# H2-(8K-20K)-LT2 Quick Guide

This quick guide provides installation operations. For safety precautions and detailed product information, refer to the H2-(8K-20K)-LT2 *User Manual* on the SAJ Website www.saj-electric.com. You can also scan the QR code below to access all the product documentation.

**⚠ WARNING**

**Risk of High Voltage and Electric Shock**

- This device is connected directly to the public grid. Installation, maintenance, and repair must only be carried out by qualified electricians.
- Electricians must read and fully understand all the safety regulations contained in this manual, as well as the energy storage system, its working principles, and relevant national and regional standards.
- Before operation, ensure the inverter is completely disconnected from both AC and DC power.
- During operation, wear appropriate personal protective equipment and use insulated tools.
- Failure to follow these instructions may result in serious injury or death.

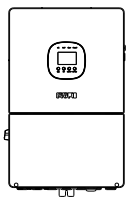
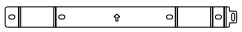
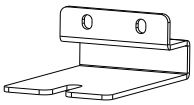
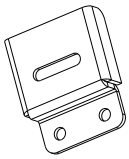
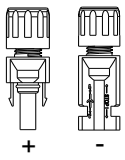
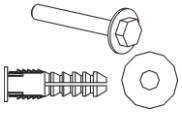
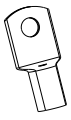
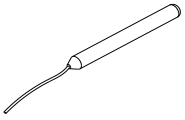
## 1. Check the outer packing

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

**Note:** 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.

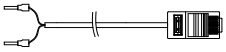
## 2. Check the product packages

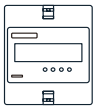
Place the connectors separately after unpacking to avoid confusion for connection of cables.

| | | | | |
|---|---|---|---|---|
|  |  |  |  |   |
| H2 inverter | Wall mounting bracket | Locking bracket | Security bracket | PV positive and negative connector x4 |
|  |  |  |  |  |
| M6*50 screw suite x5 | M5*12 screws x5 | Communication cable | Current Transformer x3 | Communication module |
|  |  |  |  |  |
| Terminal lug x4 | Hex wrench | Battery temperature sensor | Documents | [1]Meter kit (Optional) |

[1] The meter kit contains the following items:

