

SigenStack Energy Storage System Installation Guide

Version: 03
Release Date: 2025-09-28



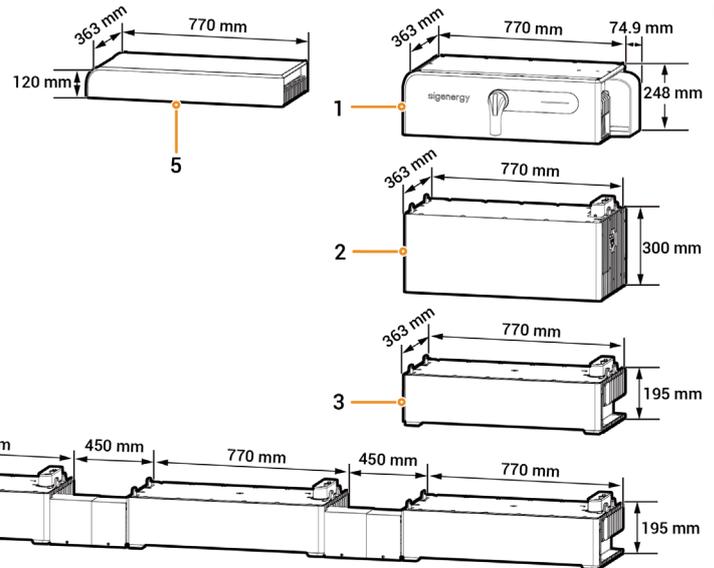
⚠ Caution

- 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.

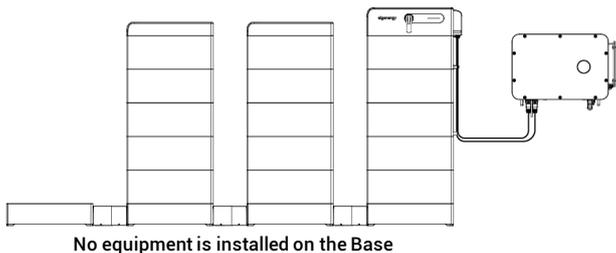
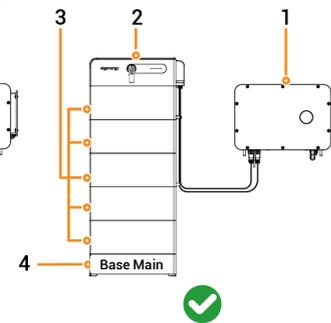
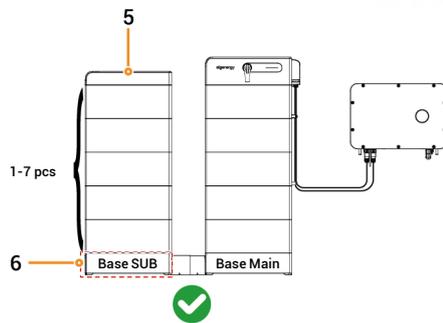
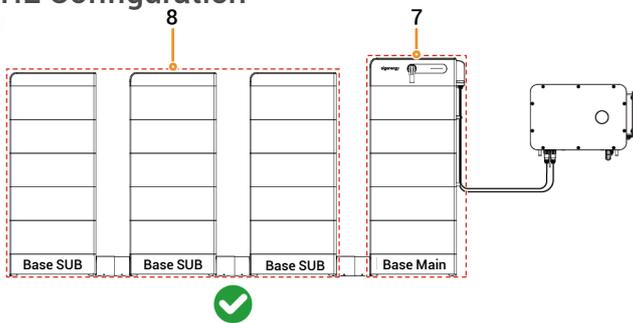
1 Introduction

1.1 Appearance and Dimensions

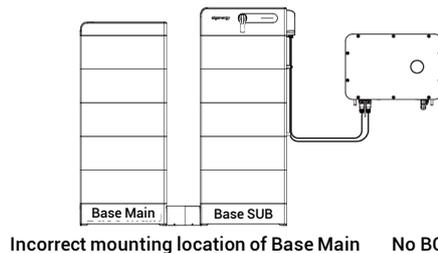
No.	Model	Description	Abbreviated Form
1	SigenStack BC M2-1C-BST	Battery controller (including DC-DC boost converter module).	BC-BST
	SigenStack BC M2-0.5C-BST		
	SigenStack BC M2-0.5C	Battery controller.	BC
2	SigenStack BAT 12.0	Energy storage battery.	BAT
3	SigenStack Base MAIN-0.5C	Main base, for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



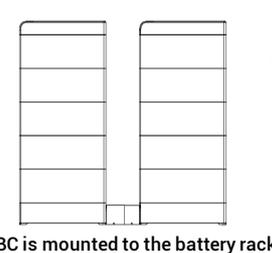
1.2 Configuration



No equipment is installed on the Base



Incorrect mounting location of Base Main



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

The SigenStack energy storage system cannot currently be integrated with our company's SigenStor series devices. If you have any questions, please contact our technical staff.

No.	Description	No.	Model
1	Sigen inverter	Sigen C&I series inverter	
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

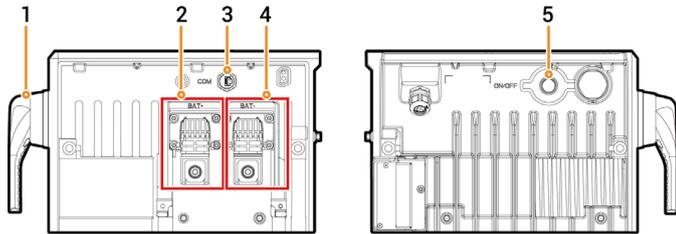
Tips

- 4 to 21 batteries can be connected to each inverter.
- 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.
- Scenarios for using BC-BST in energy storage systems:
 - The rated line voltage on the AC side is greater than 400V
 - Applicable to PV storage system wiring
 - Applicable to pure storage system wiring, connected to Sigen PV HYA series inverter and $BAT \leq 19$ in the energy storage system
 - Applicable to pure storage system wiring, connected to Sigen PV HYB series inverter
- Scenarios for using BC in energy storage systems:
 - Applicable to pure storage system wiring, connected to Sigen PV HYA series inverter and $BAT \geq 20$ in the energy storage system

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1.3 Introduction to Ports and Switch

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



STA10V00004

No.	Description	Marking
1	Disconnecting switch	-
2	Power port (+)	BAT+
3	Communication port	COM
4	Power port (-)	BAT-
5	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



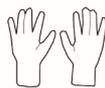
Safety hat



Goggles



Dust mask



Protective gloves



Insulating gloves



Insulating shoes



Safety vest

Installation Tools



Power drill



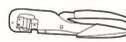
Vacuum cleaner



Wire cutter



Network cable pliers



Crimping pliers



Wire stripper



Scissors



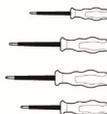
Cable ties



Heat shrinkable sleeve



Heat gun



Insulated screwdriver set



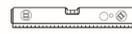
Digital torque socket wrench



Marker



Rubber mallet



Level



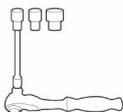
Tape measure



Forklift



Stainless steel plastic-covered wire rope
(Preparation required for lifting installation if company's lifting tools are not purchased)



Insulated socket wrench



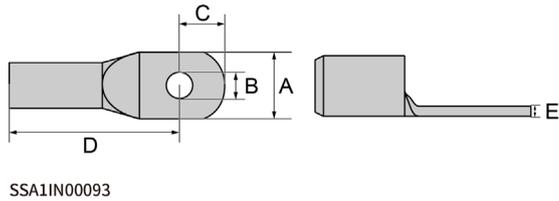
Hexagonal L-type wrench (6 mm on the opposite side)



Open-end wrench
(Model: H4TW0008
Supplier: Amphenol)

Caution

The specifications of the Installer-provided cable must comply with the cable regulations and standards of the country or region standards.

No.	Cable Name	Recommended Specification												
1	Base MAIN PE cable	Outdoor single-core copper cable Cross-sectional area of cable: $\geq 25 \text{ mm}^2$												
2	DC cable between inverter and BC-BST/BC ^[1]	<p>Outdoor single-core copper cable</p> <ul style="list-style-type: none"> Rated voltage: 1500 Vd.c. Cross-sectional area of cable (S): 70 mm^2 to 120 mm^2 Cable OD: 11 mm to 22 mm Single cable length (L): $\leq 50 \text{ m}$ Requirements for M8 OT/DT Terminal: Please purchase the OT/DT terminals according to the following requirements. <table border="1" style="display: inline-table; vertical-align: top;"> <thead> <tr> <th>Item</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>$\leq 27 \text{ mm}$</td> </tr> <tr> <td>B</td> <td>8.3–8.6 mm</td> </tr> <tr> <td>C</td> <td>$\leq 16 \text{ mm}$</td> </tr> <tr> <td>D</td> <td>$\leq 64 \text{ mm}$</td> </tr> <tr> <td>E</td> <td>$\leq 5.5 \text{ mm}$</td> </tr> </tbody> </table> 	Item	Description	A	$\leq 27 \text{ mm}$	B	8.3–8.6 mm	C	$\leq 16 \text{ mm}$	D	$\leq 64 \text{ mm}$	E	$\leq 5.5 \text{ mm}$
Item	Description													
A	$\leq 27 \text{ mm}$													
B	8.3–8.6 mm													
C	$\leq 16 \text{ mm}$													
D	$\leq 64 \text{ mm}$													
E	$\leq 5.5 \text{ mm}$													
3	Signal cable between inverter and BC-BST/BC	<p>Outdoor shielded twisted pair (8 cores), EIA/TIA 568B standard network cable</p> <ul style="list-style-type: none"> 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: $\leq 50 \text{ m}$^[2] 												

Note [1]:

- If cables with a smaller cross-sectional area (e.g., 50 mm^2) are required due to site constraints or other factors, please contact our technical personnel for feasibility evaluation or procure customized cables from our company.
- Recommended: when $S = 70 \text{ mm}^2$ and ambient temperature $\leq 40^\circ\text{C}$, $L \leq 10 \text{ m}$; when $70 \text{ mm}^2 < S \leq 120 \text{ mm}^2$, $10 \text{ m} < L \leq 50 \text{ m}$.

