

# ATS series

ATS Box

ATS1-T63-A

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## User Manual



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## About this document

This user manual provides introductions and instructions of operating, maintaining, and troubleshooting the following SAJ product:

- ATS1-T63-A

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

### Target Audience

This document is applicable to the personnel that transport, install, and operate on the product. The personnel are required to have the following qualifications:

- A certain level of expertise in electronics, electrical wiring, and mechanical knowledge in electrical and mechanical schematics.
- Being familiar with the composition and working principles of the product and its upstream and downstream equipment.
- Professional training related to the installation and commissioning of electrical equipment.
- The ability to respond urgently to dangers or emergencies that may arise during installation or commissioning.
- Being familiar with relevant standards and regulations in the country or region where the project is located.
- Being familiar with the contents in this manual.

### Use of the Manual

Read the user manual carefully before any installation, operation and maintenance and follow the instructions during installation and operation. Always keep the printed manual available for future reference.

### Levels of Warning Messages



#### DANGER

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.



#### WARNING

Indicates a hazardous situation which, if not avoided, will result in serious injury or moderate injury.



#### CAUTION

Indicates a hazardous situation which, if not avoided, will result in minor or moderate injury.



#### NOTICE

Indicates a situation which, if not avoided, can result in property damage.

## Revision history

| Version | Date       | Changes                                                     |
|---------|------------|-------------------------------------------------------------|
| V3.0    | 2026-07-27 | <a href="#">3.2. Plan the installation site (on page 6)</a> |

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## 1. Safety instructions

### 1.1. Safety instructions

For safety, be sure to read all the safety instructions carefully prior to any works. Follow the safety rules and regulations of the country or region where you install the product.

#### **DANGER**

- Possible fatal personnel injuries due to electrical shock and high voltage.
- Do not touch the surface of the equipment while the housing is wet, otherwise, it might cause electrical shock.
- Do not touch the operating components that are covered by the insulation cover; it might result in burning or death.
- Do not stay close to the equipment while there are severe weather conditions including storm, lighting, etc.
- Keep the power off prior to any installation or maintenance operations.

#### **WARNING**

- Any unauthorized actions including modification of product functionality of any form may cause lethal hazard to the operator, third parties, the units or their property. SAJ is not responsible for the loss and these warranty claims.
- Do not touch non-insulated parts or cables.
- Disconnect the AC circuit breaker, or keep it disconnect if it is tripped, and secure it against reconnection.
- Be sure that the product is well grounded to protect properties and persons.

### 1.2. Safety symbols

| Symbol                                                                              | Description                                                                                                                                                                  |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Danger:</b> Electrical shock hazard<br>This device is directly connected to public grid and thus all work to the system shall only be carried out by qualified personnel. |
|  | <b>Danger:</b> Hot surface<br>The components inside the battery will release a lot of heat during operation. Do not touch metal plate housing during operating.              |
|  | <b>Danger:</b> Risk of electric shock from energy stored in capacitor.<br>Do not open the cabinet door until 5 minutes after disconnecting all sources of supply.            |
|  | <b>Warning:</b> No open flames<br>Do not place or install near flammable or explosive materials.                                                                             |
|  | <b>Caution</b><br>Keep the product out of reach of children.                                                                                                                 |
|  | <b>Caution:</b> Check the user manual before service<br>If an error has occurred, refer to the troubleshooting instructions to remedy the error.                             |

| Symbol                                                                            | Description                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Caution</b><br>This device shall NOT be disposed of in residential waste.                                                                                                                                         |
|  | <b>Caution</b><br>This battery module shall NOT be disposed of in residential waste.                                                                                                                                 |
|  | <b>CE Mark</b><br>Equipment with the CE mark fulfills the requirements of the Low Voltage Directive and Electro Magnetic Compatibility.                                                                              |
|  | <b>RoHS compliant mark</b><br>Equipment with the RoHS mark does not exceed the allowable amounts of the restricted substances defined in Restriction of Hazardous Substances in Electrical and Electronic Equipment. |
|  | <b>RCM compliant mark</b><br>Equipment with the RCM mark is in compliance with AS/NZS 4417.1 & 2 and the EESS.                                                                                                       |
|  | <b>Recyclable</b>                                                                                                                                                                                                    |

### 1.3. Recycling and disposal

#### NOTICE

This product should not be disposed as a residential waste.

Some components inside the equipment can be recycled and reused, while others may pose a pollution risk to the environment. Please contact a locally authorized professional recycling agency for the proper handling of the product and its internal components.

## 2. Product introduction

The SAJ ATS Box integrates with multiple power sources and automatic load switch in the photovoltaic (PV) energy storage system (ESS) to ensure continuous power supply to loads with higher priority.

For ATS1-T63-A equipped with the eManager module, the ATS Box can integrate with the grid, SAJ hybrid inverters, and on-grid inverters of SAJ or other manufacturers. When the grid is available, the ATS Box supplies electricity to both the on-grid and off-grid loads from the integrated power sources; if the grid fails, the ATS Box continues to supply electricity to the off-grid loads from the backup output of hybrid inverters while disconnecting the on-grid loads.

ATS1-T63-A also provides the grid phase-loss protection function that allows the ATS Box to switch the power supply from the grid to the inverter backup output automatically if one of the grid phases is detected as disconnected. After the grid phase is detected as recovered, ATS Box switches the power supply back to the grid automatically.

The following figure shows the system diagram of ATS1-T63-A equipped with the eManager module:

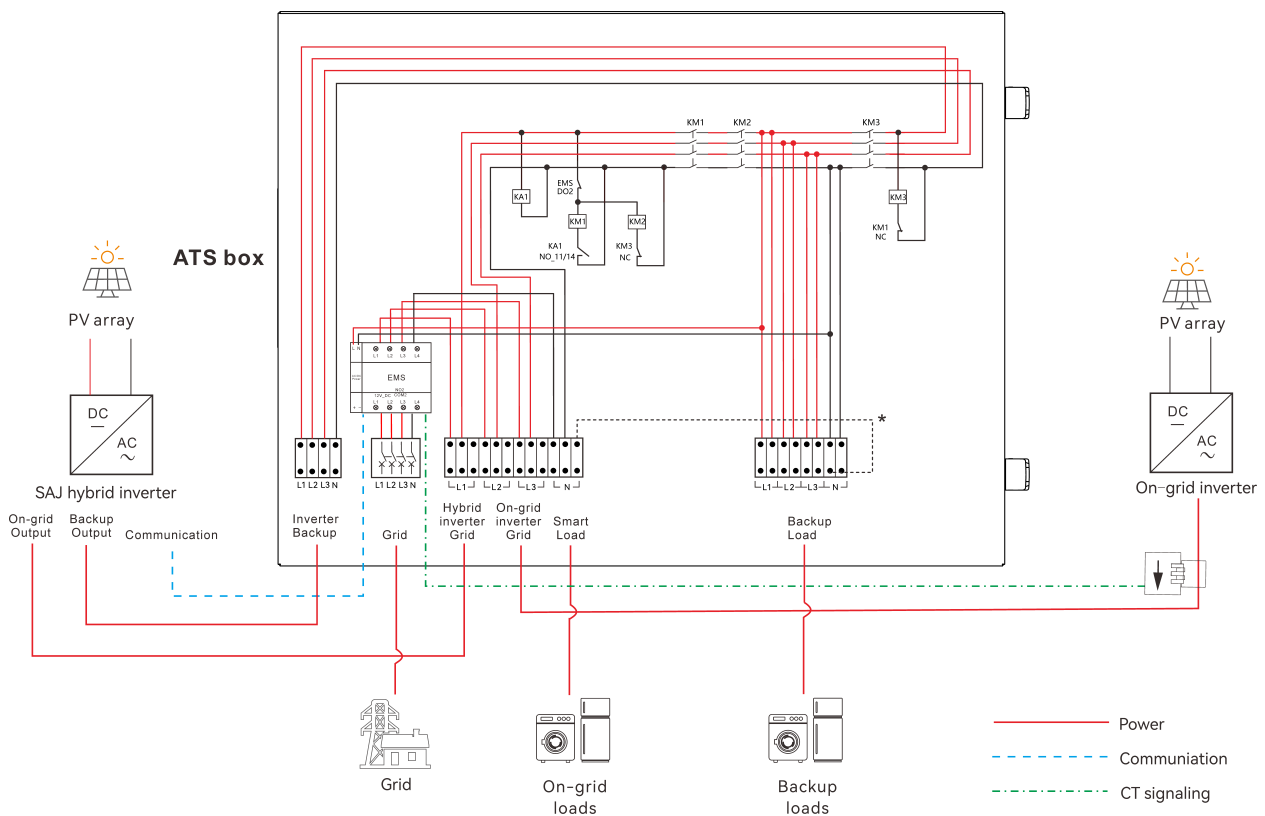
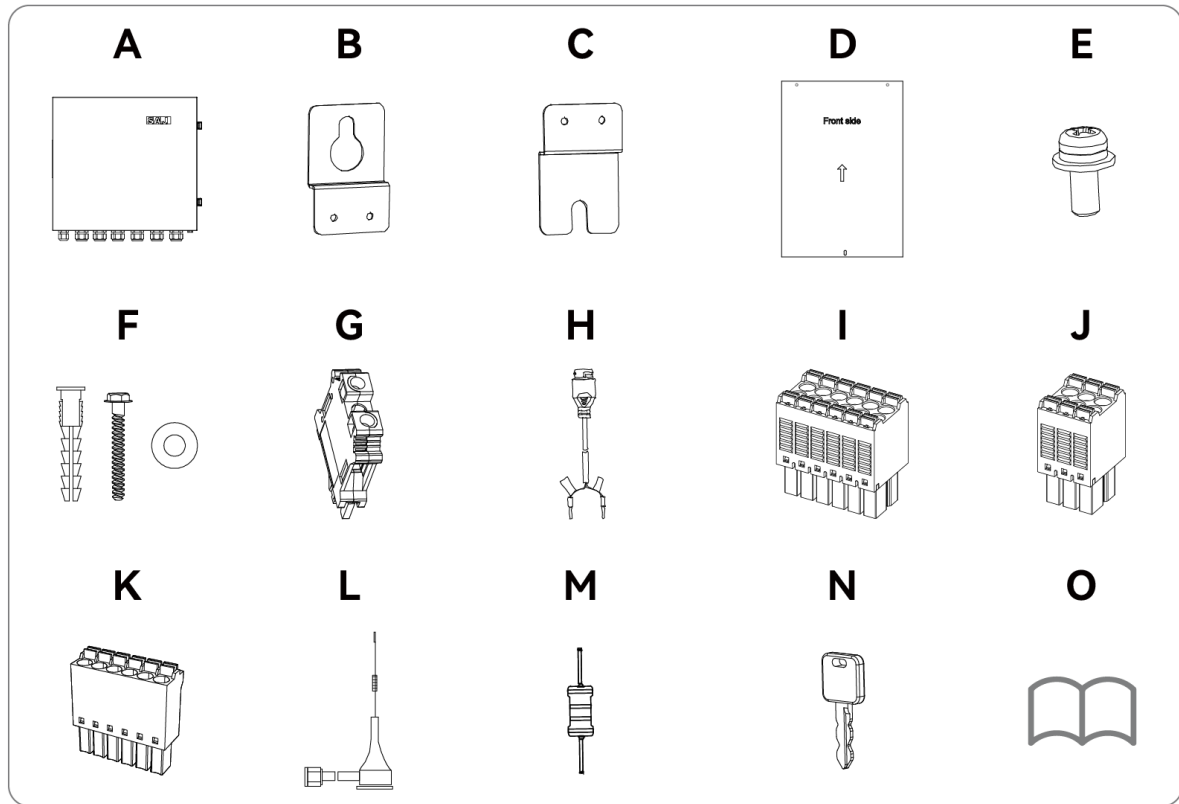


Figure 2.1. System connections – ATS Box with eManager

**Note:** If the local power grid requires that the **N** cables of the grid and the **Backup Load** keep connected, the user needs to prepare the cable and connect the two **N** terminals as the dotted line in the diagram shows.

