AS3-(3K-12K)-T-(W,G)-PX Quick Guide

This quick guide provides installation operations. For safety precautions and detailed product information, refer to the *User Manual* on the SAJ Website www.saj-electric.com. You can scan the below QR code to access all the product documentation.

NOTICE

- Before installation, operation, and maintenance, read the product documentation carefully.
- ONLY qualified and trained electricians who have read and fully understood all safety regulations contained in this manual can install, maintain, and repair the equipment. The operation personnel should understand the system, its working principles, and relevant national and regional standards.
- During operations, wear protective equipment and use dedicated tools.

☐ 1. Check the outer packing

1. Check the outer packing package for any damage, such as holes and cracks.
2. Check the equipment model.

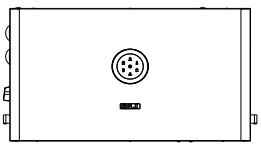
If any serious damage is found or the model is not what you requested, do not unpack the product, and contact your dealer as soon as possible.

☐ 2. Check the product packages

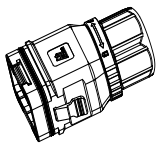
Contents in your shipment are order-dependent. Not all packages listed below may be in your shipment.

Place the connectors separately after unpacking to avoid confusion for connection of cables.

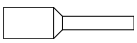
■ **Inverter**



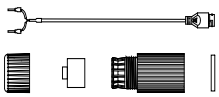
Inverter



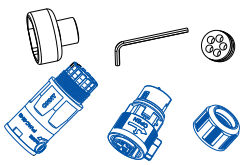
24-pin communication cable connector



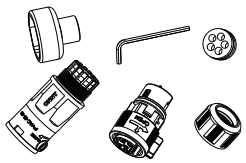
Insulated terminals x22



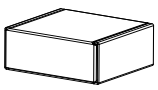
Communication cable kit



Backup load connector (blue) kit



Grid connector (black) kit

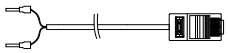


[1] Meter kit

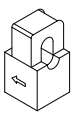
[2] Printed documents

[1] The meter kit contains the following items.

Smart meter

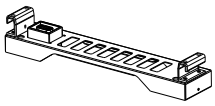


Communication cable with an RJ45 connector

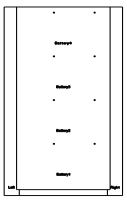


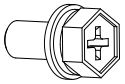
Current transformer x3 (optional)

■ **BE3-TV battery base**


Battery base


Bumper feet x 4

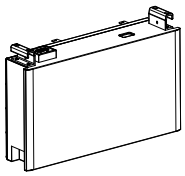

Cardboard


M5*14 screw x2

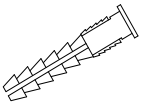

M4*12 screw x2

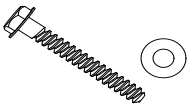

Grounding plate

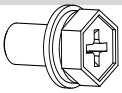
■ **BU3 battery pack**


Battery module


Locking bracket x2


M6*80 expansion tube x2

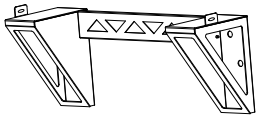

M6*50 screw x2
Gasket x2

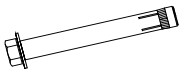

M5*14 screw x4

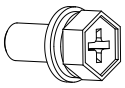

M4*12 screw x2


Grounding plate

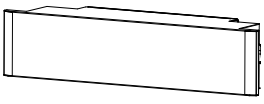
■ **BT3-TV wall-mounting bracket (optional)**


Mounting bracket


M12*100 expansion bolt x6


M5*14 screw x2

■ **BC3-TV battery junction box (optional)**

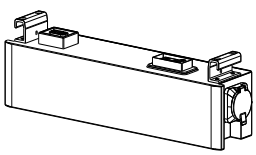

Battery junction box

Communication cable

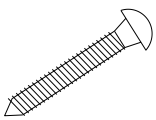

Positive cable
Negative cable

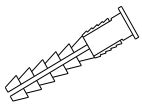

M4*12 screw

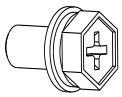
■ **CU2 EV charger (optional)**


Charger


Holster


M4*32 screw x4


Expansion bolt x4

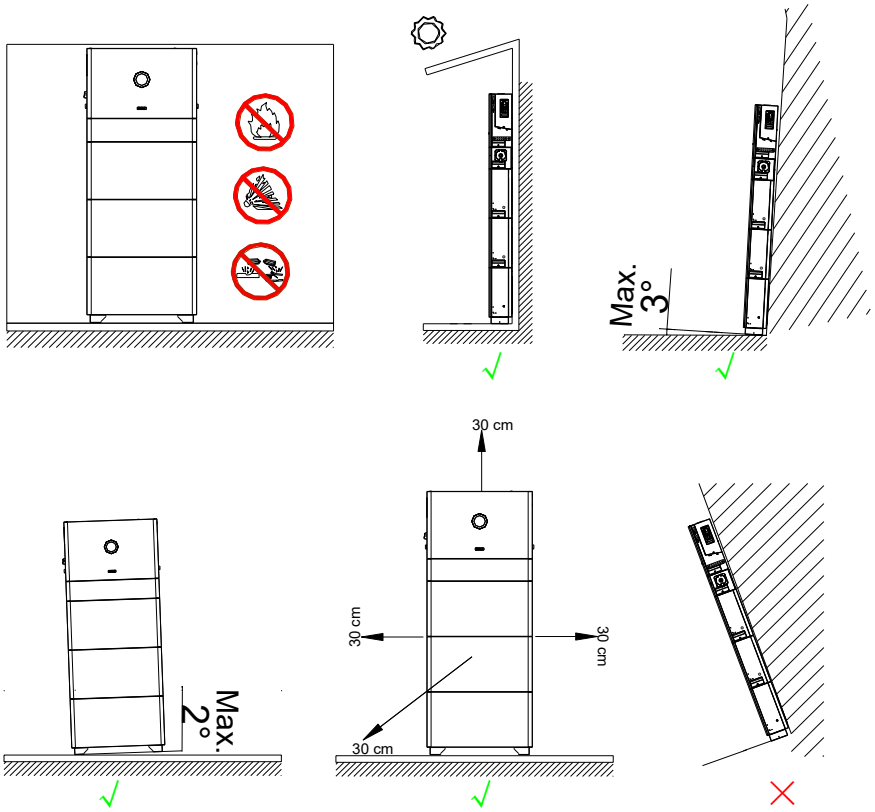


M5*14 screw x2

M4*12 screw x2

Grounding plate

☐ 3. Check installation ways and gaps



☐4. Installation overview

1. Plan the battery stack installation. For details, see section 5 "Plan the battery stacks".
2. Choose one of the following options to mount the battery stacks and the inverter:
   - Ground mounting, see section 6 "Install the system on the ground".
   - Wall mounting, see section 7 "Install the system on the wall".
3. Install the junction box when multiple battery stacks are installed. See section 8 "(Optional) Install a battery junction box (BC3-TV) ".

☐5. Plan the battery stacks

Quantity of batteries

One inverter supports up to eight batteries.

- For ground-mounting, a maximum of four batteries can be installed in one stack.
- For wall-mounting, a maximum of three batteries can be installed in one stack.

Besides the four or three batteries installed in the same stack as the inverter, the other batteries in each stack must be installed with a battery junction box (BC3-TV).

Distance between battery stacks

Make sure that the power and communication cables between two battery stacks are within 5 meters to ensure optimum performance of the system.

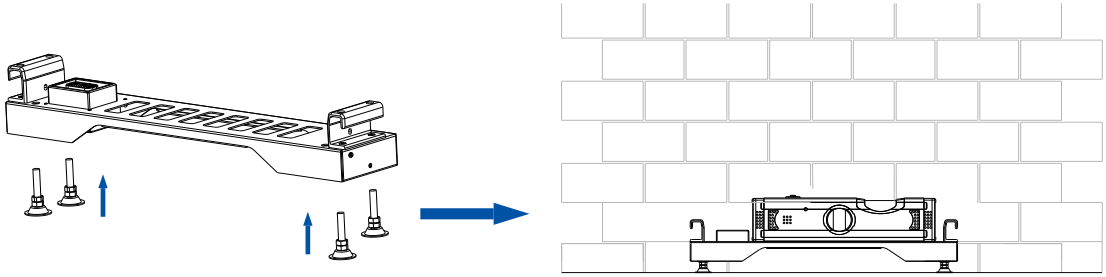
The cables delivered in the product package are of 2 meters. When longer cable connection is required, prepare the battery power and communication cables according to the following specifications:

Conductor cross-sectional area (mm²)	Outer diameter (mm)	Conductor material	Terminal
6-10	6-8	Copper wire	VP-D4B-CHDM8B

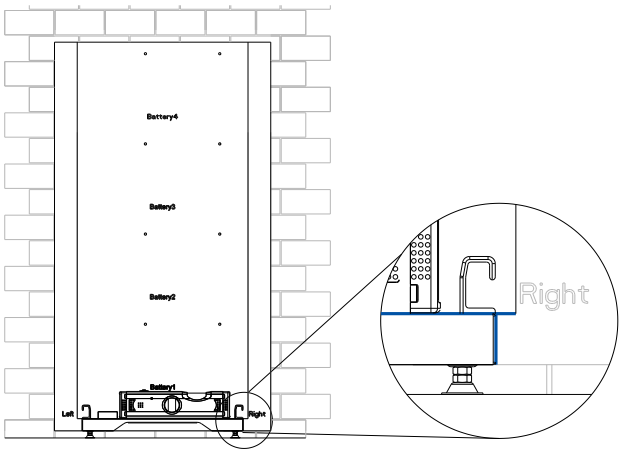
☐6. Install the system on the ground

6.1 Install the battery base (BE3-TV)

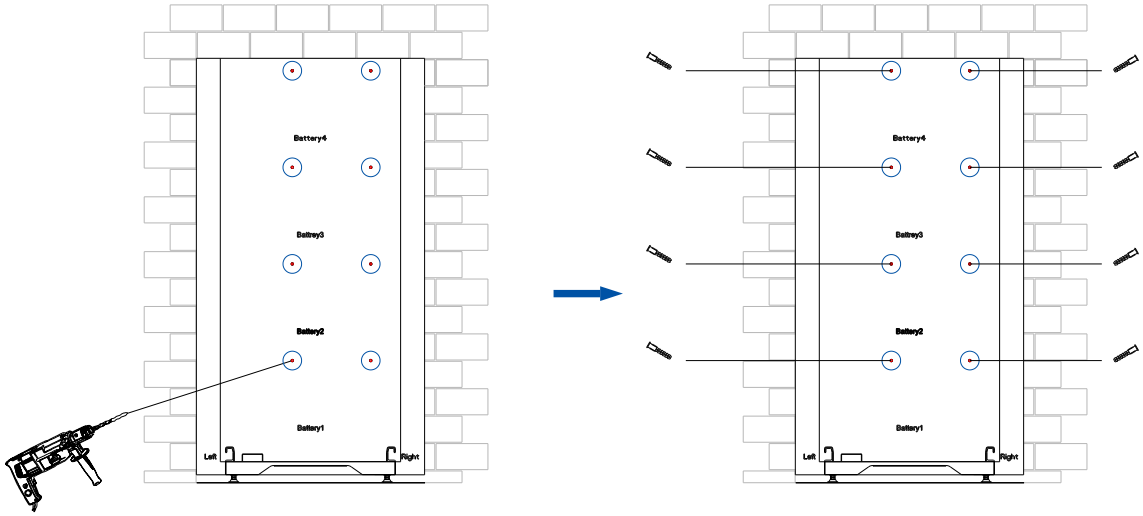
1. Place the battery base on the ground horizontally.
   - Recommend using a gradienter.
   - The space between the battery base and the wall surface is 50–65 mm.
2. (Optional) Install the bumper feet beneath the battery base to adjust the battery base horizontally.