Note [2]: The cable length should be limited for good communication. Too long cable degrades the communication effect.

3 Site Requirements

Tips

- Before installing the equipment, please be sure to carefully read the following installation requirements. The company will not be liable for any functional abnormalities or damages arising from the operation of the equipment if the installation requirements are not followed, even in cases leading to personal safety incidents.
- 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 500 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 RVS, cruise ships, and trains.
- The equipment is hot when it is operating. Please ensure that the installation environment is well ventilated and avoid significant ambient temperature rise by more than 5°C while the equipment is operating. Otherwise, the equipment will be derated.
- 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

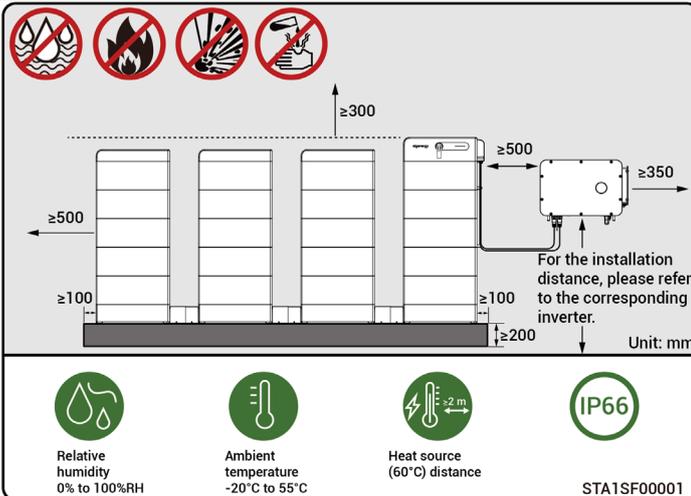
- The equipment must be installed on concrete or other non-combustible surfaces, and the mounting location must be level, solid, and flat and feature sufficient load-bearing capacity.
- The equipment foundation should be prepared according to the total weight of the equipment. Recheck the foundation 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.

Installation Base

- 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.
- The equipment base is made of aluminum. If the equipment is installed on a metallic substrate that is prone to electrochemical corrosion (such as high-chromium stainless steel, austenitic stainless steel, and nickel-plated steel), insulating gaskets must be fully installed between the equipment and the substrate. (Nonmetallic insulating gaskets such as PC, PTFE, or PVDF can be used)

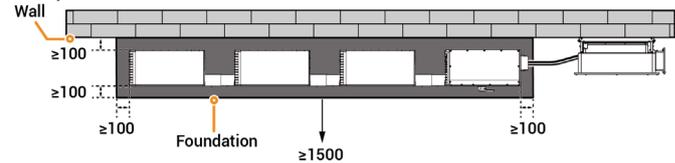
Tips

- To ensure optimal performance of the device, it is suggested that the installation distance between the device and surrounding obstacles be planned with reference to the diagram. If the installation site is well-ventilated, the optimal solution may be deployed based on actual conditions.
- To ensure unobstructed access for installation tools (such as lifting tools or forklifts), it is suggested that a clearance of at least 1500 mm be reserved in front of the battery cluster, which may be adjusted based on actual conditions.
- After installation, please ensure that there is no water accumulation at the bottom of the device, and add drainage channels if necessary.

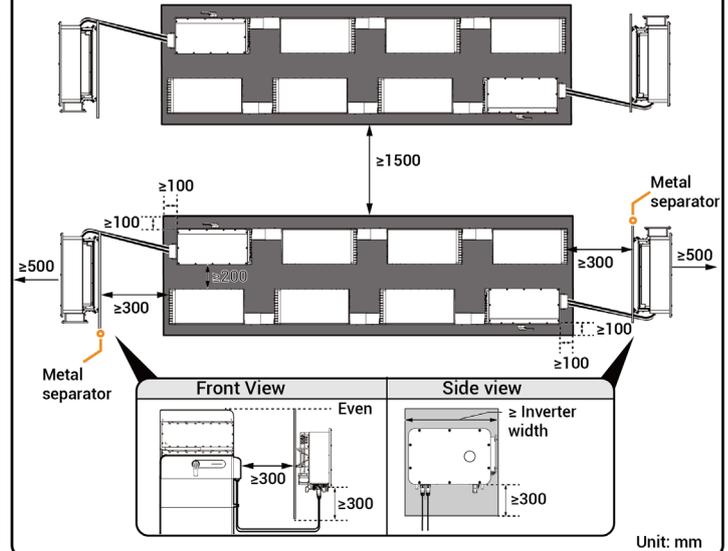


Mounting Space (top view)

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 inverter is installed with its back against the battery stack and the inverter installation height is lower than the battery stack, a metal partition needs to be added when installing the inverter to avoid derating due to heat transfer between the inverter and BAT during operation. The metal separator must meet load-bearing requirements.



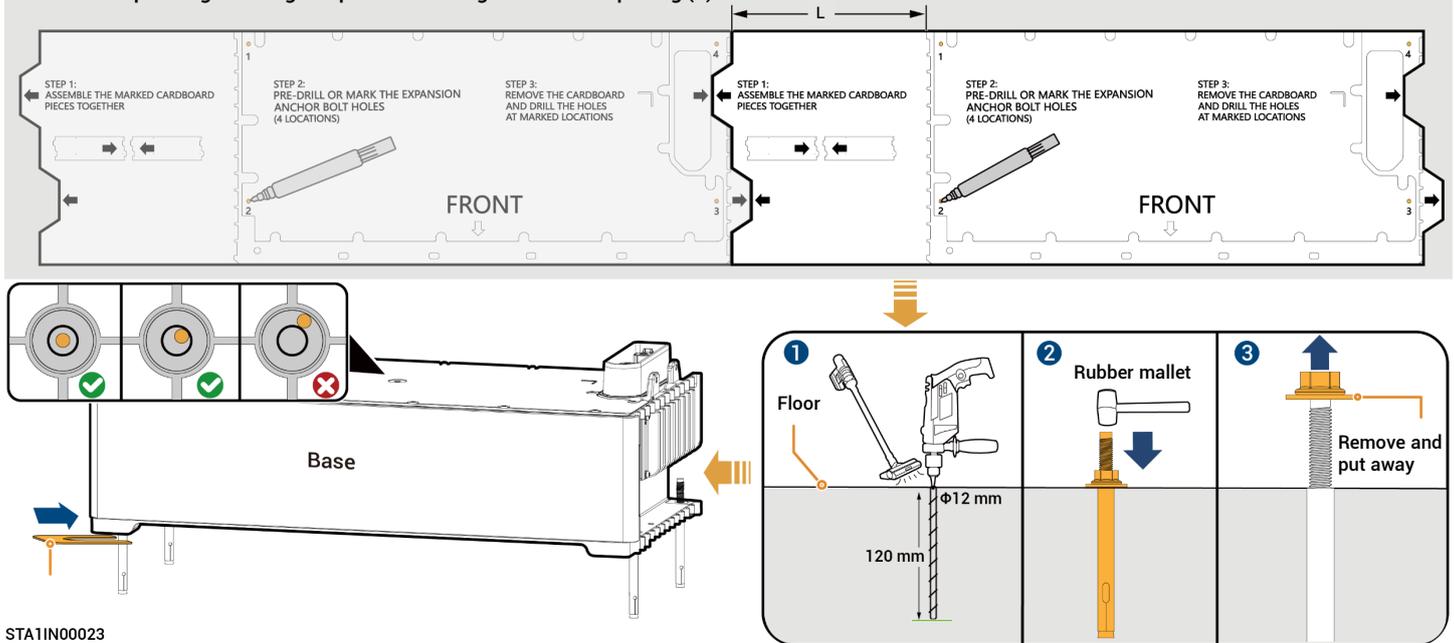
4 Installation

⚠ Caution

- The equipment is heavy. Handle the equipment with due care to avoid falling or injuring the operator.
- During the installation process, avoid rain, snow, wind, sand, and other foreign objects from entering the device port.