### 3. Installation

#### 3.1. Packing list

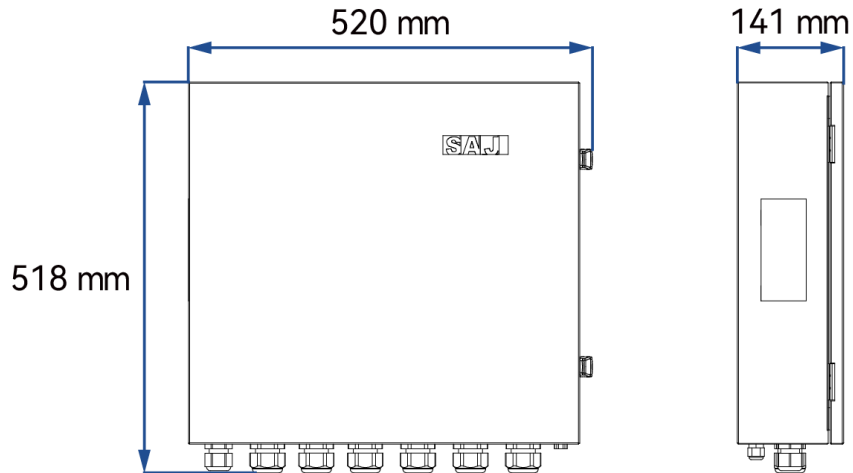


| Number | Quantity | Designation                                    |
|--------|----------|------------------------------------------------|
| A      | 1        | ATS1-T63-A                                     |
| B      | 2        | Upper mounting bracket                         |
| C      | 1        | Bottom mounting bracket                        |
| D      | 1        | Locating cardboard                             |
| E      | 6        | M4*10 screw                                    |
| F      | 3        | Expansion tube, Expansion bolt , and Gasket    |
| G      | 3        | Rail-mounted AC grounding cable terminal       |
| H      | 2        | Communication cable                            |
| I      | 1        | 12-pin pluggable terminal for RS485 connection |
| J      | 1        | 6-pin pluggable CT terminal                    |
| K      | 1        | 6-pin pluggable RCR terminal                   |
| L      | 1        | Antenna                                        |
| M      | 1        | 15 kΩ resistor                                 |
| N      | 2        | Key                                            |
| O      | 1        | Documents                                      |

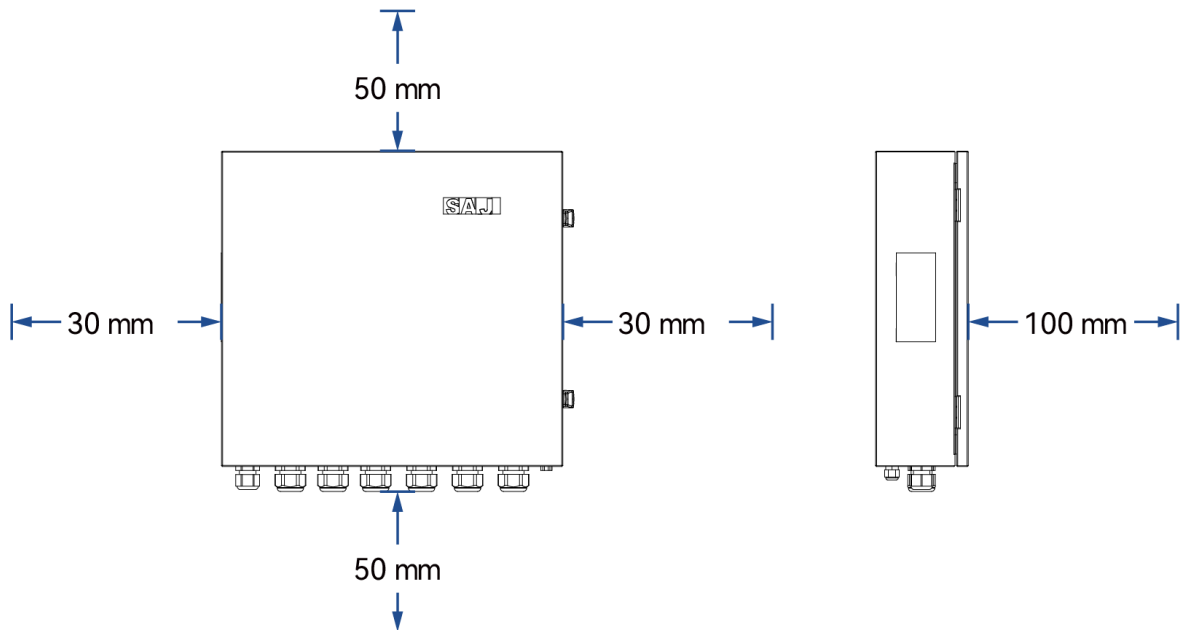
### 3.2. Plan the installation site

The device employs natural convection cooling, and it can be installed either indoor or outdoor.

**Note:** When the grid is unstable, the noise level may exceed 30dB. Do not install the device in resting areas, such as bedrooms.



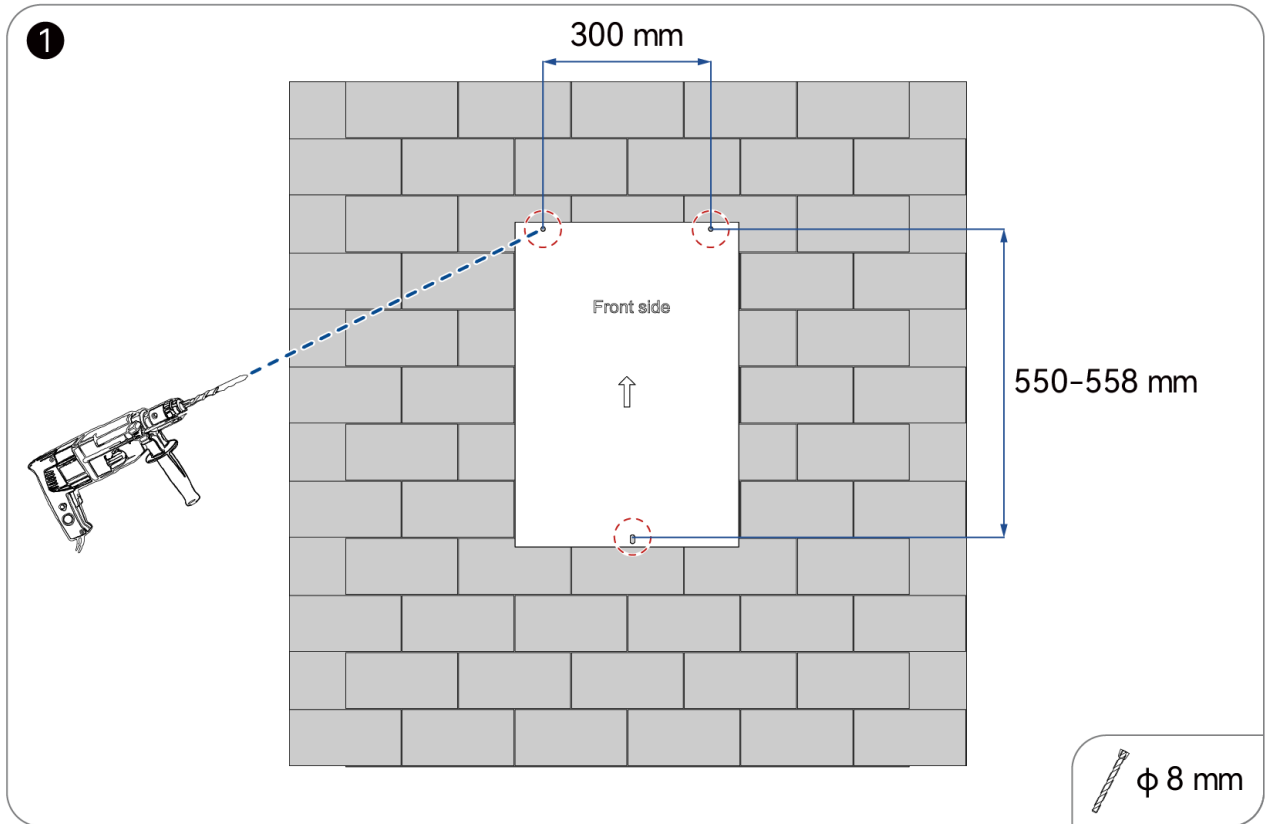
Reserve enough space around the ATS Box to ensure ventilation and convenience of operation.