3. Get the cardboard from the battery base package and position it against the wall.
4. Align the edges (marked in blue) of the cardboard with the edges of the battery base on both sides.

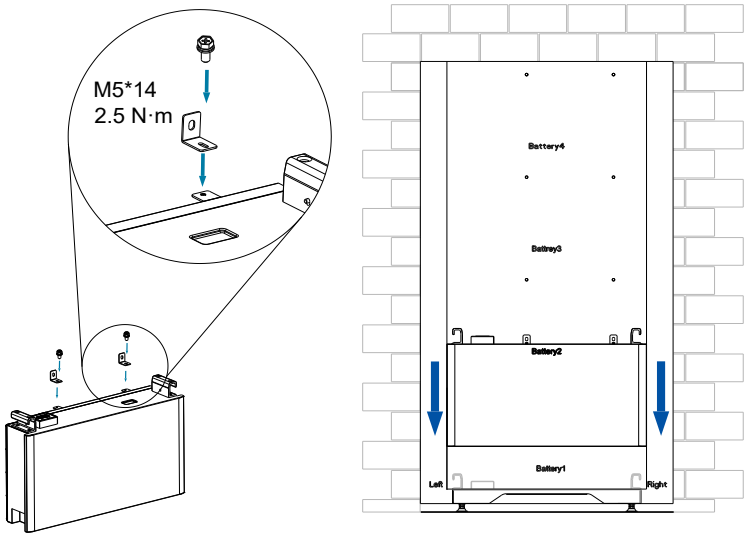


5. Drill six holes (8mm in diameter and 55mm in depth) on the marked positions on the cardboard. Install the expansion tubes into the drilled holes.



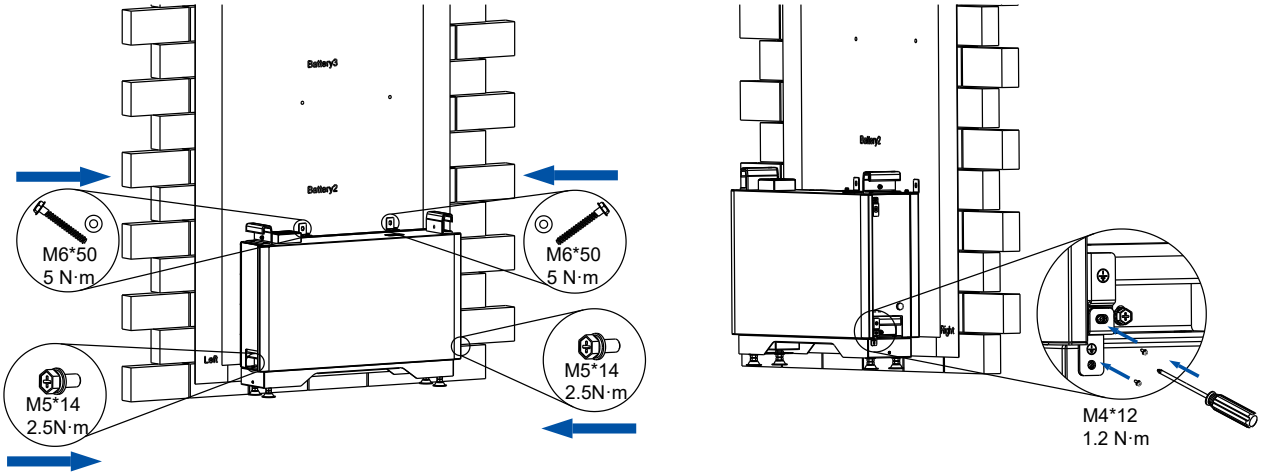
6.2 Install the batteries (BU3-5.0-(TV1, TV2) or BU3-5.0-(TV1, TV2)-PRO)

1. On the top of the first battery, use two M5*14 screws to install two locking brackets to the mounting ears. Then place the battery onto the battery base and push it downwards.

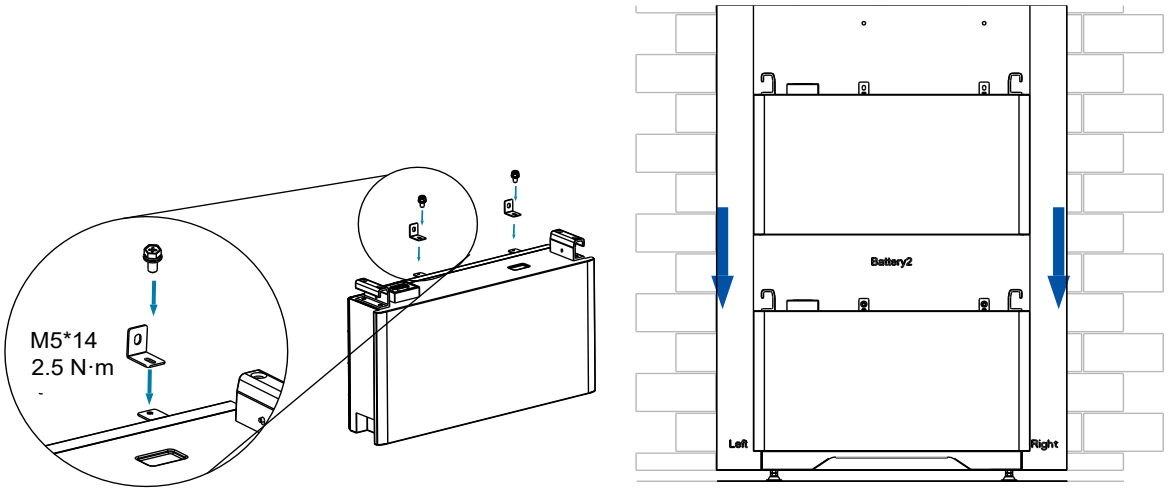


2. On the top of the first battery, align the locking brackets to the drilled holes and install M6*50 screws to secure the locking brackets to the wall. Then install M5*14 screws to secure the battery to the battery base.
3. On the right side of the battery base, secure the metal grounding plate with M4*12 screws.

   Note: When the battery is installed outdoors, it is suggested to remove the cardboard which is not waterproof.



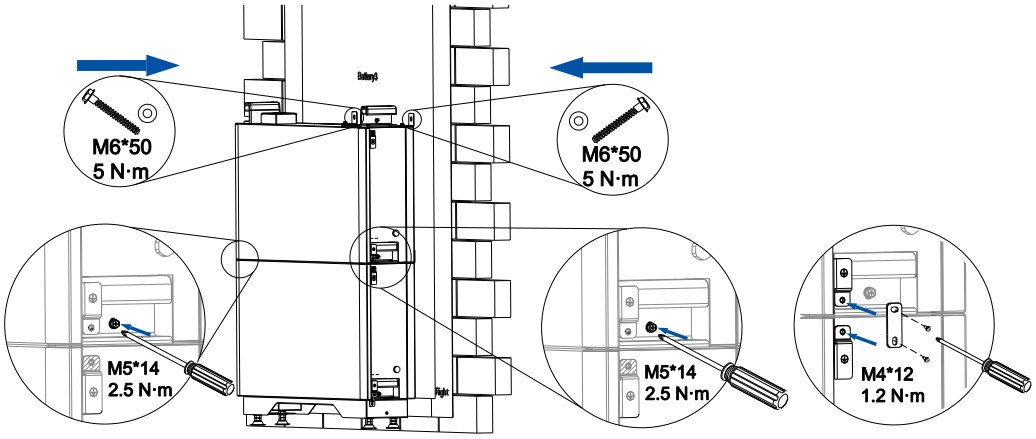
4. (Optional) On the top of the second battery, use two M5*14 screws to install two locking brackets to the mounting ears. Place this battery onto the first battery and push it downwards.



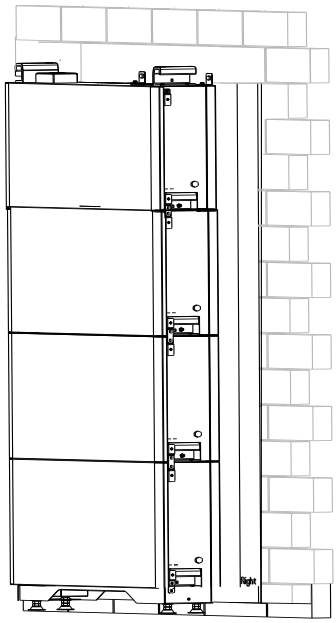
5. (Optional) On the top of the second battery, align the locking brackets to the drilled holes. Install the gaskets and M6*50 screws to secure the battery to the wall.

   On the left and right bottom sides of the battery, secure two batteries with an M5*14 screw.

   On the right bottom side of the battery, secure the metal grounding plate with M4*12 screws.



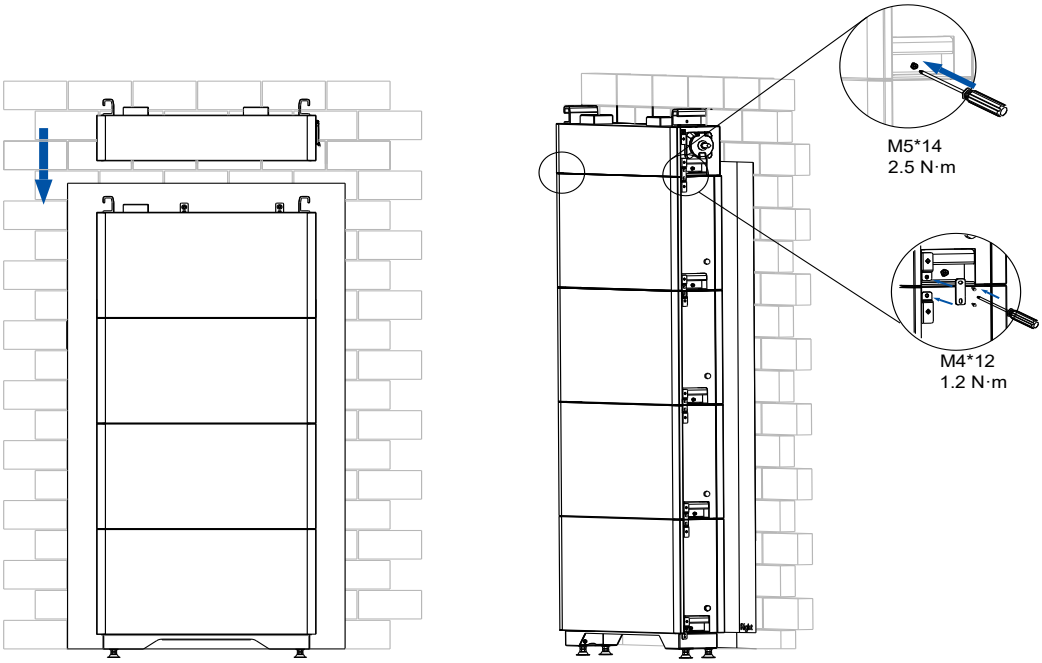
6. (Optional) Install the third and fourth battery by taking the same steps as the second battery. The following figure takes 4 batteries as an example.



