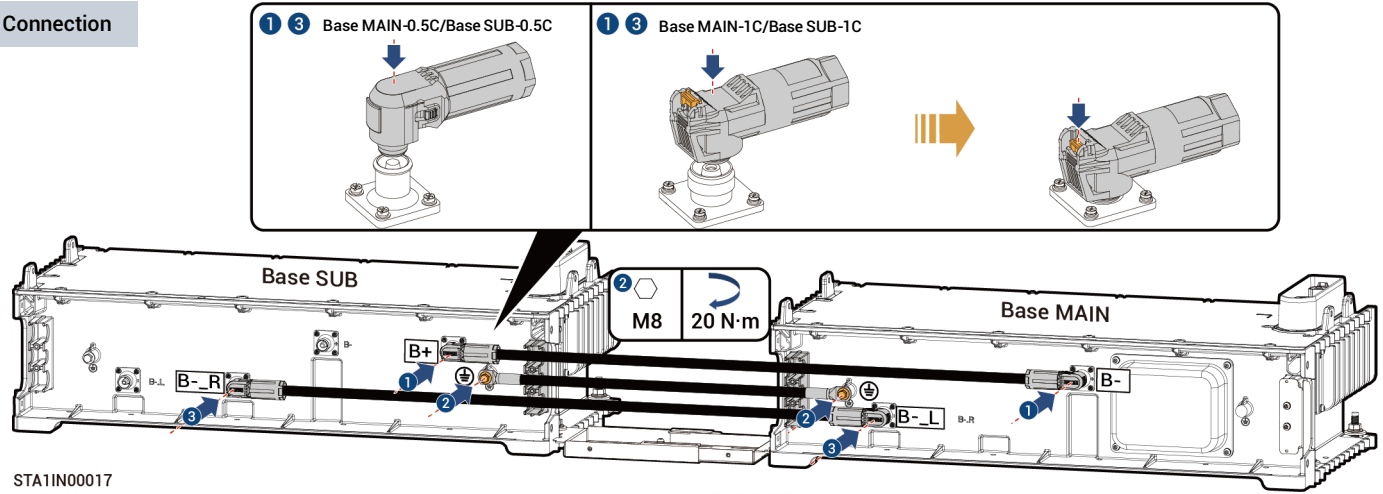
4 Cables are supplied with the packing box.

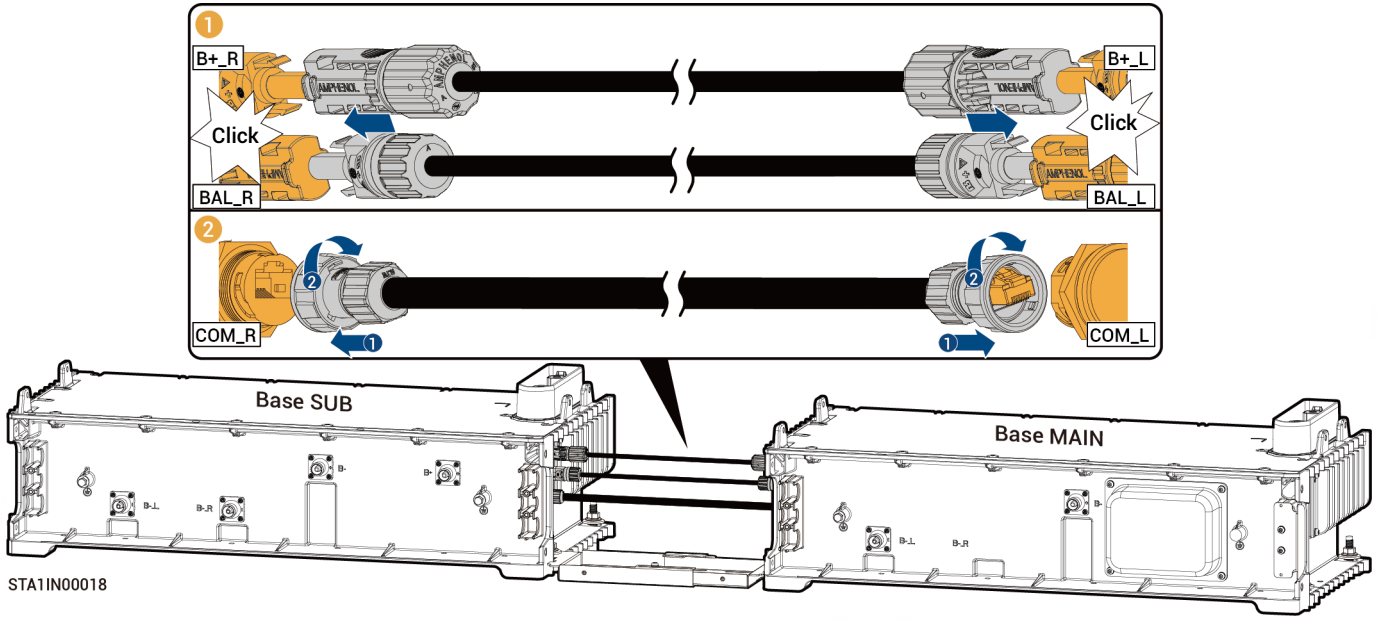
Port Description

Marking	Description	Marking	Description	Marking	Description	Marking	Description
B+	Battery stack Positive Connection port	B-_R	Bus- right Connection port	B+_R	Auxiliary power supply Bus+ right Connection port	B+_L	Port on the left of the positive bus of the auxiliary power supply
B-	Battery stack Negative Connection port	⏚	PE point	BAL_R	Battery Balancing right Connection port	BAL_L	Battery Balancing left Connection port
B-_L	Bus- left Connection port	-	-	COM_R	Communication port on the right of the battery	COM_L	Communication port on the left of the battery