4.1 Base placement

- Refer to the description on the marking template to locate the punching points and drill the holes.
- When installing multiple bases, it is necessary to splice the marking template before locating and hold drilling. Please use the corresponding marking template according to the base spacing (L).



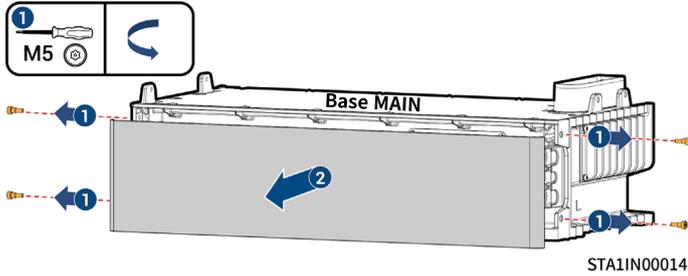
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- If you purchased the Base 4S, please move the base with multiple people to the mounting location.
- If there is a gap between the base and the plane after placement, a shim provided with the box can be placed in the gap.

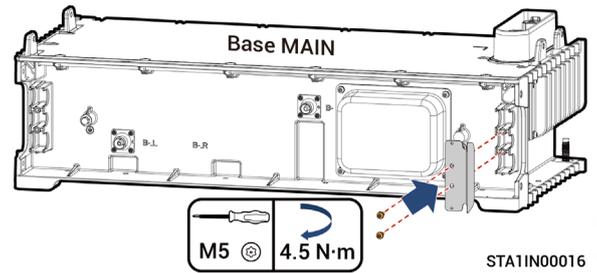
4.2 Base wiring

4.2.1 Without Sub stack

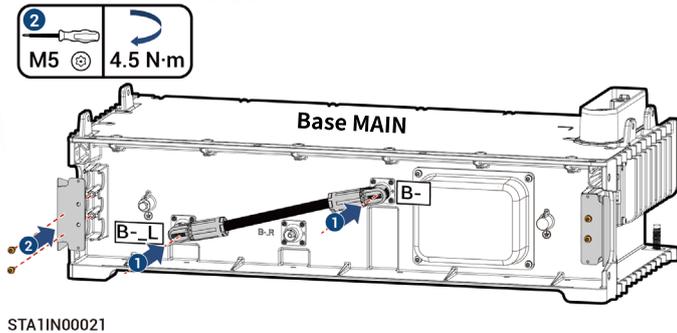
1



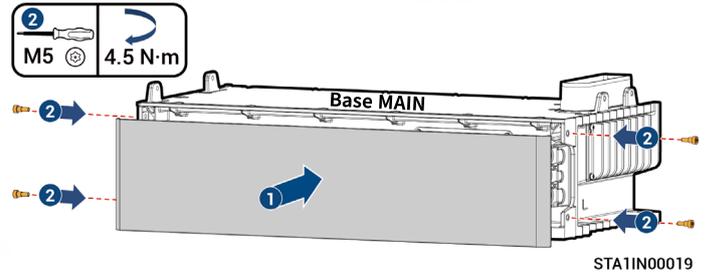
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3



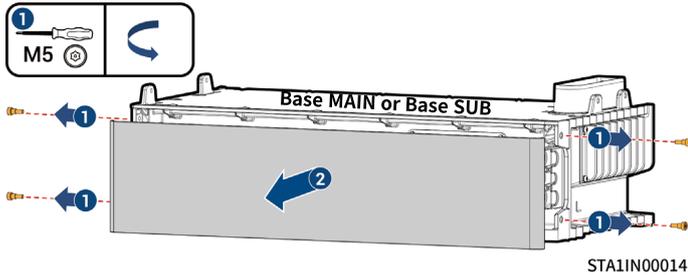
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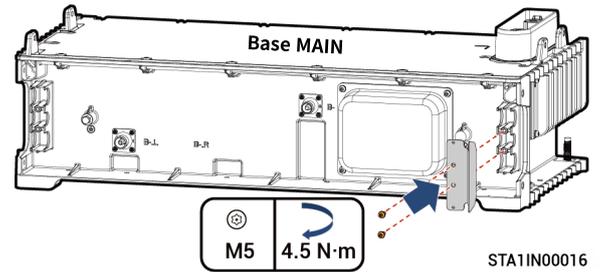
4.2.2 With Sub stack

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

1



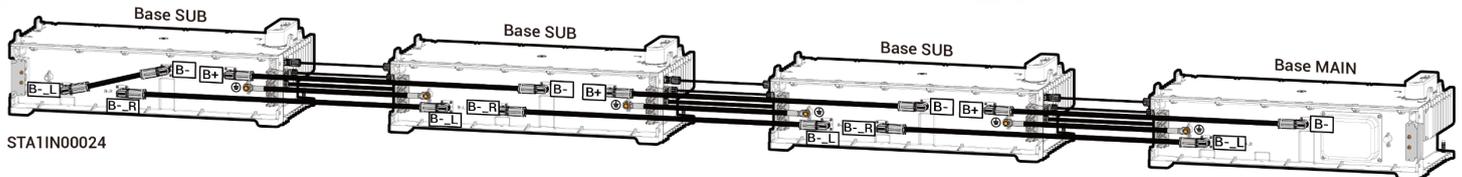
2



3

Example of the docking relationship

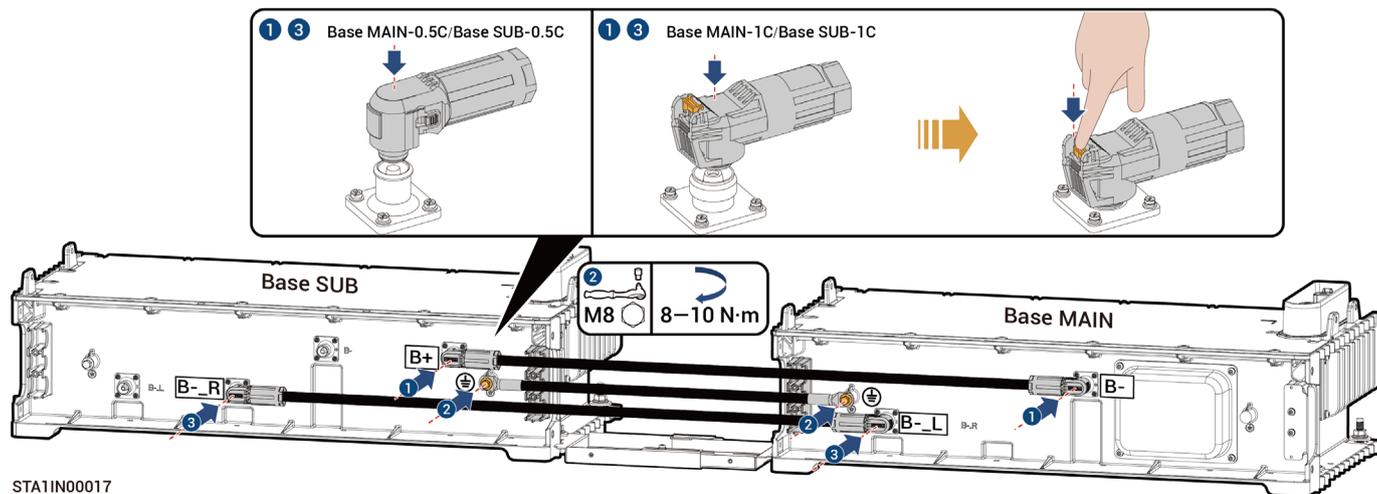
Cables are supplied with the packing box.