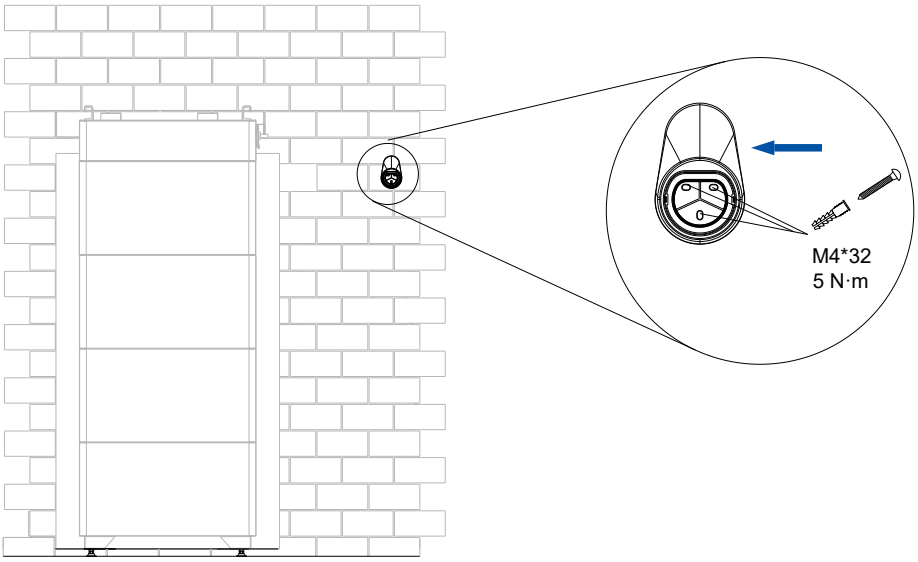
6.3 (Optional) Install the EV charger (CU2-11K-T(-I))

1. Get the holster from the EV charger package. Install the holster onto the right side of the charger.
2. Place the charger onto the battery. Push it downwards.
3. On the left and right bottom sides, secure the charger to the battery with screws.

   On the right bottom side, secure the metal grounding plate with screws.



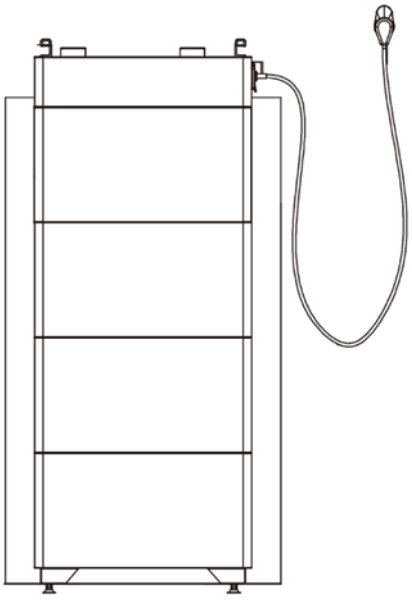
4. Install the holster on the wall by using three M4*32 screws.



5. Connect the charger cable.

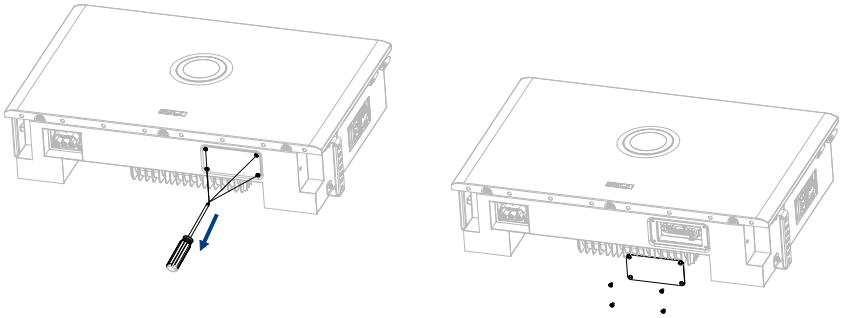
Notes:

- It is recommended that you connect the cable after all device installation is completed.
- It is recommended that you purchase the cable from SAJ.
- For a long cable, you can wrap the cable on the holster.



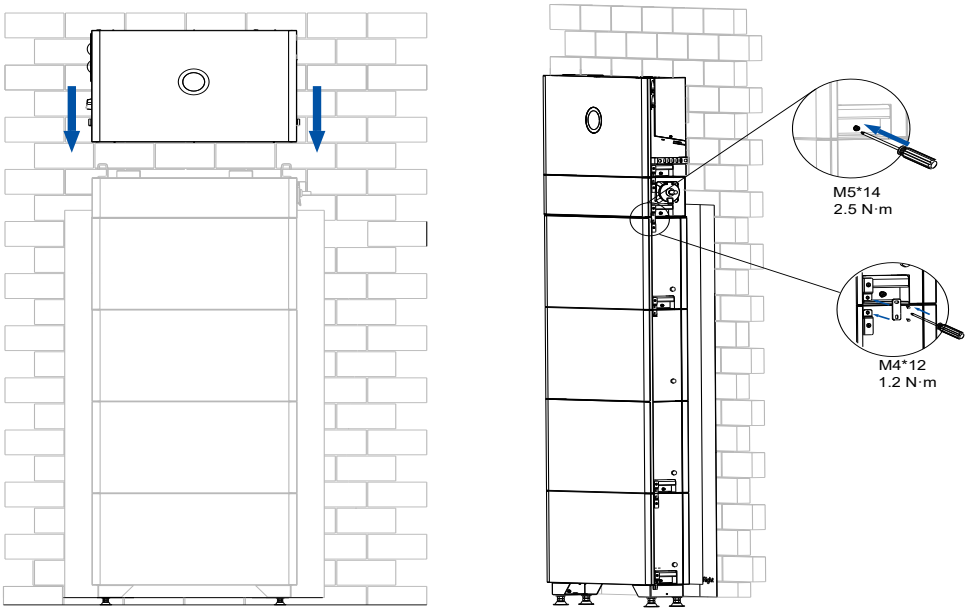
6.4 Install the inverter (AS3-xk-T-(W, G)-P or AS3-xK-T-(W, G)-P-(BE/IE))

1. (Optional) If you have installed a charger, loosen the screws on the inverter, and remove the port cover, as shown below:



2. Place the inverter onto the battery or charger (if available) and push it downwards.
3. On the left and right bottom sides of the battery pack, install M5*14 screws to secure the inverter to the beneath device (battery or charger; here takes a charger as an example).

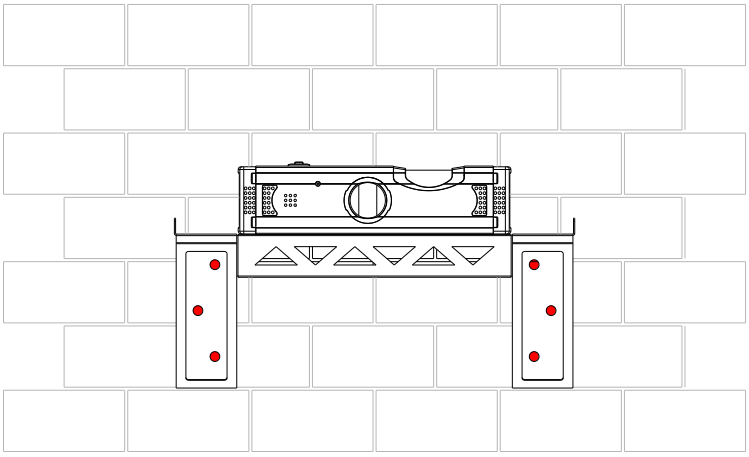
   Install M4*12 screws to secure the metal grounding plate.



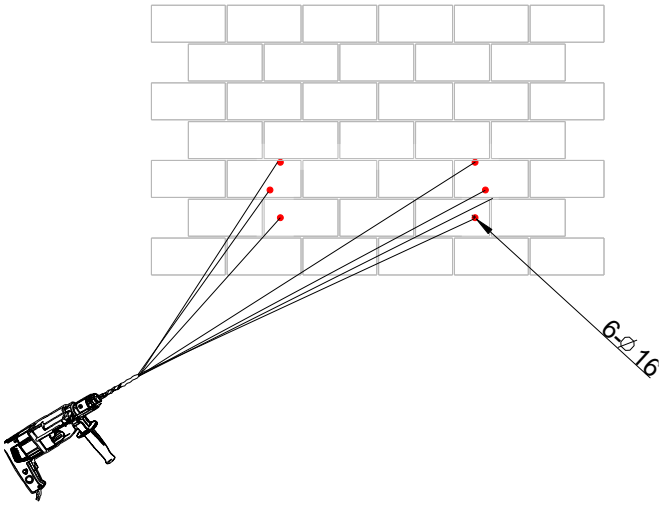
☐7. Install the system on the wall

7.1 Install the wall-mounting bracket (BT3-TV)

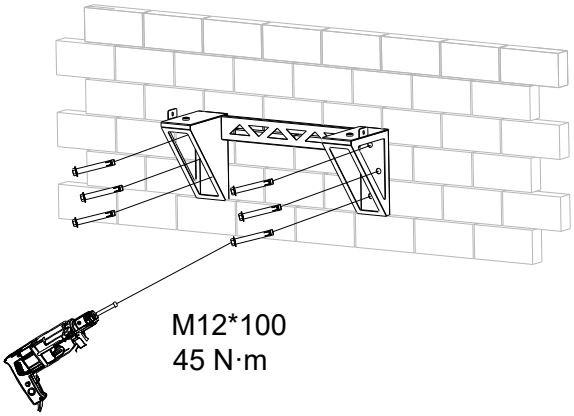
1. Place the mounting bracket onto the wall. Mark six holes. Remove the bracket.



