EK90 series

All-in-One Energy Storage System

EK90 HS5-(5K-10K)-(S3,S4)-X

Quick Installation Guide



Version 0.1

About this document

This quick installation guide provides the installation and electrical connection instructions of the SAJ product.

Scan the following QR code to obtain the latest eManuals:

Scan for eManuals

Note:

Illustrations in this document show only essential details and may differ from the actual product.

NOTICE

- This document may be updated without notice and is for guidance only. No warranties are implied.
- Read the product *User Manual* before installation for product details and safety instructions.
- Only qualified electrical professionals familiar with grid-connected PV systems and local standards may perform installation or servicing.
- Check the *Packing List* before installation; report any missing or damaged items to your dealer.
- Damage from improper installation or operation not following this document or the *User Manual* is not covered by warranty.

WARNING

Risk of High Voltage and Electric Shock

- This device is directly connected to public grid.
- Before operation, ensure the inverter is completely disconnected from all the power sources.
- During operation, wear appropriate personal protective equipment and use insulated tools.
- Failure to follow these instructions will result in serious injury or death.

Safety symbols

Symbol	Description	Symbol	Description
	**Danger:** Electrical shock hazard		**Caution:** No disposal in residential waste
	**Danger:** Hot surface Do not touch metal plate housing during operating.		**CE Mark**
	**Danger:** Do not open the cabinet door until 5 minutes after disconnecting all power sources.		**RoHS compliant mark**
	**Warning:** No open flames		**Caution:** Check the user manual before service

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1. Installation

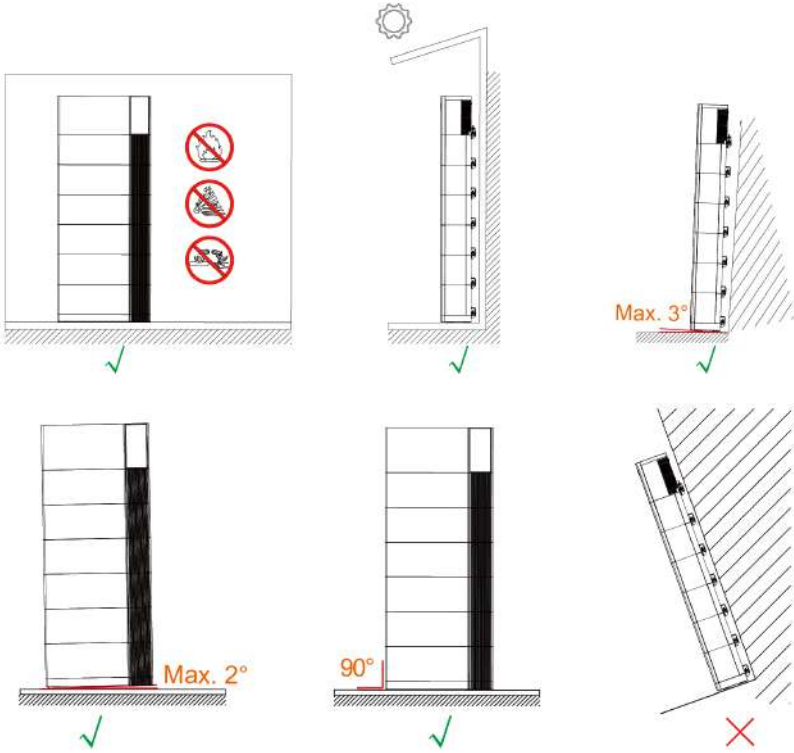
1.1. Installation environment requirements

- Do not expose the device to direct solar irradiation as this could cause power derating due to overheating.
- The installation environment must be free of inflammable or explosive materials.
- The device must be installed in a place at least 900mm away from any heat source.
- Do not install the device at a place where the temperature changes extremely. The ambient temperature of the installation site must not exceed 50℃.
- Keep the device away from children.
- Do not install the device in the bedroom, toilet, or bathroom. The installation site must be at least 1.2 meters away from the emergency exit.
- When installing the device at the garage, keep it away from the driveway.
- Keep the device from water sources such as taps, sewer pipes and sprinklers to prevent water seepage.
- For outdoor installation, keep the device away from direct sunlight, rain and snow.
- Ensure the inverter is installed in a well-observed area where the LED display panel can be easily read for real-time status checks.

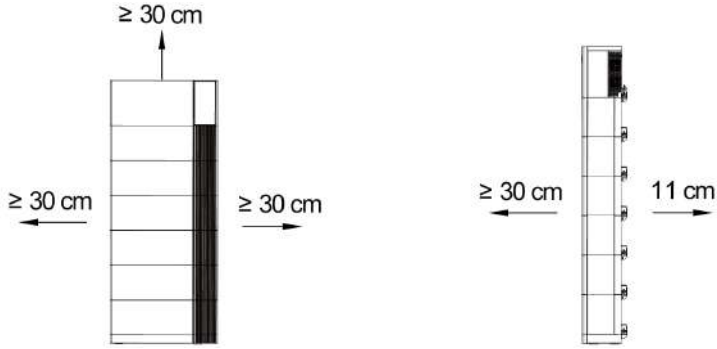


1.2. Plan the installation site

Install the product vertically.



Keep enough clearance around the product to ensure proper ventilation.



1.3. Installation tools

Installation tools include but are not limited to the following recommended ones. Use other auxiliary tools on site if necessary.

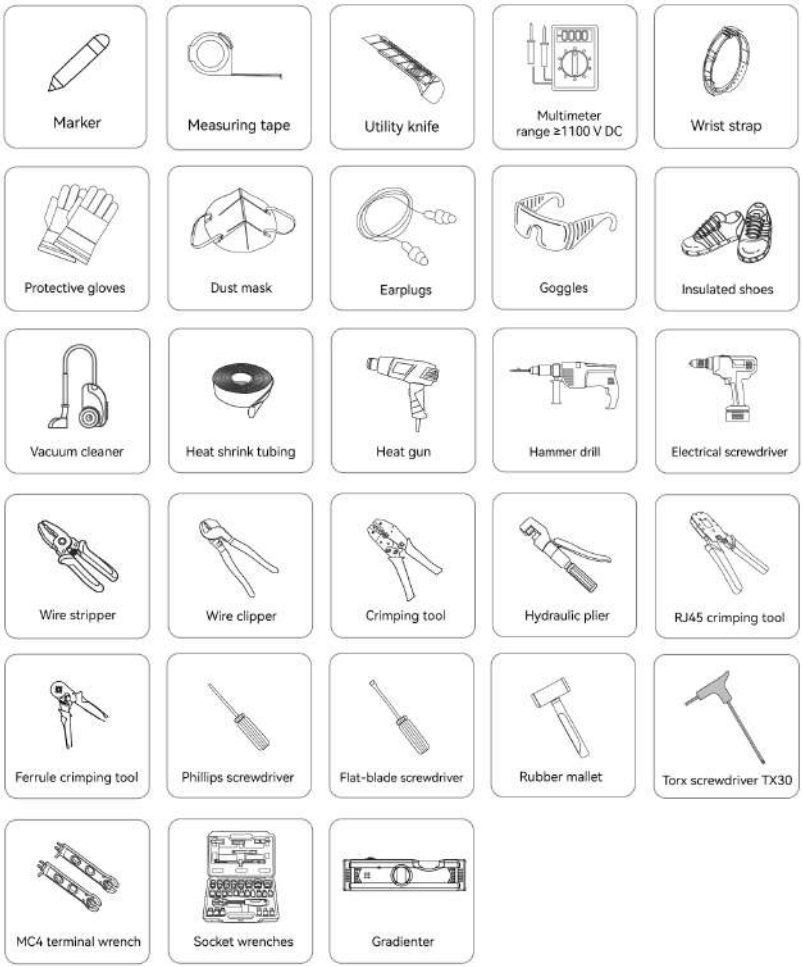
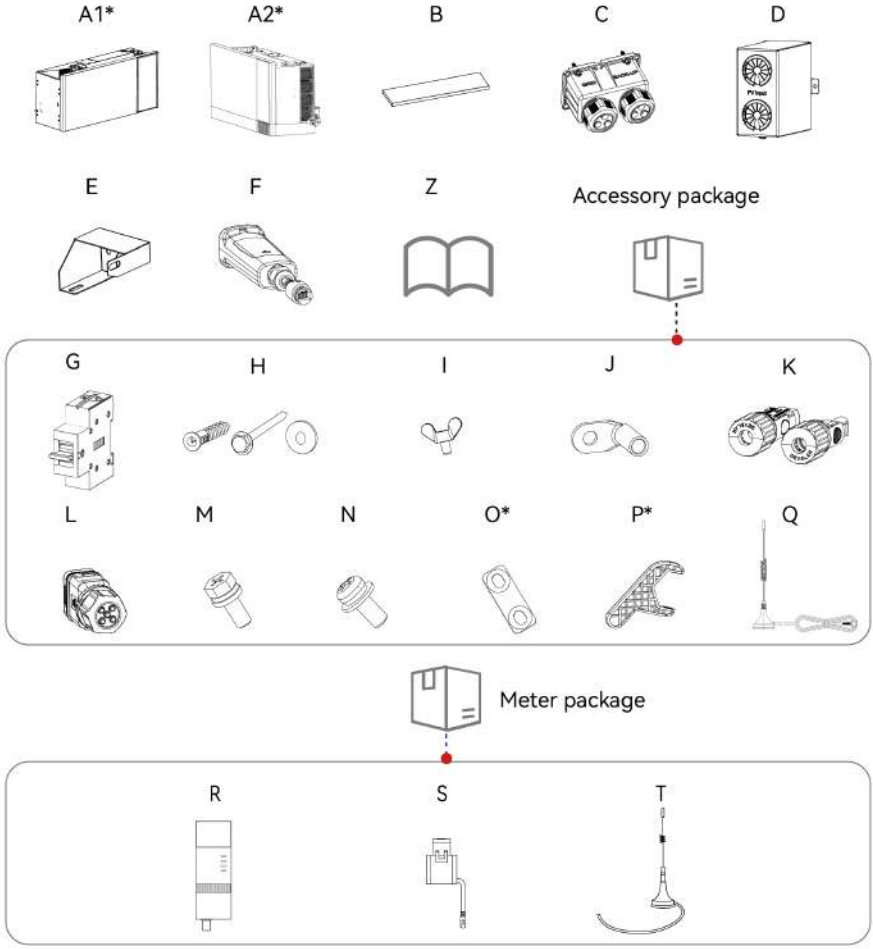


Figure 1.1. Suggested installation tools

1.4. Packing list

Inverter



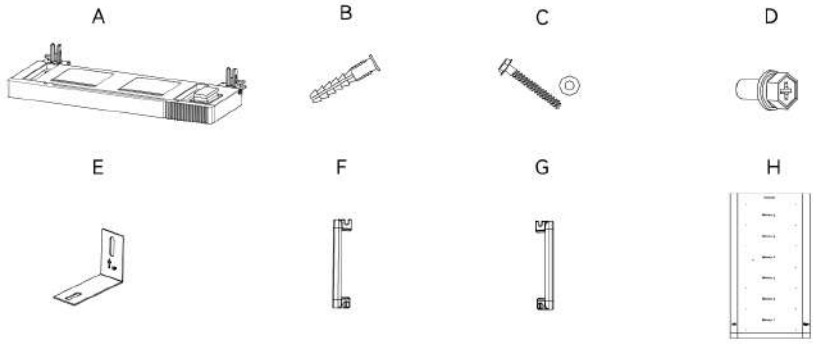
Number	Quantity	Designation
A1*/A2*	1	Depending on different shipments, either A1 or A2 is included in this package. Refer to the actual product you received. • A1: Inverter without battery base. The battery base and its related accessories are delivered in a separate package. • A2: Inverter with battery base. The inverter is pre-secured beneath the inverter with the screws. Before installation, remove the screws to detach the batter base from the inverter.
B	1	Protective cover of inverter
C	1	AC protective cover
D	1	PV protective cover
E	1	Anti-theft bracket
F	1	Communication module
G	1	Manual transfer switch
H	1	Bolts and gaskets for anti-theft bracket
I	1	Hand-tighten screw
J	SC10-5-90: 3 SC16-5-90: 6	AC cable terminals: • SC10-5-90: For 6-8 mm^2 cables • SC16-5-90: For 10-16 mm^2 cables
K	3 or 4	PV connector. The quantity varies depending on different machine models.
L	1	20-pin connector
M	3	M6*16 screw
N	6 or 4	M4*10 screw. • With grounding plate: 6 • Without grounding plate: 4
O*	1	Grounding plate
P*	1	Wrench for securing the AC cover
Q	1	Antenna to be connected to the inverter.

Number	Quantity	Designation
R	1	Meter
S	1	Current transformer (CT)
T	1	Antenna to be connected to the meter.
Z	1	Documentation

Note: Depending on different shipments, the components marked with * may not be included in this package. Refer to the actual product you received.

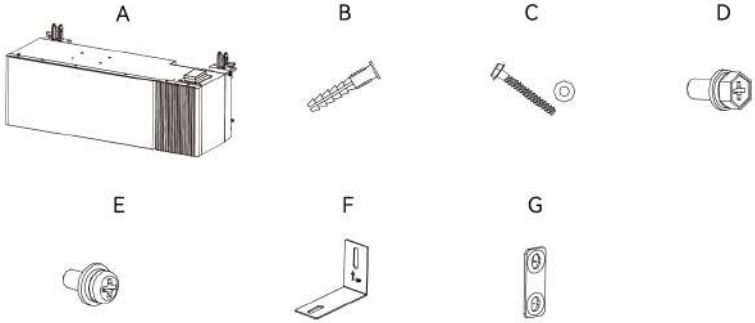
The following figure and table show the components for installing the battery base.

Depending on different shipments, these components are either included in the inverter's package or delivered in a separate package. Refer to the actual product you received.