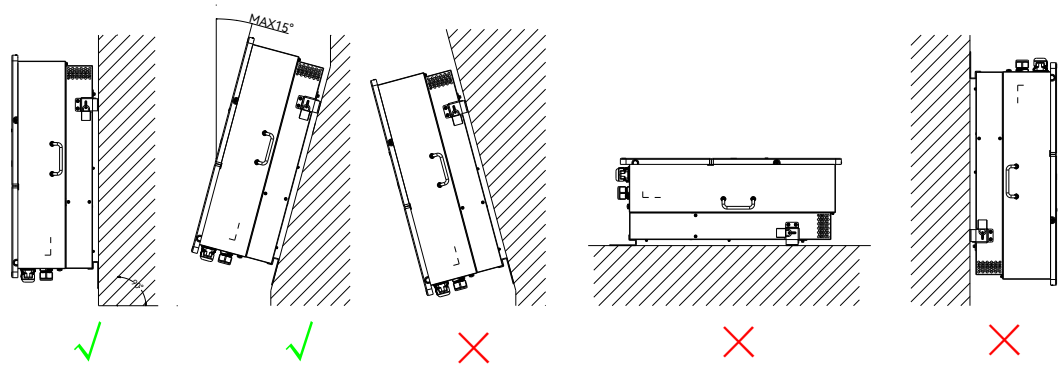




| Communication cable with an RJ45 connector | Smart meter |
|---|---|

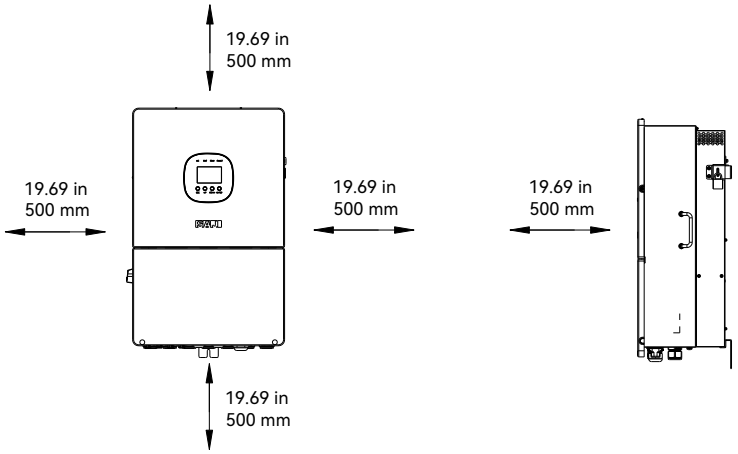
## 3. Check installation method and gaps

- The inverter uses natural convection cooling and can be installed indoors or outdoors.
- Do not expose the inverter to direct sunlight because overheating might cause power derating.
- Mount vertically with tilting angle no greater than 15°. Never install the inverter horizontally or upside down.



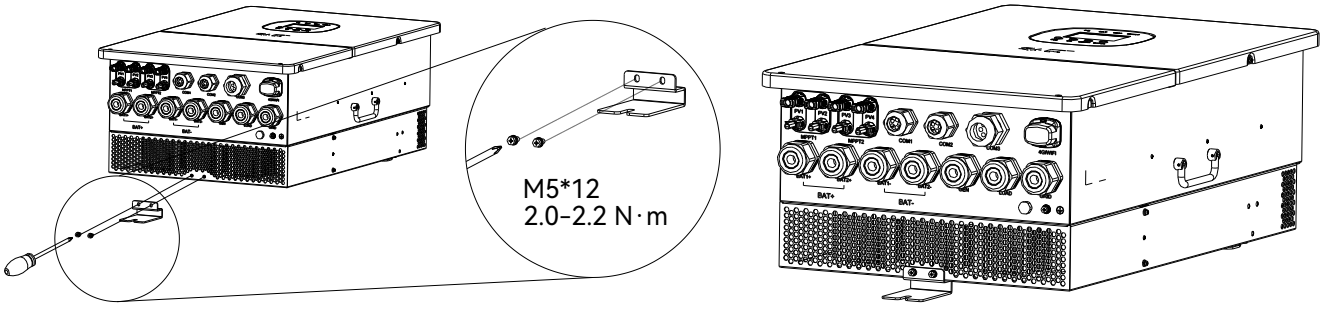

- The minimum clearance requirement for inverter installation is shown below.

For one or multiple inverters, maintain a minimum clearance of 500 mm on all sides of each inverter for ventilation and service access.




## 4. Install the inverter onto the wall

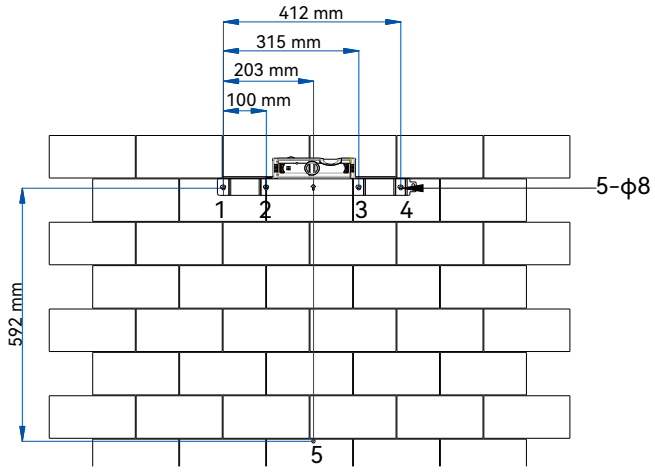
1. Install the locking bracket to the inverter.



2. Place the wall mounting bracket horizontally onto the wall by using a gradienter. Mark the five holes on the wall (hole 1, 2, 3, 4 and 5).