2. Drill six holes according to the marked positions on the wall.

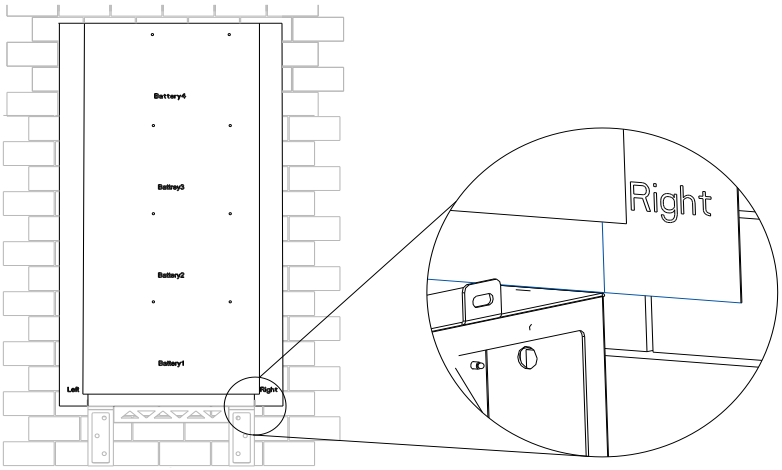


3. Install the mounting bracket on to the wall.

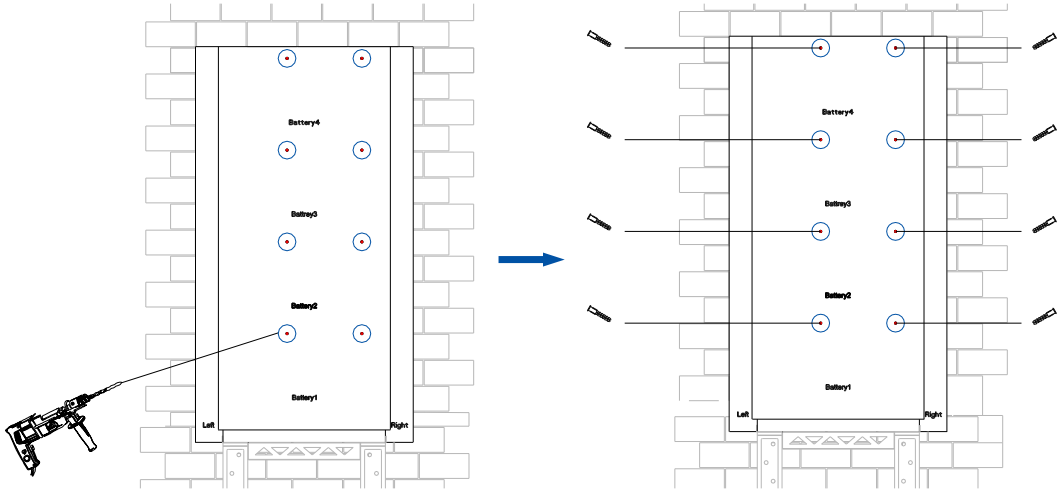


7.2 Install the battery base (BE3-TV)

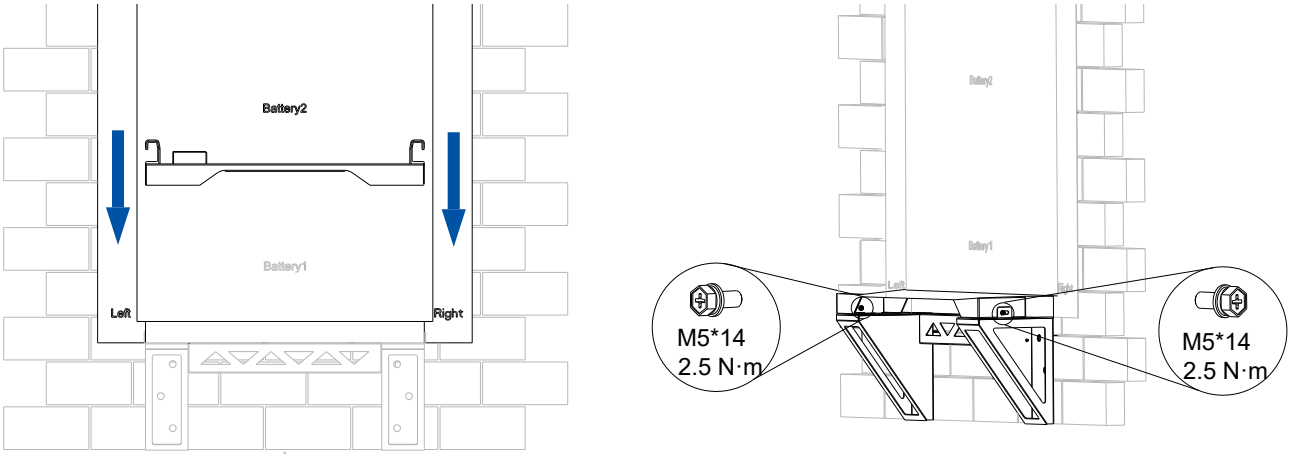
1. Get the cardboard from the base battery package. Place the cardboard onto the wall and align the vertical lines on the cardboard with the bracket edges.



2. Drill six holes (8mm in diameter and 55mm in depth) on the marked positions on the cardboard. Install the provided expansion tubes into the drilled holes.

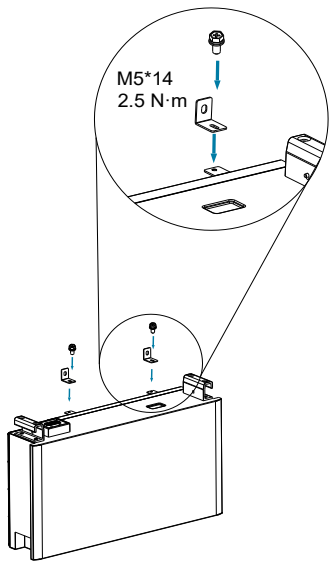


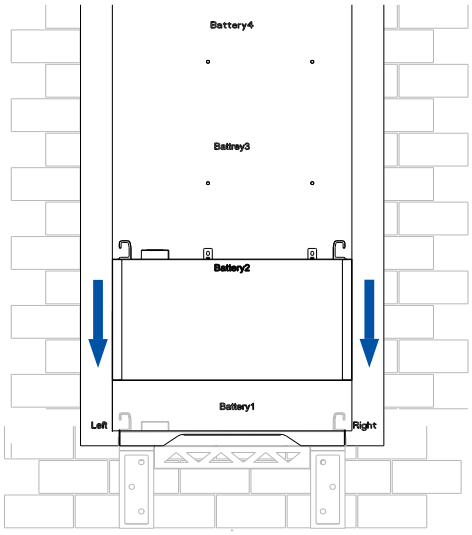
3. Place and secure the battery base onto the bracket. Make sure that:
   - The left and right of the battery base are aligned with the vertical black lines on the cardboard.
   - The battery pack is placed horizontally. (It is recommended that a gradienter be used.)
   - The space between the battery back and the wall surface is 50–65 mm.



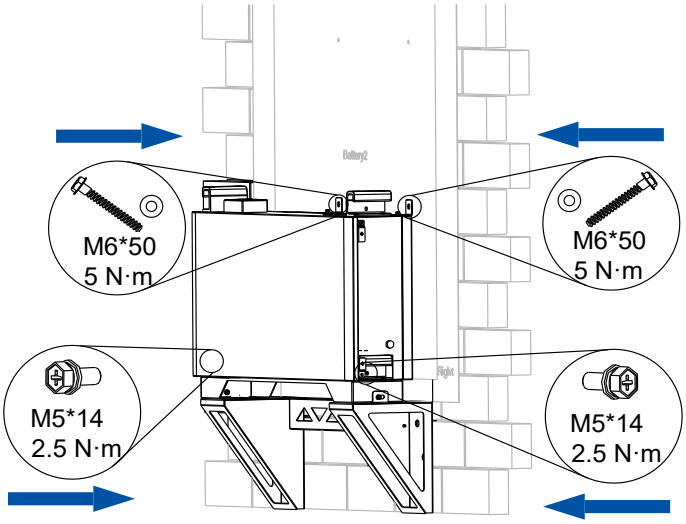
7.3 Install the batteries (BU3-5.0-(TV1, TV2) or BU3-5.0-(TV1, TV2)-PRO)

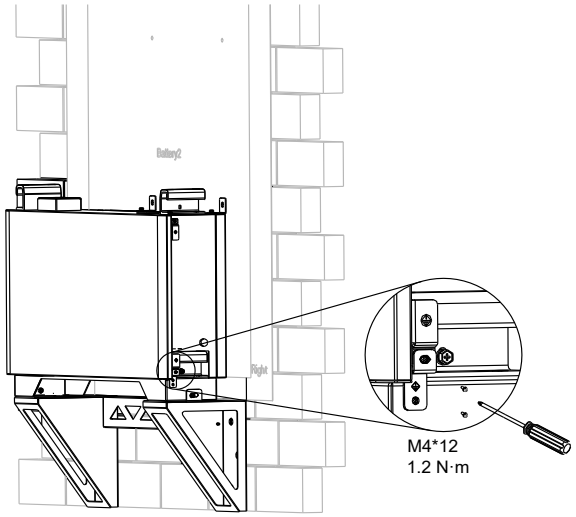
1. Use two M5*14 screws to install two locking brackets to the mounting ears on the top of the first battery. Then place the battery onto the battery base and push it downwards.





2. On the top of the battery, align the locking brackets to the drilled holes and install M6*50 screws to secure the locking brackets to the wall. Then install M5*14 screws to secure the battery to the battery base.
3. On the right side of the battery base, install M4*12 screws to secure the metal grounding plate.
Note: When the battery is installed outdoors, it is suggested to remove the cardboard which is not waterproof.





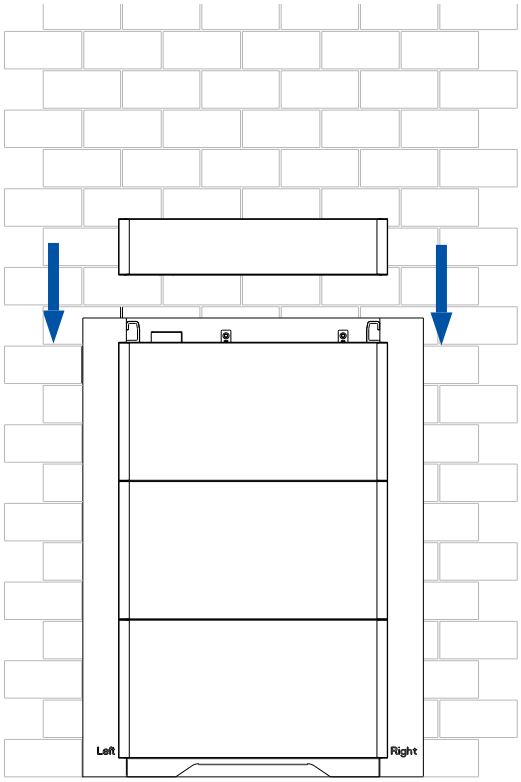
7.4 Install other required devices

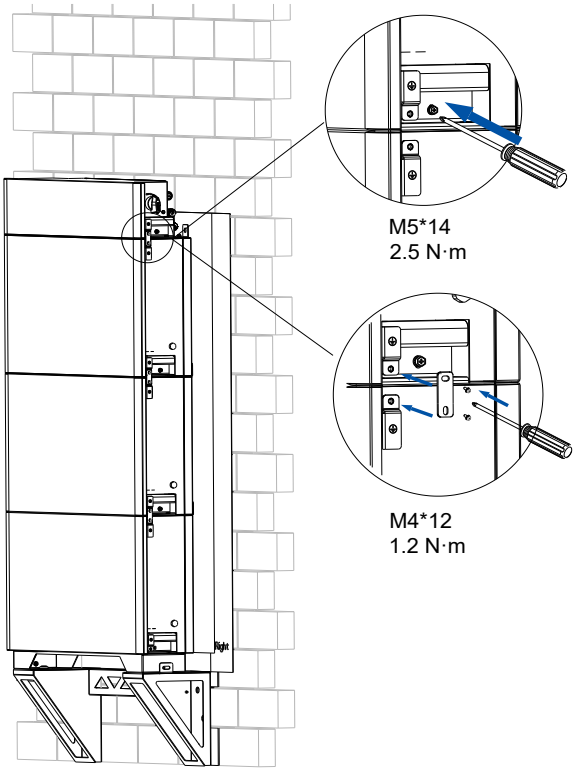
For details, refer to the same procedure in the ground mounting manner.

- (Optional) Batteries: Step 6.2 “Install the batteries (BU3-5.0-(TV1, TV2) or BU3-5.0-(TV1, TV2)-PRO)”.
- (Optional) Charger: Step 6.3 “(Optional) Install the EV charger (CU2-11K-T(-I))”.
- Inverter: Step 6.4 “Install the inverter (AS3-xk-T-(W, G)-P or AS3-xK-T-(W, G)-P-(BE/IE))”.

☐8. (Optional) Install a battery junction box (BC3-TV)

1. Place the junction box onto the battery. Push it downwards.
2. Install screws on both lower sides of the junction box to secure the junction box to the last battery. Install and secure the metal grounding plate.