Number	Quantity	Designation
A	1	Battery base. Depending on different shipments, the battery base can be pre-secured beneath the inverter with the screws.
B	2	M6*80 expansion bolt
C	2	ST6*50 screw and gasket set
D	2	M6*16 screw
E	2	Locking bracket
F	1	Left handle
G	1	Right handle
H	1	Positioning cardboard

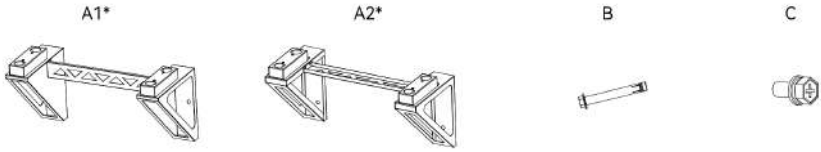
Battery pack



Number	Quantity	Designation
A	1	Battery pack
B	2	M6*80 expansion bolt
C	2	ST6*50 screw and gasket set
D	4	M6*16 screw
E*	2	M4*10 screw
F	2	Locking bracket
G*	1	Grounding plate

Note: Depending on different shipments, the components marked with * may be not included in the package. Refer to the actual product you received.

Wall bracket



Number	Quantity	Designation
A1/A2	1	Wall bracket. Depending on different shipments, either A1 or A2 is included in this package. Refer to the actual product you received. • A1: 3 installation holes are equipped. • A2: 2 installation holes are equipped.

Number	Quantity	Designation
B	4 or 6	M12*100 expansion bolt. • For the wall bracket with 3 installation holes, 6 bolts are provided. • For the wall bracket with 2 installation holes, 4 bolts are provided.
C	2	M6*16 screw

1.5. Dimension

Use one stack with six battery modules as an example:

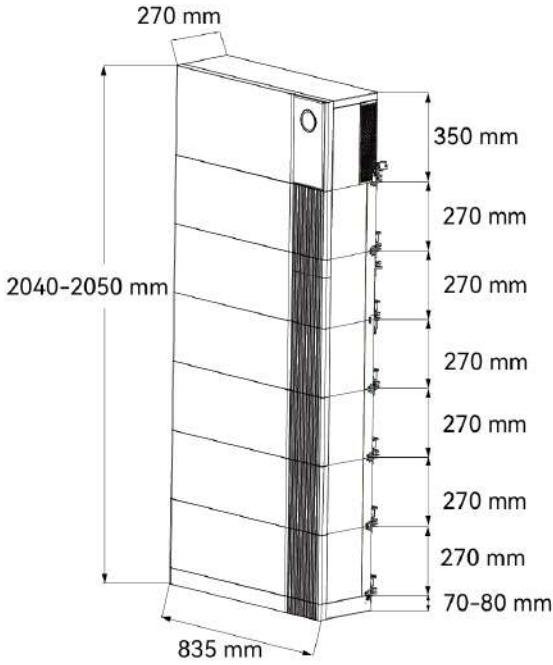


Figure 1.2. Dimensions

1.6. Ground mounting

Note:

- For ground mounting, a maximum of 6 batteries is supported.
- Depending on the shipments, some packages do not include the grounding plates and its screws. In this case, skip the related steps for installing them in this procedure.

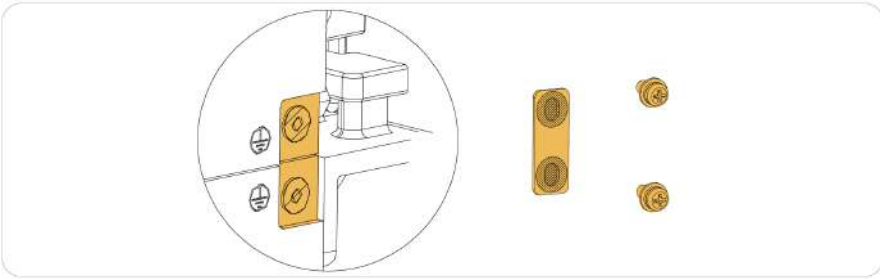
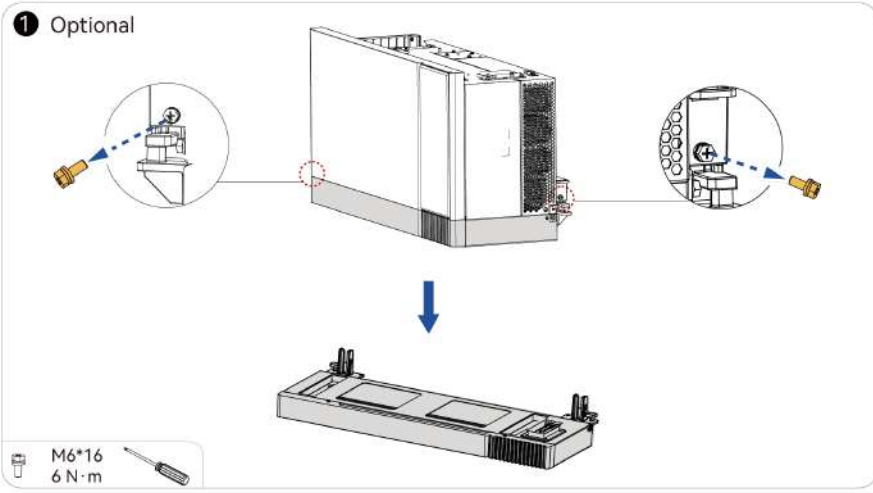
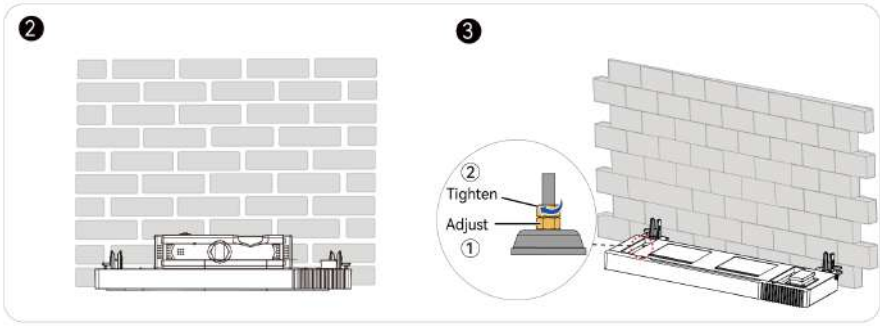
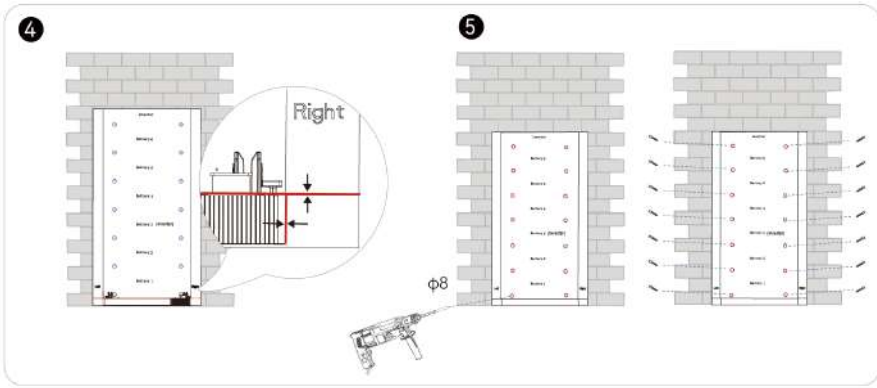


Figure 1.3. Grounding plate and its screws (optional)

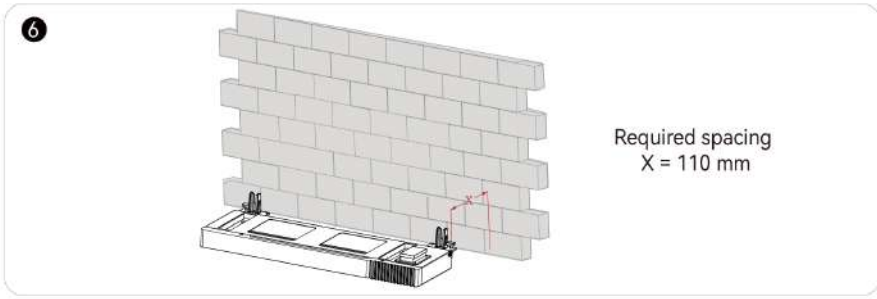
(Optional) Step 1: Detach the battery base from the inverter. If the battery base you received is not included in the inverter package and is instead included in a separate package, skip step 1.

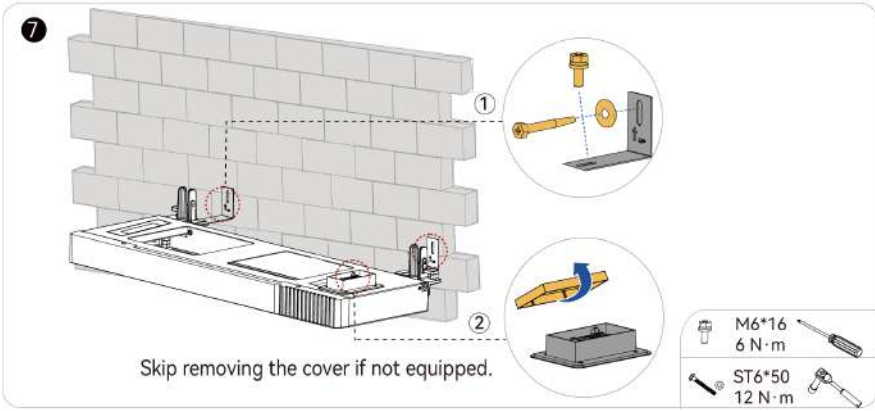


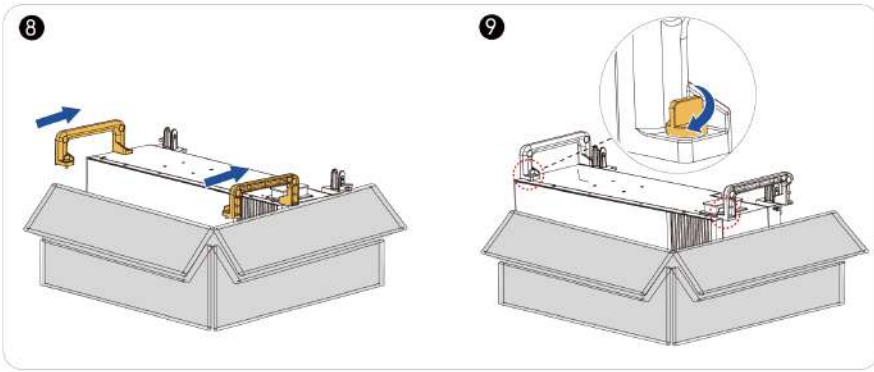


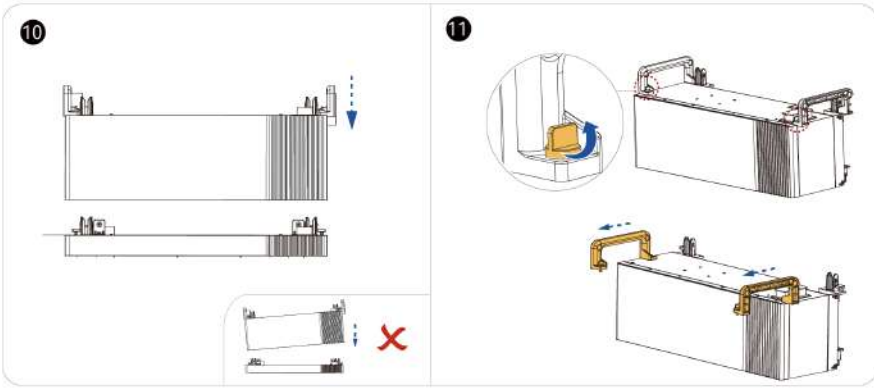


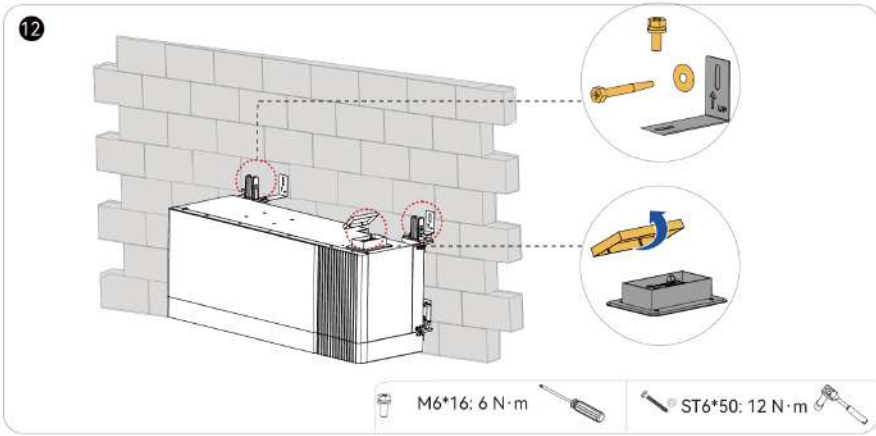
Note: Before drilling, put the battery base aside to keep the blind-mate ports dust-free.

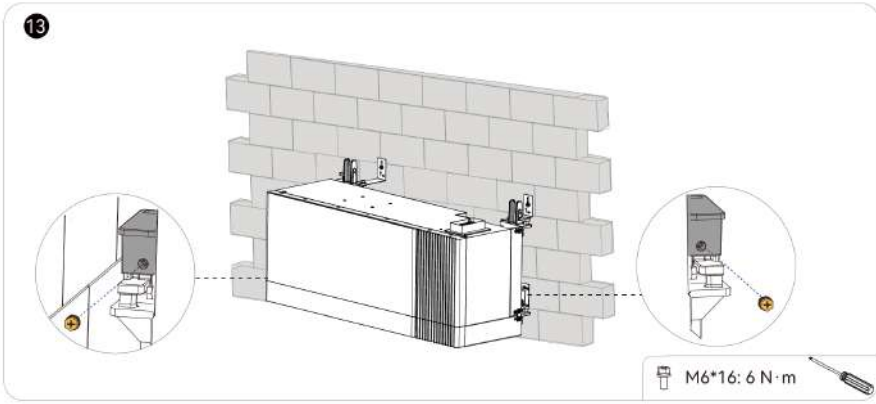


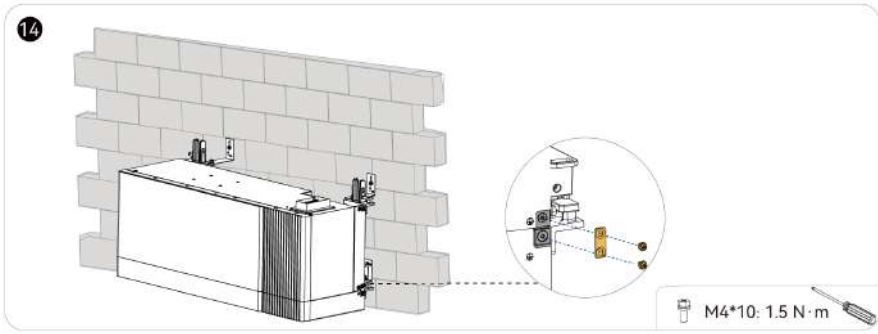

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①
②
Skip removing the cover if not equipped.
M6*16
6 N·m
ST6*50
12 N·m


8
9


10
11

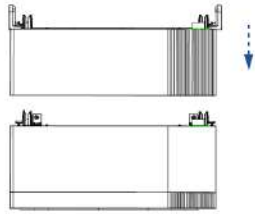






Note: If the product package you received does not include the grounding plate and corresponding screws, skip the above step.