Port Description

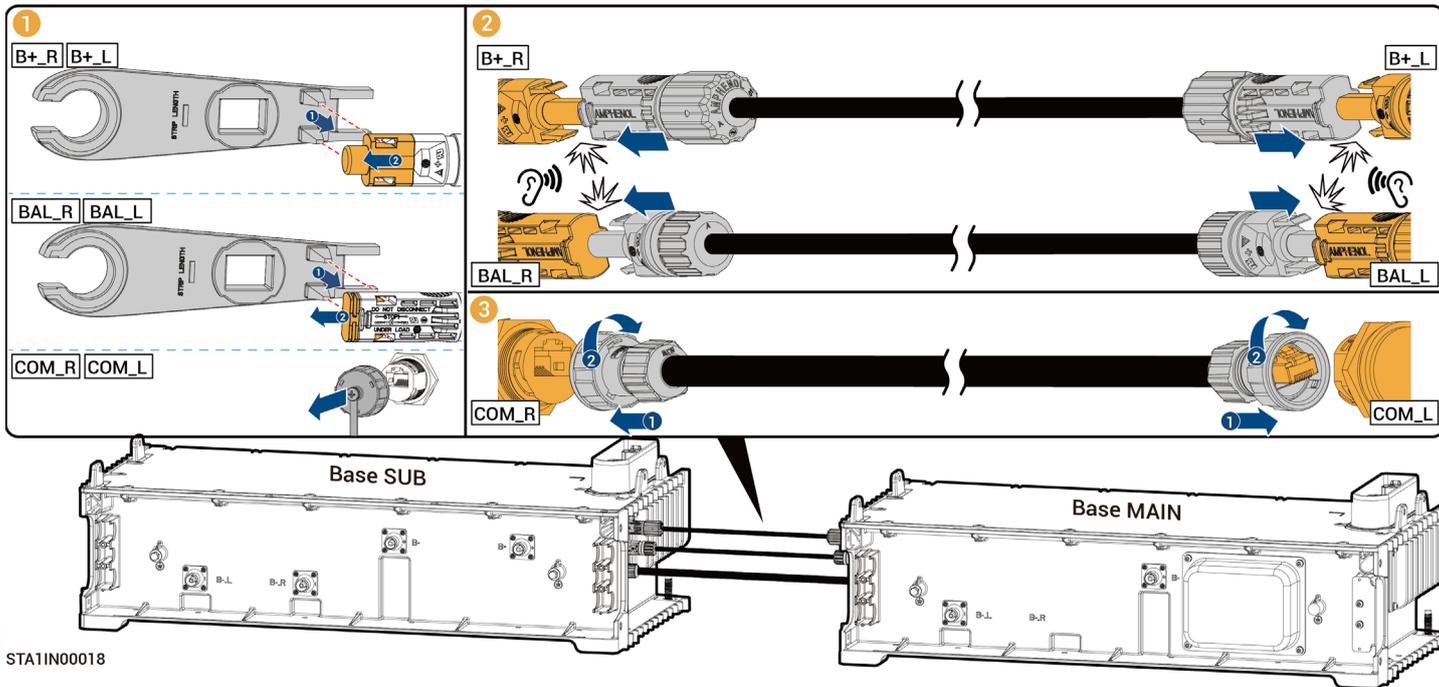
Marking	Description	Marking	Description	Marking	Description	Marking	Description
B+	Battery stack Positive Connection port	B-_R	Bus- right Connection port	B+_R	Auxiliary power supply Bus+ right Connection port	B+_L	Port on the left of the positive bus of the auxiliary power supply
B-	Battery stack Negative 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



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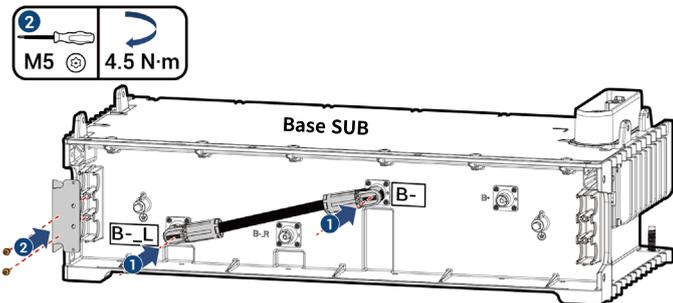
Connection between Base SUB and Base SUB		Connection between Base SUB and Base MAIN	
Base SUB	Base SUB	Base SUB	Base MAIN
B+	B-	B+	B-
			
B-_R	B-_L	B-_R	B-_L



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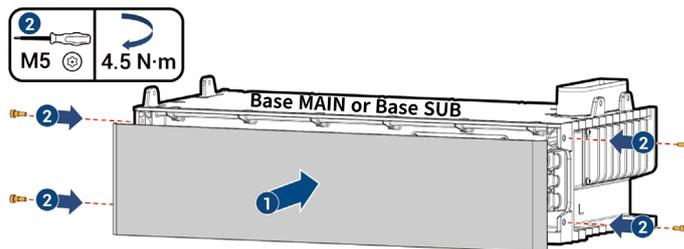
Connection between Base SUB and Base SUB		Connection between Base SUB and Base MAIN	
Base SUB	Base SUB	Base SUB	Base MAIN
B+_R	B+_L	B+_R	B+_L
BAL_R	BAL_L	BAL_R	BAL_L
COM_R	COM_L	COM_R	COM_L

For multiple Sub stacks, repeat the steps 1 3 o complete the cable connection between Base SUBs.
The Base SUB on the far left should be short-connected.



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4



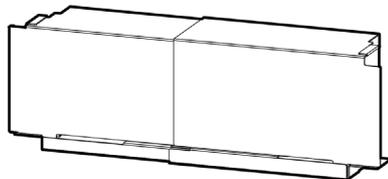
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4.3 Fixed base

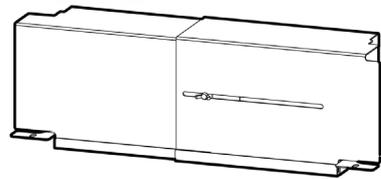
Tips

There are two types of base wire protective boxes; please refer to the corresponding operation steps based on the actual appearance received.

Appearance 1



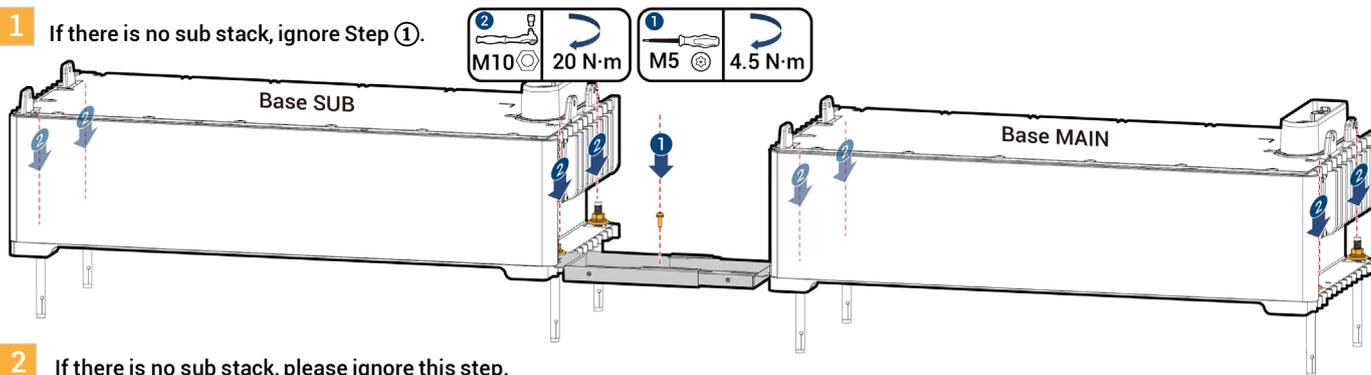
Appearance 2



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Appearance 1

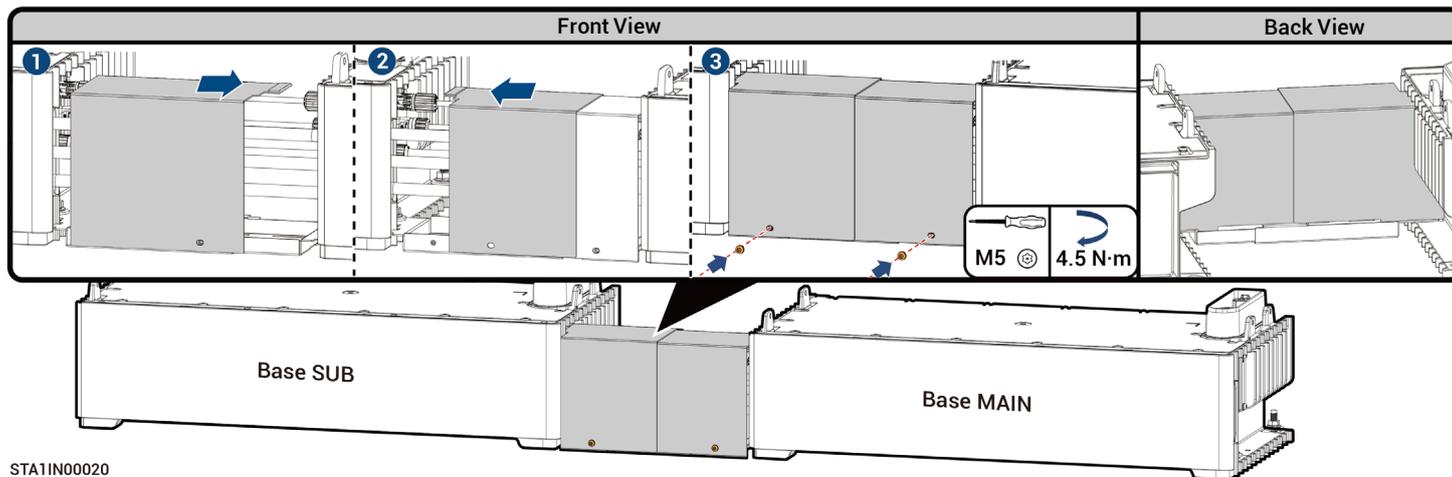
1 If there is no sub stack, ignore Step ①.