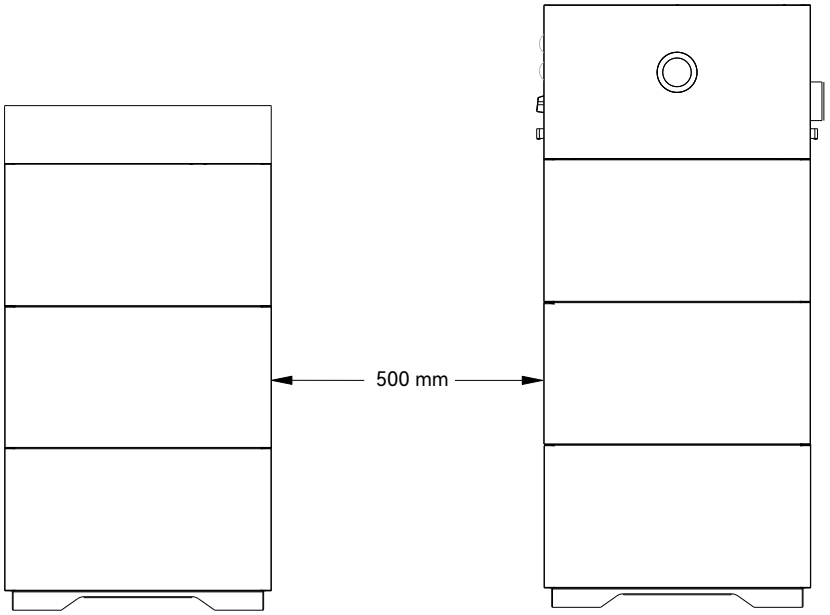




Completion view

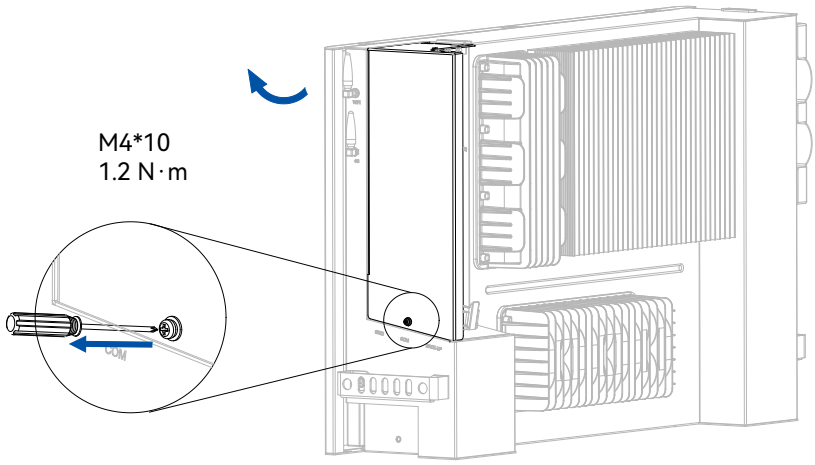
Multiple battery stacks: supporting 1 to 8 batteries

Take 6 batteries as an example:



☐ 9. Assemble the AC-side connection

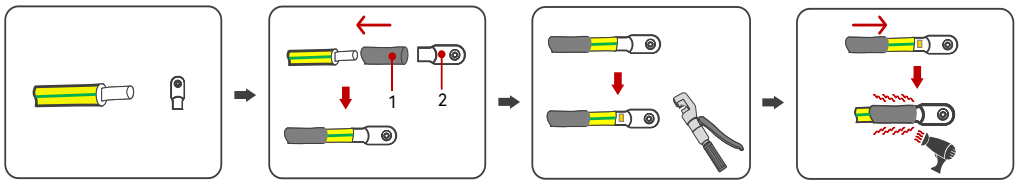
1. Open the AC-side Cover.



2. Connect the grounding cable, by taking AC-side grounding as an example.

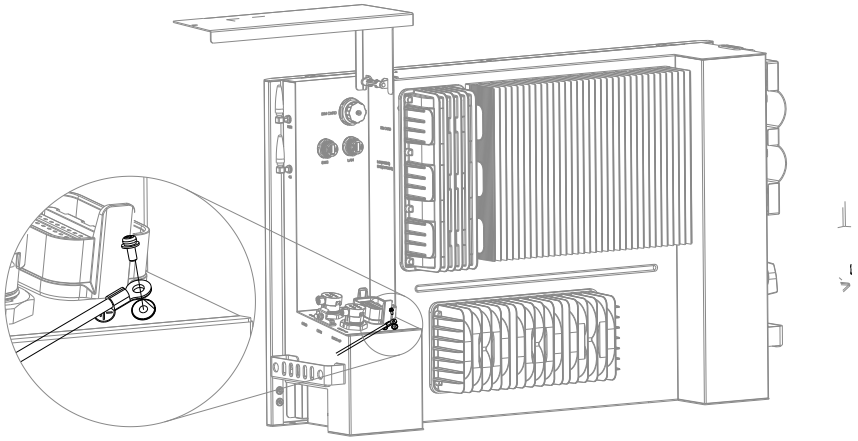
   The cable needs to be prepared by the user. It is recommended that a 6-mm^2 conductor cross-sectional area of cable be used.

   a. Assemble the cable and OT/DT terminal.



1	Heat shrink tube	2	OT/DT terminal

   b. Remove the M4*10 screw from the grounding port. Connect and secure the grounding cable, as shown below:



3. (4G model only) Install the SIM card:

   Step 1. Loosen and remove the cover of the SIM card slot.

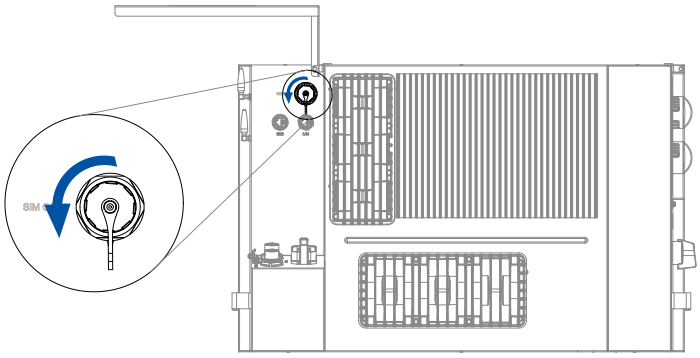


Figure 5.1. Loosening the cover on the SIM card slot

Step 2. Insert the SIM card into the slot.

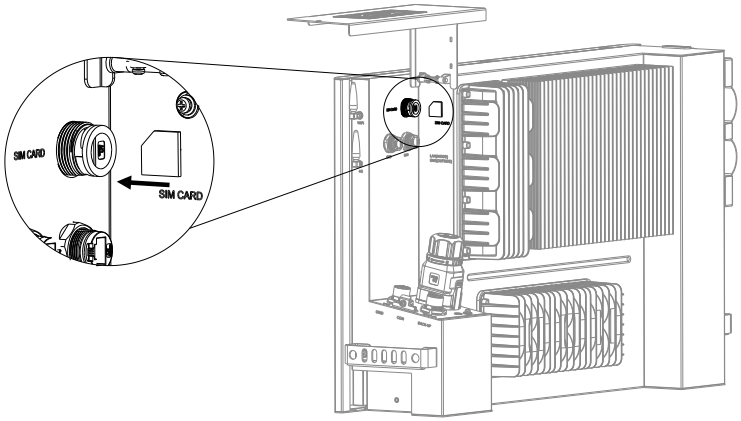
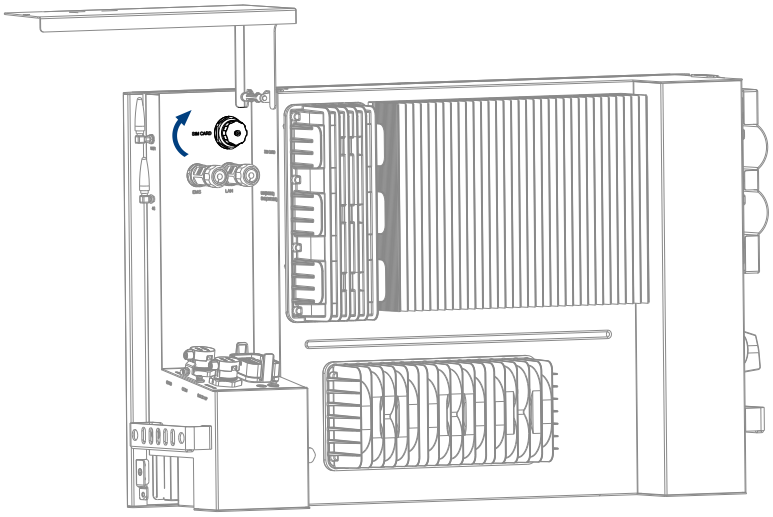
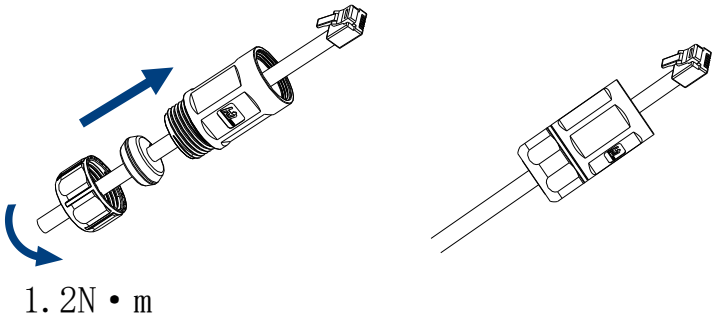


Figure 5.2. Inserting the SIM card

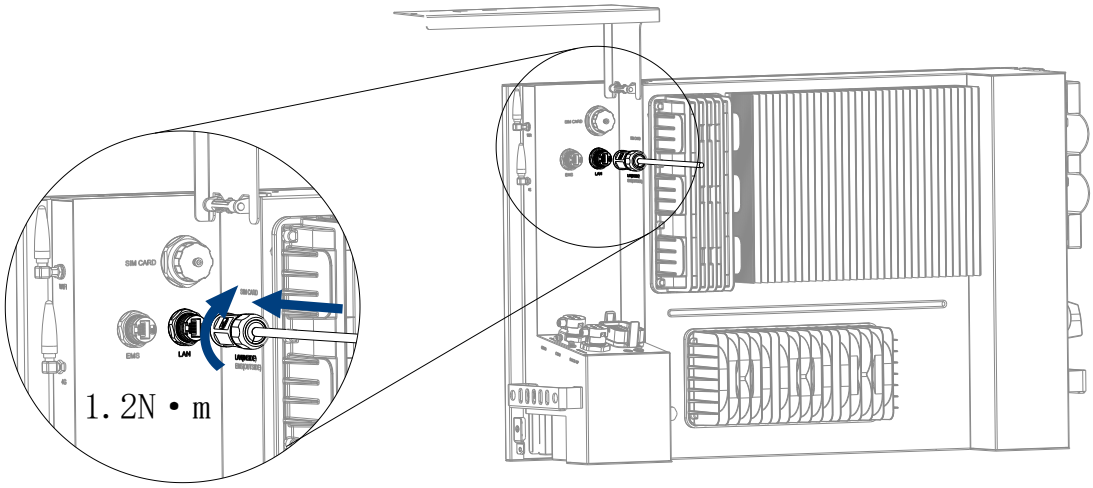
Step 3. Install the cover back, then rotate to tighten it.