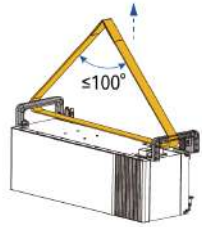
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16 Install more batteries by taking the same steps as the first one.

17

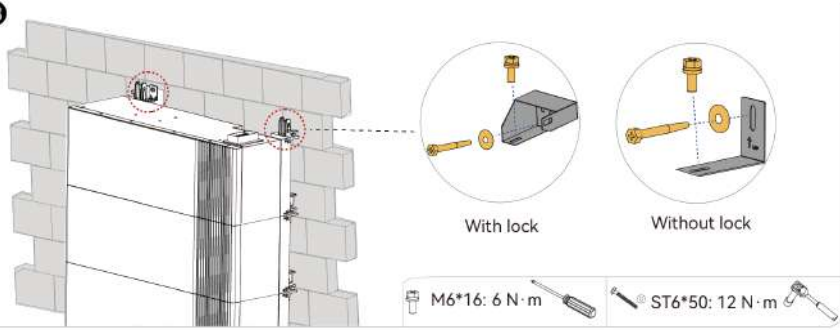
≥4 batteries: recommend using a lifting device.



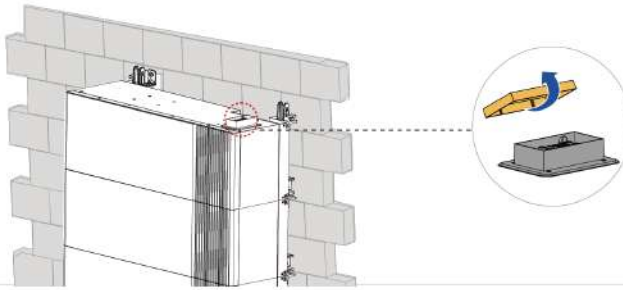
NOTICE

The apex angle of the lifting slings should not exceed 100° to ensure safe lifting and transport.

18

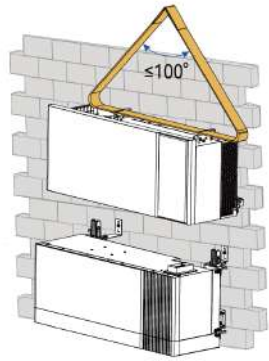


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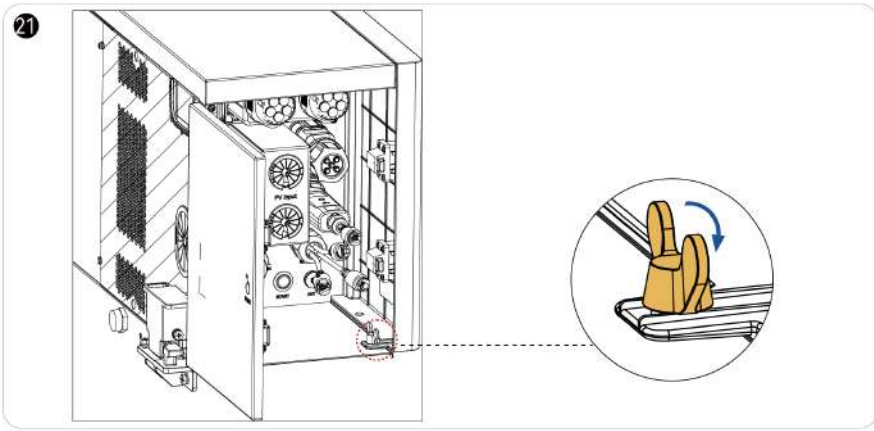
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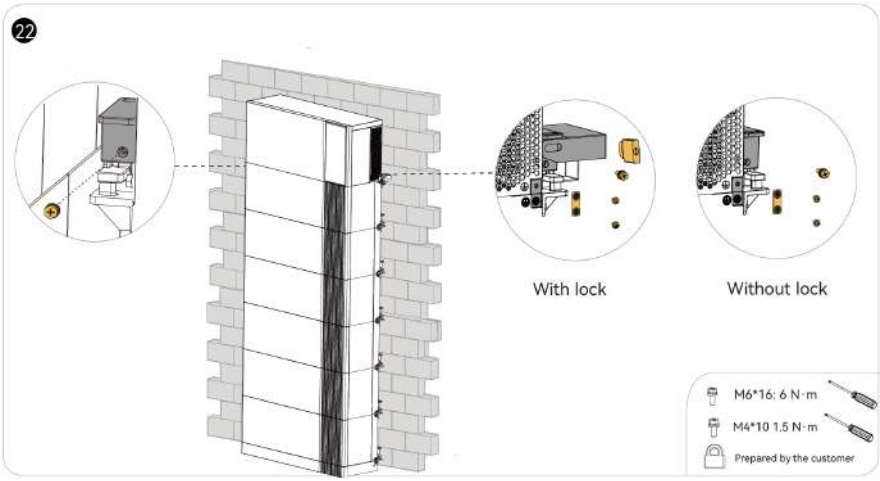
≥4 batteries: recommend using a lifting device.



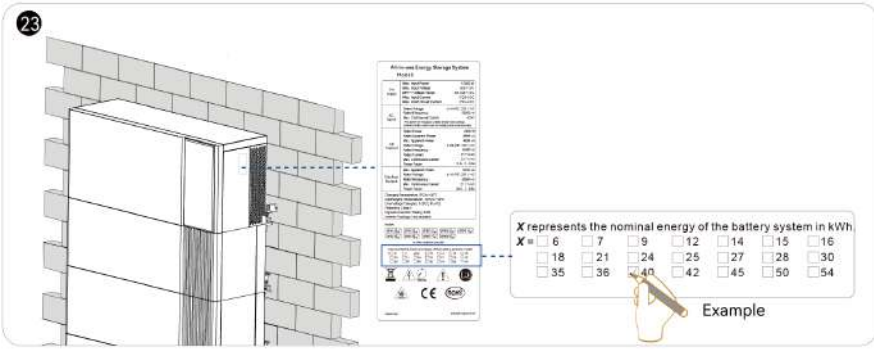
NOTICE

The apex angle of the lifting slings should not exceed 100° to ensure safe lifting and transport.





Note: If the product package you received does not include the grounding plate and corresponding screws, skip installing them.


23
X represents the nominal energy of the battery system in kWh.
X = 6 7 9 12 14 15 16
18 21 24 25 27 28 30
35 36 40 42 45 50 54
Example

1.7. Wall mounting

Note:

- For wall mounting, a maximum of 2 batteries is supported.
- Depending on the shipments, some packages do not include the grounding plates and its screws. In this case, skip the related steps for installing them in this procedure.

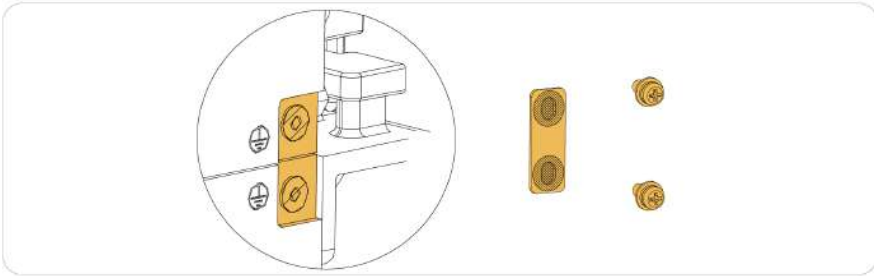
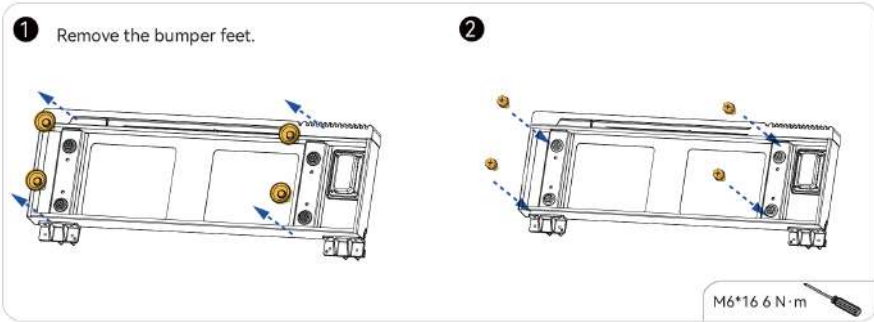
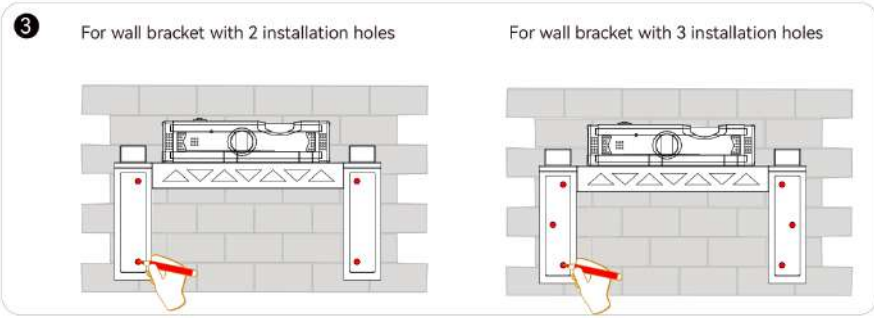


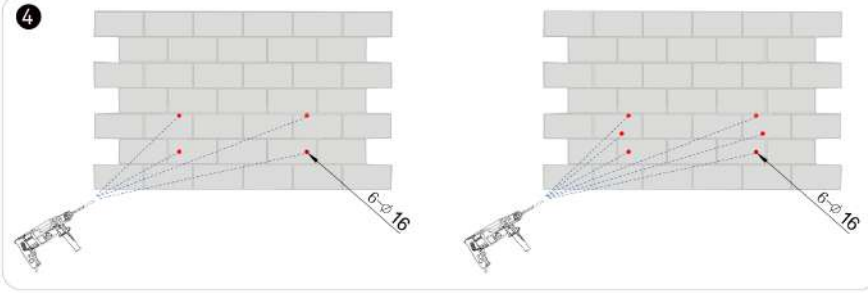
Figure 1.4. Grounding plate and its screws (optional)





Note: The installation height of the wall bracket can be decided according to the actual condition and local regulations of the installation site.

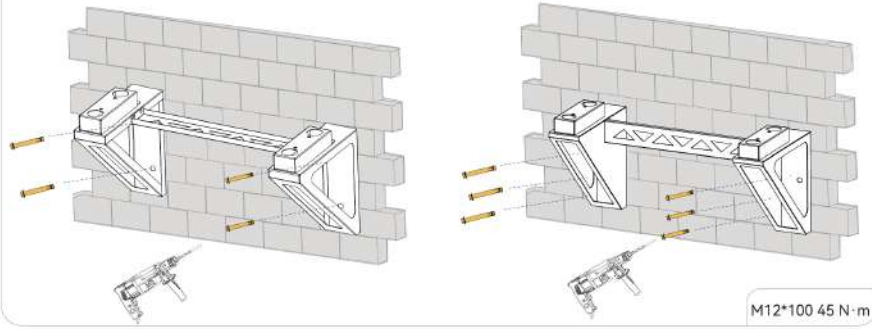
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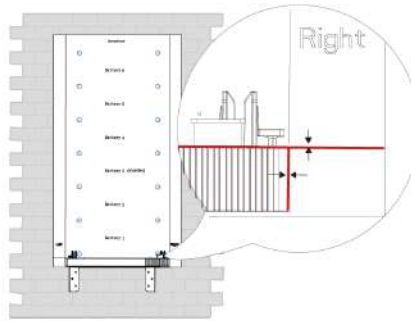
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For wall bracket with 2 installation holes

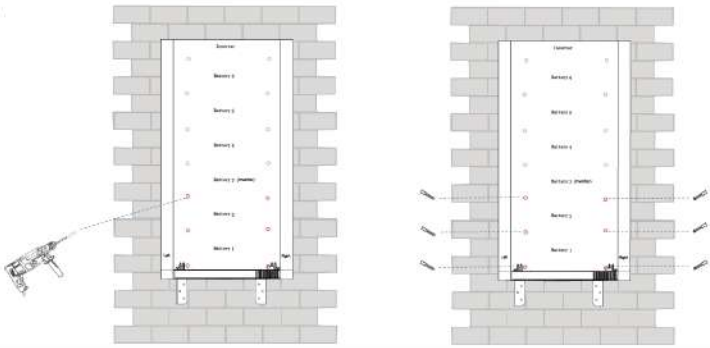
For wall bracket with 3 installation holes



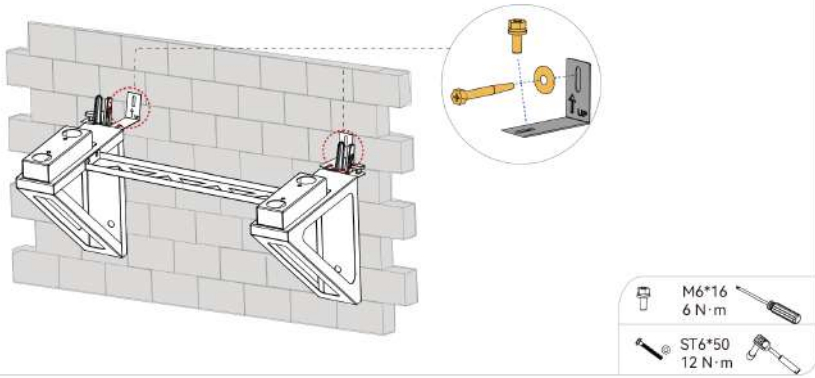
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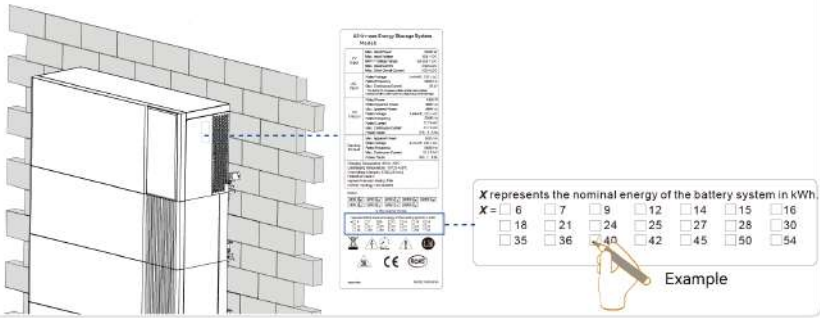


❽



❾ Install the batteries and inverter by taking the same steps as the ground mounting.