Connection

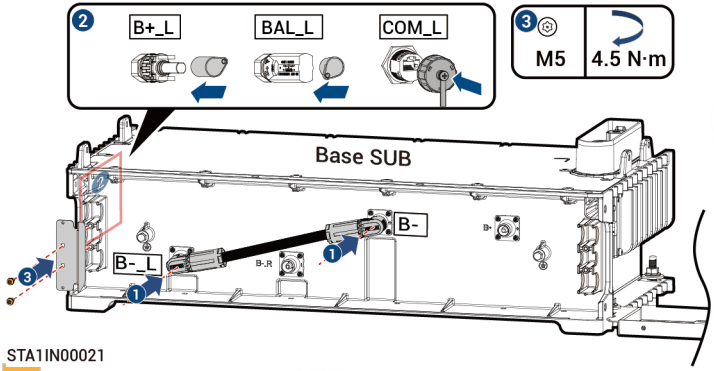


Connection between Base SUB and Base SUB		Connection between Base SUB and Base MAIN	
Base SUB	Base SUB		Base MAIN
B+	B-	B+	B-
⏚	⏚	⏚	⏚
B-_R	B-_L	B-_R	B-_L



Connection between Base SUB and Base SUB		Connection between Base SUB and Base MAIN	
Base SUB	Base SUB		Base MAIN
B+_R	B+_L	B+_R	B+_L
BAL_R	BAL_L	BAL_R	BAL_L
COM_R	COM_L	COM_R	COM_L

For multiple Sub stacks, repeat the steps 1 3 4 to complete the cable connection between Base SUBs.
The Base SUB on the far left should be short-connected, and unused ports should be plugged.



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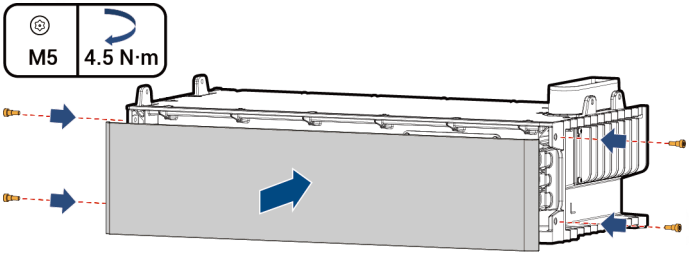
5



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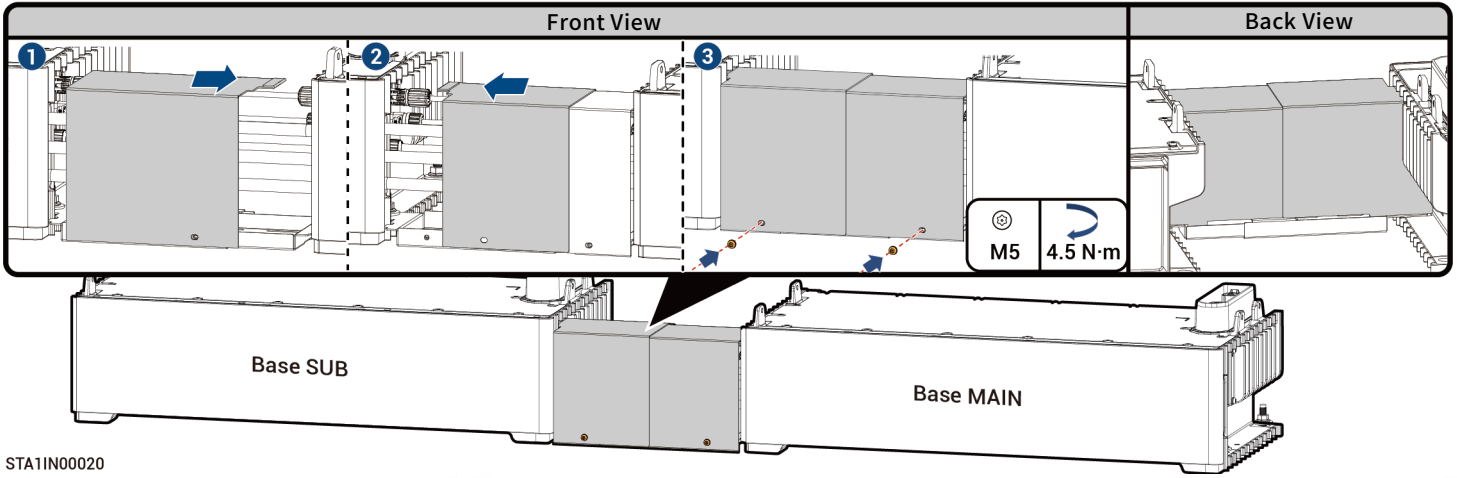
6 Before this step, you may choose to tie the cables as needed.