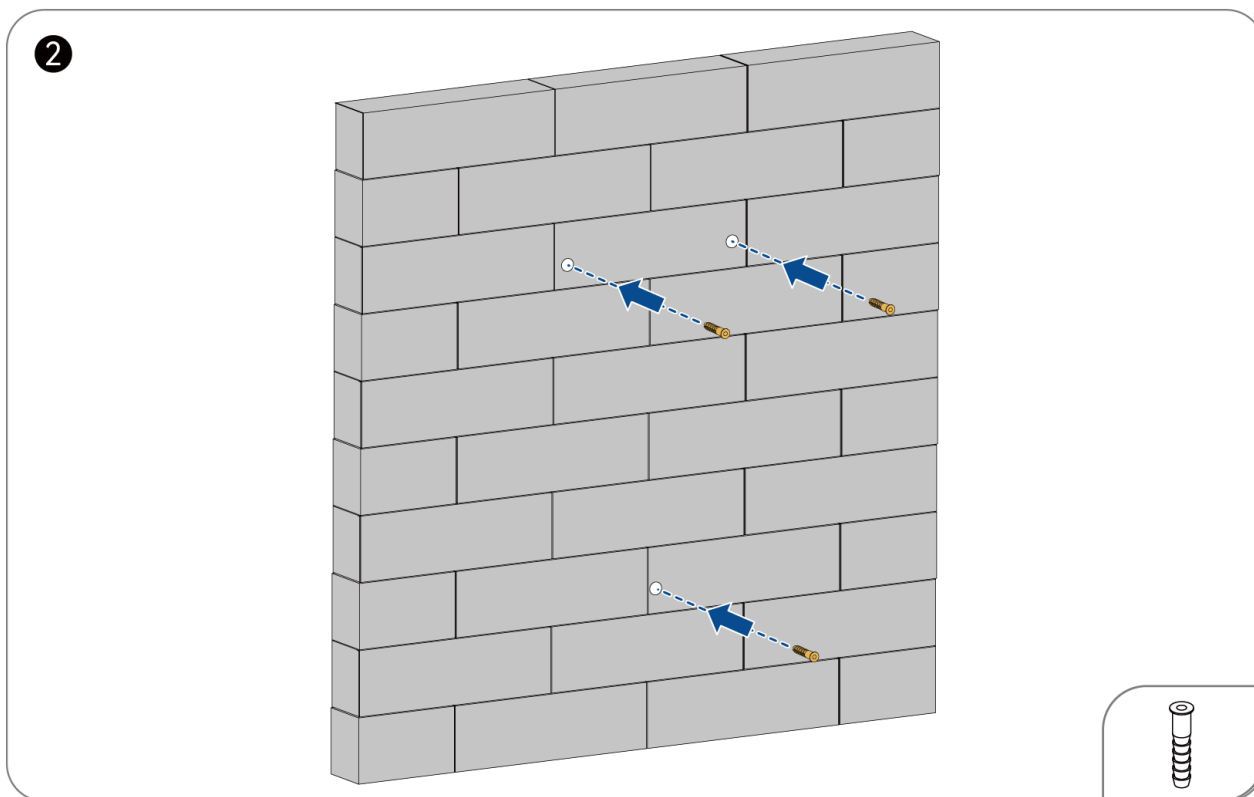
### 3.3. Mount the ATS Box

#### Procedure

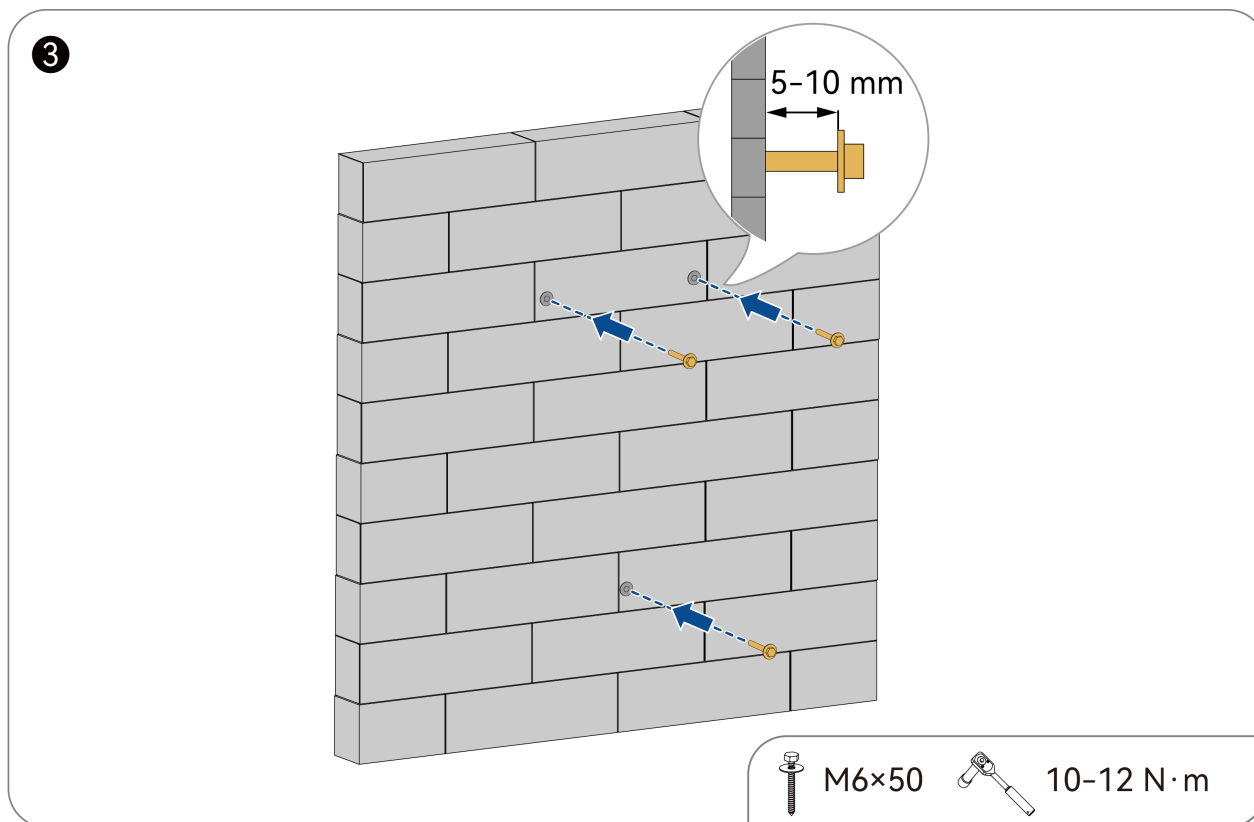
1. Put the locating cardboard on the wall where the ATS Box will be installed with the front side facing outwards. Mark and drill three drilling holes according to the markings on the cardboard.



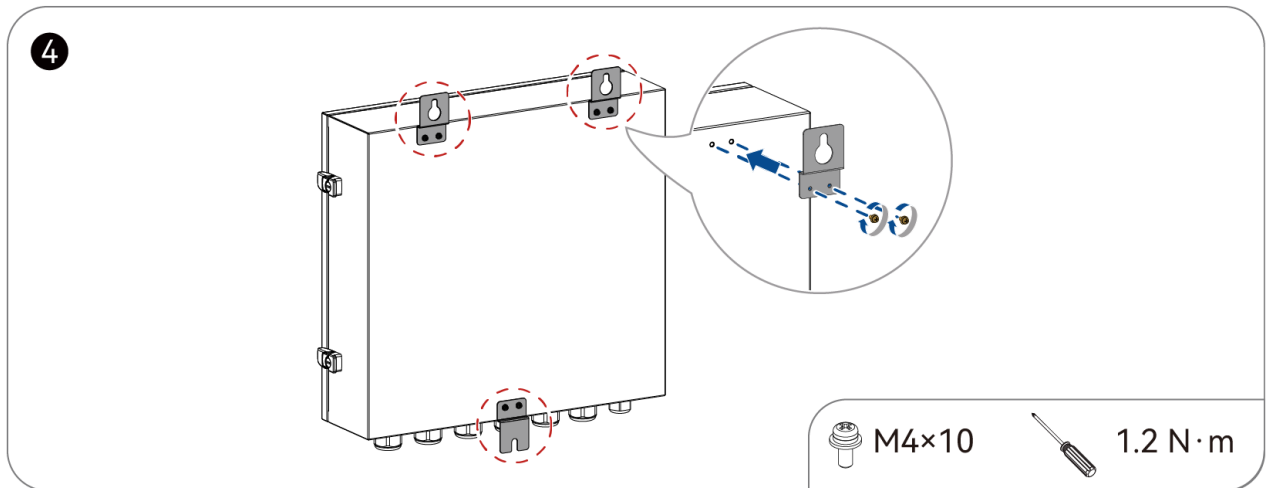
2. Insert the expansion tubes into the holes.



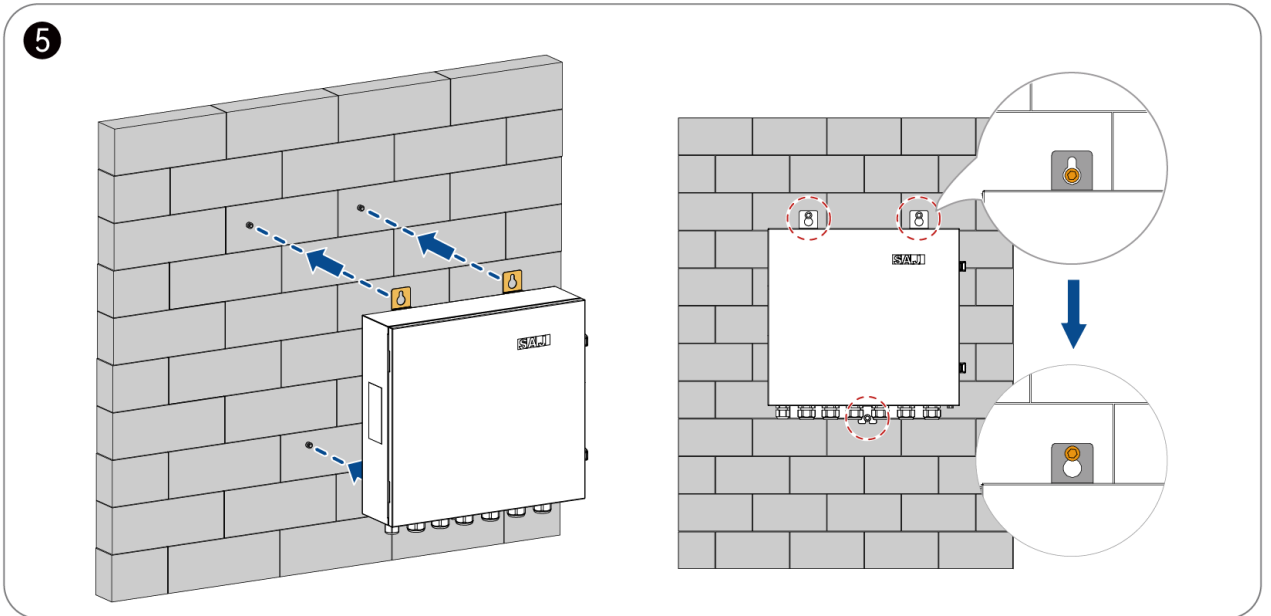
3. Insert the expansion bolts into the expansion tubes, leaving around 5-10 mm outside the wall surface.



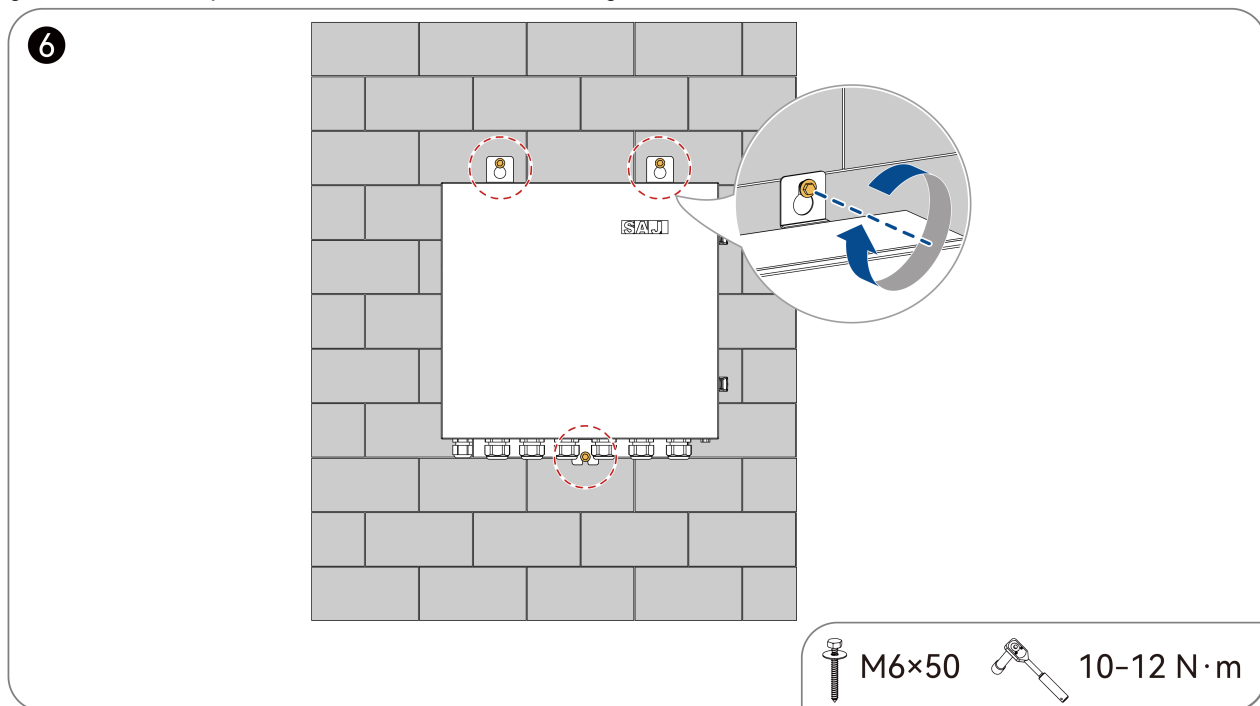
4. Secure the upper and bottom mounting brackets on the back of the ATS Box box. Secure each bracket with two screws.