❿



2. Electrical connection safety

Electrical connection must only be operated by professional technicians. Before the operation, the technicians must wear necessary personal protective equipment (PPE) including insulating gloves, insulating shoes, and a safety helmet.

DANGER

Danger to life due to potential fire or electricity shock.

- Do not install the cabinet near any inflammable or explosive items.
- When it is powered on, the equipment should comply with national rules and regulations.

WARNING

Any improper operation during cable connection can cause device damage or personal injury.

2.1. Wiring guidelines

- The selection, installation, and routing of cables must comply with local laws, regulations, and standards.
- During the placement of power cables, avoid coiling or twisting. If a power cable is found to be too short, replace it entirely; do not create splices or weld joints within the cable.
- Ensure that all cables are firmly connected, have good insulation, and are appropriately sized for their application.
- Cable trays and pass-through holes should not have sharp edges. Use protective measures at conduit entrances or pass-through holes to prevent damage to cables from sharp edges or burrs.
- Group similar types of cables together and secure them neatly, ensuring they lie flat and straight without damage to the outer jacket. Different types of cables should be laid separately to avoid entanglement or crossing.
- For buried cables, use cable supports and clamps to securely fix them in place. Ensure that backfilled soil around underground cables is compacted to prevent deformation or damage during the backfilling process.
- When external conditions like installation methods or ambient temperatures change, verify the cable selection according to local regulations to ensure parameters like current-carrying capacity.
- To prevent insulation aging or damage due to high temperatures, maintain a minimum distance of 30 mm between cables and heat-generating components or heat source peripheries.

2.2. Ground protection

- Follow the grounding guidelines below for the equipment which is critical to ensure electrical safety and compliance with local standards:
- The impedance of the equipment's grounding system must meet the requirements specified by local electrical standards.
- The equipment must be permanently connected to a protective ground. Before operating the equipment, always check the electrical connections to ensure that the equipment is reliably grounded.
- It is strictly prohibited to operate the equipment if the grounding conductor has not been installed.
- Do not damage or tamper with the grounding conductor in any way.

2.3. AC- and DC-side handling

- Before installing or removing power cables, turn off all switches on both the AC and DC sides to ensure that no electrical flows through the system during the operation.
- Prior to connecting the AC side cables, verify that the phase sequence of the three-phase cables matches the silk-screen markings on the cable connectors.
- If the equipment has multiple input and output paths, disconnect all inputs and outputs before proceeding. After ensuring all power sources are disconnected, wait for at least 5 minutes to allow any residual charge in capacitors or other components to dissipate. Only then should you perform any operations on the equipment.

2.4. Electrostatic Discharge (ESD) Protection

⚠ CAUTION

Contact with or improper handling of printed circuit boards or other electrostatic discharge sensitive components can lead to device damage.

- Avoid unnecessary contact with circuit boards.
- Adhere to ESD protection standards, such as wearing an anti-static wrist strap.

2.5. Earth fault alarm monitoring

This inverter is of transformer-less design and therefore does not provide galvanic isolation between the DC and AC sides. To comply with safety requirements, it incorporates earth fault alarm monitoring function in accordance with *IEC 62109-2, clause 13.9*. This function continuously checks the insulation resistance of the PV array to earth.

If an earth fault is detected due to damaged cables, moisture ingress or similar reasons, the inverter responds as follows:

- The LED light illuminates **red**.
- An error code **<31>** is displayed in the elekeeper App.

When error code **<31>** is reported, the technical support engineer can take the following actions:

1. Disconnect the all the AC and DC power sources.
2. Check whether the grounding cable and all the AC power cables are connected securely.
3. Check whether all the AC and DC power cables are broken or soaked in water.
4. Check whether the battery packs are soaked in water.
5. When all the above items are normal, restart the system.
6. If the error is still active, contact SAJ for further support.

NOTICE

This inverter **must not be connected to functionally earthed PV arrays**, where either the positive or negative pole is permanently connected to earth. Such installations would be interpreted as a permanent earth fault, causing continuous false alarms and potentially damaging the inverter's internal circuitry.

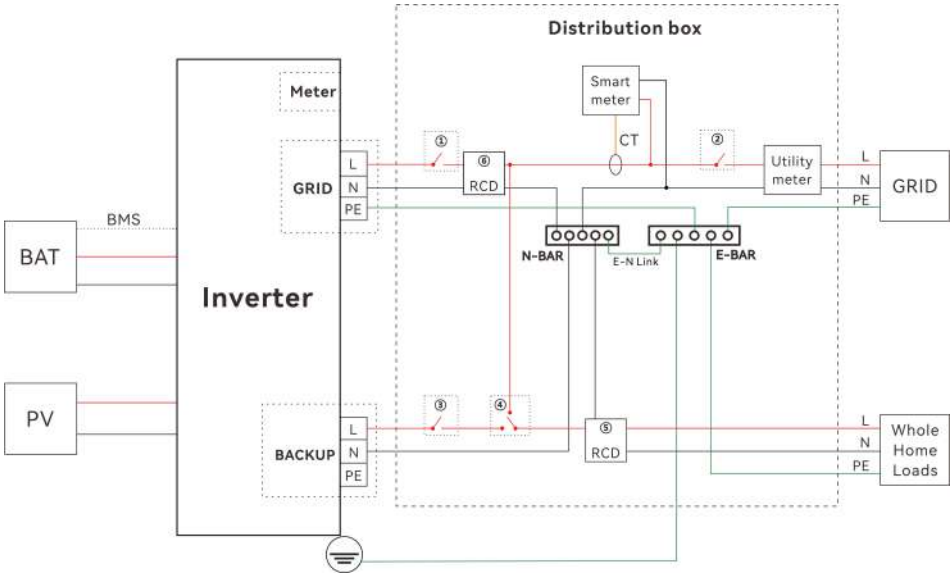
3. Electrical connection

3.1. Australia and New Zealand

This section shows the system connection diagrams applicable to Australia and New Zealand.

- To comply with AS/NZS3000, the neutral (N) cables of the grid and backup-load sides (where applicable) must be connected together.
- Do not connect the PE terminal of the **BACKUP** port.
- The E-BAR and the N-BAR must be connected as illustrated.

Whole home backup solution



Product model	① AC breaker (grid)	③ AC breaker (backup loads)	② AC breaker (utility meter)	④ Manual transfer switch	⑤⑥ RCD (on-grid/ backup loads)[1]
EK90 HS5-5K-S3-X	63 A/230 V	63 A/230 V	Main breaker	63 A/230 V	30 mA
EK90 HS5-6K-S3-X (-IE)	63 A/230 V	63 A/230 V	Main breaker	63 A/230 V	30 mA

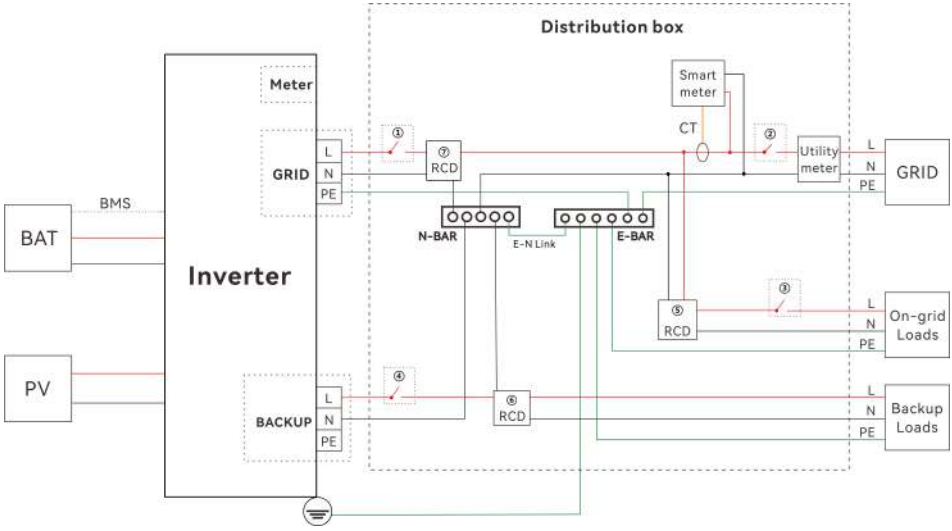
Product model	① AC breaker (grid)	③ AC breaker (backup loads)	② AC breaker (utility meter)	④ Manual transfer switch	⑤⑥ RCD (on-grid/ backup loads)[1]
EK90 HS5-8K-S3-X	63 A/230 V	63 A/230 V	Main breaker	63 A/230 V	30 mA
EK90 HS5-10K-S4-X	63 A/230 V	63 A/230 V	Main breaker	63 A/230 V	30 mA

Table 3.1. Recommended AC breaker and RCD specifications

1. The on-grid RCD is optional since the inverter is integrated with a residential current monitoring unit (RCMU). However, if the external RCD must be installed according to the local regulations, install a type A RCD of action current 30 mA or higher.

Note: The values in the above table are recommendations only and can be set to other values based on the actual conditions.

Partial backup solution



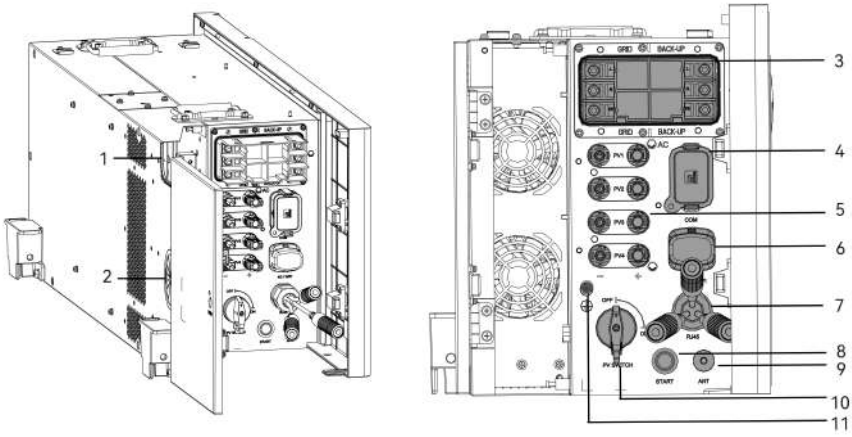
Product model	① AC breaker (grid)	④ AC breaker (backup loads)	② AC breaker (utility meter)	③ AC breaker (on-grid loads)	⑤⑥ RCD (on-grid/ backup loads)[1]
EK90 HS5-5K-S3-X	32 A/230 V	Depend on loads	Main breaker	Depend on loads	30 mA
EK90 HS5-6K-S3-X (-IE)	40 A/230 V	Depend on loads	Main breaker	Depend on loads	30 mA
EK90 HS5-8K-S3-X	50 A/230 V	Depend on loads	Main breaker	Depend on loads	30 mA
EK90 HS5-10K-S4-X	63 A/230 V	Depend on loads	Main breaker	Depend on loads	30 mA

Table 3.2. Recommended AC breaker and RCD specifications

1. The on-grid RCD is optional since the inverter is integrated with a residential current monitoring unit (RCMU). However, if the external RCD must be installed according to the local regulations, install a type A RCD of action current 30 mA or higher.

Note: The values in the above table are recommendations only and can be set to other values based on the actual conditions.

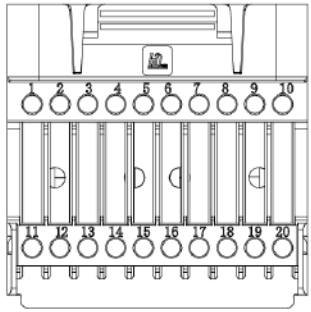
3.2. Inverter ports and switches



Callout	Silkscreen	Description
1	/	The cable entry hole 1 for routing AC power cables.
2	/	The cable entry hole 2 for routing the following cables: • The grounding cable • The DC power cables • The communication cables
3	**AC** • **GRID** • **BACK-UP**	The connection ports for AC power cables. • **GRID**: for connecting to the public grid. • **BACK-UP**: for connecting to the home backup load.
4	**COM**	The connection port for communication cables from external devices like DI/DO devices.
5	**PV1, PV2, PV3, PV4**	The negative and positive PV input connection ports.
6	**4G/WIFI**	The connection port of the eSolar AIO3 Pro and 4G Pro communication modules.
7	**RJ45**	The RJ45 connection ports for **LAN1**, **LAN2**, and **DRMs** connections as labelled on the ports. **LAN1** and **LAN2** ports are reserved for future use.
8	**START**	For starting up the energy storage system.
9	**ANT**	The LoRa antenna connection port.