   **Note:** Reserve enough distance at the bottom to install the cables.



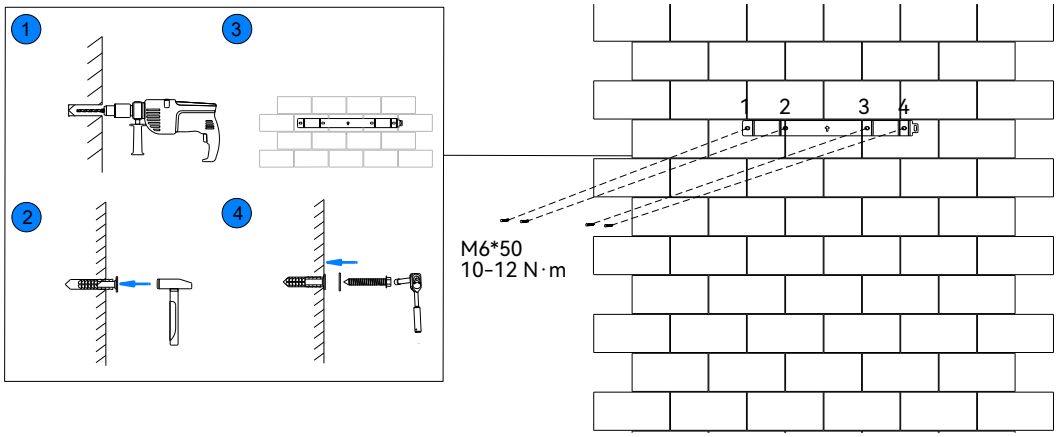

3. Drill four holes and install the mounting bracket onto the wall.

   ① Drill four holes (hole 1, 2, 3 and 4) according to the marked position.

   ② Use a rubber mallet to insert four expansion tubes into the holes.

   ③ Align the holes of the mounting bracket to the drilled holes in the wall.

   ④ Insert the screws into the drilled holes to fix the mounting bracket to the wall.



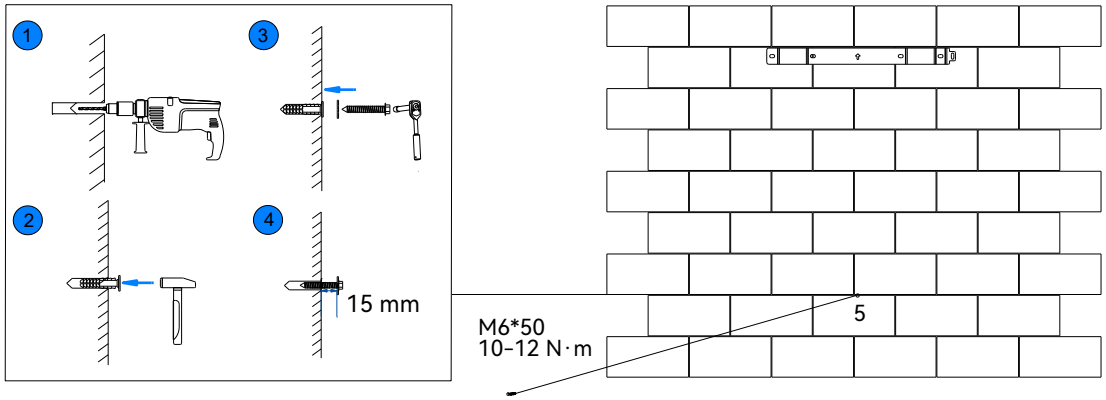

4. Drill hole 5 and pre-tighten the screw.

   ① Drill hole 5 according to the marked position.

   ② Use a rubber mallet to insert an expansion tube into the hole.