5. Mount the ATS Box box onto the three expansion bolts on the wall. Slide the ATS Box box down along the hole of the mounting bracket to secure the box.



6. Tighten the three expansion bolts to secure the mounting brackets to the wall.



## 4. Cable connection

### 4.1. Electrical interfaces description

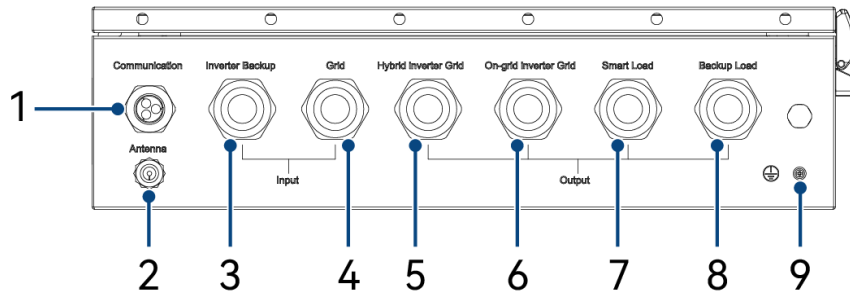


Figure 4.1. Electrical interfaces

| Callout | Silkscreen                   | Description                                                                                                                                                                                                                   |
|---------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | <b>Communication</b>         | For the communication cable between ATS Box and the inverters.                                                                                                                                                                |
| 2       | <b>Antenna</b>               | For the antenna connection for the eManager module.                                                                                                                                                                           |
| 3       | <b>Inverter Backup</b>       | For the AC cable connections from the backup output of hybrid inverters to supply electricity to the off-grid loads.                                                                                                          |
| 4       | <b>Grid</b>                  | For the AC cable connections from the grid to supply electricity to both the on-grid and off-grid loads.                                                                                                                      |
| 5       | <b>Hybrid inverter Grid</b>  | For the AC cable connections from the on-grid output of hybrid inverters.                                                                                                                                                     |
| 6       | <b>On-grid inverter Grid</b> | For the AC cable connections from the on-grid output of on-grid inverters. The electricity is supplied to both the on-grid and off-grid loads.                                                                                |
| 7       | <b>Smart Load</b>            | For the AC cable connections to supply electricity to the on-grid loads. When the power grid is out, ATS1-T63-A stops supplying power to these loads.                                                                         |
| 8       | <b>Backup Load</b>           | For the AC cable connections to supply electricity to the off-grid loads. When the power grid is out, ATS Box switches the power supply to the <b>Inverter Backup</b> output to ensure continuous electricity to these loads. |
| 9       | <b>Grounding</b>             | For the grounding cable connection.                                                                                                                                                                                           |

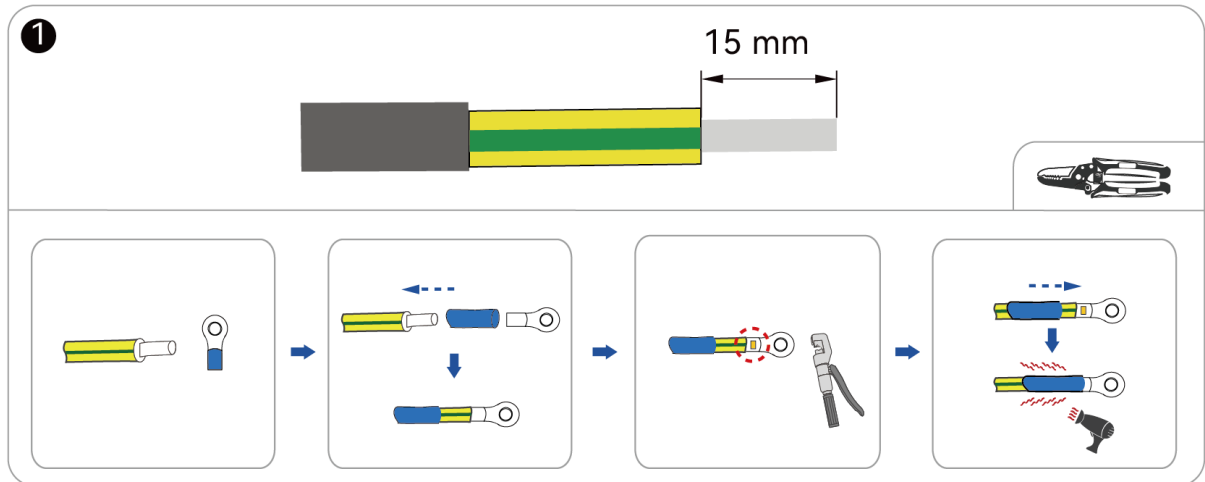
## 4.2. Connect the grounding cable

### Before you begin

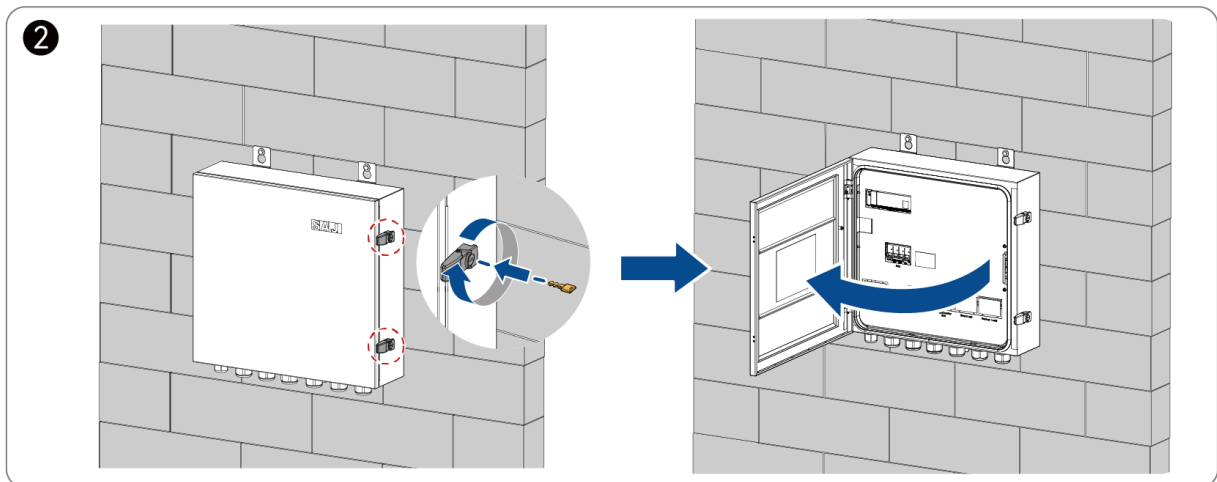
Prepare a grounding cable of 6-10 AWG cross-sectional area and an RNBS5-4 terminal for cable connection.

### Procedure

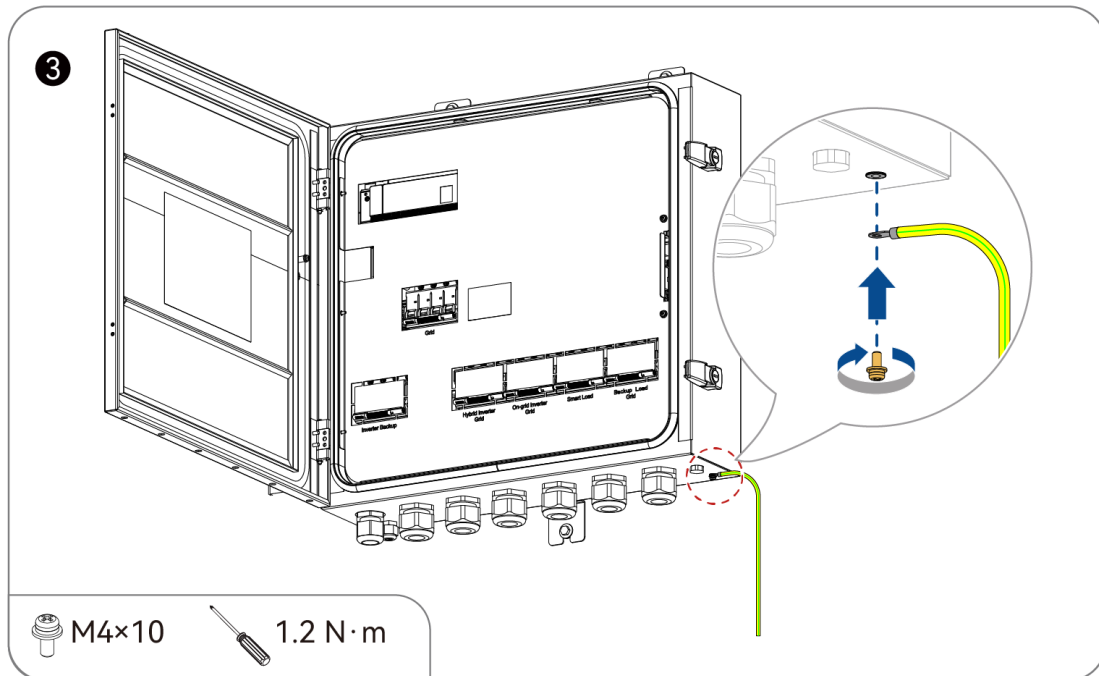
1. Assemble the grounding cable terminal.