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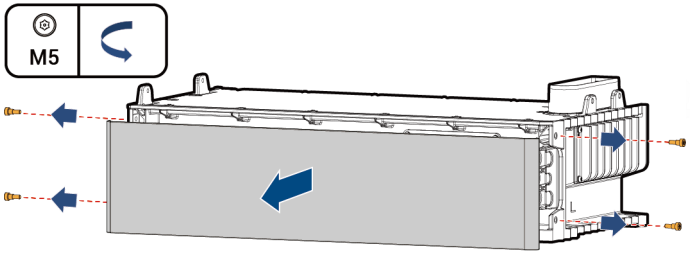
Without Sub stack

1



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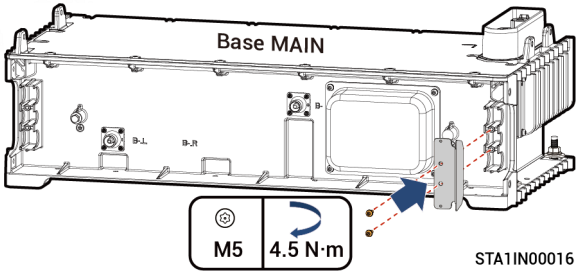
2



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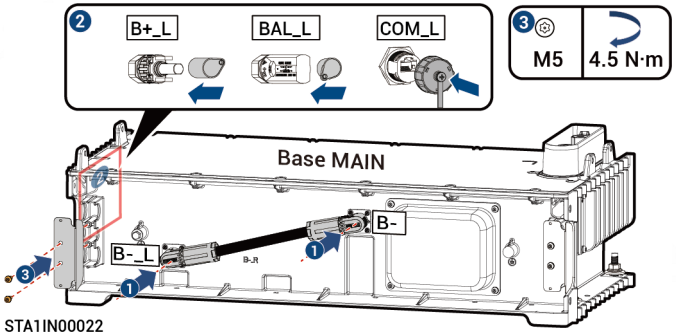

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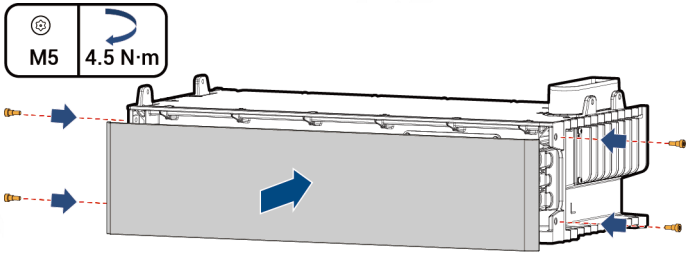
4



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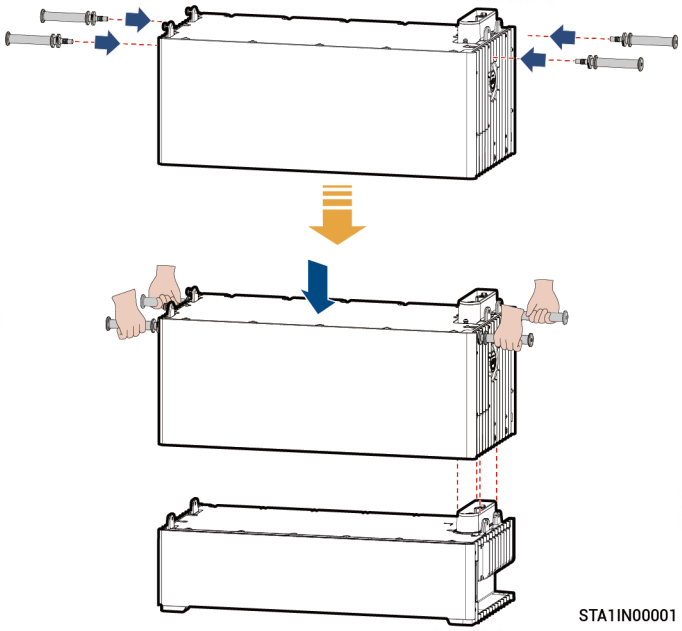
4.3 Installing BAT, Cover, and BC-BST/BC

Caution

- The equipment is heavy. Please handle the equipment with due care to avoid sprains, crushing, or other injuries.
- Do not use a battery that fell off. Please buy a new one.
- Do not drag the equipment during installation.
- Check that the handles of the BAT are securely attached before lifting.

1 After the handles are attached to the BAT, keep the BAT level and install it vertically down.



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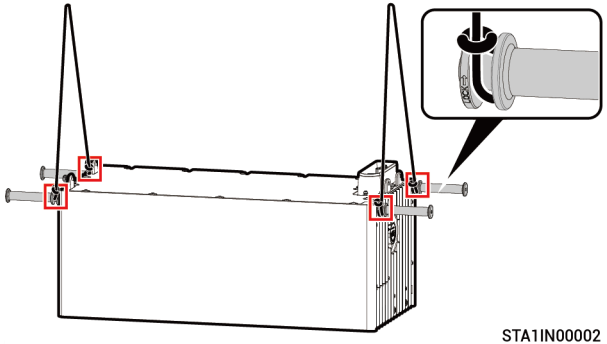
2 Repeat the step 1 or the 2nd BAT.