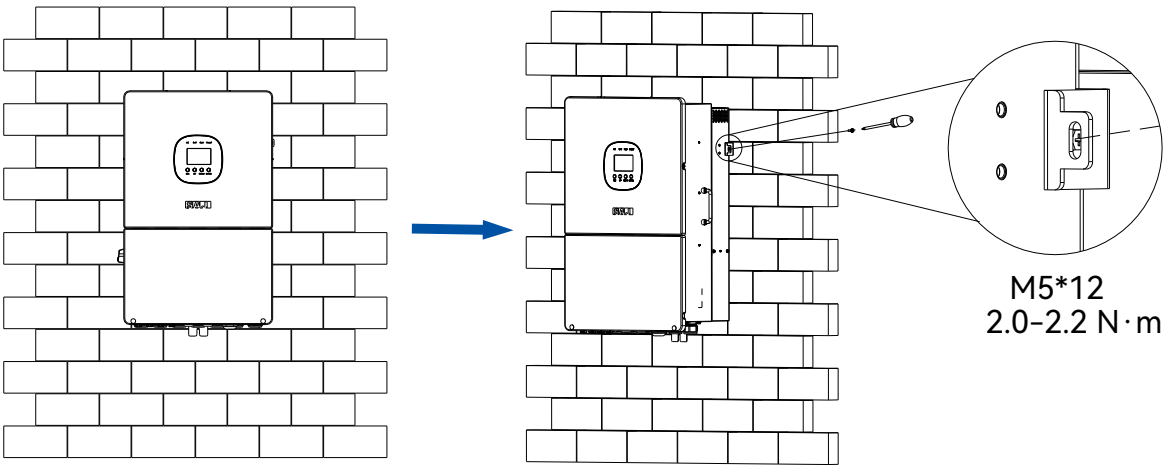
   ③ Insert and pre-tighten the screw.

   ④ Leave a 15 mm gap for mounting the inverter to the bracket.

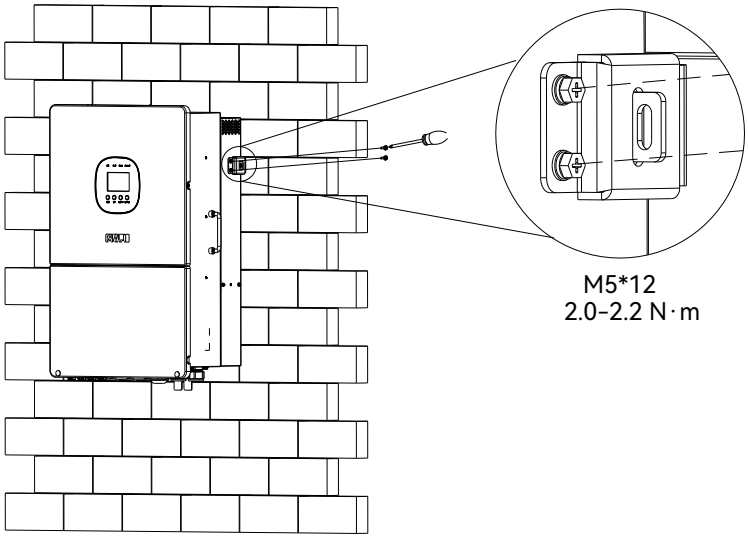


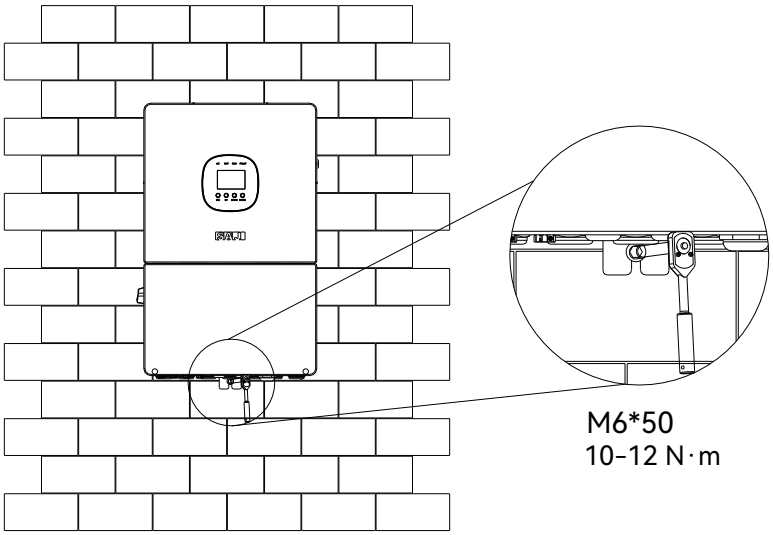
5. Mount the inverter onto the wall mounting bracket. Insert and tighten the screw.