2. Use the key to open the ATS Box box.



3. Crimp the grounding cable with the RNBS5-4 terminal. Connect the grounding cable on the bottom of the ATS Box box.

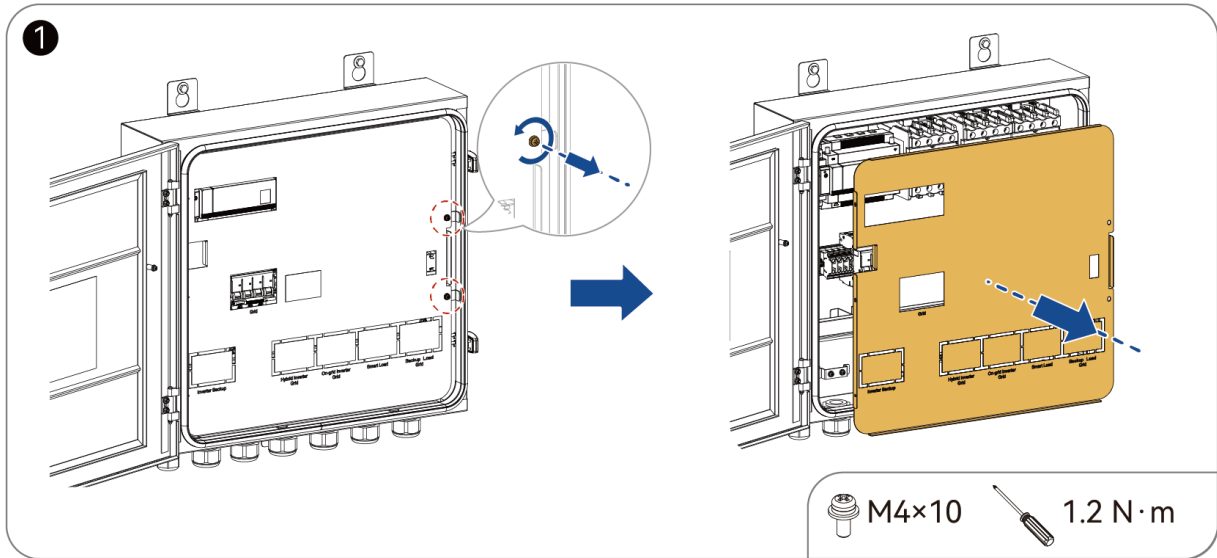


### 4.3. Connect the eManager module cables

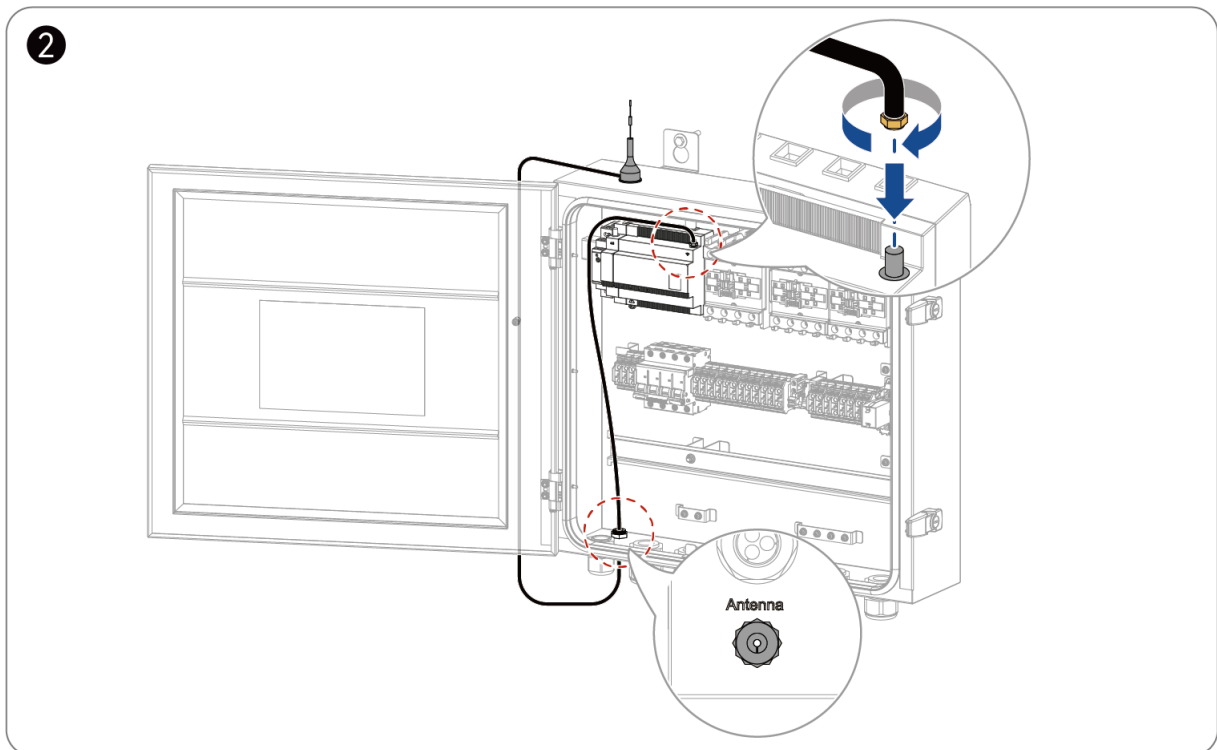
The 12V power supply of the eManager module is connected by default. Take the steps below to connect the antenna and communication cables.

#### Procedure

1. Loosen the two screws to remove the insulation cover in the box.

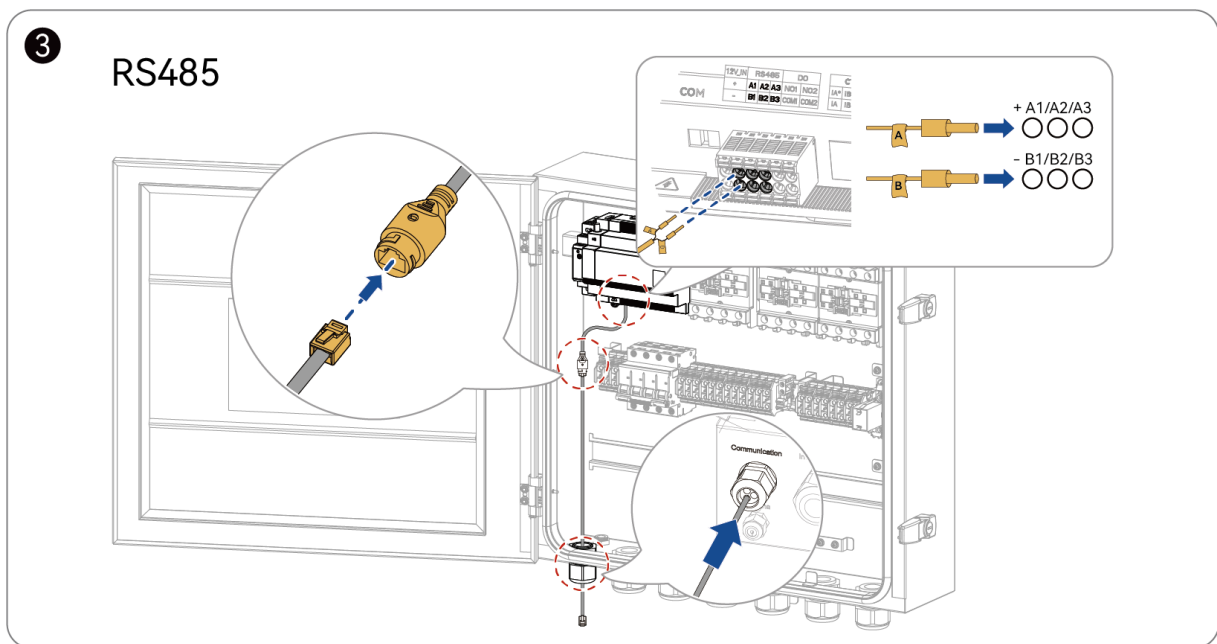


2. Insert the screw end of the antenna cable through the **Antenna** cable gland at the bottom of the ATS Box box, and secure the cable end on the top right of the eManager module. Stick the antenna on top of the box.

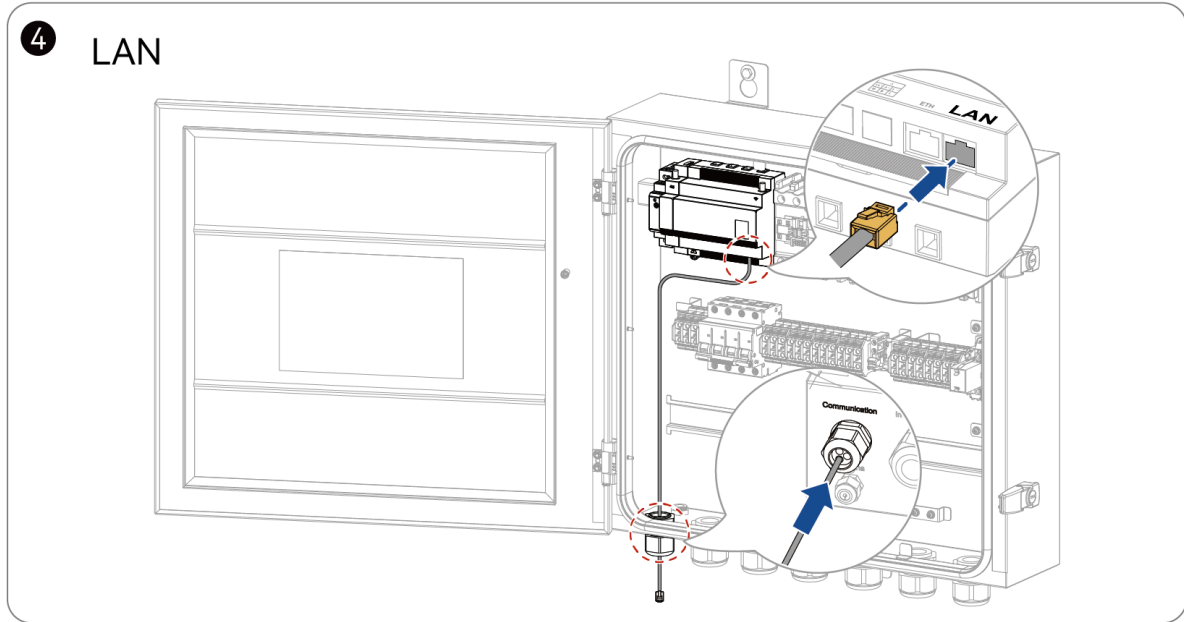


Connect the communication cable to the **RS485** or **LAN** port of the eManager depending on the inverter model.

3. Take this step to connect the hybrid inverter to the eManager through **RS485** communication. For detailed information, refer to the eManager user manual.
  - Prepare a Category 5 or 6 communication cable between the hybrid inverter and ATS Box with a RJ45 plug on both ends.
  - Connect one end of the RJ45 plug to the negative port of the eManager communication cable.
  - Pin 7 and 8 of the RJ45 plug are used for RS485 communication.
  - Insert the other two-pin connector of the eManager communication cable to the RS485 **A1/B1**, **A2/B2**, or **A3/B3** ports on the eManager module, depending on which ports are available.
  - Connect the other end of the communication cable to the corresponding port on the inverter depending on the inverter model.



4. Take this step to connect the hybrid inverter to the eManager through **LAN** communication. For detailed information, refer to the eManager user manual.
  - Insert one end of the RJ45 plug into the **LAN** port on the eManager module.
  - Connect the corresponding port on the inverter depending on the inverter model.



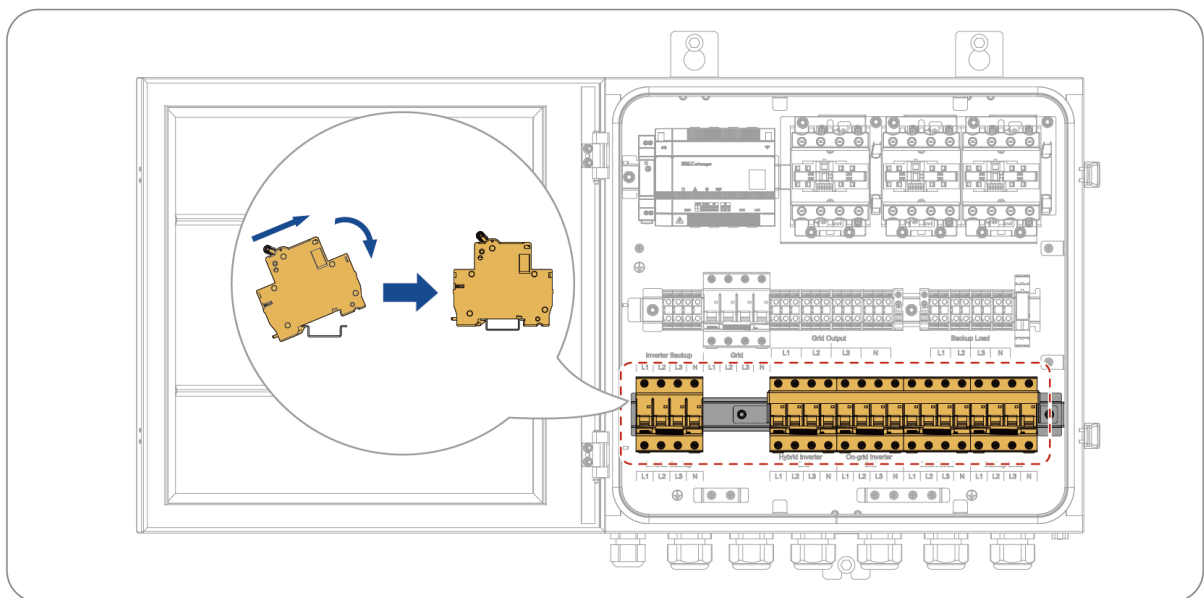
#### 4.4. Install the circuit breakers

When any of the **Inverter Backup**, **Hybrid inverter Grid**, **On-grid inverter Grid**, **Smart Load**, or **Backup Load** is connected to the ATS Box, it is necessary to install a circuit breaker for the corresponding connection for safety purpose.