3 When installing three or more BATs, please use a lifting tool.

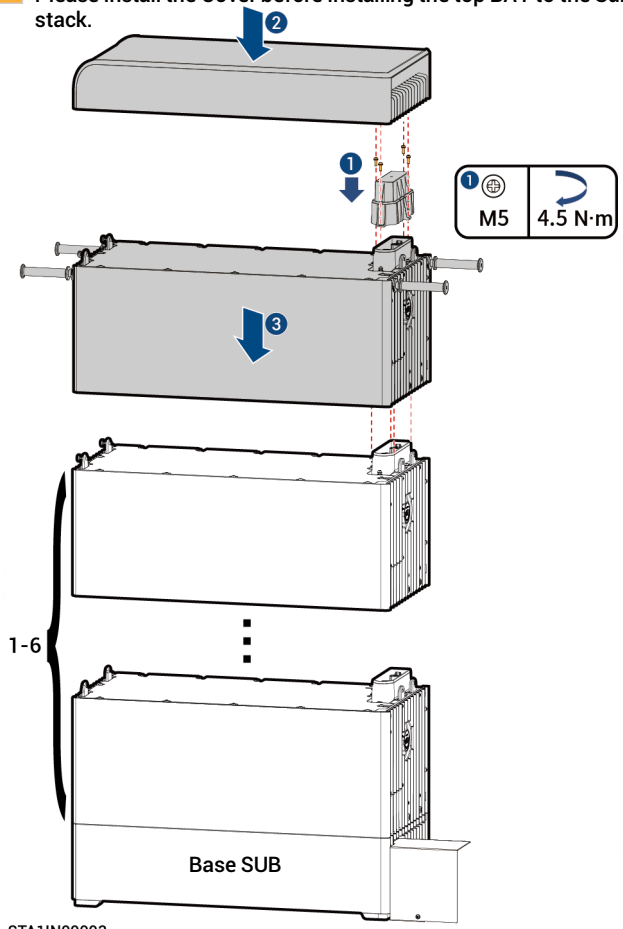


STA1IN00002

Tips

- Please prepare a lifting plan according to the actual situation and use a lifting rope that meets the load-bearing requirements. When lifting, please ensure that the equipment is secured tightly without the risk of falling.
- When lifting, wrap a protective layer around the area where the lifting rope comes into contact with the equipment to avoid damage to the equipment.

4 Please install the Cover before installing the top BAT to the Sub stack.



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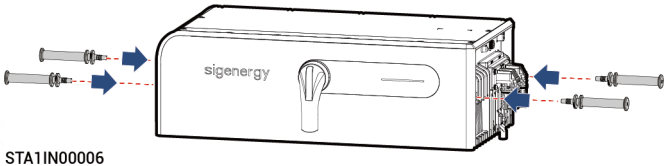
5 Install BC-BST/BC to the Main stack.



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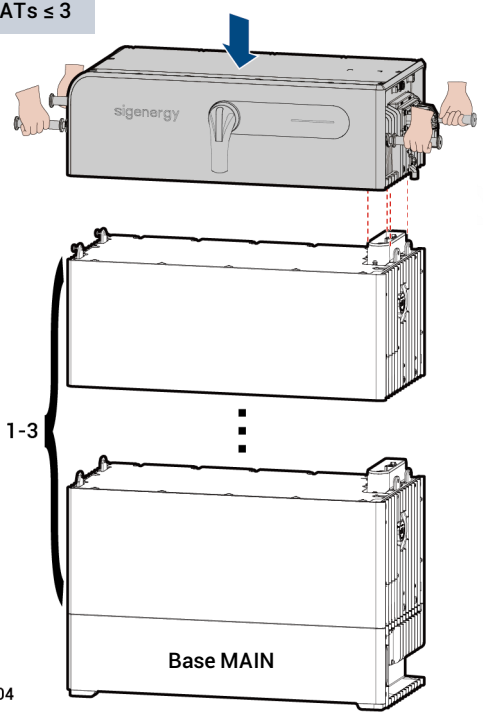
Installed BATs ≤ 3



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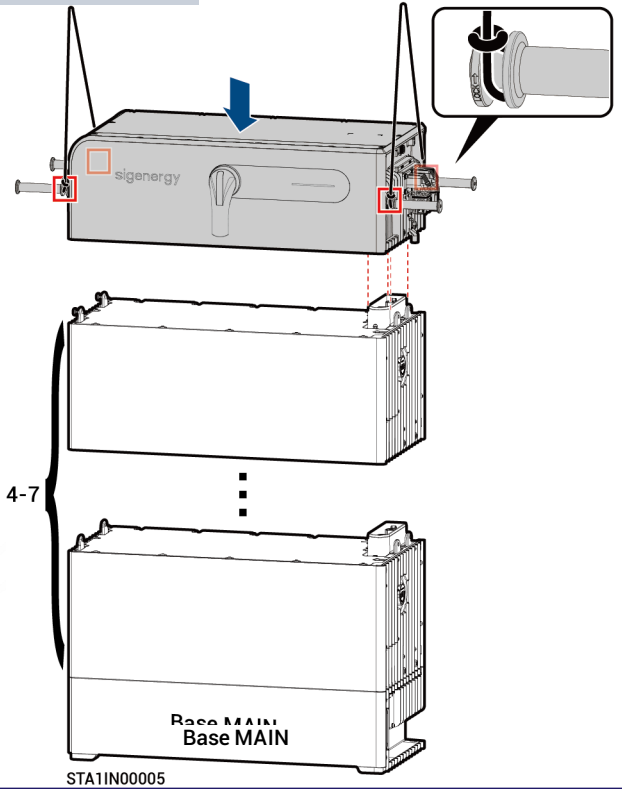
4 ≤ Installed BATs ≤ 7