6. Insert and tighten another two screws to secure the security bracket.




7. Tighten the screw at the locking bracket.




## 5. Install the battery

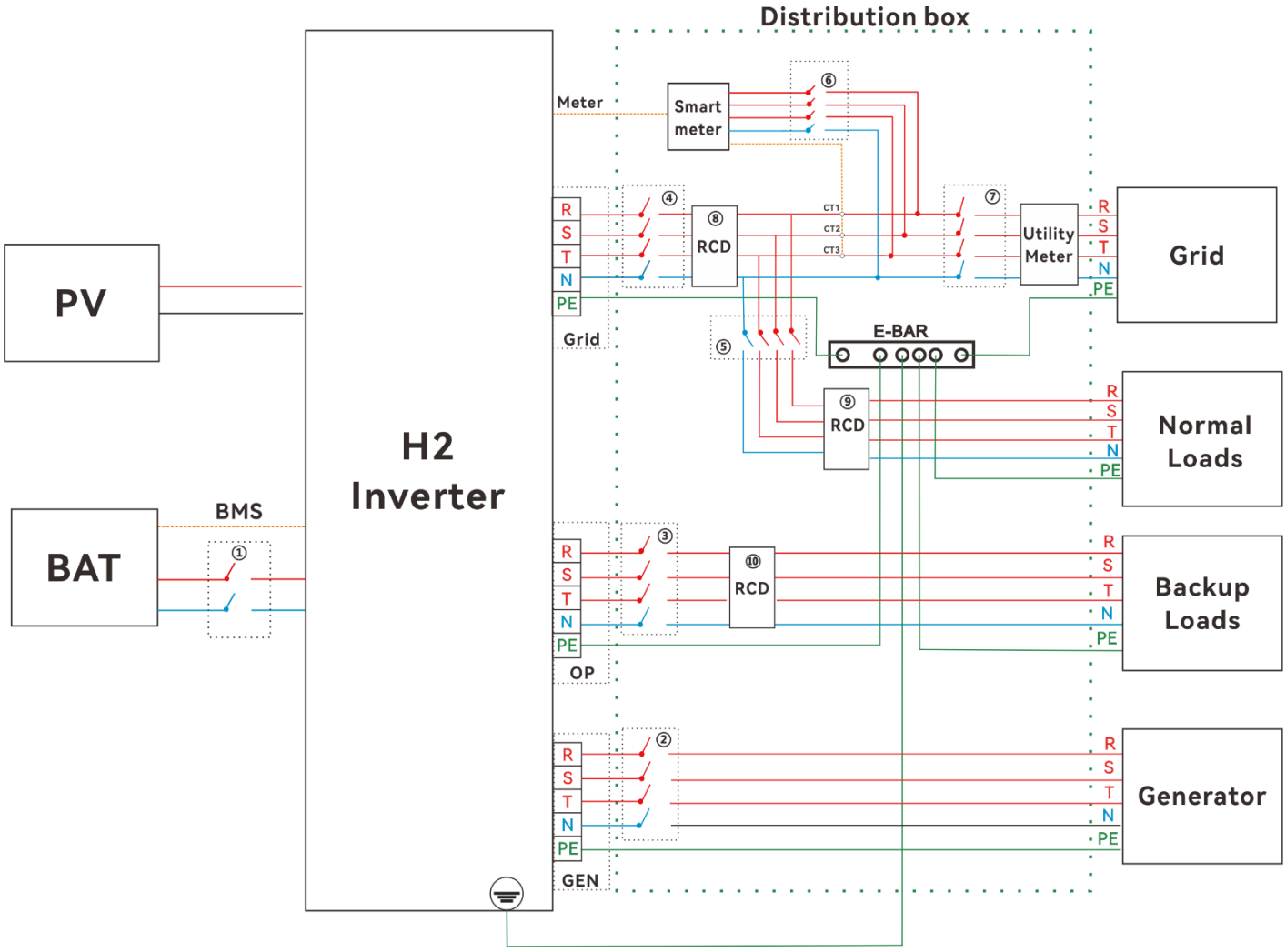
The H2 series inverter is compatible with the **B3-5.0-LV** SAJ batteries. For details, refer to the corresponding battery user manual.