The circuit breakers can be installed inside the ATS Box box or in the external distribution box of the users depending on the actual requirement. Follow the instructions below to prepare and connect the circuit breakers.

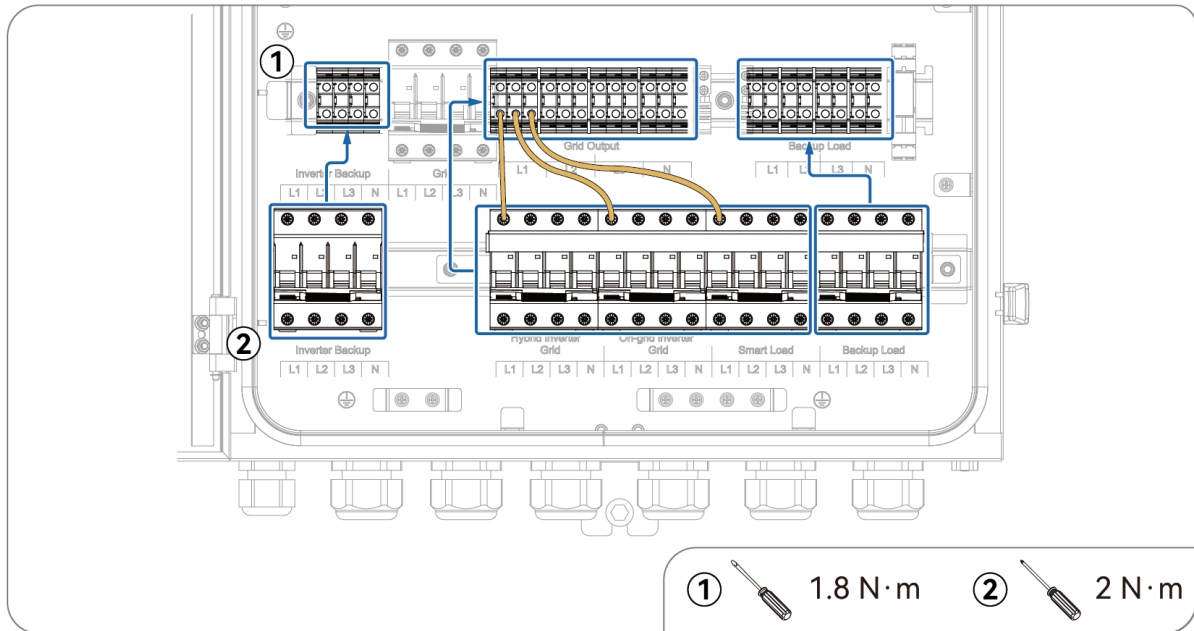
##### Procedure

1. Prepare the following items for the installation of circuit breakers.
  - Five circuit breakers for the following connections respectively. Select applicable circuit breakers based on the rated current of the target connections.
    - **Inverter Backup**
    - **Hybrid inverter Grid**
    - **On-grid inverter Grid**
    - **Smart Load**
    - **Backup Load**
  - L1, L2, L3, and N cables between the circuit breaker terminal block and the circuit breakers
    - 6-10 AWG
    - Copper core
  - Tubular or crimp terminals: No longer than 5 mm in width and length. Larger terminals cannot fit into the circuit breaker terminal block. See recommended terminal type for the corresponding cables:
    - 6 AWG: E16-12
    - 8 AWG: E10-12
    - 10 AWG: E6010
2. Install the circuit breakers for the ON/OFF control of **Inverter Backup**, **Hybrid inverter Grid**, **On-grid inverter Grid**, **Smart Load**, and **Backup Load** connections.



3. Crimp the cable ends with the recommended terminals.

4. Connect one end of the L1, L2, L3, and N cables to the circuit breaker terminal block; connect the other end of the cables to the corresponding circuit breakers:
  - Connect **Inverter Backup** to **Inverter Backup**.
  - Connect **Hybrid inverter Grid**, **On-grid inverter Grid**, and **Smart Load** to **Grid Output**. See L1 connection as an example.
  - Connect **Backup Load** to **Backup Load**.



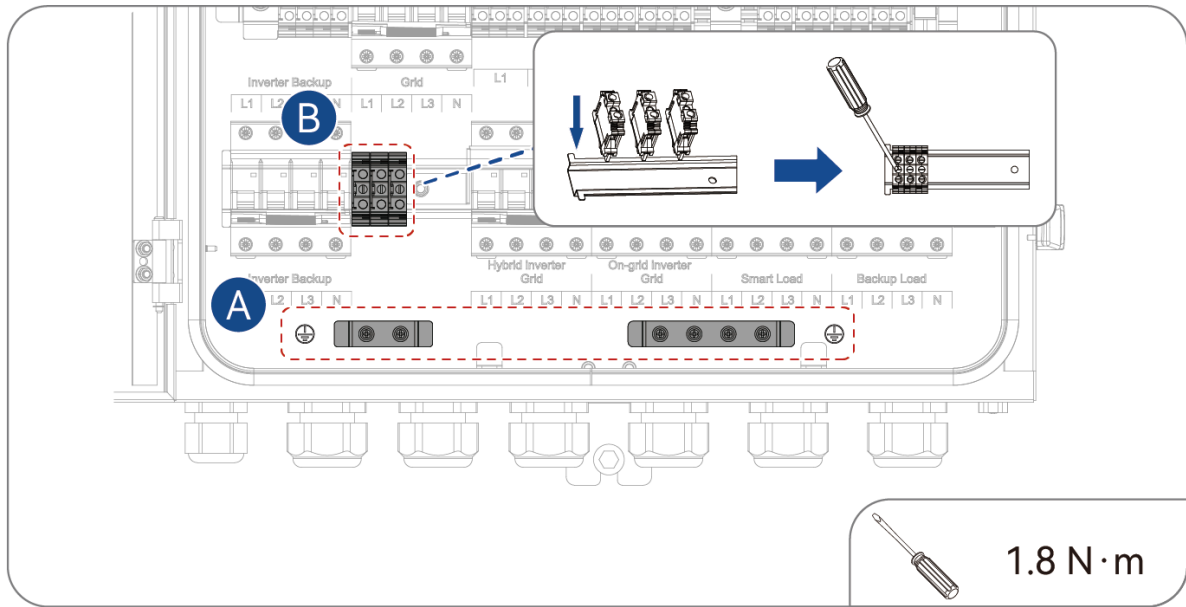
## 4.5. Connect the AC cables

### Before you begin

1. Select one of the following options to connect the PE cables:

- Option A: Connect the PE cables to the PE terminals at the bottom of the ATS Box box.
- Option B: Connect the PE cables to the rail-mounted ground cable terminal which is delivered in the package.

With this option, secure the cable terminals to the rail first.

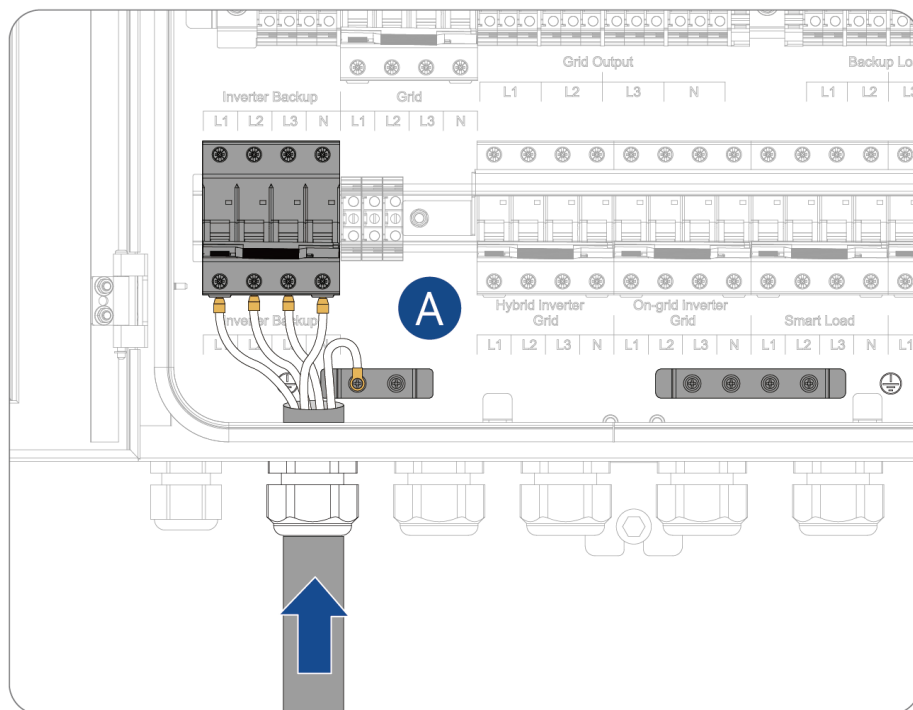


2. Prepare the AC cables and terminals according to the following specification:

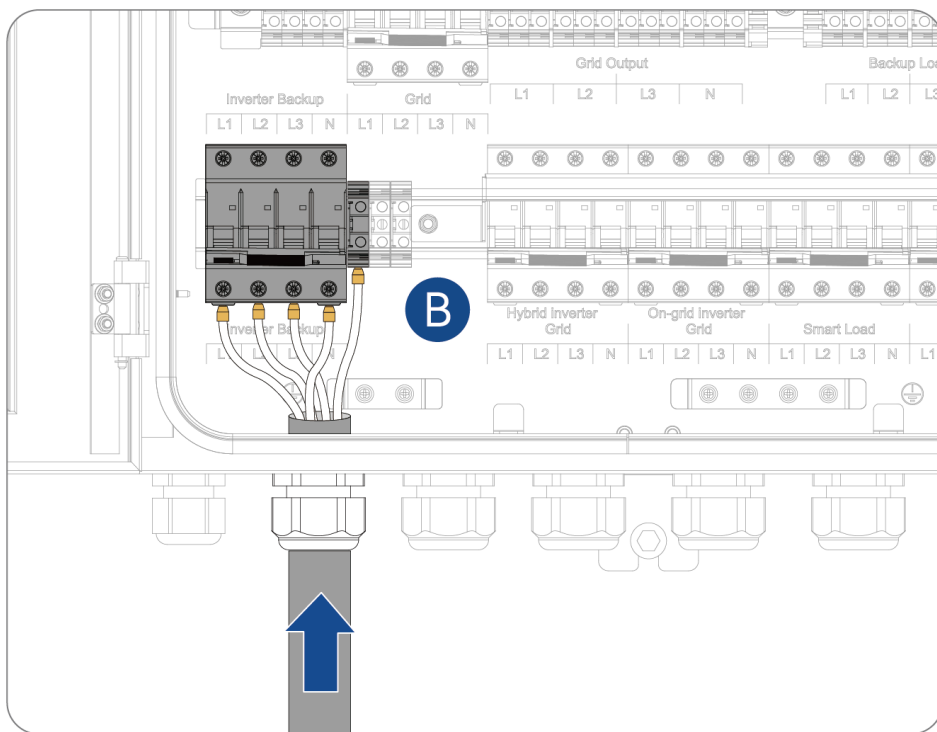
| Function          | Type                                    | Outer diameter | Terminal                                                              |
|-------------------|-----------------------------------------|----------------|-----------------------------------------------------------------------|
| L1, L2, L3, and N | Five-core copper, each core of 6-10 AWG | 9-25 mm        | Tubular or crimp terminals                                            |
| PE                |                                         |                | Connection option A: RNBS5-4<br>Connection option B: Tubular or crimp |