Callout	Silkscreen	Description
10	**PV SWITCH**	The PV switch that controls the connection to the PV array.
11		The grounding cable connection port.

Table 3.3. Inverter electrical ports



Number	Silkscreen	Description
1-6	/	Reserved for future use.
7	**DO1+**	Output connection for dry contact device 1.
8	**DO1-**	Output connection for dry contact device 1.
9	**DO2+**	Output connection for dry contact device 2.
10	**DO2-**	Output connection for dry contact device 2.
11	**PC 485A**	Reserved RS485 connection ports. The RS485 communication can be adjusted with the provided 120 Ω resistor controlled by **SW2** DIP switch.
12	**PC 485B**	
13	**Meter 485A**	For RS485 connections with the meter. The RS485 communication can be adjusted with the provided 120 Ω resistor controlled by **SW3** DIP switch.
14	**Meter 485B**	
15	**DI1+**	Input connection for dry contact device 1.
16	**DI1-**	Input connection for dry contact device 1.
17	**DI2+**	Input connection for dry contact device 2.
18	**DI2-**	Input connection for dry contact device 2.
19	**12V**	Port for providing 12V DC power supply to the external device.

Number	Silkscreen	Description
20	**GND**	Port for grounding connection.

Table 3.4. 20-pin definition for COM port

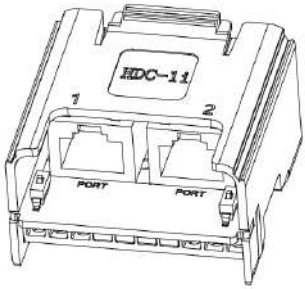


Figure 3.1. RJ45 ports for communication connector

Number	Silkscreen	Description
1	**PORT CAN**	Reserved port.
2	**DSP CAN**	Reserved port.

3.3. Prepare the cables

Grounding cable specification

Cable type	Recommended cross-sectional area range (mm^2)
Grounding cable	6

AC grid and backup cable specification

Prepare the following outdoor high-temperature (≥105℃) cables for AC grid and backup load connections:

Solution	AC grid cable type	Recommended cross-sectional area (mm^2)	Recommended conductor material
Whole home backup Partial backup	One three-wire cable	16	Copper
	Three separated cables	16	Copper

Table 3.5. AC grid cable specification

Solution	AC backup cable type	Cross-sectional area (mm^2)		Recommended conductor material
		Range	Recommend value	
Whole home backup	One three-wire cable	10-16	16	Copper
	Three separated cables	/	16	Copper

Table 3.6. AC backup cable specification for whole home backup

Solution	Model	AC backup cable type	Cross-sectional area range (mm^2)		Recommend conductor material
			Range	Recommend value	
Partial backup	HS5-5K-S3-X HS5-6K-S3-X HS5-6K-S3-X-IE	One three-wire cable	6-8	8	Copper
		Three separated cables	/	8	Copper

Solution	Model	AC backup cable type	Cross-sectional area range (mm^2)		Recommend conductor material
			Range	Recommend value	
	HS5-8K-S3-X HS5-10K-S4-X	One three-wire cable	8-10	10	Copper
		Three separated cables	/	10	Copper

Table 3.7. AC backup cable specification for partial backup

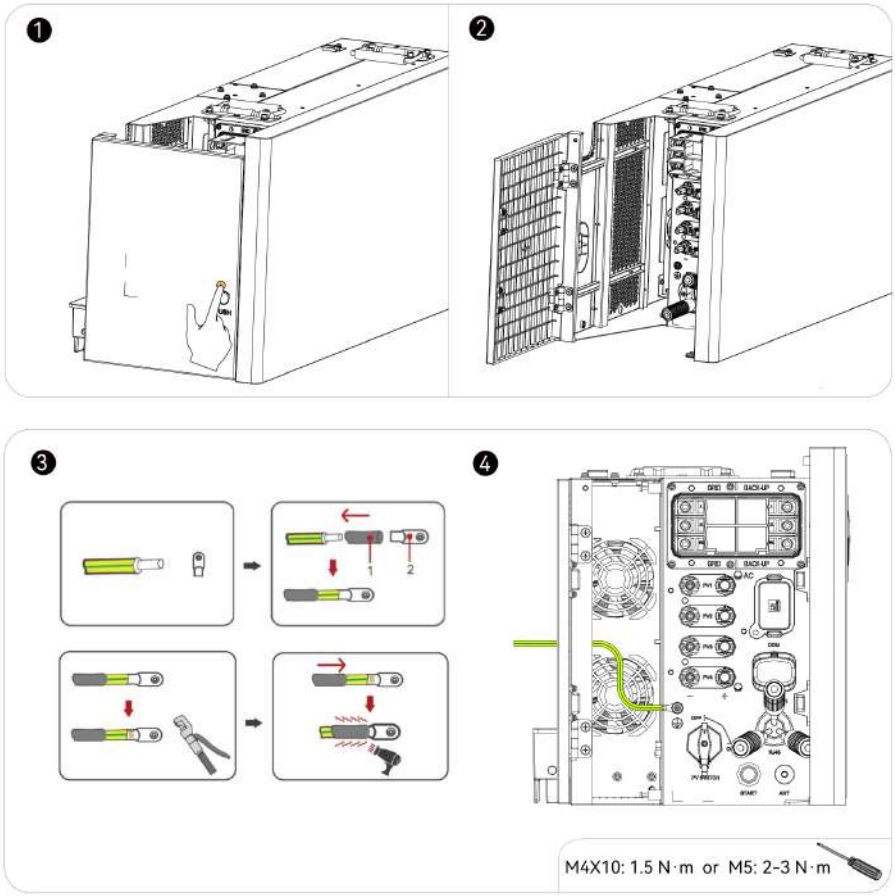
PV cable specification

Cross-sectional area range (mm^2)		Recommended conductor material
Range	Recommended value	
5.0–6.0	6.0	Outdoor copper wire cable, complying with 600 V DC

Communication cable specification

Terminals	Cable cross-sectional area(mm^2)	Cable outer diameter (mm)	Insulation off (mm)	
			External protective layer	Wire insulation
1 - 10	0.5 - 0.75	4.5 - 6.5	55	7.5
11 - 20	0.2 - 0.5		33	7.5

3.4. Connect the grounding cable

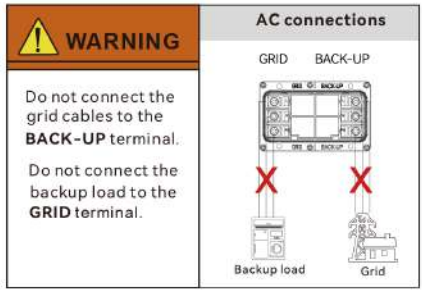


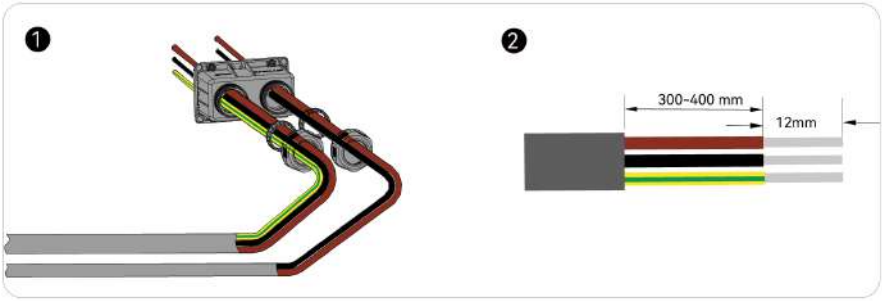
Note: The screw can be M4 or M5 depending on shipments. Confirm the screw specification before installation and tighten it to the corresponding torque.

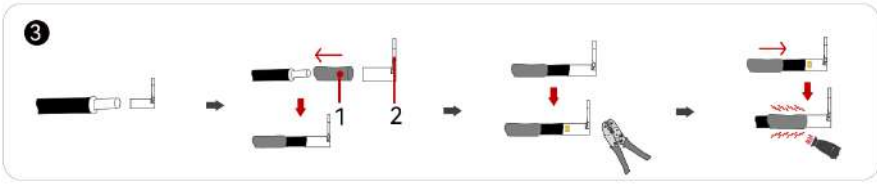
3.5. Connect the AC power cables

NOTICE

- Secure the corrugated pipe on the wall after finishing all wiring connections.
- When fixing the corrugated pipe at the upper left of the machine on the wall, leave an extra cable length of 300 to 400 mm. If it is fixed in other directions, reserve a longer length as needed.
- Products are subject to continuous updates. The printed guide may not reflect the latest changes. If there is any inconsistency between the received product and the printed guide, see the latest electronic Quick Guide or User Manual.

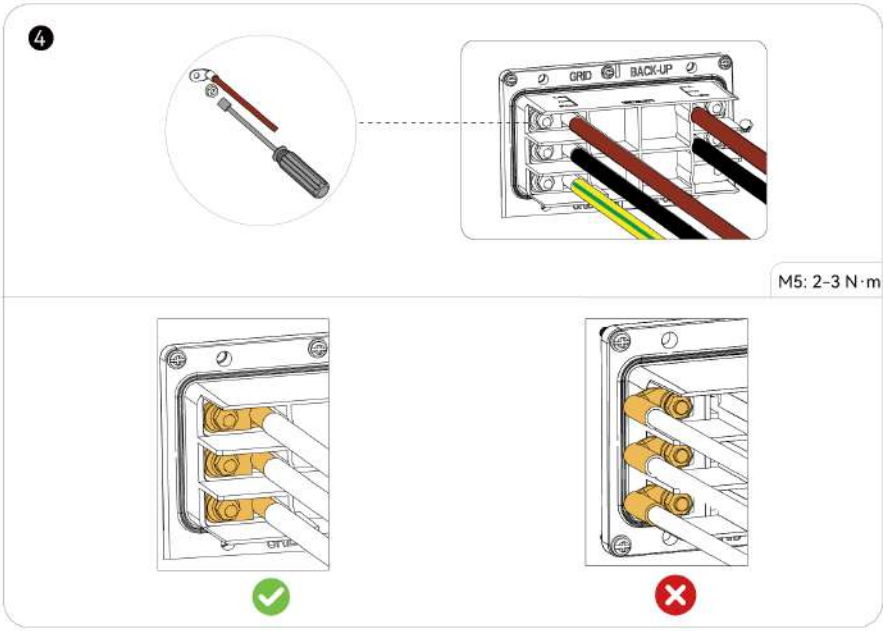


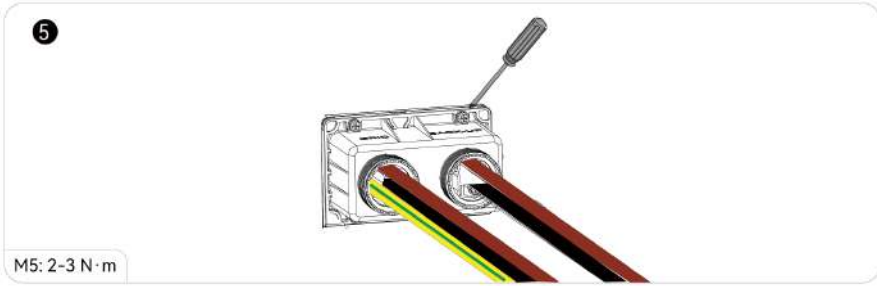


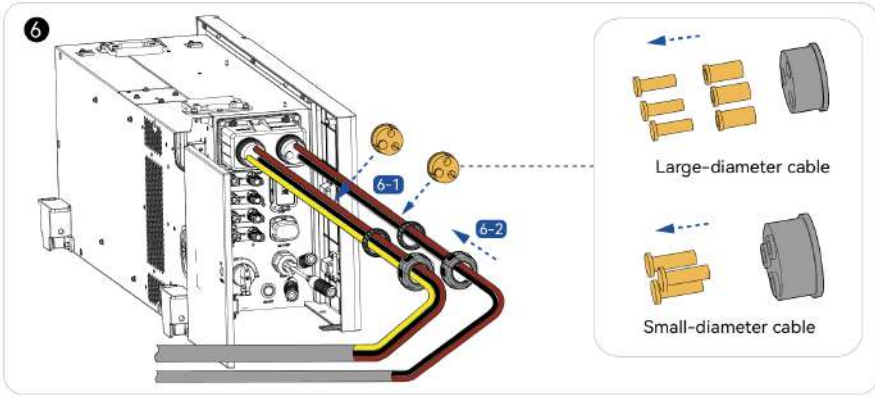


Note:

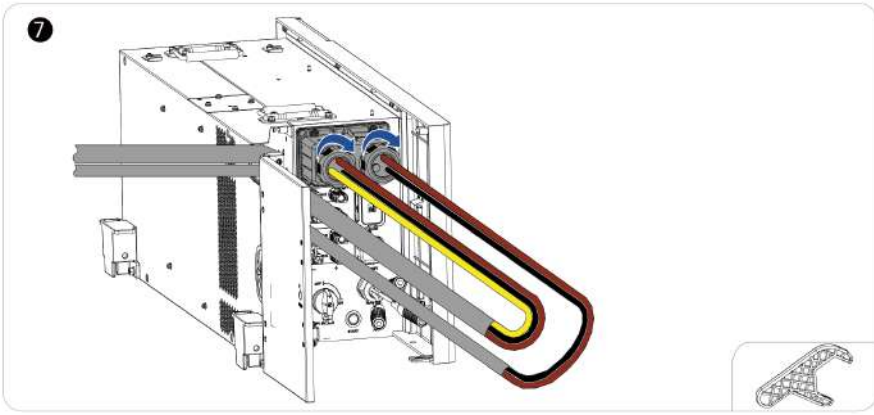
Use cold-pressed terminal crimping plier to crimp the AC cables.