## 6. Prepare the circuit breakers and cables

For safety operation and regulation compliance, prepare appropriate circuit breakers and cables based on different connection scenarios. Check the recommended size in the following tables. You may choose other sizes based on real needs.

- **Basic system connection**

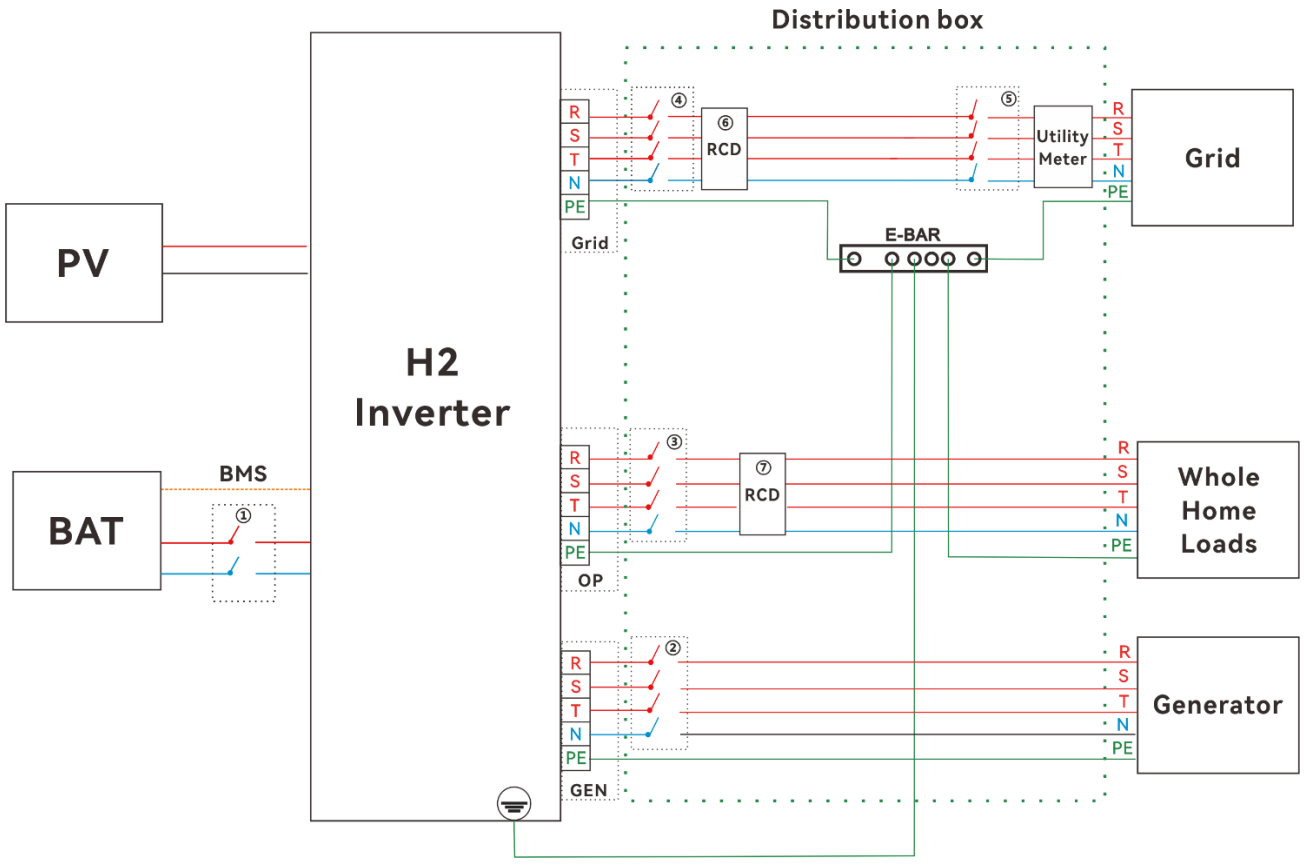



| Model | ① DC breaker | ② AC breaker for generator | ③ AC breaker for backup loads | ④ AC breaker for grid | ⑤⑥ AC breaker for normal loads/smart meter | ⑦ AC breaker for utility meter | ⑧ RCD for grid | ⑨⑩ RCD for normal and backup loads |
|---|---|---|---|---|---|---|---|---|
| H2-8K-LT2 | 200 A/60 V | 16 A/400 V | 16 A/400 V | 32 A/400 V | Depends on Loads and Meter | Main breaker | 300 mA RCD | 30 mA RCD |
| H2-10K-LT2 | 250 A/60 V | 20 A/400 V | 20 A/400 V | 40 A/400 V | | | | |
| H2-12K-LT2 | 250 A/60 V | 25 A/400 V | 25 A/400 V | 50 A/400 V | | | | |