### Procedure

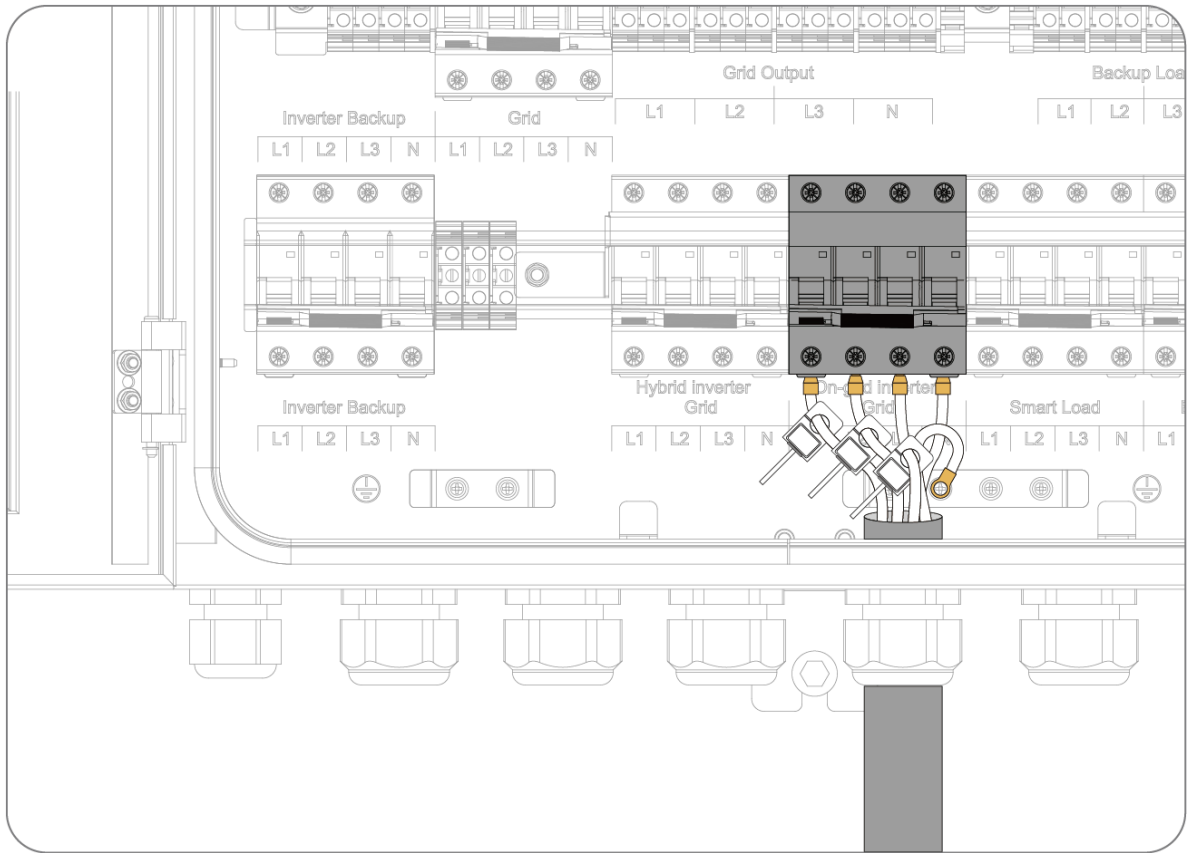
1. Crimp the AC cable terminals with the suggested terminals. Pass the AC cables through the corresponding cable glands of **Grid**, **Inverter Backup**, **Hybrid inverter Grid**, **On-grid inverter Grid**, **Smart Load**, and **Backup Load**.
2. Connect the L1, L2, L3, N, and PE cables to the corresponding ports of the circuit breakers. For example:
  - Connection with PE connection option A



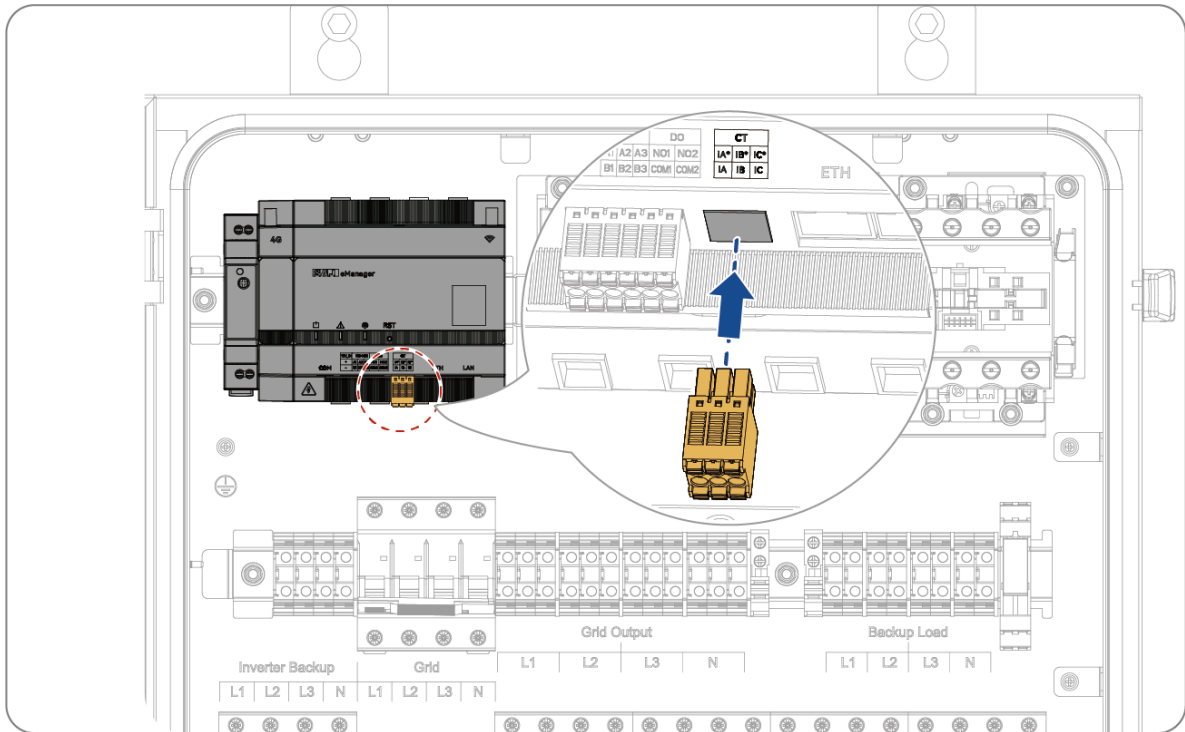
- Connection with PE connection option B



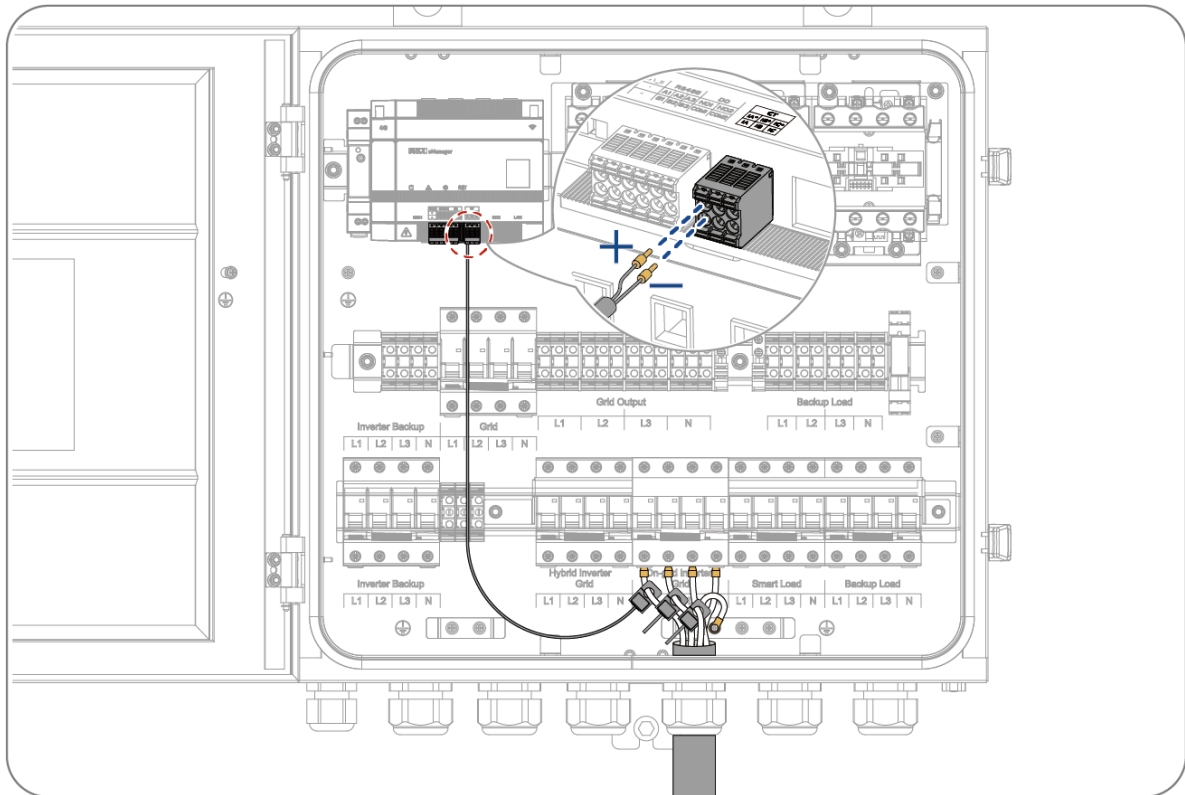
3. (Optional) When the **on-grid inverters** are connected with the ATS Box, take this step to install the current transformers (CT) if required.
- Prepare three 100A/50mA CTs.
  - Install the three CTs on the L1, L2, and L3 cables of **On-grid inverter Grid**. Point the CT arrows to the circuit breakers.



- c. Insert the 6-pin pluggable terminal into the **CT** port on the eManager module.