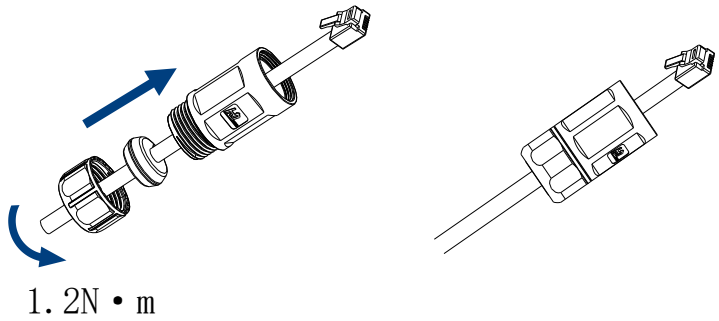
4. (W model only) Install the LAN cable, if you choose to use the Ethernet connection manner.
   a. Remove the RJ45 cable fastener from the LAN port.
   b. Use a standard RJ45 cable. Insert the cable through the cable fastener as shown below. Assemble the cable fastener.



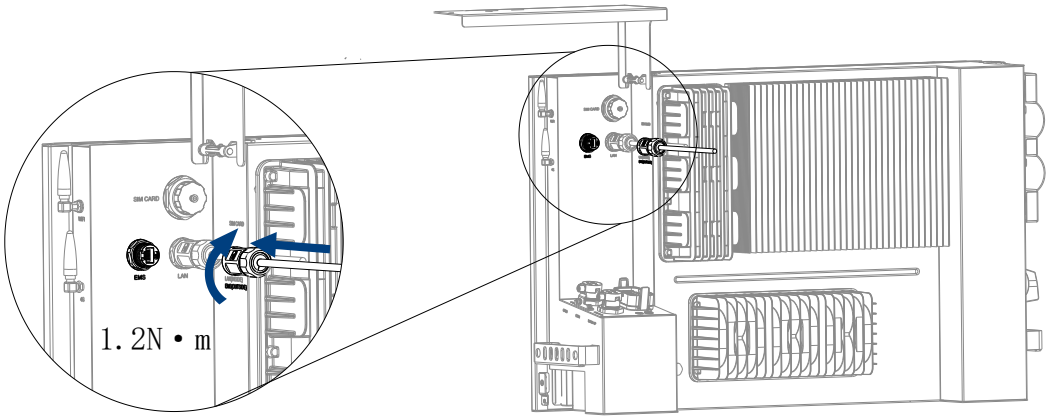
   c. Connect the LAN cable from the LAN port on the inverter to the router.



5. Install the EMS cable.
   a. Remove the RJ45 cable fastener from the EMS port.
   b. Use a standard RJ45 cable. Insert the cable through the cable fastener as shown below. Assemble the cable fastener.



   c. Connect the cable from the EMS port on the inverter to the LAN port on SAJ eManager (EMS).



6. Install a circuit breaker.

   For safety operation and regulation compliance, install a 40 A or higher air circuit breaker between the grid and the inverter.

7. (Optional) Install an RCD.

   If the external RCD must be installed according to the local regulations, either type A or type B RCD can be installed with the action current 300 mA or higher.

8. Connect the grid and backup loads.

   - Depending on your system configuration, the grid and backup load ports on the inverter are different. Accordingly, the grid and backup load connector kits are different in the accessory bags.
   - Each connector kit provides a one-hole rubber plug (in the connector body) and a five-hole rubber plug (in the accessory bag).

This task takes the one-hole rubber plug as an example. The five-hole rubber plug is used when you choose to use five separated cables for connection.

Select cables according to the below recommended specification:

Conductor cross-sectional area of cables		**Conductor material**
Scope	**Recommended value**	Copper
4–6 mm² or 12–10 AWG	6 mm² or 10 AWG	

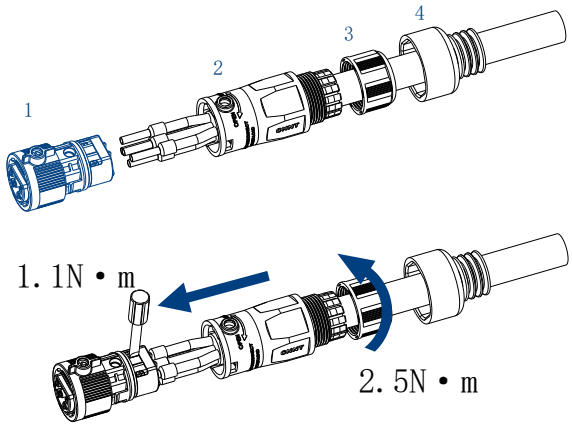
Note the required cable diameter of different rubber plugs.

Rubber plug	**Hole diameter**
One-hole plug (in the connector by default)	14–17.5 mm
Five-hole plug (in the accessory bag)	4.0–5.5 mm

a. Strip the insulation off (13-mm length) the cables.

b. Insert the cables through the dustproof cover, nut, and connector body of the connector and secure the cables to the terminal block with a spanner.

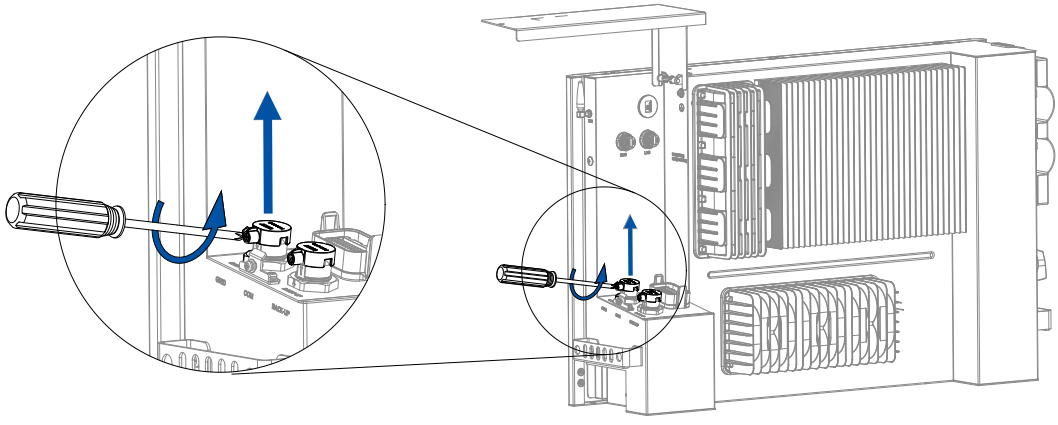
Note: The black connector is for grid connection. The blue connector is for backup load connection.



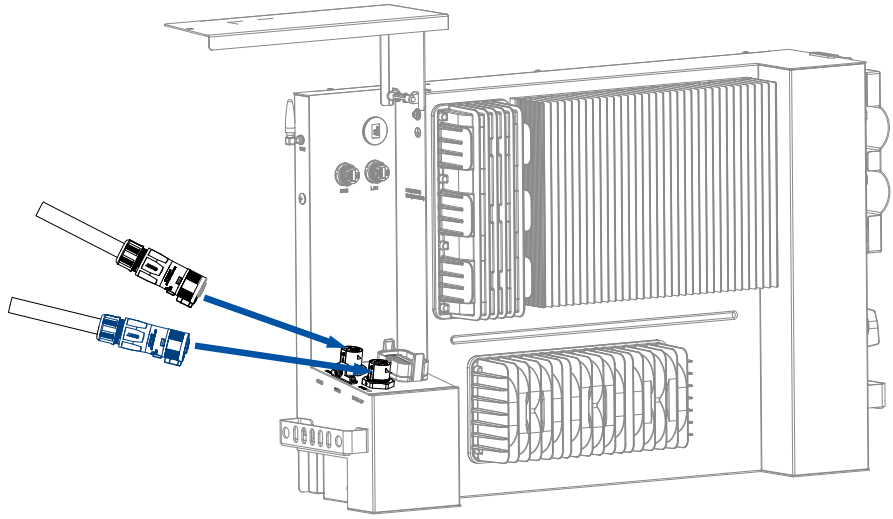
c. Remove the dustproof covers from the GRID and BACK-UP ports.

Use a screwdriver to loosen the screw of the dustproof cover.

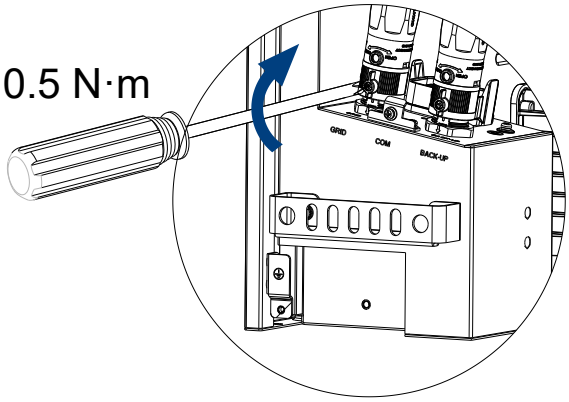
Pull the covers upwards.



d. Connect the cables to the GRID and BACKUP ports on the inverter.



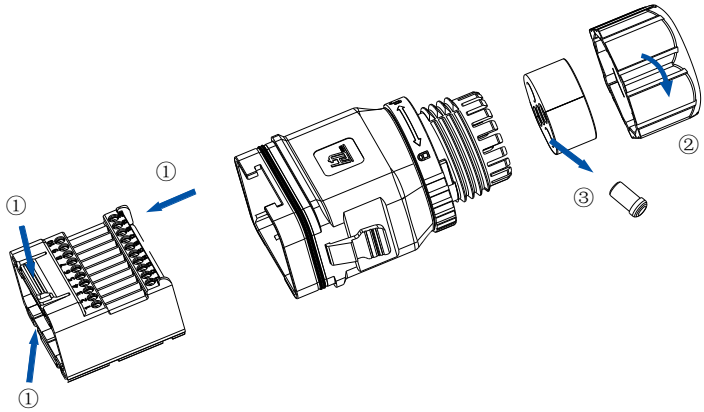
e. Tighten the screws of the GRID and BACKUP ports on the inverter.



9. Assemble the communication connection.

a. Disassemble the communication cable connector.

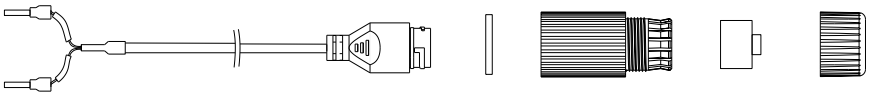
① Press the tabs on two sides of the connector terminal inwards and pull out the terminal from the connector body.
② Rotate the nut anti-clockwise and remove it from the connector body.
③ Remove the rubber plugs out of the seals.



b. Prepare cables.

- Meter communication (mandatory)

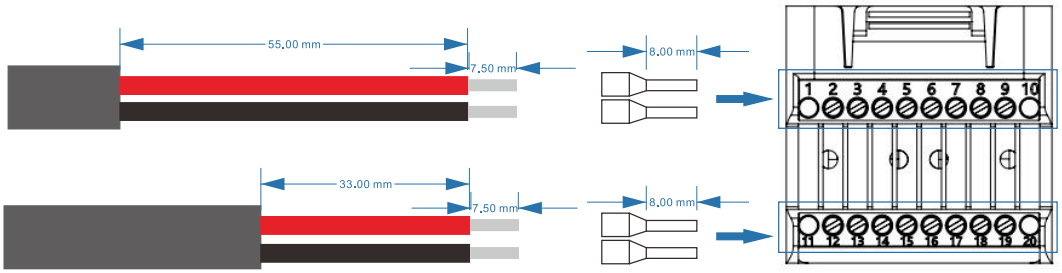
  Use the communication cable kit provided in the accessary bag.