4
GRID
BACK-UP
M5: 2-3 N·m


5
M5: 2-3 N·m



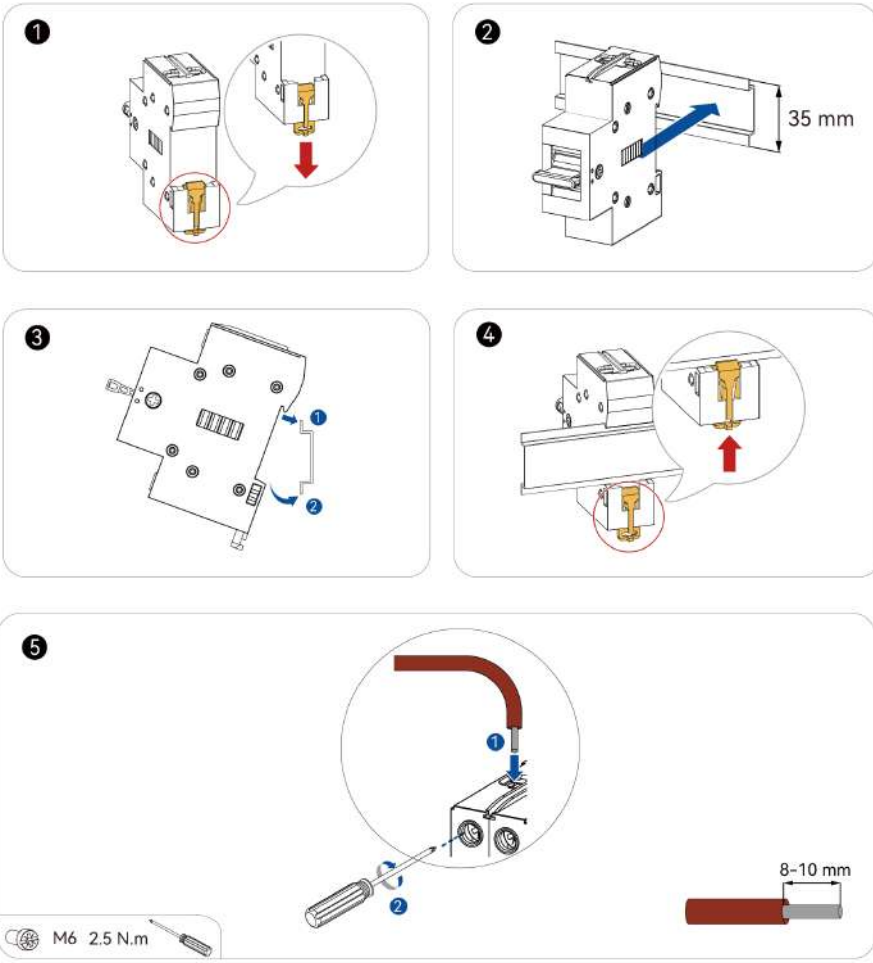
Rubber type	Cross-sectional area range of cable (mm^2)
Large-diameter rubber	10-16
Small-diameter rubber	6-8

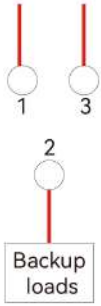


3.6. Connect the manual transfer switch (option A)

NOTICE

- The illustrations are provided for reference only. The component appearance is subject to the actual product you have received.
- The manual transfer switch may vary depending on the shipments. If the product received differs from the one in the printed document, see the latest electronic User Manual or Quick Guide.



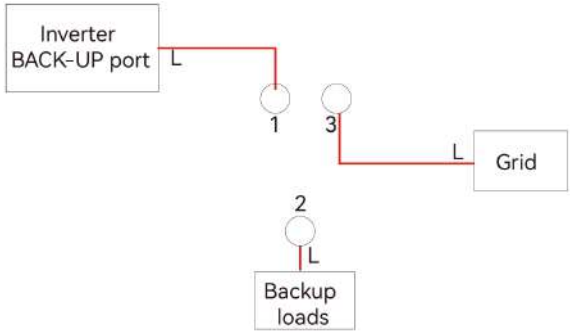


Input 1 to inverter BACK-UP port
Input 3 to grid

Or

Input 1 to grid
Input 3 to inverter BACK-UP port

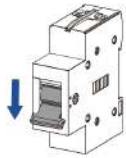
Example



6



ON: 1 connected



ON: 3 connected

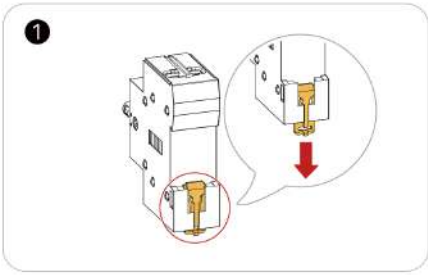


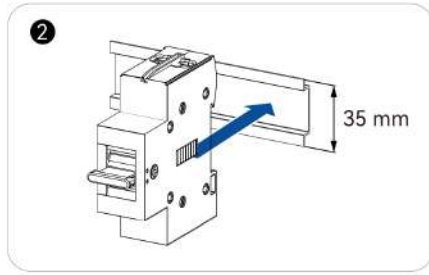
OFF: BACK-UP port and Grid disconnected

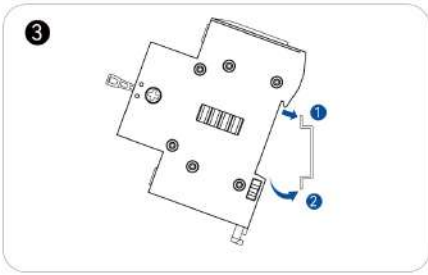
3.7. Connect the manual transfer switch (option B)

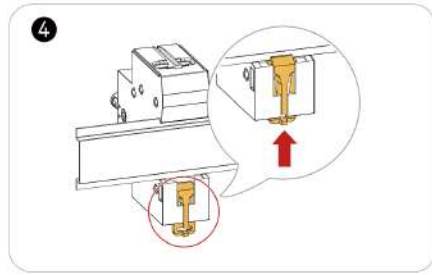
NOTICE

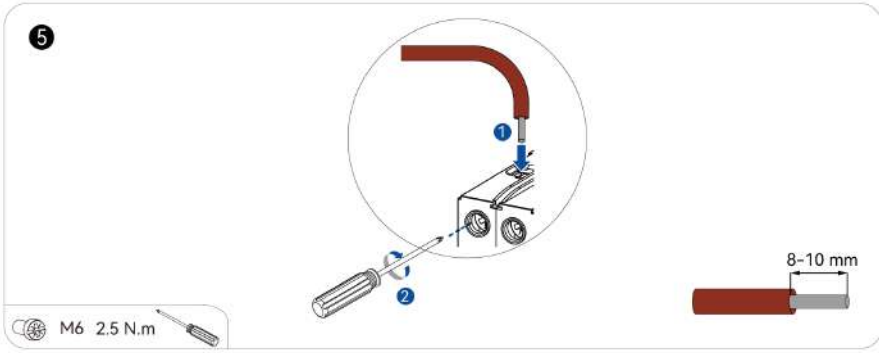
- The illustrations are provided for reference only. The component appearance is subject to the actual product you have received.
- The manual transfer switch may vary depending on the shipments. If the product received differs from the one in the printed document, see the latest electronic User Manual or Quick Guide.

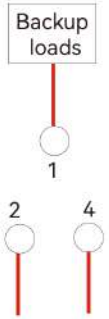










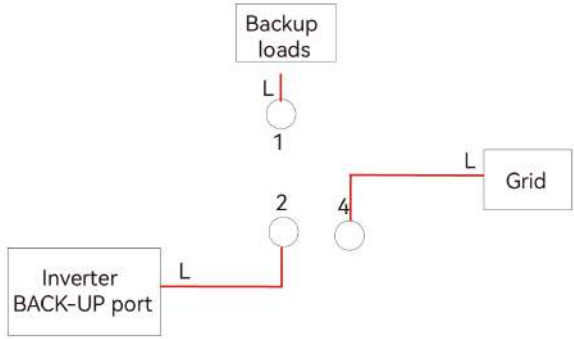


Input 2 to inverter BACK-UP port
Input 4 to grid

Or

Input 2 to grid
Input 4 to inverter BACK-UP port

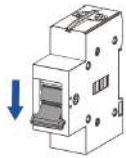
Example



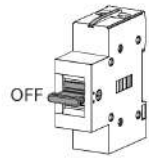
6



ON: 4 connected



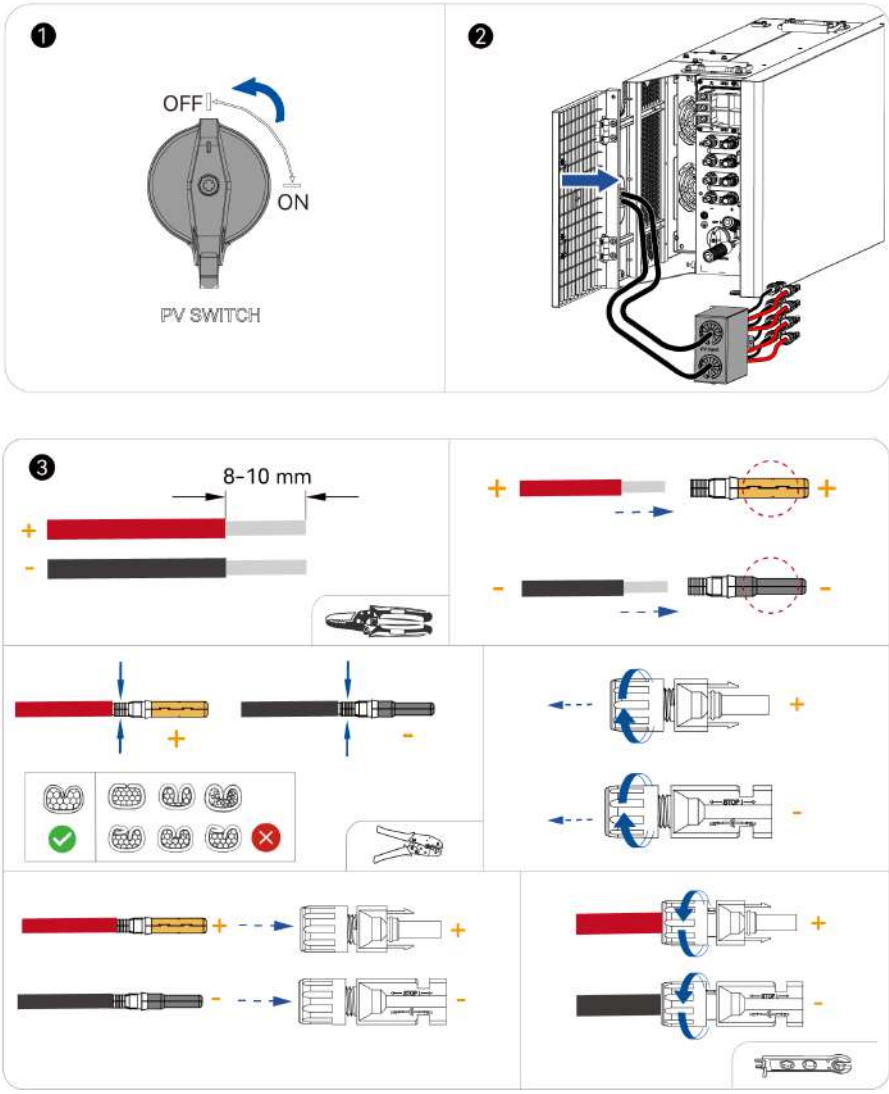
ON: 2 connected

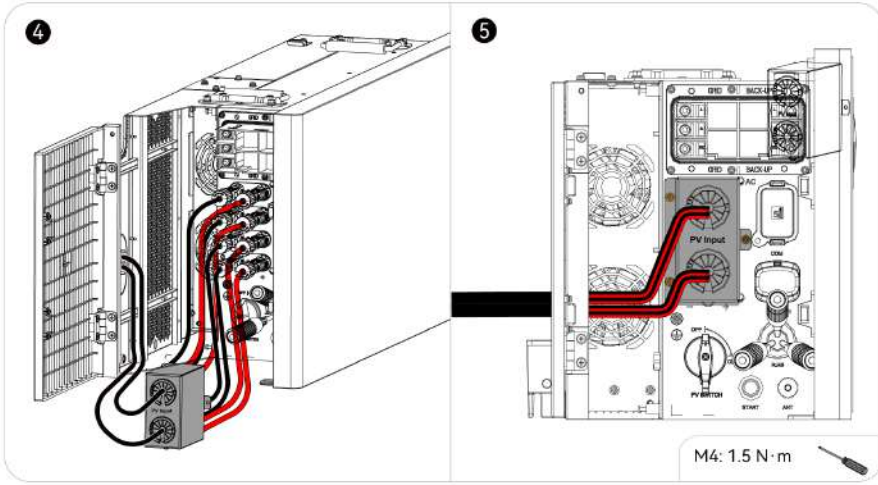


OFF: BACK-UP port and Grid disconnected

3.8. Connect the DC power cables

Note: For the machine models with 3 MPPTs, only connect the DC power cables to the PV1, PV2, and PV3 ports. This section takes the machine model with 4 MPPTs as an example.



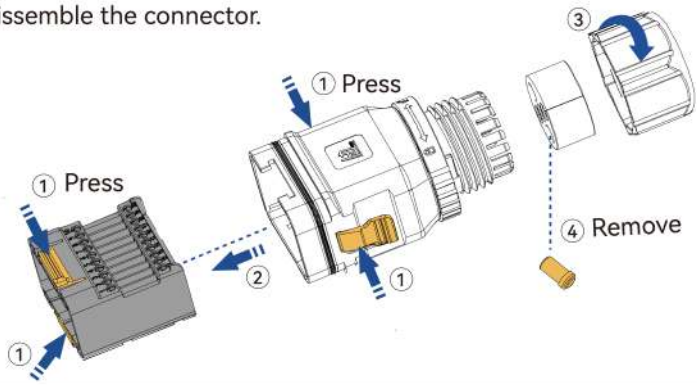

4
5
GRID
BACK-UP
PV Input
M4: 1.5 N·m

3.9. Connect the communication cables to COM port

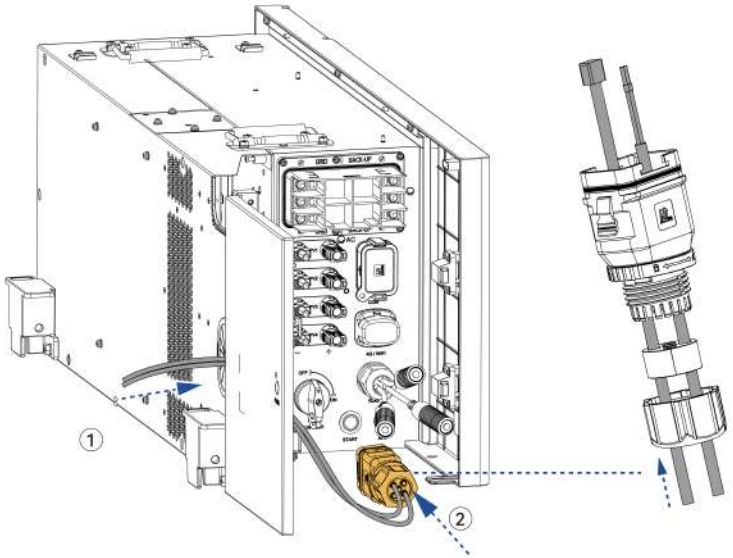
NOTICE

Even if no cables are connected, the communication connector must be installed onto the **COM** port. Otherwise, an internal communication loss alarm will be triggered.