2 If there is no sub stack, please ignore this step.

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

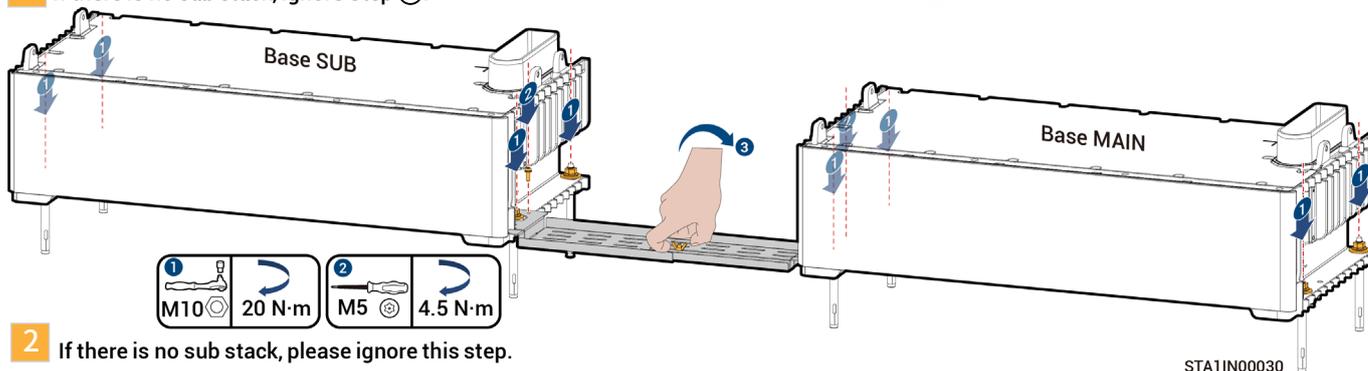
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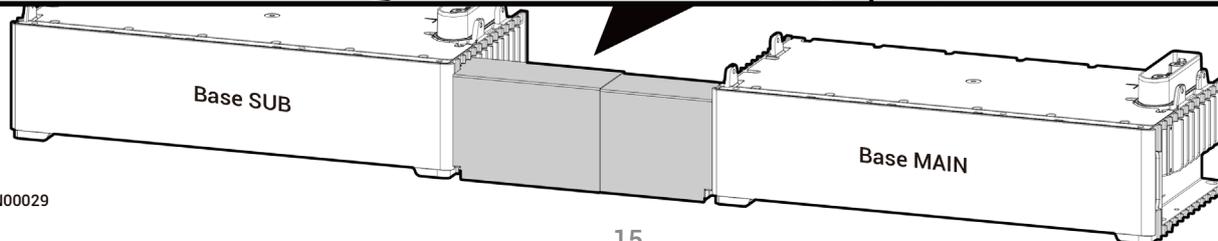
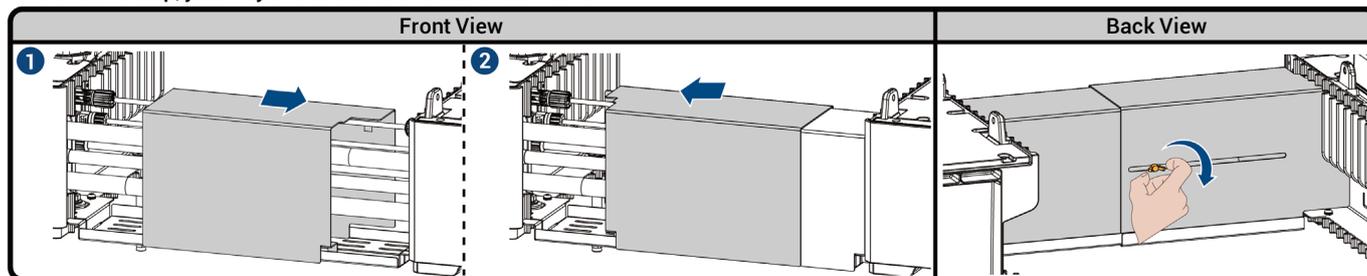
Appearance 2

1 If there is no sub stack, ignore Step ①.



2 If there is no sub stack, please ignore this step.

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



STA1IN00029

4.4 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. The number of devices to be installed via per set of handles is recommended to be no more than 100. If the handles become deformed, please replace the handles.

1 If installing against a wall, position and drill holes according to the actual installation requirements and install the expansion bolts. If installing back-to-back, please ignore this step.

Installation Location	Stacked BAT Quantity	Fixed Position
Low earthquake risk areas	1 to 6	No fixing required
	7	The 6th BAT
High earthquake risk areas (such as Japan, etc.)	1 to 3	No fixing required
	4	The 3rd BAT
	5	The 4th BAT
	6	The 3rd and 5th BATs
7	The 4th and 6th BATs	

1 is the wall mounting hole on the left side, and 2 is the wall mounting hole on the right side.

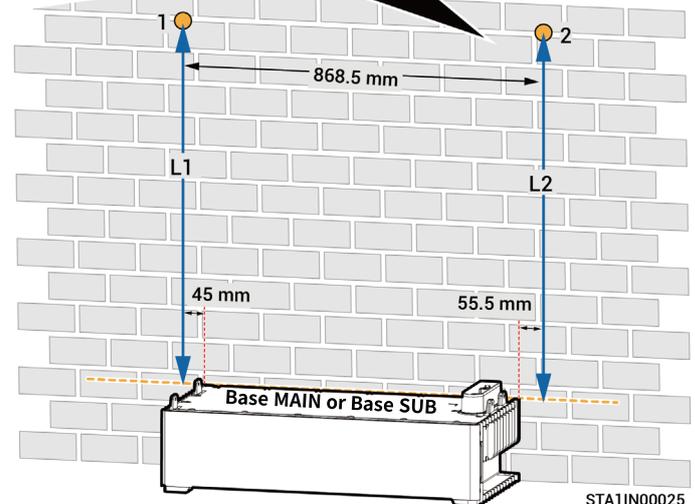
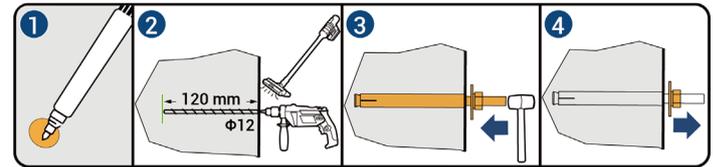
Calculation formula for punch height

L1 and L2 should be measured from the upper surface of the base:

$$L1 = N \times 300 \text{ mm} - 22 \text{ mm}$$

$$L2 = N \times 300 \text{ mm} - 15 \text{ mm}$$

Note: N indicates the number of BATs.

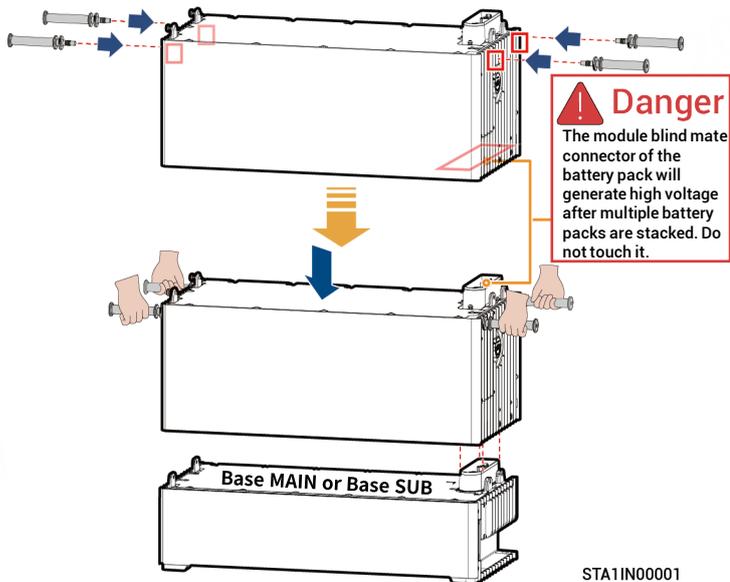


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- 2** After the handles are attached to the BAT, keep the BAT level and install it vertically down.

Tips

Before stacking, remove the protective cover on the blind-mate connectors.



- 3** Repeat the step **2** or the 2nd, 3rd BAT.

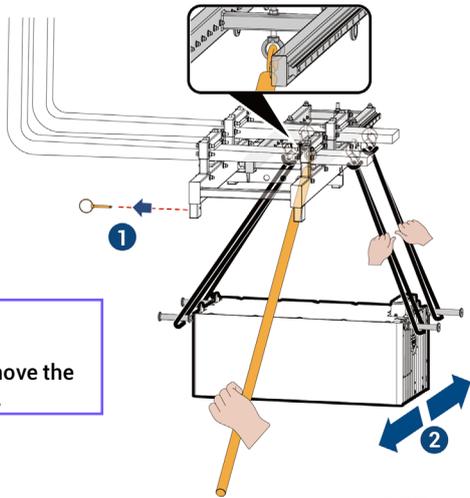
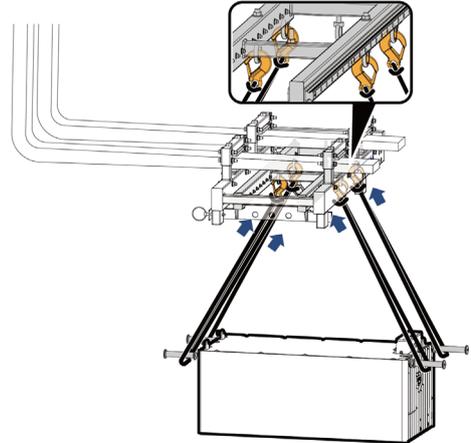
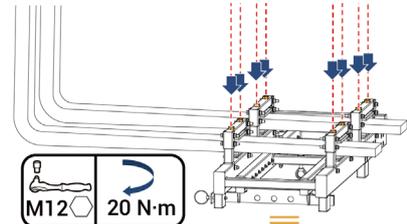
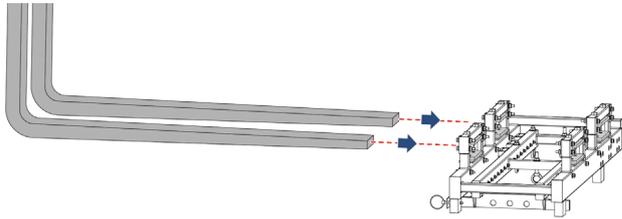
- 4** When installing the fourth or additional BATs, please use a lifting tool. It is recommended to purchase lifting tools from our company.