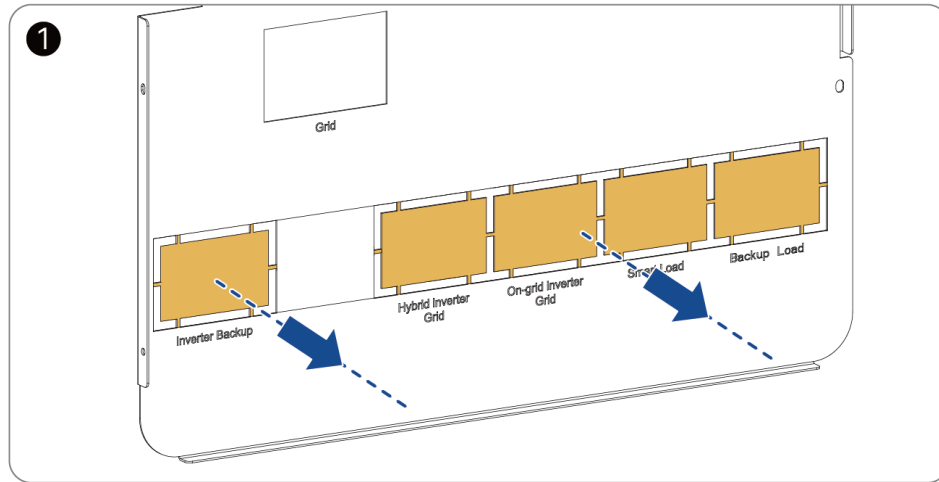
- d. Insert the positive pins of the three CTs to the **IA\*** (for L1), **IB\*** (for L2), and **IC\*** (for L3) ports on the eManager module; insert the negative pins of the three CTs to the **IA**, **IB**, and **IC** ports.



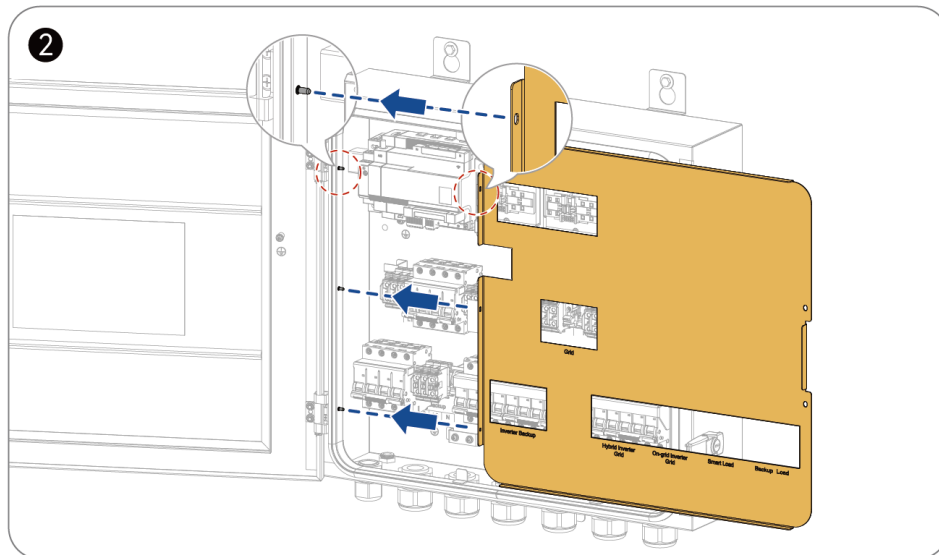
## 4.6. Complete the installation

### Procedure

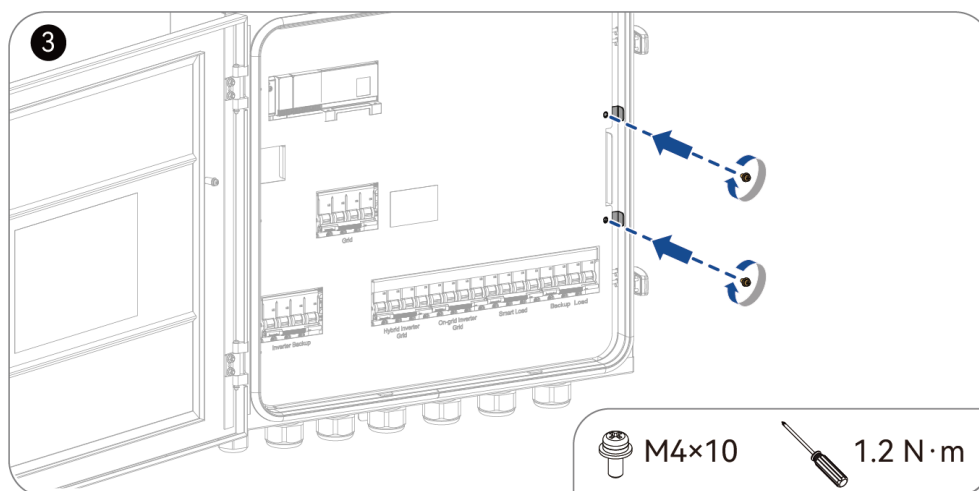
1. Cut off the insulation plate on top of the installed circuit breakers from the insulation cover.



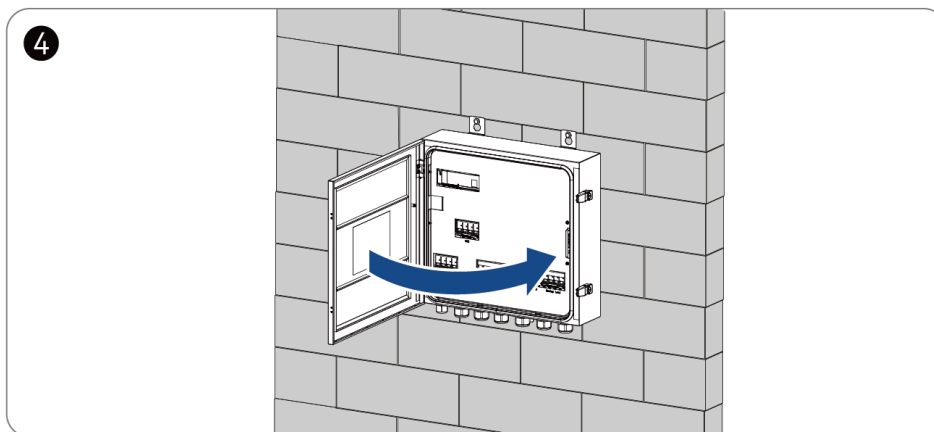
2. Install the insulation cover back to the box.



3. Tighten the screws.



4. Close and lock the box. Keep the keys at a proper location.



## 5. Commissioning on the App

When the eManager module is installed, the users can control and monitor the running status of ATS Box on the elekeeper App. On your mobile phone, search for elekeeper in the App store and download the App. Alternatively, you can scan the below QR code to download the App.



For detailed instructions on setting the eManager functions on the App, scan the following QR code to access the latest eManager user manual. The eManager functions are available for different SAJ inverter series with the firmware upgrade of the products.

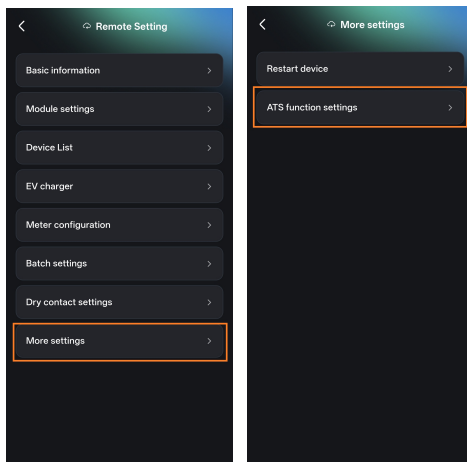
Scan for eManuals



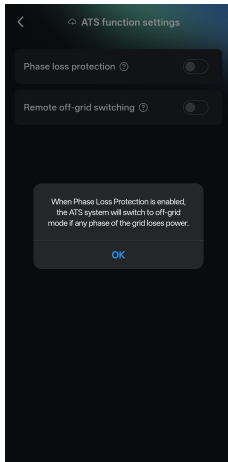
Take the following steps to enable the phase-loss protection function and the remote off-grid switching functions of ATS Box:

### Procedure

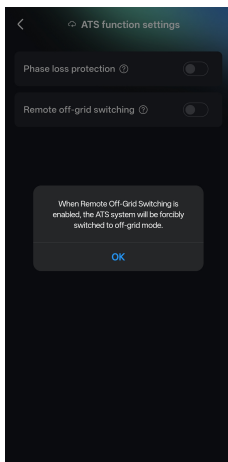
1. Log in to the elekeeper App and connect to the eManager through Bluetooth connection.
2. On the **Remote Setting** page, select **More settings** > **ATS function settings**.



3. Enable or disable the **Phase loss protection** as required. This function is enabled by default.



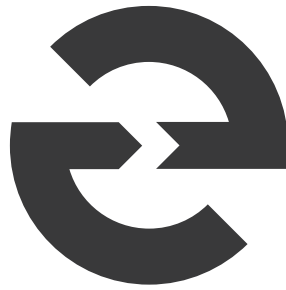
4. When it is necessary to disconnect the ATS Box from the grid forcibly in situations like maintenance, enable the **Remote off-grid switching** function. This function is disabled by default.  
After the setting is saved, the ATS Box switches the power supply from the grid to the inverter backup output. The ATS Box can connect back to the grid only after the **Remote off-grid switching** function is disabled again on the App.



## 6. Product Specification

| Model                             | ATS1-T63-A                                    |
|-----------------------------------|-----------------------------------------------|
| <b>AC Input [Grid]</b>            |                                               |
| Grid Connection                   | Three-phase                                   |
| Rated AC Voltage/Range [V]        | 220/380, 230/400, 240/415;<br>198-253/342-440 |
| Rated Frequency [Hz]              | 50, 60                                        |
| Rated Current [A]                 | 50                                            |
| Maximum Current [A]               | 63 <sup>1</sup>                               |
| <b>AC Input [Inverter Backup]</b> |                                               |
| Rated AC Voltage/Range [V]        | 220/380, 230/400, 240/415;<br>180-280/312-485 |
| Rated Frequency [Hz]              | 50, 60                                        |
| Rated Current [A]                 | 50                                            |
| Maximum Current [A]               | 63                                            |
| Inverter Connection               | Three-phase                                   |
| Compatible Hybrid Inverter Series | H2, HS2, HS3                                  |
| <b>AC Output [Backup Load]</b>    |                                               |
| Grid Connection                   | Three-phase                                   |
| Rated AC Voltage/Range [V]        | 220/380, 230/400, 240/415;<br>180-280/312-485 |
| Rated Frequency [Hz]              | 50, 60                                        |
| Rated Current [A]                 | 50                                            |
| Maximum Current [A]               | 63 <sup>1</sup>                               |
| Switching Time [ms]               | 50                                            |
| <b>General Parameters</b>         |                                               |
| Operating Temperature Range       | -25°C to +45°C                                |
| Altitude [m]                      | ≤3000                                         |
| Relative Humidity [RH]            | 0-95% Non-condensing                          |
| Protective Class                  | I                                             |
| Over voltage Category             | III                                           |
| Ingress Protection Rating         | IP54                                          |
| Noise Level [dB]                  | ≤30                                           |
| Dimensions [H*W*D] [mm]           | 518 * 520 *141                                |
| Weight [kg]                       | 15.8                                          |
| Warranty [Year]                   | 2                                             |
| Applicable Standard               | IEC/EN 61439                                  |

1. When the ambient temperature is within the range of -25°C to +30°C, the maximum current can reach 63 A. When the ambient temperature is between +30°C and +45°C, the maximum current decreases gradually from 63 A to 50 A.



**SAJ** | **elkeeper**

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