| H2-14K-LT2 | 320 A/60 V | 32 A/400 V | 32 A/400 V | 63 A/400 V | | | | |
| H2-15K-LT2 | 320 A/60 V | 32 A/400 V | 32 A/400 V | 63 A/400 V | | | | |
| H2-16K-LT2 | 320 A/60 V | 32 A/400 V | 32 A/400 V | 63 A/400 V | | | | |
| H2-18K-LT2 | 400 A/60V | 40 A/400 V | 40 A/400 V | 80 A/400 V | | | | |
| H2-20K-LT2 | 400 A/60V | 40 A/400 V | 40 A/400 V | 80 A/400 V | | | | |

| Cable | Recommended Specification ($mm^2$) | | | | Stripping Length (mm) |
|---|---|---|---|---|---|
| | H2-8K-LT2 | H2-10K-LT2 | H2-12K-LT2 | H2-14K-LT2 | |
| Ground | 6-10 | | | | 15 |
| PV | 4 | | | | 8-10 |
| Battery | 30 | | 40 | | 15 |
| GEN | 8-10 | | | | 12 |
| LOAD/GRID | 10 | | | | 15 |

| Cable (Copper) | Recommended Specification ($mm^2$) | | | | Stripping Length (mm) |
|---|---|---|---|---|---|
| | H2-15K-LT2 | H2-16K-LT2 | H2-18K-LT2 | H2-20K-LT2 | |
| Ground | 6-10 | | | | 15 |
| PV | 4 | | | | 8-10 |
| Battery | 40 | 50 | | | 15 |
| GEN | 8-10 | | | | 12 |
| LOAD/GRID | 10 | | | | 15 |