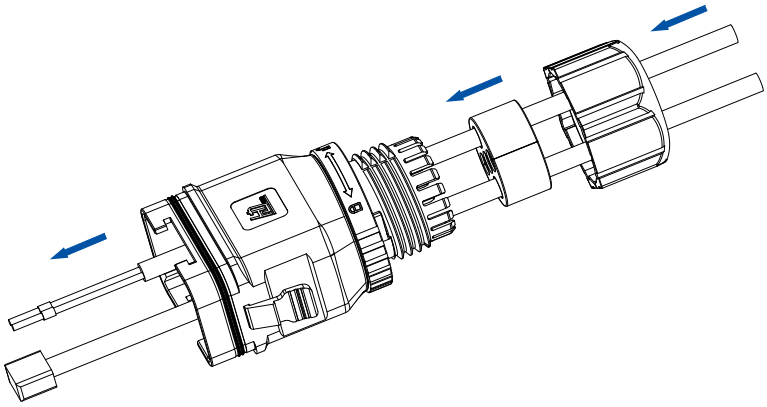
- Other terminal connection (per your needs)

  Prepare cables according to the following suggested specifications

Terminals	Cable cross-sectional area	Cable outer diameter	External protective layer	Stripping length
1-10	0.5-0.75 mm^2	4.5-6.5 mm	55 mm	7.5 mm
11-20	0.2-0.5 mm^2		33 mm	7.5 mm



c. Insert all communication cables through the nut, seals, and connector body.



d. Locate the ports and terminals on the connection terminal block according to their silkscreens. Connect all communication cables to the communication cable connector.

Name	Number	Pin definition	Description
PORT (RJ45 port)	/	1: CAN-H (with a 120 Ω resistor)	For parallel connection scenario
		2: CAN-L	
		3: GND_W	
		4: SYN	
		5: GND_W	
		6: HOST	
		7: GND_W	
		8: TRF	
DRMs (RJ45 port)	/	1: DRM1/5	For RCR
		2: DRM2/6	For RCR
		3: DRM3/7	For RCR
		4: DRM4/8	For RCR
		5: REF D/0	/
		6: COM D/0	/
		7: NC	/
		8: NC	/
Terminals	4	DO1+	Dry contact output 1
	5	DO1-	Dry contact output 1
	6	DO2+	Dry contact output 2
	7	DO2-	Dry contact output 2
	11	RS485-A (with a 120 Ω resistor)	For external RS485 communication
	12	RS485-B	
	13	MET-A (with a 120 Ω resistor)	For meter communication
	14	MET-B	
	15	DI1+	Dry contact input 1
	16	DI1-	Dry contact input 1
	17	DI2+	Dry contact input 2

	18	DI2-	Dry contact input 2
	19	CAN_H (with a 120 Ω resistor)	For external CAN communication
	20	CAN_L	

e. Connect and secure the cables to the connection terminal block. Then, assemble the communication cable connector.

① Connect cables to corresponding terminals and RJ45 ports based on your needs.

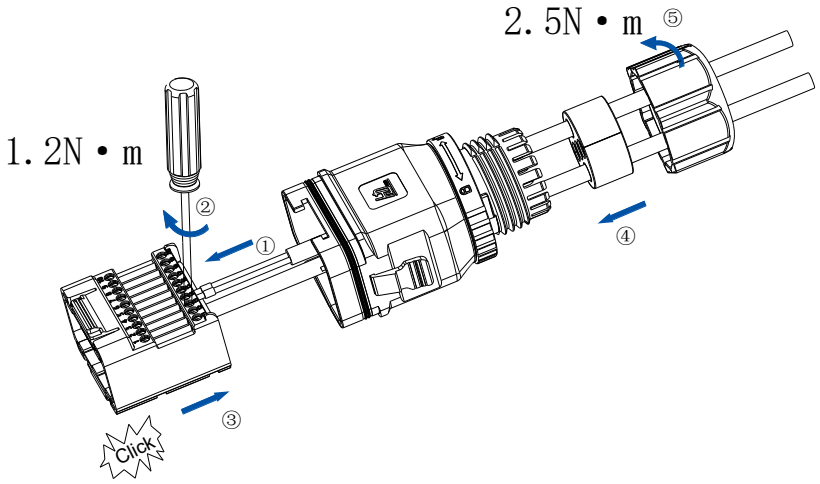
② Use a screwdriver to secure the cables connected to the terminals.

Note: If any terminal that has been equipped with a 120 Ω resistor, such as METER-A, needs to be connected by a cable with the length longer than 20 meters, switch the resistor to ON status.

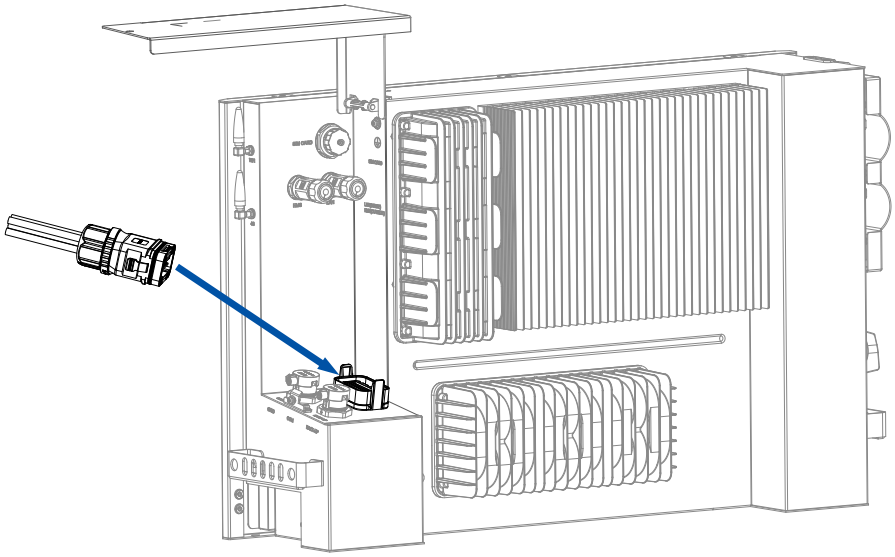
③ Insert the connection terminal block back to the connector body until you hear a click sound.

④ Insert the seals and nut back to the connector body.

⑤ Rotate the nut clockwise until it is secured to the connector body.



f. Connect the assembled communication terminal connector to the COMM port on the inverter.



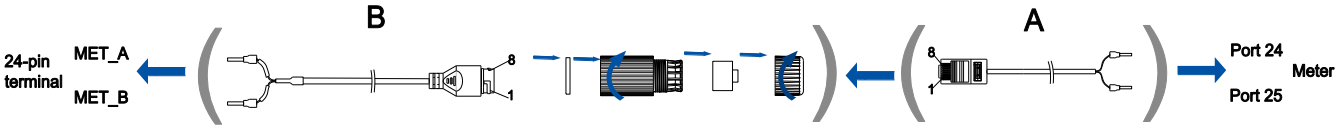
g. Connect the other end of the cables to external devices.

Meter connection:

① Take the communication cable (A) and smart meter out of the meter kit. For details, refer to the inverter package in section 1 Check the outer packing.

② Connect the RJ45 connector of the cable to the RJ45 port of the meter communication cable (B).

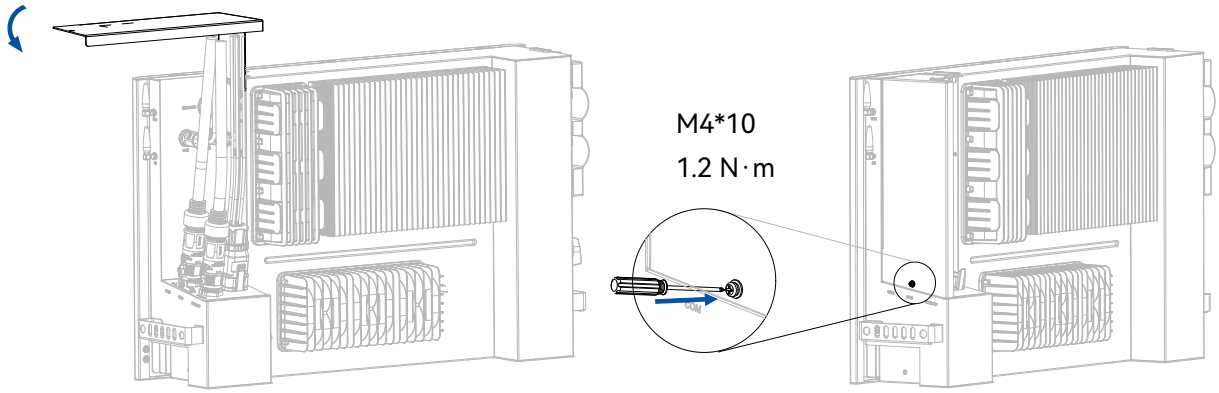
③ Connect the two crimped cable ends of the cable to ports 24 and 25 on the meter.



Callout	Description	RJ45 pin definition
A	Communication cable with an RJ45 connector	● Pin 1: A1 ● Pin 2: B1 ● Pins 3 to 8: NC
B	Communication cable kit	● Pin 1: For MET-A ● Pin 2: For MET-B ● Pins 3 to 8: NC

h. Close the AC-side cover.

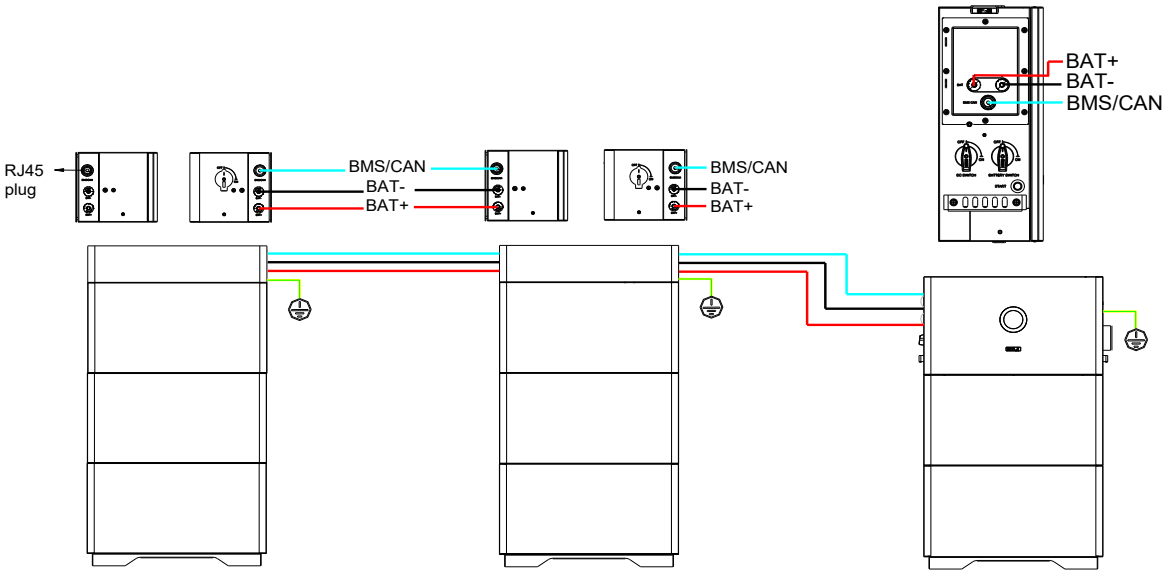
Push the cover downwards. Use a screwdriver to tighten the screw to lock the cover securely.