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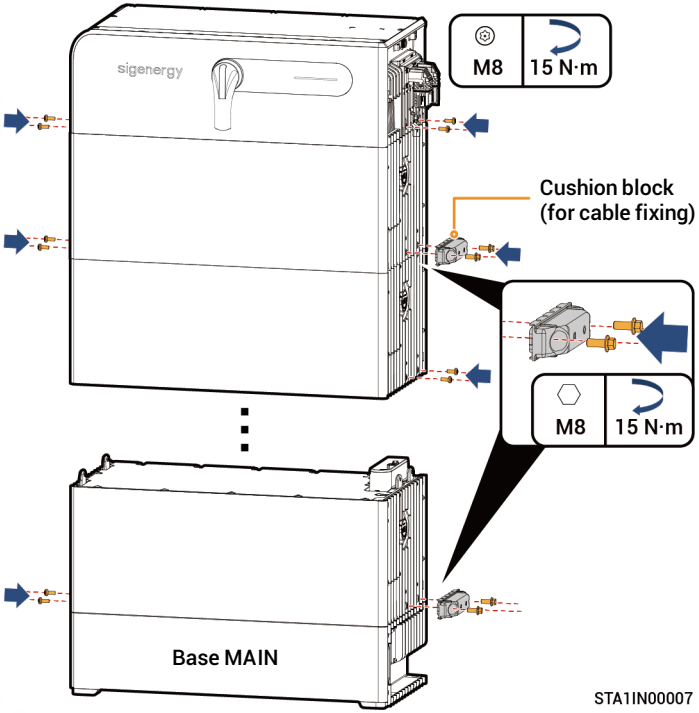
Tips

- Please prepare a lifting plan according to the actual situation and use a lifting rope that meets the load-bearing requirements. When lifting, please ensure that the equipment is secured tightly without the risk of falling.
- When lifting, wrap a protective layer around the area where the lifting rope comes into contact with the equipment to avoid damage to the equipment.

6 Secure the battery rack.

Main stack



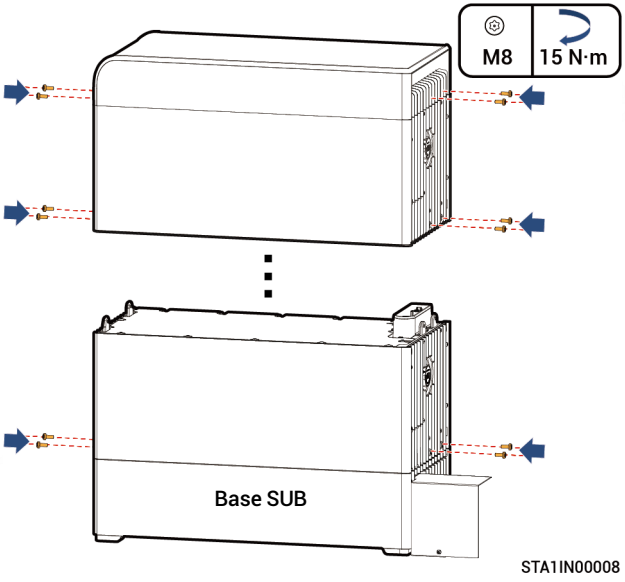
STA1IN00007

Tips

Mounting location of cushion block:

- A cushion block is required for the BAT underneath the BC-BST/BC.
- A second cushion block can be installed when there are 3 BATs or more. There are no less than one BATs between two cushion blocks.
- For BAT without cushion blocks, use screws ( ) to secure it.