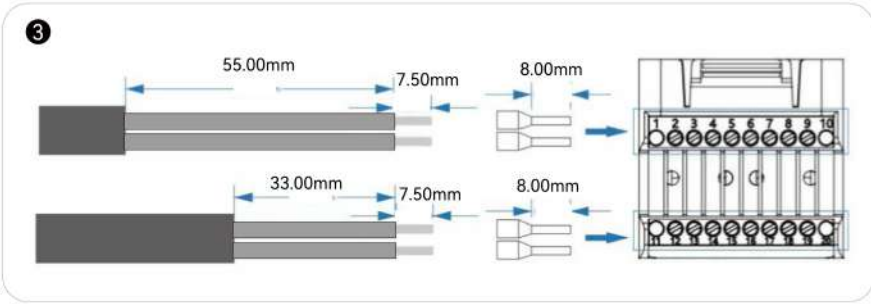
❶ Dissemble the connector.



❷



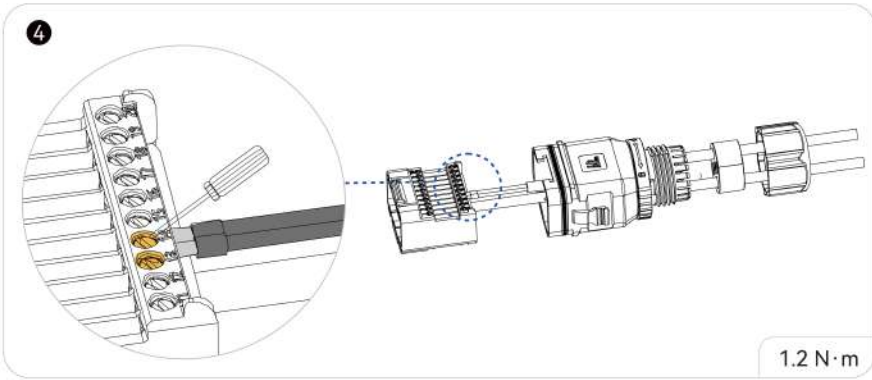
Step 3: Connect and secure the cables to the corresponding terminals based on your needs.

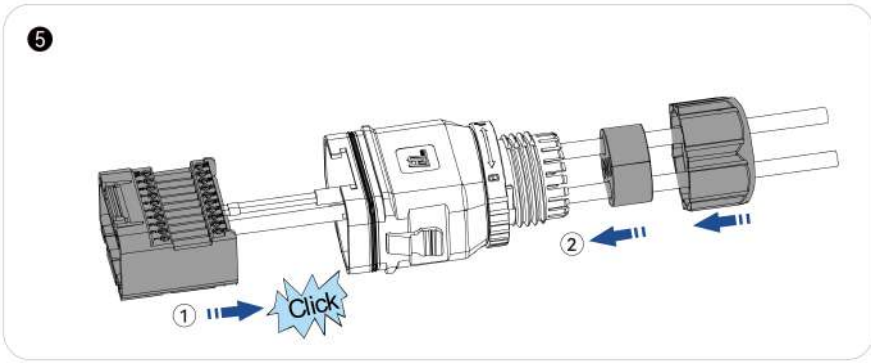


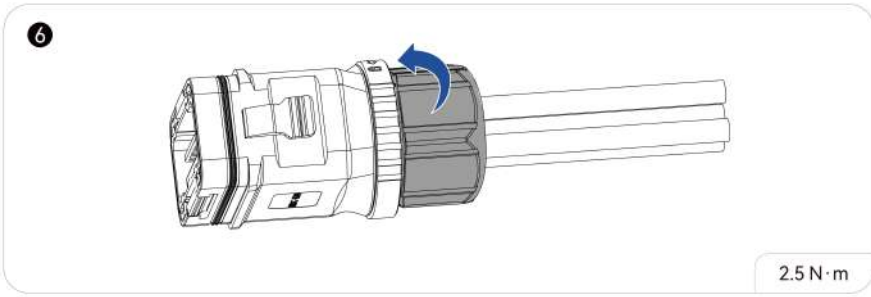
(Optional) Step 4: This step is only required for wired communication between inverter and meter. Connect the cables to terminals **13** (RS485 A) and **14** (RS485 B).

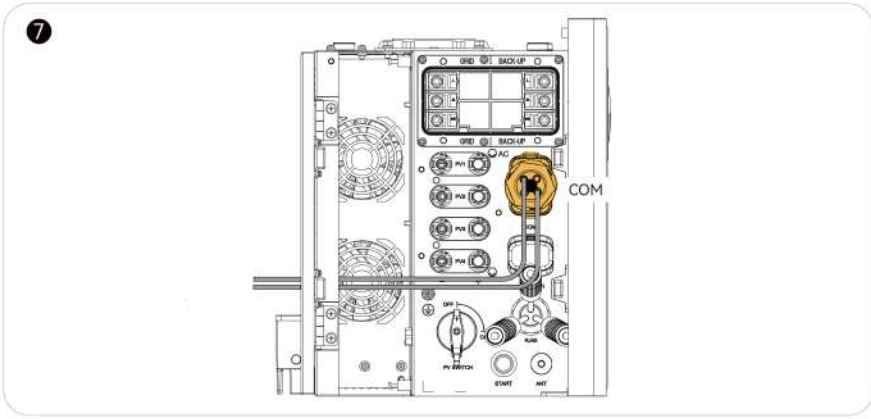
Note:

- The inverter is wirelessly pre-paired with the meter at the factory. For wireless communication, no wiring is required at the communication connector. Skip this step and install the antennas instead.
- For any terminal equipped with a 120 Ω resistor, such as METER-A, switch the resistor to **ON** if the cable exceeds 20 meters.



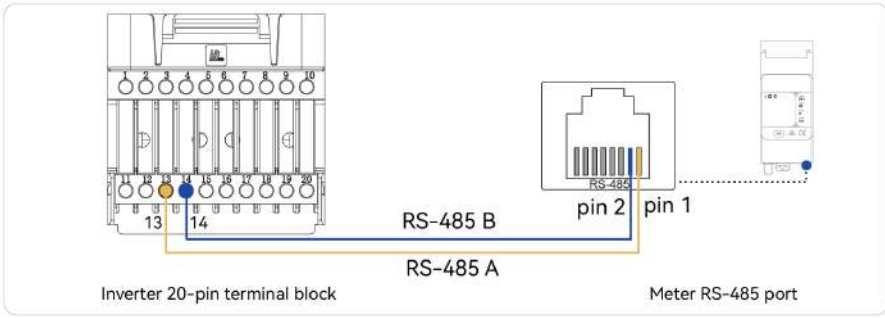




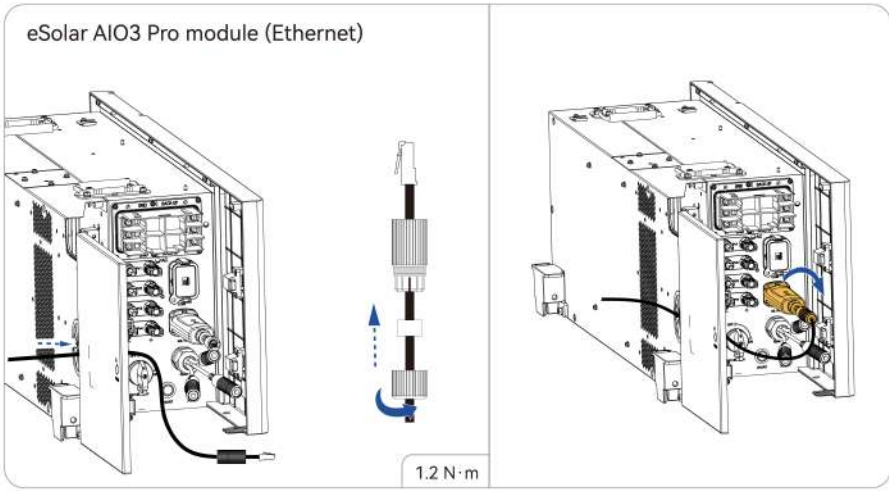


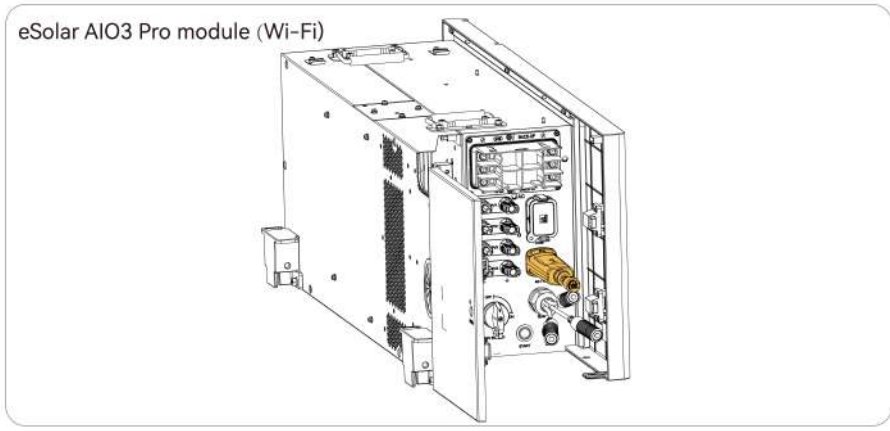
Step 8: Connect the other end of the cables to external devices, such as the meter.

Note: The inverter is wirelessly pre-paired with the meter at the factory. For wireless communication, no wiring is required at the communication connector. Skip this step and install the antennas instead.

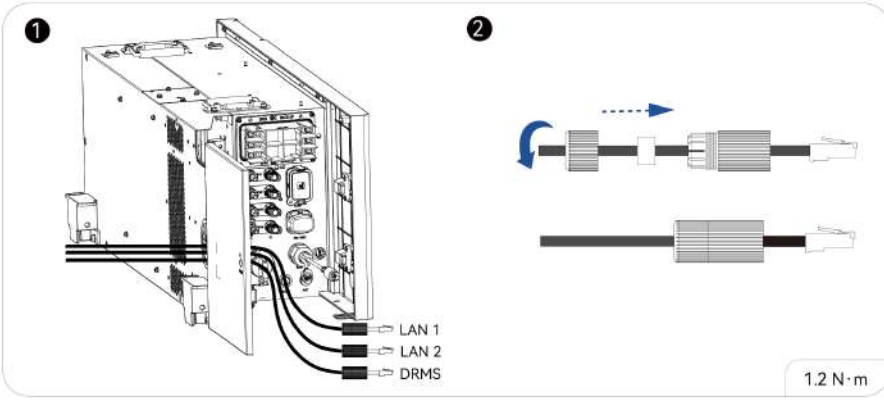

13
14
RS-485 B
RS-485 A
RS-485
pin 2
pin 1
Inverter 20-pin terminal block
Meter RS-485 port

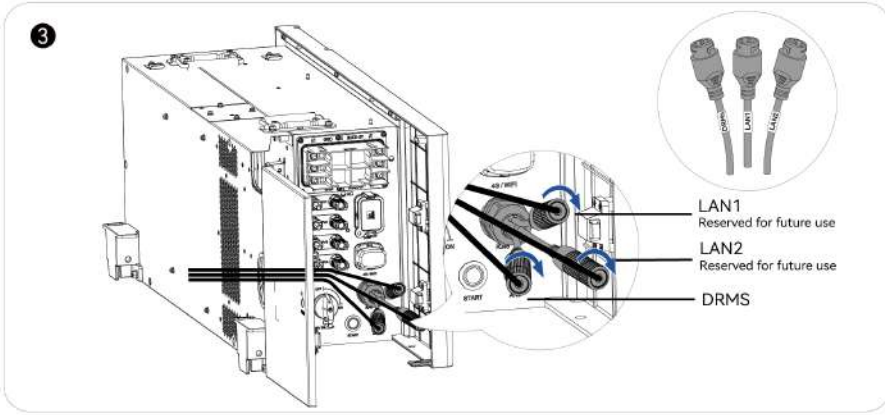
3.10. Connect the communication module





3.11. Connect the LAN and DRMS cables





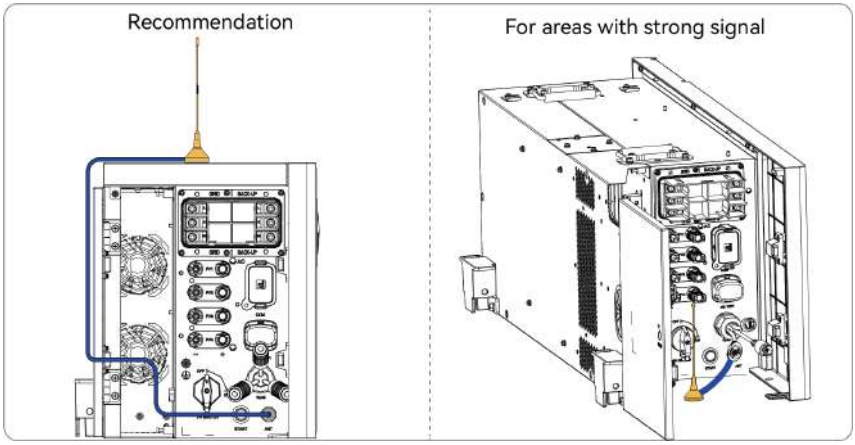
3.12. Connect the antenna

This procedure provides the instructions for installing the antennas used to establish wireless communication between the inverter and the meter.