Tips

- If you prepare the lifting tool yourself, please develop a lifting plan according to the actual situation and use a lifting rope that features adequate load-bearing capacity. 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.

Danger

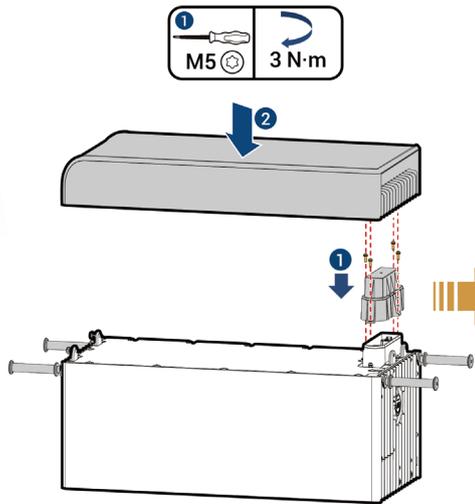
During the lifting, personnel are prohibited from standing under the fork or the device.



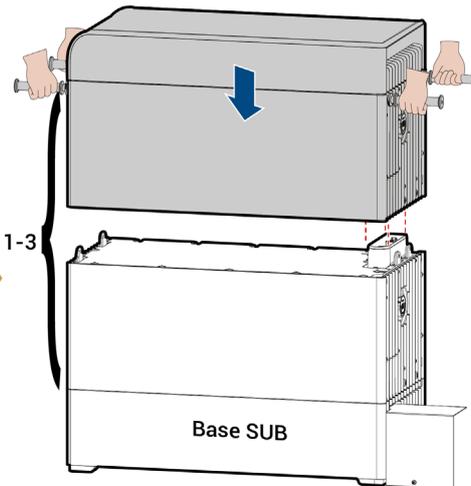
⚠ Caution
During the lifting, please move the device slowly and steadily.

STA1IN00002

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

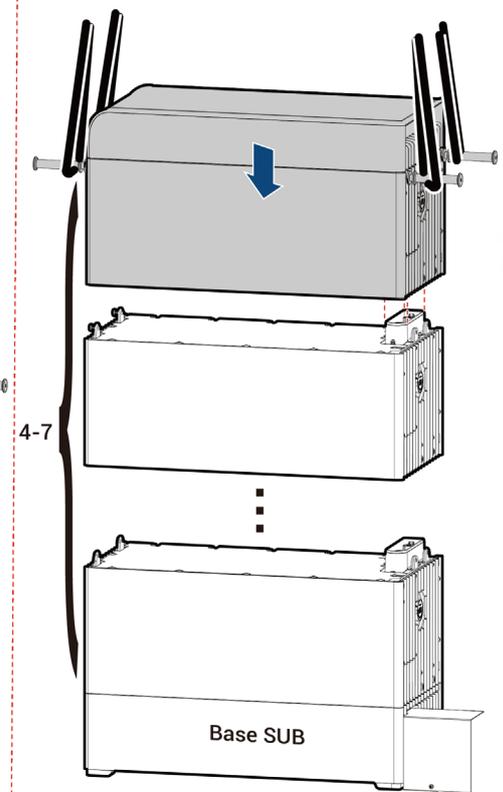


BAT_{≤3}

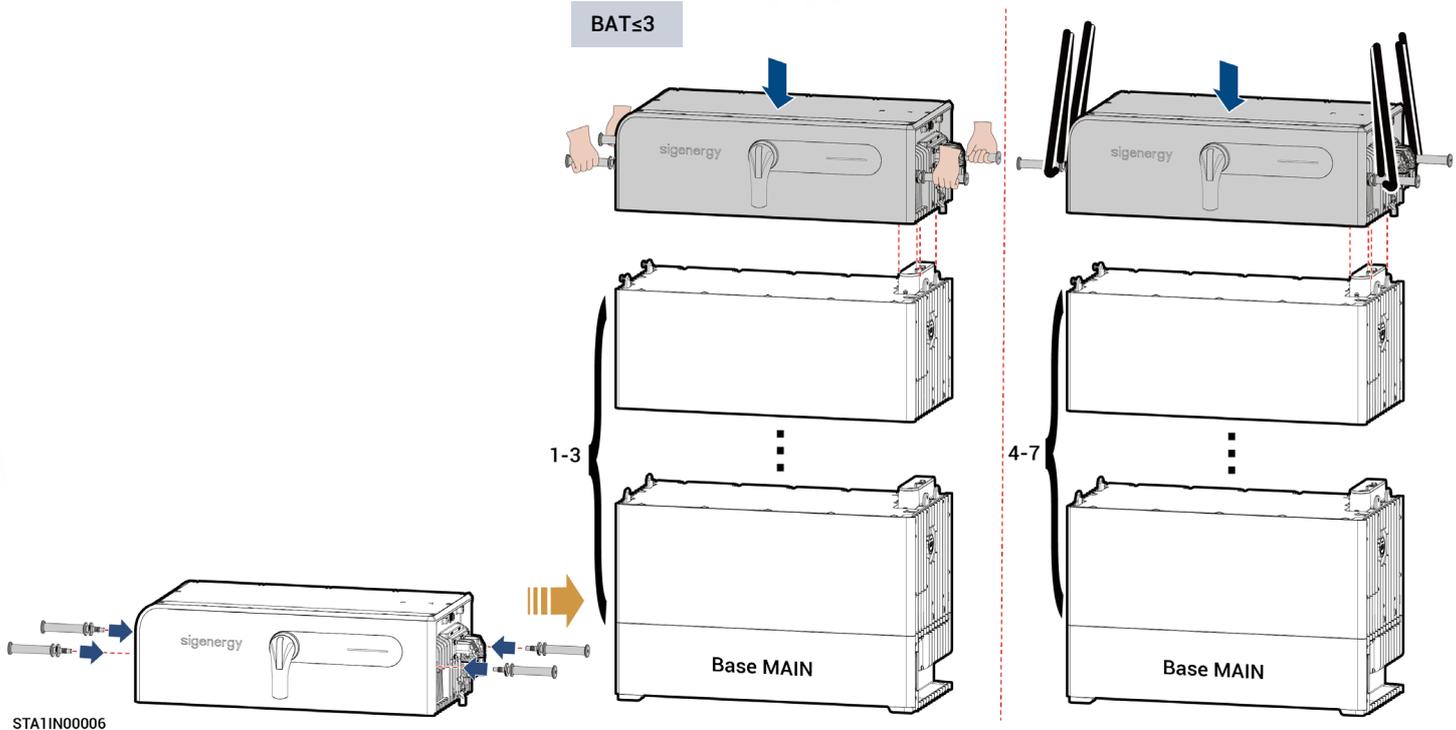


3 < BAT_{≤7}

For the lifting method, please refer to operation step **4**.