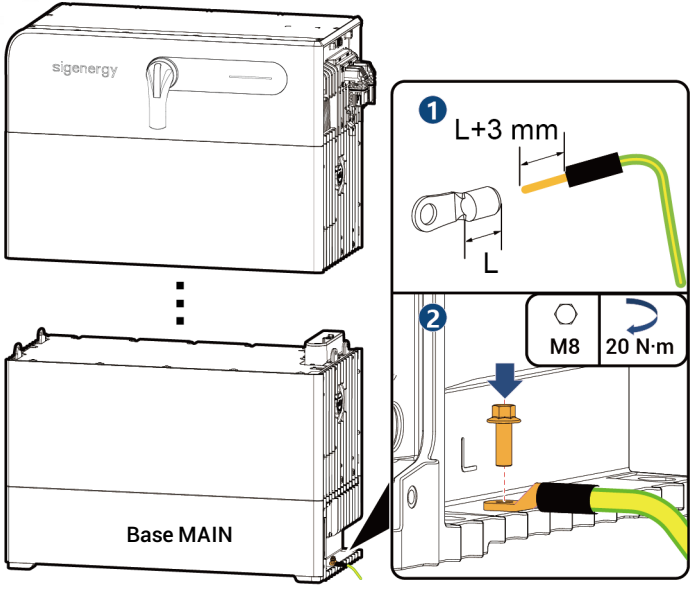
Sub stack



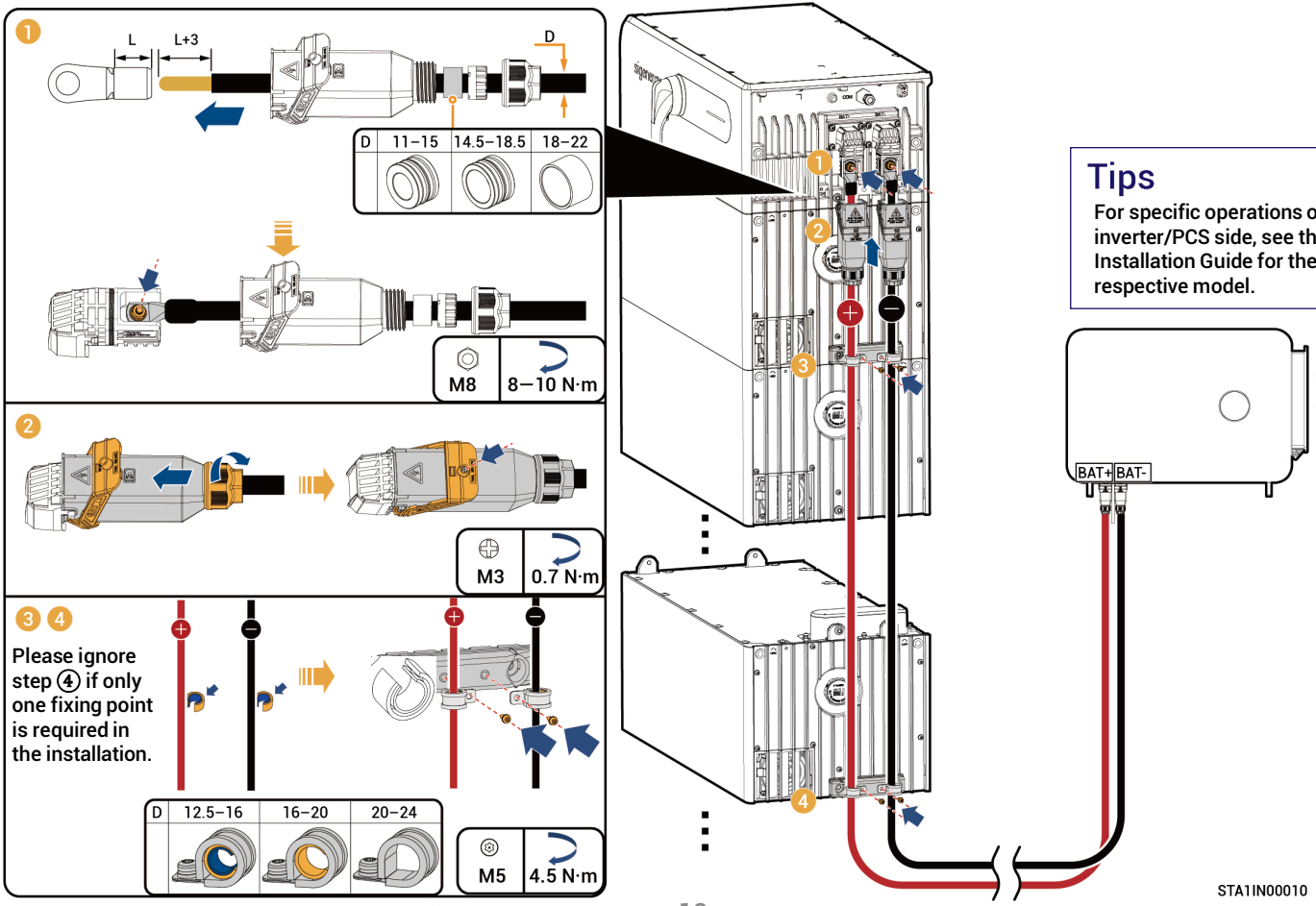
5 Cable Connection

5.1 Base MAIN PE Cable

The PE cable is grounded nearby or connected to the PE point of the inverter/PCS.