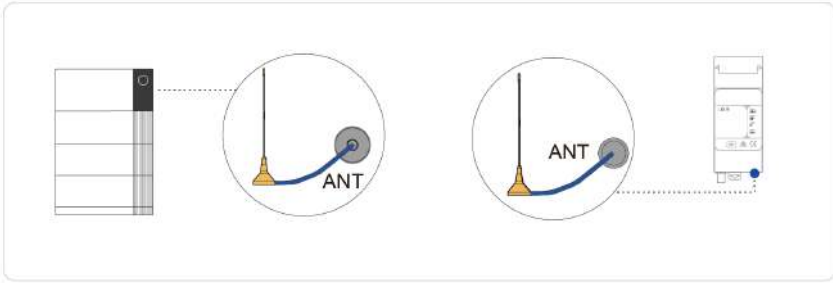
NOTICE

- If the RS-485 wired communication is used, skip this step.
- For better signal reception, mount the antenna on top of the inverter and outside the distribution box where the meter is installed. Otherwise, signal loss may occur.
- With the antennas installed, the inverter is pre-paired wireless with the meter included in delivery. If you want to replace or add a meter, pair the meter and inverter through elekeeper app as instructed in the digital User Manual.

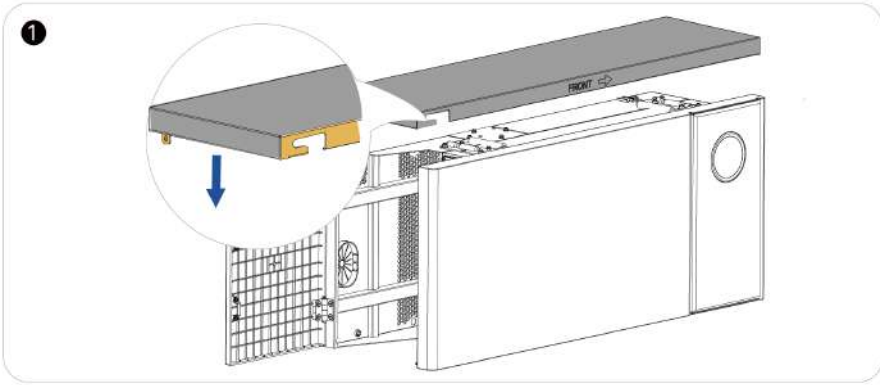
1. Connect the antenna on the inverter.



2. Connect the antenna on the meter.

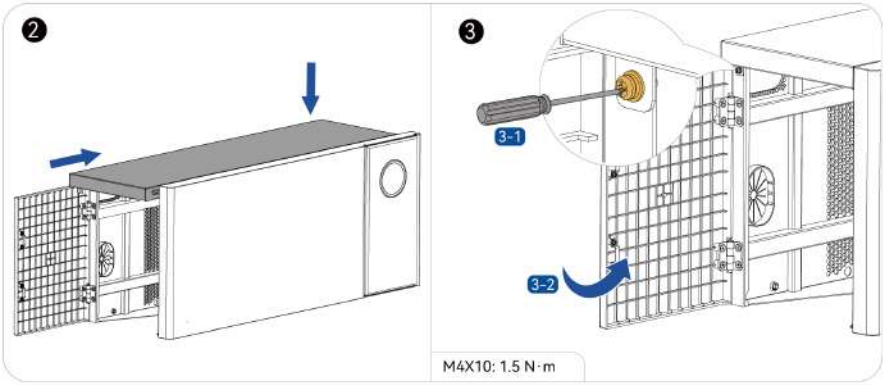


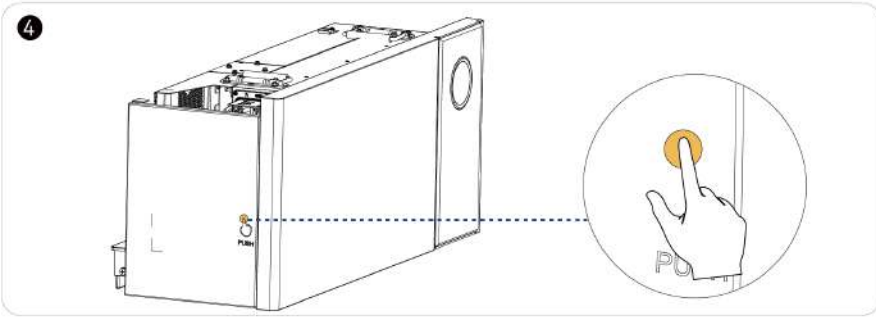
3.13. Install the inverter cover



Note:

Ensure that the removable top cover is securely fixed to prevent internal damage. Protective bonding continuity is verified at the fully assembled system level; the cover must be fitted as part of the system during this test.



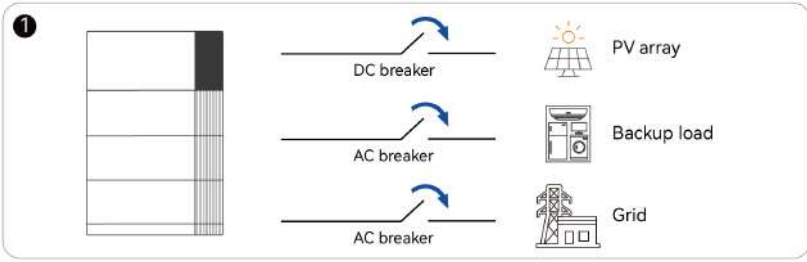

4

4. Start up the system

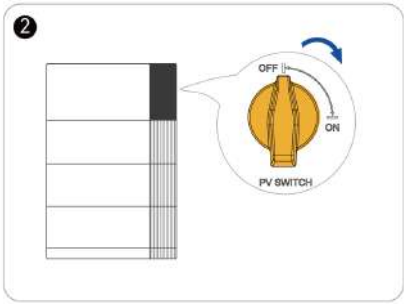
Before you begin

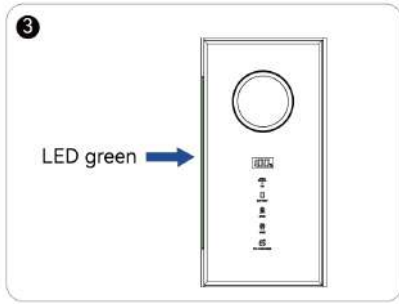
Verify that all the electrical connections are properly wired and secured before starting up the system.

- **Method 1 for starting up the system**
  1. Open the AC distribution box, turn on the following circuit breakers in sequence.
     a. The backup loads
     b. The grid



  2. On the inverter, turn on the **PV SWITCH** to enable the connection to the PV arrays.
  3. Check the LED indicator status on the inverter panel to ensure that the inverter is running properly.



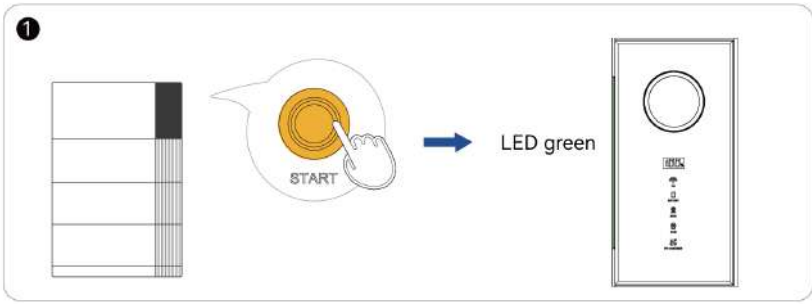


  4. Download the elekeeper App and perform the system commissioning.

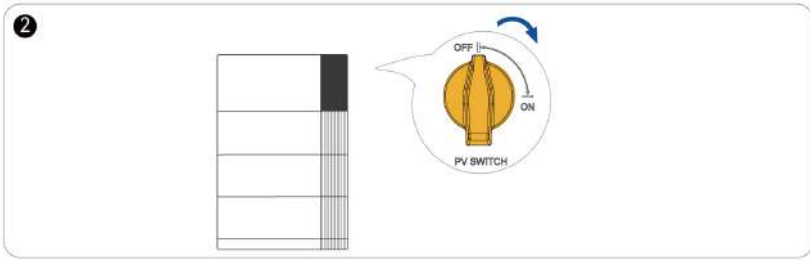


- **Method 2 for starting up the system**

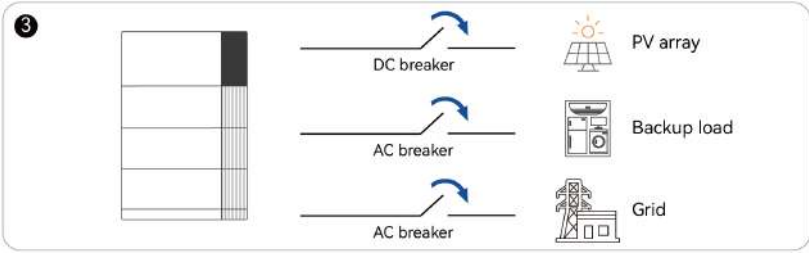
1. On the left side of the inverter, press and hold the **START** button for 5 seconds until the LED indicator on the front panel is on.



2. On the inverter, turn on the **PV SWITCH** to enable the connection to the PV arrays.



3. Open the AC distribution box, turn on the following circuit breakers in sequence.
   a. The backup loads
   b. The grid



4. Download and elekeeper App and perform the system commissioning.



5. LED on the inverter



Figure 5.1. Inverter LED panel

Display	Color	Status	Description
	Green	Solid on	The inverter is working properly with grid connection.
		Breath, on 1.5s, off 1.5s	The inverter is in initialization or standby state.
		Breath, on 3s, off 3s	The inverter is working properly off-grid.
		Breath, on 0.5s, off 0.5s	The inverter is working off-grid with SOC lower than 20%.
	Red	Solid on	The inverter is faulty.
	Yellow	Breath, on 3.5s, off 3.5s	The inverter is upgrading.
	Gray	Off	The inverter is powered off.

Table 5.1. LED light

Display	Color	Status	Description
	White	*Integer* (example, 50)	Battery state of charge (SOC). For example, 50%.
		--	The battery communication is lost.

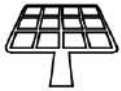
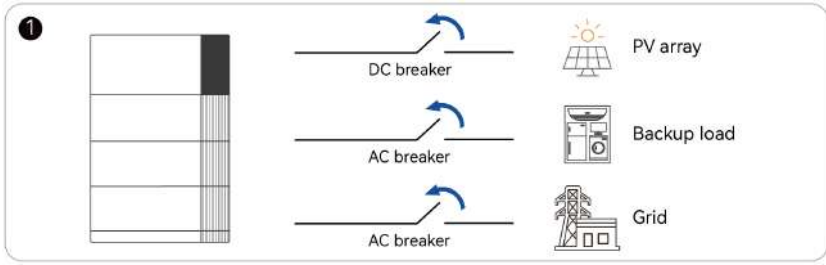
Display	Color	Status	Description
	White	Solid on	The PV array is working.
		Off	The PV array is not connected.
	Red	Solid on	The PV array is faulty.
	White	Solid on	The battery is charging.
		Breath, on 1s, off 1s	The battery is discharging.
		Off	The battery is disconnected or inactive.
	Red	Solid on	The battery is faulty.
	White	Solid on	The inverter is working with grid connection.
		Breath, on 3s, off 3s	The inverter is working off-grid.
		Off	No grid is detected.
	Red	Solid on	AC connection point is faulty.
	White	Solid on	In good communication with the meter, BMS, and cloud.
		Breath, on 1s, off 1s	Lost communication with the meter, BMS, or cloud.
	Red	Solid on	Lost communication with all the meter, the BMS, and cloud.

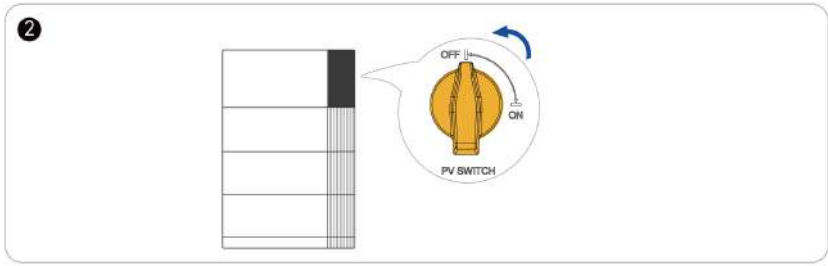
Table 5.2. LED indicators

6. Shut down the system

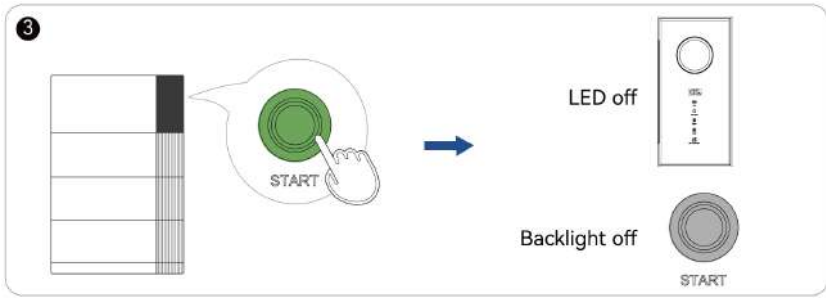
1. Open the AC distribution box, turn off the following circuit breakers:
   a. The backup loads
   b. The grid



2. On the left side of the inverter, turn off the **PV SWITCH** to disconnect from the PV arrays.



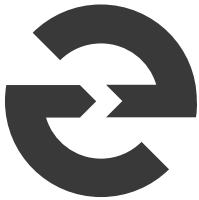
3. On the inverter, press and hold the **START** button for 5 seconds, and then release the button. Wait until both the button backlight and the LED indicator turn off.



Note: Once the system is shut down, there is no voltage output at the positive and negative terminals. Do not forcibly activate the system to output voltage by other means.

Note:

Battery module disconnection: Electronic switch. To disconnect the output, press and hold the **START** button for 5 seconds. This causes the battery module to shut down automatically and the main positive contactor to open.



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