☐10. (Optional) Connect the battery cables between multiple stacks

Follow this procedure to connect multiple battery stacks to one inverter.

The following figure shows the cable connection of two battery stacks connecting to the inverter:

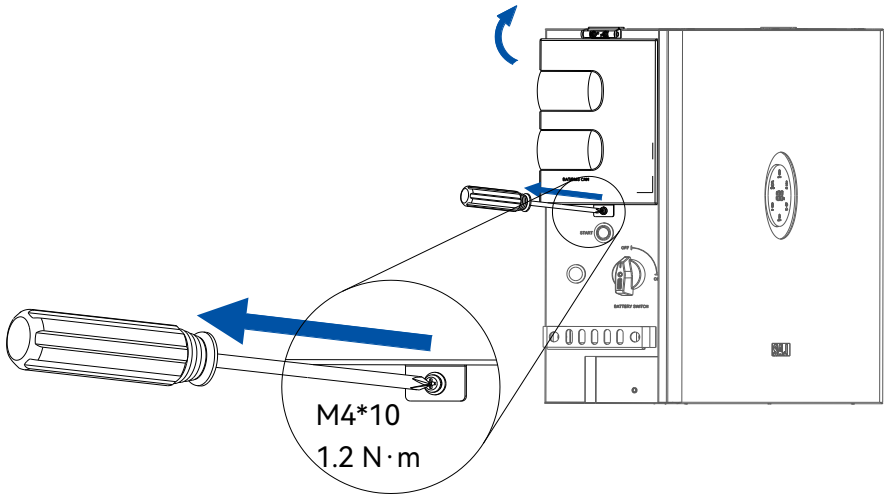


Prerequisite

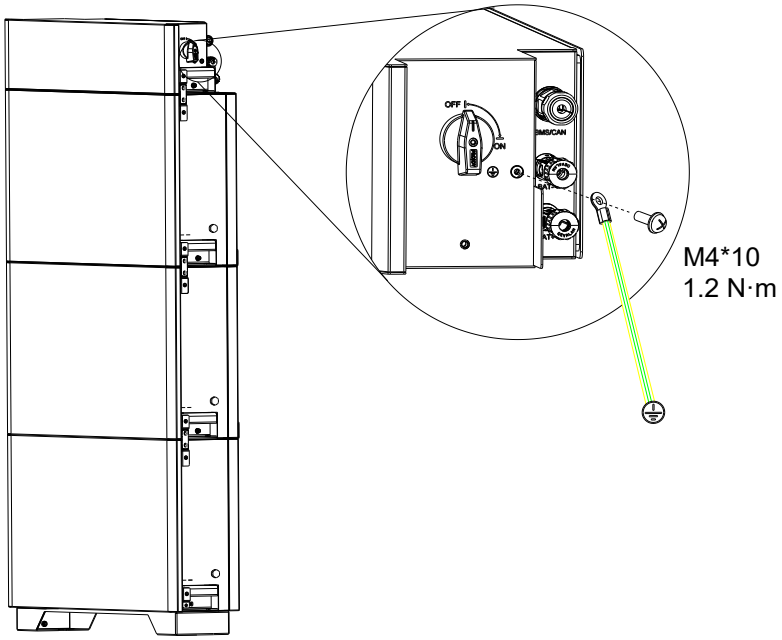
On top of the first stack, an inverter is installed; while on top of other stacks, a battery junction box has been installed.

Procedure

Step 1. Loosen the screw that locks the cover. Then, lift the cover upwards.

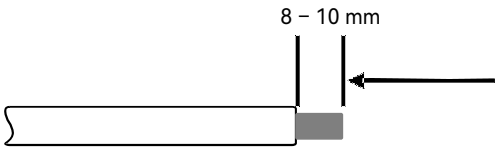


Step 2. Prepare and connect the grounding cable to either side of the battery junction box.

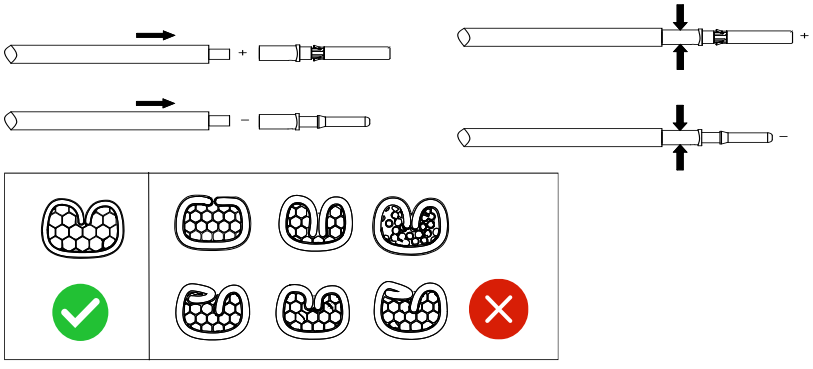


Step 3. Assemble the battery power cable ends.

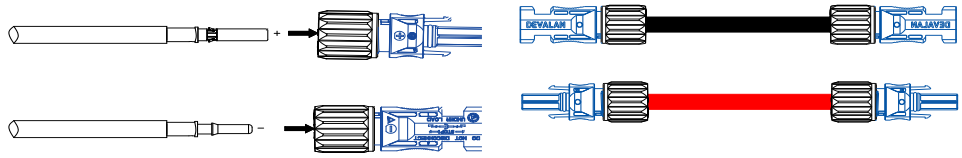
a) Strip off the insulation of the power cable end by 8-10 mm.



b) Insert the cable ends to the corresponding sleeves. Use a crimping plier to assemble the cable ends.

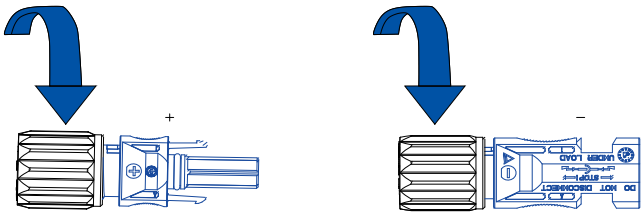


c) Insert the assembled cable ends into the positive and negative battery connectors. Then, gently pull the cables backwards to ensure that they are firmly connected.

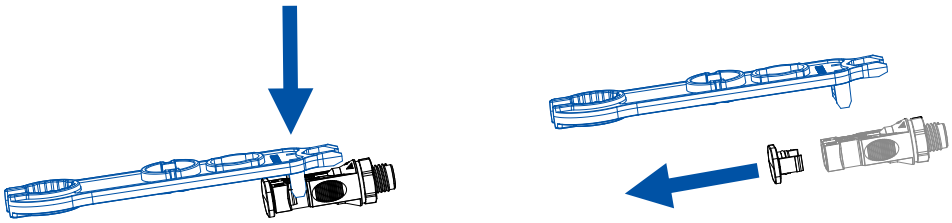


d) Tighten the nuts on the positive and negative cable connectors.

Tightening torque: 2.9N·m



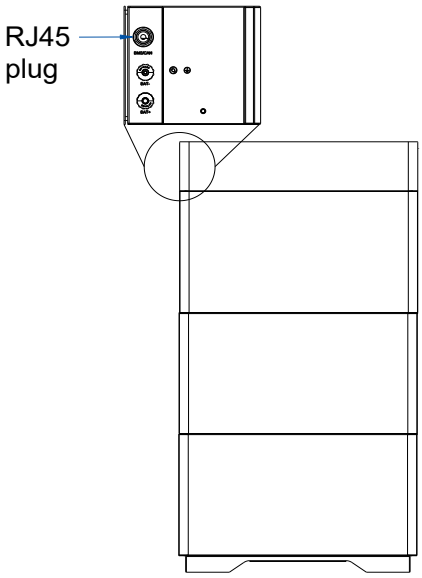
Step 4. Remove the waterproof covers on the **BAT+** and **BAT-** ports on the inverter and battery junction box.



Step 5. Connect the positive and negative power cables from the junction box to the inverter or the junction box of the other B3 battery stack.

Cable	From the junction box	To the inverter
Positive power cable	BAT+	BAT+
Negative power cable	BAT-	BAT-

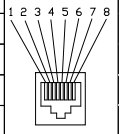
Step 6. Remove the RJ45 connector plug that is installed on the **BMS CAN** port on the inverter. Insert the plug into the **BMS/CAN** port on the battery junction box on the furthest left stack.



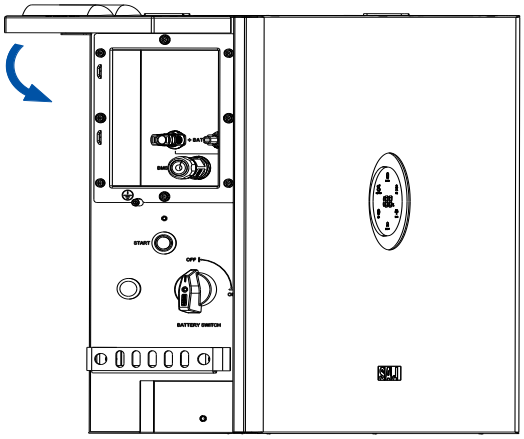
Step 7. Connect the communication cable from the junction box to the inverter or the junction box of the other B3 battery stack.

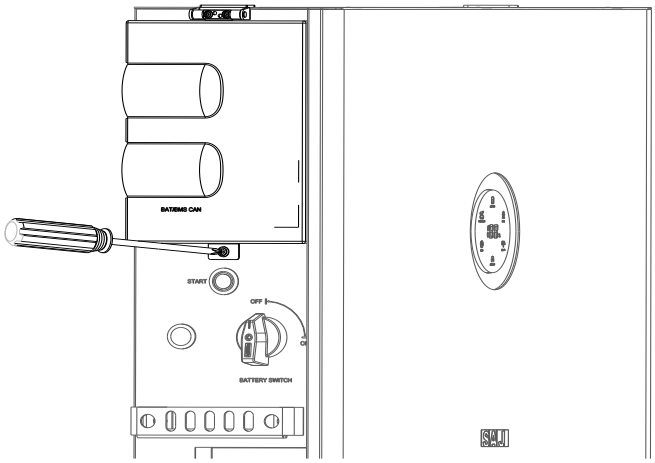
Cable	From the junction box	To the inverter
Communication cable	BMS/CAN	BMS CAN

Pin definitions of the BMS CAN port are as follows:

BMS CAN		
1	NC	
2	NC	
3	NC	
4	CANH	
5	CANL	
6	NC	
7	NC	
8	NC	

Step 8. Push the cover downwards. Use a screwdriver to tighten the screw to lock the cover securely.





11. Start the system

1. Open the AC distribution box. Turn on the circuit breakers of the backup loads and grid.
2. (Optional) If there are multiple battery stacks, turn on the battery switch on the right side of the battery junction box.
3. On the left side of the inverter, perform as follows:
   a. Turn on BATTERY SWITCH.
   b. Press and hold the START button for five seconds until the LED indicator on the front panel is on  .
4. Check the LED indicator status on the inverter panel to ensure that the inverter is running properly.

   Note: The LED indicator status label is on the left side of the inverter.
5. Configure the system on the SAJ App named Elekeeper. For details, refer to the section “System Commissioning” in the *SAJ Configuration Instructions*.
6. If any error occurs, check the error code displayed on the App. For detailed error messages, refer to the section “Troubleshooting” in the *User Manual*.

---End

Installer: _____