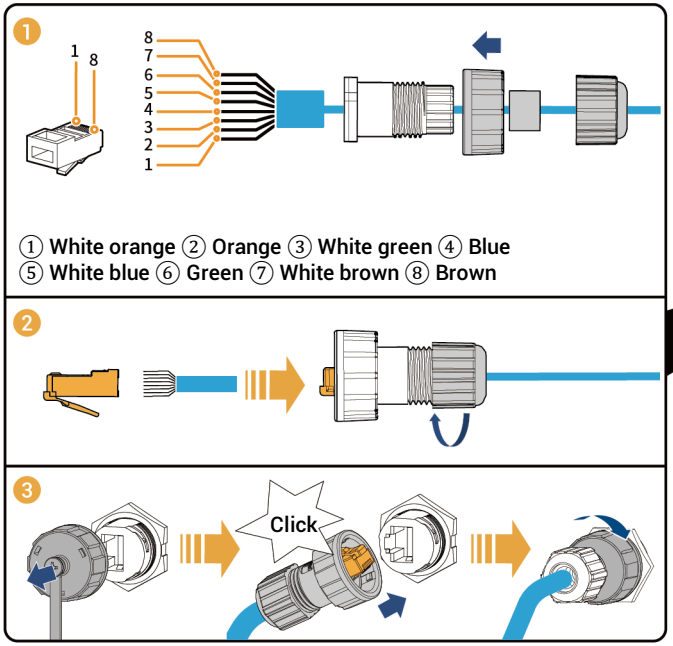
5.2 BC-BST/BC Power Cable

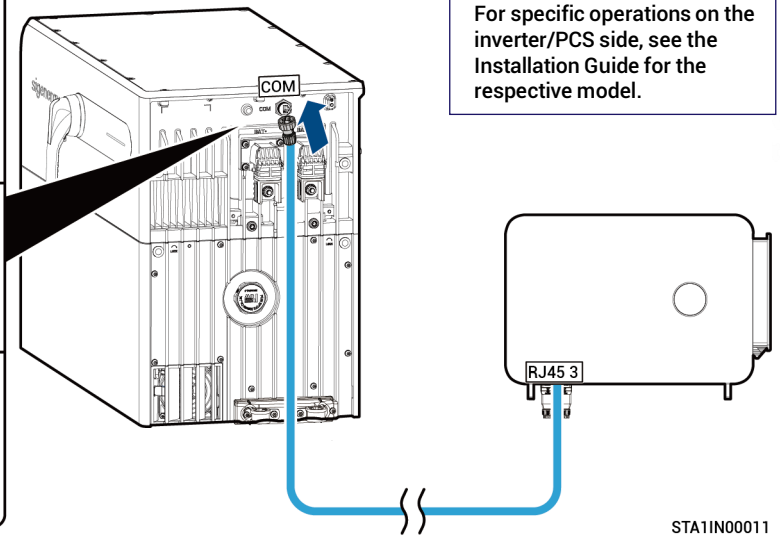


Tips

For specific operations on the inverter/PCS side, see the Installation Guide for the respective model.

5.3 BC-BST/BC Signal Cable





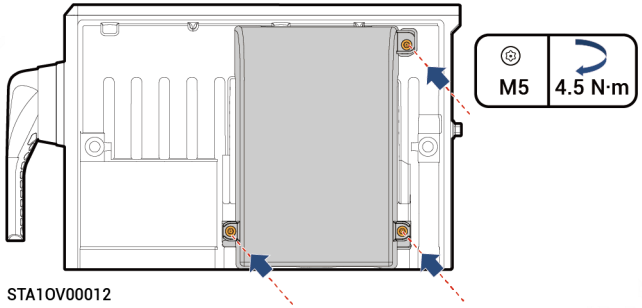
Tips

For specific operations on the inverter/PCS side, see the Installation Guide for the respective model.

6 Inspections After Installation

No.	Check Item
1	The equipment is securely installed.
2	PE cable, power cable, and signal cable are installed properly without omission.
3	Lock screws or connectors are installed in place without any looseness.
4	Cutouts of cable ties are free of burr or sharp edges.
5	The disconnecting switch is in the OFF position.
6	Unused ports are protected with water-proof covers or plugs.
7	No construction residue inside and outside the equipment.

After checking that everything is OK, install the protective cover for the BC-BST/BC.



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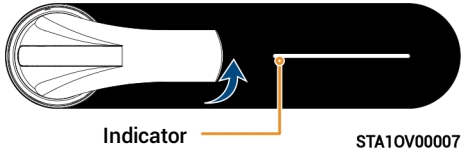
7 Power-on

1. Place the BC/BC-BST disconnecting switch in the ON position.
2. Power on the inverter/PCS by referring to the Installation Guide for the respective model.
3. Check the indicator status of the BC/BC-BST.

Tips

The indicator correctly indicates the real-time power and status of the battery rack.



STA1OV00007

Color	Status	Meaning
	Steady on	Battery rack in standby mode.
	Flowing	Charging.
	Flowing	Discharging.
	Steady on	The battery cluster communicates abnormally with the inverter/PCS.
	Breathing blink	Communication error between BAT and BC/BC-BST.
	Steady on	Equipment failure.