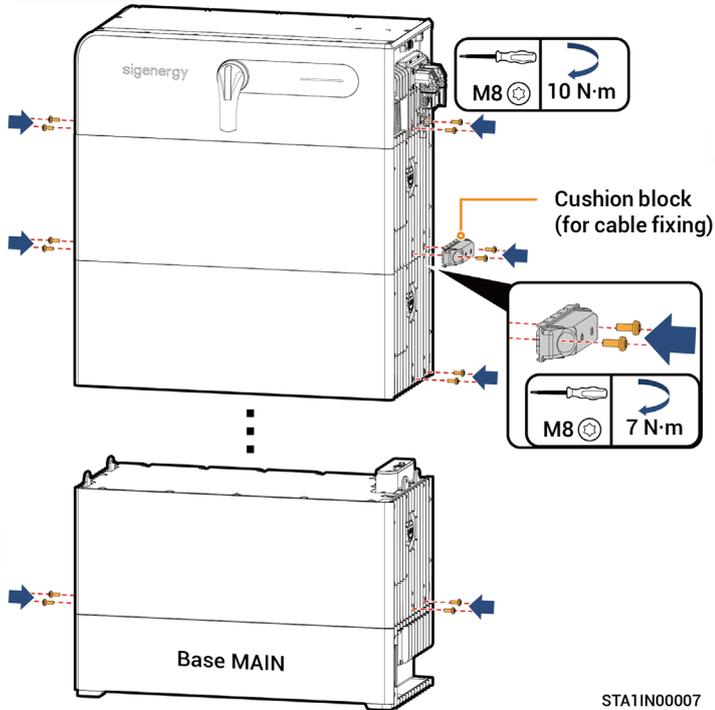


6 Install BC-BST/BC to the Main stack.



7 Secure the battery rack.

Main stack

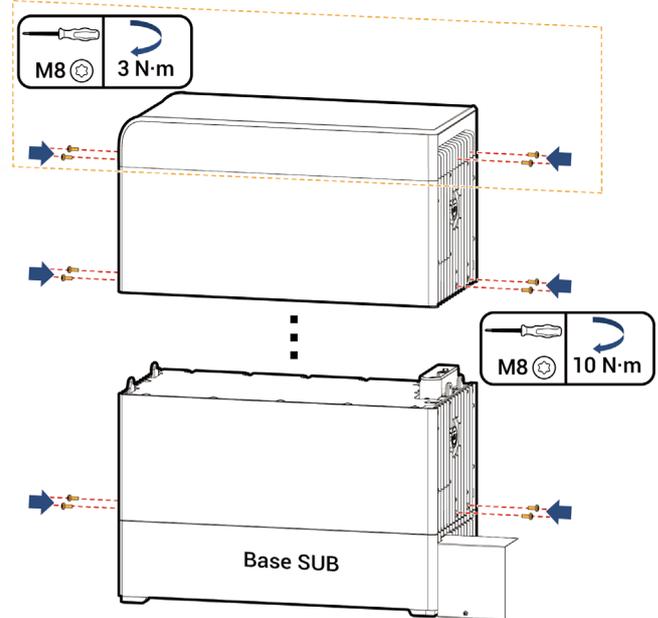


STA1IN0007

Tips

- (Optional) To fix the cable between BC-BST/BC and the inverter, you can choose to install cushion blocks.
- When tightening screws, the equipment can be fine-tuned as needed to align its front for an aesthetic look.

Sub stack



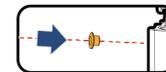
STA1IN0008

Tips

When tightening screws, the equipment can be fine-tuned as needed to align its front for an aesthetic look.

Plug installation

At the location where the device handle is installed, after removing the handle, please use the plug provided with the box to seal the handle.



8 Wall-mounted or back-to-back fixed.

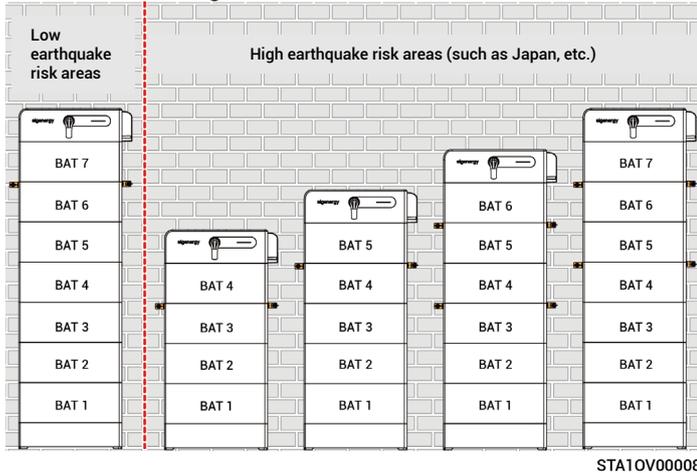
Wall-mounted Installation

Tips

If the distance between the device and the wall equals or exceeds 300 mm, the fasteners delivered with the device will become unsuitable for the installation.

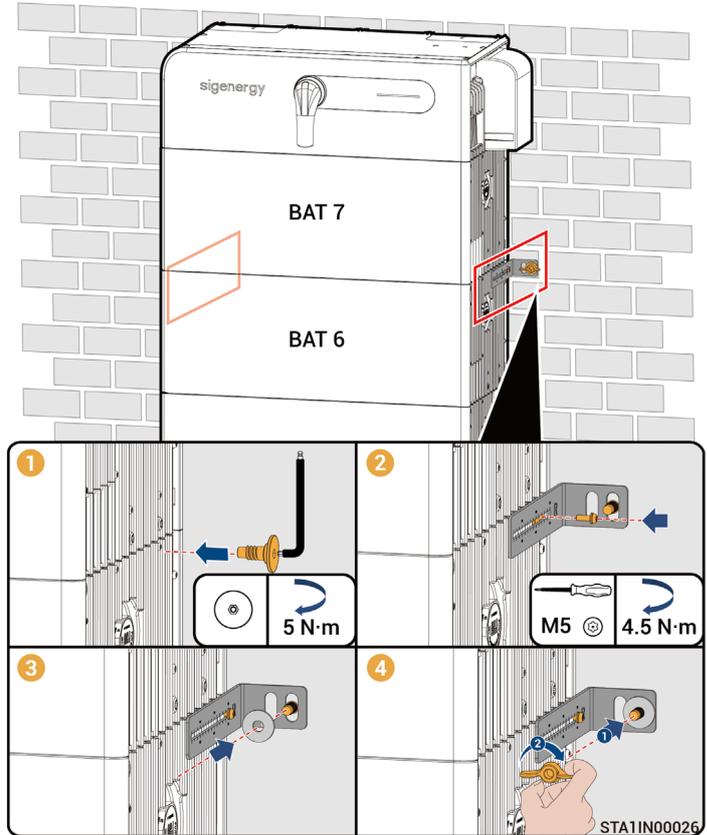
Installation Location	Stacked BAT Quantity	Fixed Position
Low earthquake risk areas	1 to 6	No fixing required
	7	The 6th BAT
High earthquake risk areas (such as Japan, etc.)	1 to 3	No fixing required
	4	The 3rd BAT
	5	The 4th BAT
	6	The 3rd and 5th BATs
	7	The 4th and 6th BATs

Fixed Installation Diagram:



Tips

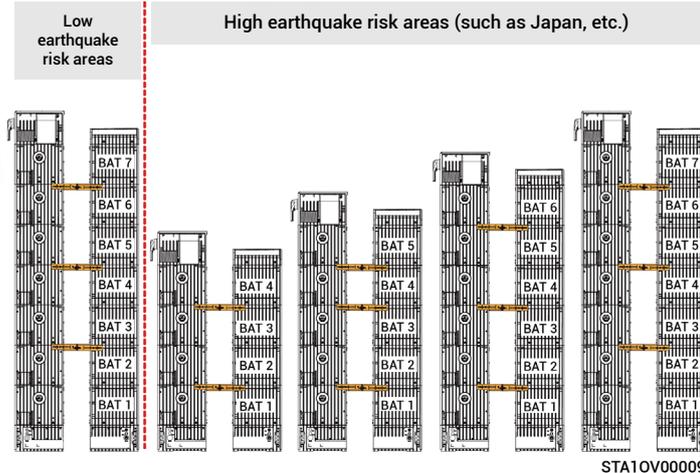
The operation method is the same for different fixed positions. Here is an example to demonstrate.



Back-to-Back Installation

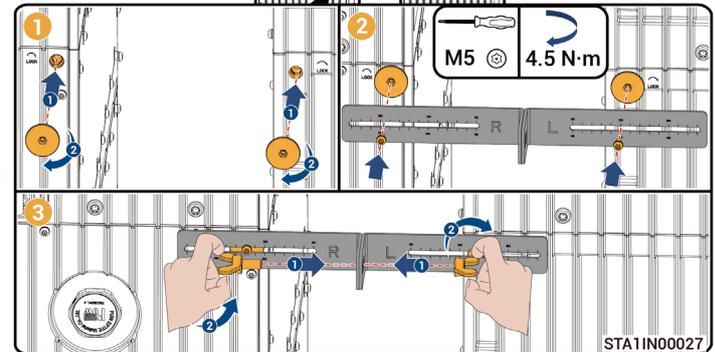
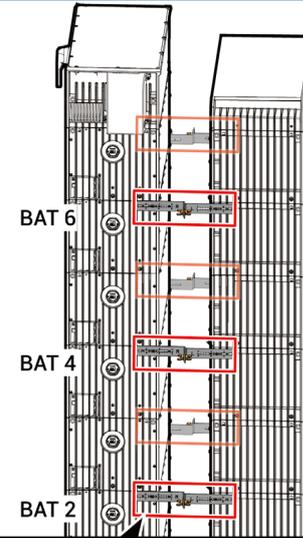
Installation Location	Stacked BAT Quantity	Fixed Position
Low earthquake risk areas	1 to 6	No fixing required
	7	The 1st, 3rd, and 5th BATs or the 2nd, 4th, and 6th BATs
High earthquake risk areas (such as Japan, etc.)	1 to 3	No fixing required
	4	The 1st and 3rd BATs
	5	The 1st, 3rd, and 4th BATs
	6	The 1st, 3rd, and 5th BATs or the 2nd, 4th, and 5th BATs
7	The 1st, 3rd, and 5th BATs or the 2nd, 4th, and 6th BATs	

Fixed Installation Diagram:



Tips

The operation method is the same for different fixed positions. Here is an example to demonstrate.