8 Creating a New System

1 Please visit https://www.sigenergy.com and go to "Partner" →"Register Now" and sign up for your account.

2 Download the mySigen app to initiate the creation of a new system for your equipment.

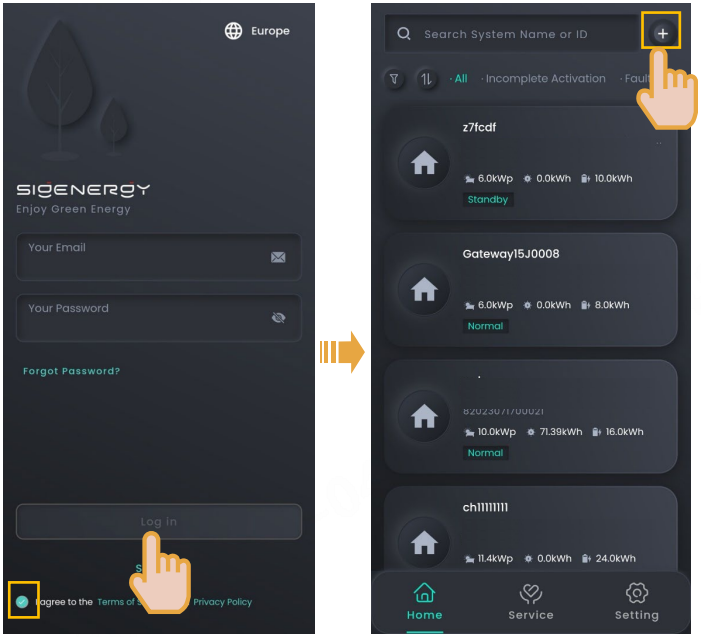
App Store

Google Play

mySigen

mySigen

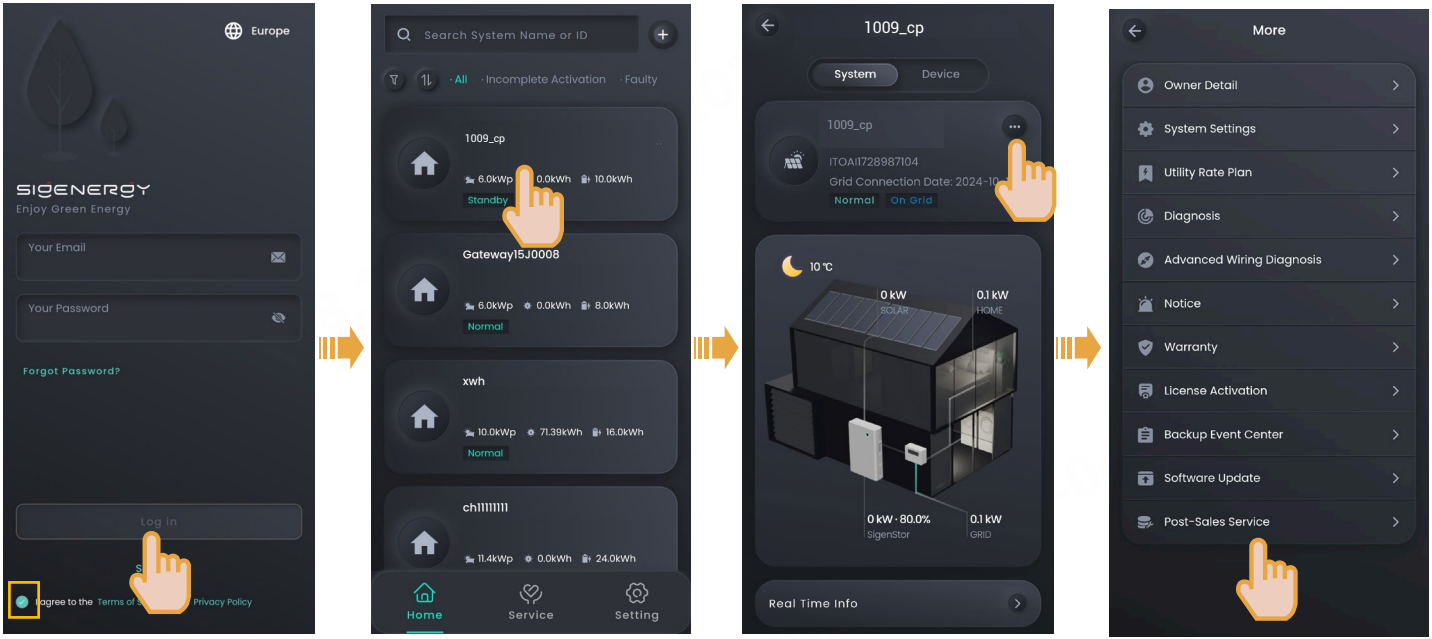
Creating a New System with an inverter/PCS

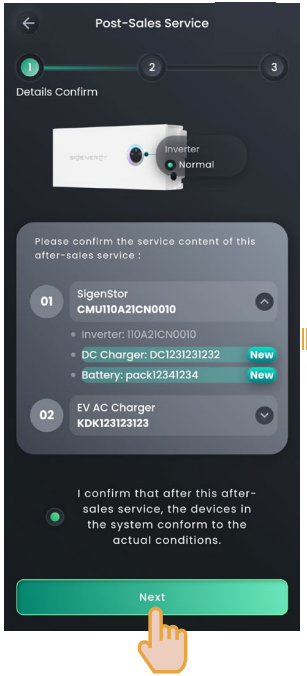


- Create a new system as instructed on the screen.
- For the procedure, see Installation Guide for the respective inverter/PCS.

Adding to Existing Power Stations

Please complete the following steps to confirm the addition of SigenStack.





Complete the confirmation process as instructed on the screen.

Sigenergy Technology Co., Ltd.

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www.sigenergy.com