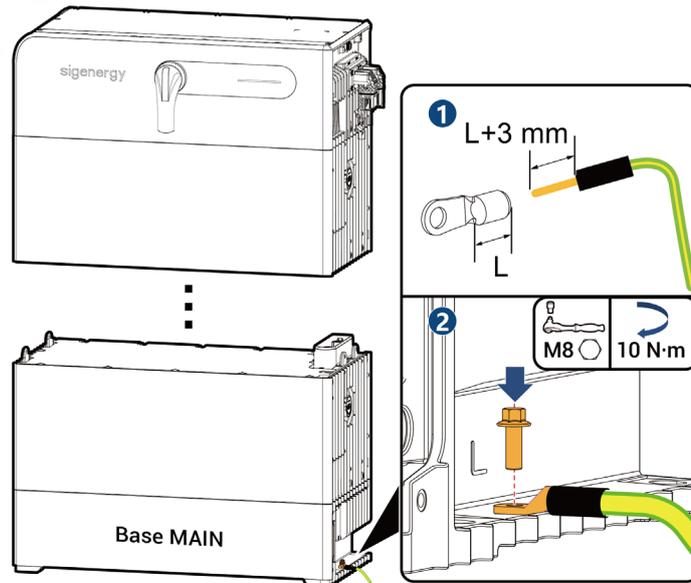
5 Cable Connection

Tips

- After the cables are connected, take protective measures to avoid them from being soaked by rain or snow or being eaten by animals.
- Bind the power cable separately from the signal cable.

5.1 Base MAIN PE Cable

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



STA1IN00013

5.2 BC-BST/BC Power Cable

1

D (mm)	11-15	14.5-18.5	18-22

M8 8-10 N·m

2

M3 0.7 N·m

3

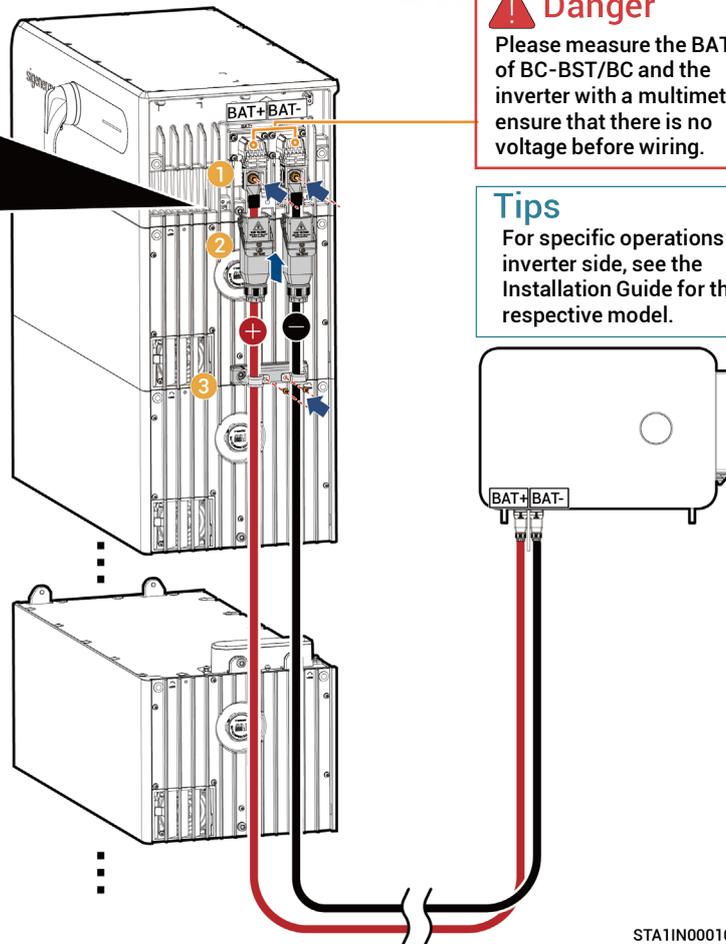
If you choose a fixed cable, please purchase this part by yourself.

Danger

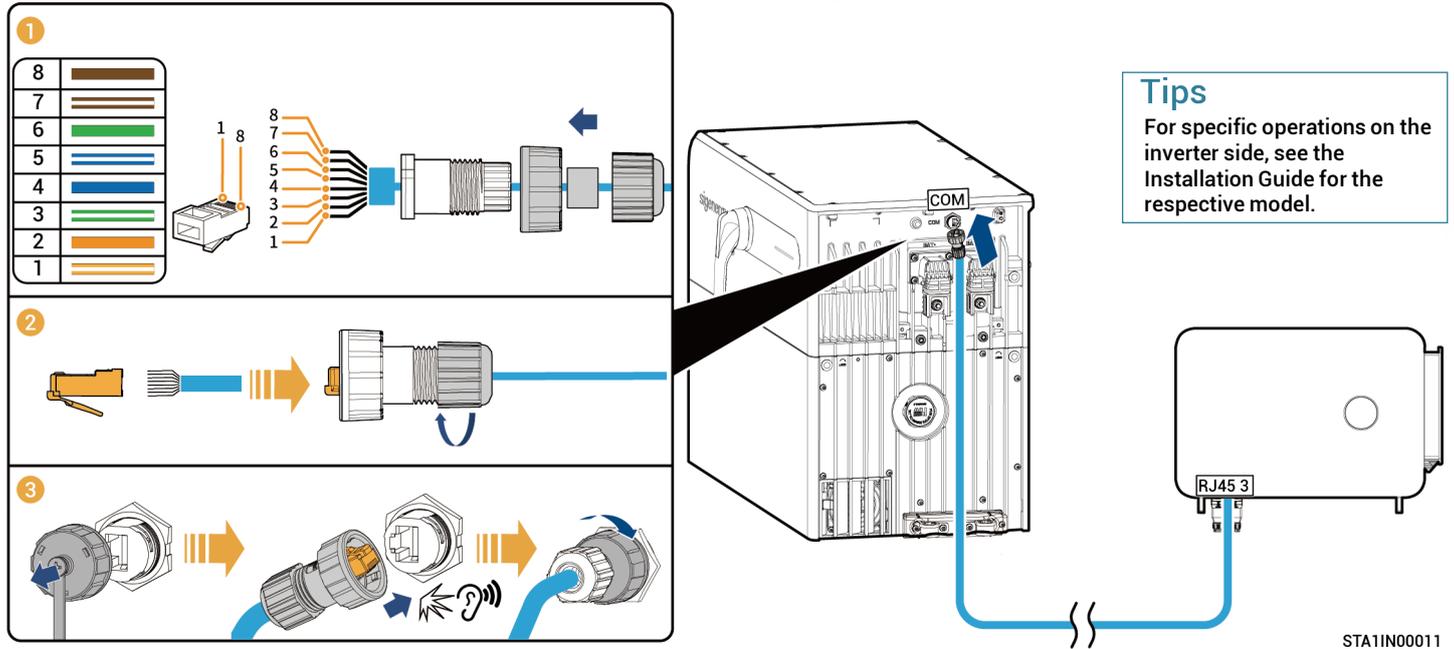
Please measure the BAT port of BC-BST/BC and the inverter with a multimeter to ensure that there is no voltage before wiring.

Tips

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



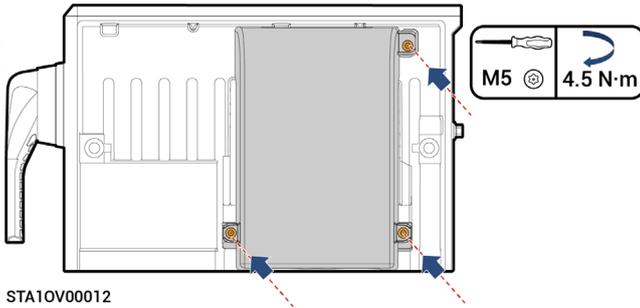
5.3 BC-BST/BC Signal Cable



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.

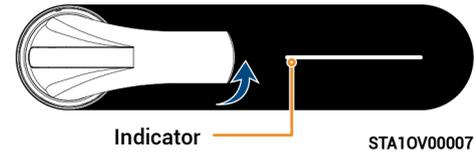


7 Power-on

1. Place the BC/BC-BST disconnecting switch in the ON position.
2. Power on the inverter 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.



Color	Status	Meaning
Grey	-	The energy storage system is dormant.
White	Steady on	The energy storage system is in thermal standby mode.
Green	Breathing blink	Charging.
Blue	Breathing blink	Discharging.
Orange	Steady on	The battery stack communicates abnormally with the inverter.
Yellow	Breathing blink	Communication error between BAT and BC/BC-BST.
Red	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.



Tips

Creating new systems with the SigenStack energy storage system and inverter differs from adding it to an existing power station. For details, please refer to the "mySigen App Guide to Creating New Systems".



Sigenergy Technology Co., Ltd.



Website	LinkedIn	YouTube
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www.sigenergy.com



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