- **Whole home backup system connection**



| Model | ① DC breaker | ② AC breaker for generator | ③ AC breaker for whole home loads | ④ AC breaker for grid | ⑤ AC breaker for utility meter | ⑥ RCD for grid | ⑦ RCD for whole home loads |
|---|---|---|---|---|---|---|---|
| H2-8K-LT2 | 200 A/60 V | 16 A/400 V | 100 A/400 V | 100 A/400 V | Main breaker | 300 mA RCD | 30 mA RCD |
| H2-10K-LT2 | 250 A/60 V | 20 A/400 V | 100 A/400 V | 100 A/400 V | | | |
| H2-12K-LT2 | 250 A/60 V | 25 A/400 V | 100 A/400 V | 100 A/400 V | | | |
| H2-14K-LT2 | 320 A/60 V | 32 A/400 V | 100 A/400 V | 100 A/400 V | | | |
| H2-15K-LT2 | 320 A/60 V | 32 A/400 V | 100 A/400 V | 100 A/400 V | | | |
| H2-16K-LT2 | 320 A/60 V | 32 A/400 V | 100 A/400 V | 100 A/400 V | | | |
| H2-18K-LT2 | 400 A/60V | 40 A/400 V | 100 A/400 V | 100 A/400 V | | | |
| H2-20K-LT2 | 400 A/60V | 40 A/400 V | 100 A/400 V | 100 A/400 V | | | |

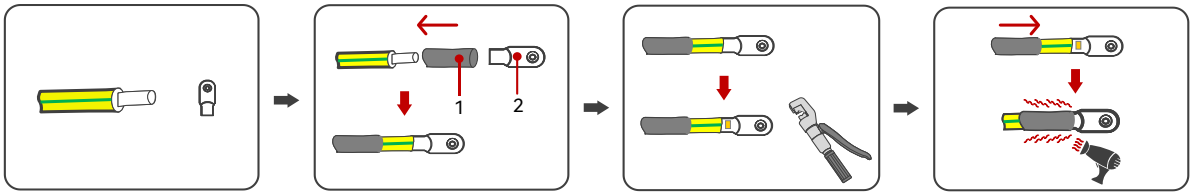
| Cable (Copper) | Recommended Specification ($mm^2$) | | | | | | | | Stripping Length (mm) |
|---|---|---|---|---|---|---|---|---|---|
| | H2-8K-LT2 | H2-10K-LT2 | H2-12K-LT2 | H2-14K-LT2 | H2-15K-LT2 | H2-16K-LT2 | H2-18K-LT2 | H2-20K-LT2 | |
| Ground | 16 | | | | | | | | 15 |
| PV | 4 | | | | | | | | 8-10 |
| Battery | 30 | | 40 | | | 50 | | | 15 |
| GEN | 8-10 | | | | | | | | 12 |
| LOAD/GRID | 16 | | | | | | | | 15 |

**Note:**

- The inverter is not compatible with aluminum cables. Only copper cables are allowed.
- If the inverter is installed far away from the grid connection point, select a larger cable size to ensure that the voltage drops from the grid connection point to the inverter is within 2% of the grid voltage.
- Do not connect multiple inverters to one AC breaker.

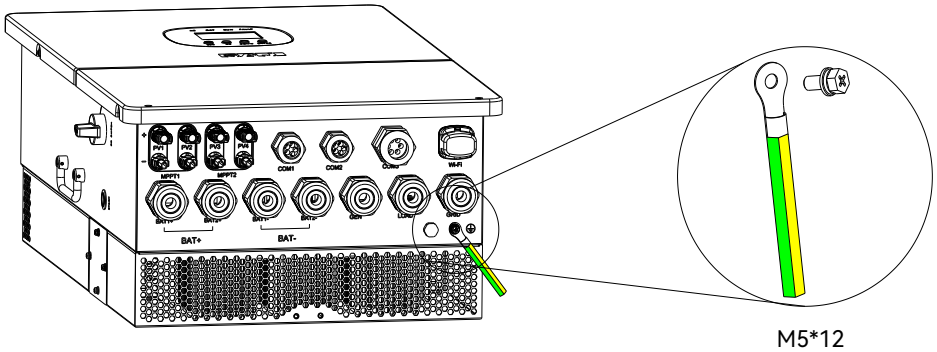
## 7. Connect the grounding cable

1. Prepare a cable with a conductor cross-sectional area of 6-10 $mm^2$ (basic system connection) or 16 $mm^2$ (whole home back-up system connection).
2. Assemble the cable and OT/DT terminal.




1-Heat shrink tube 2-OT/DT terminal

3. Remove the screw on the ground terminal and secure the cable.

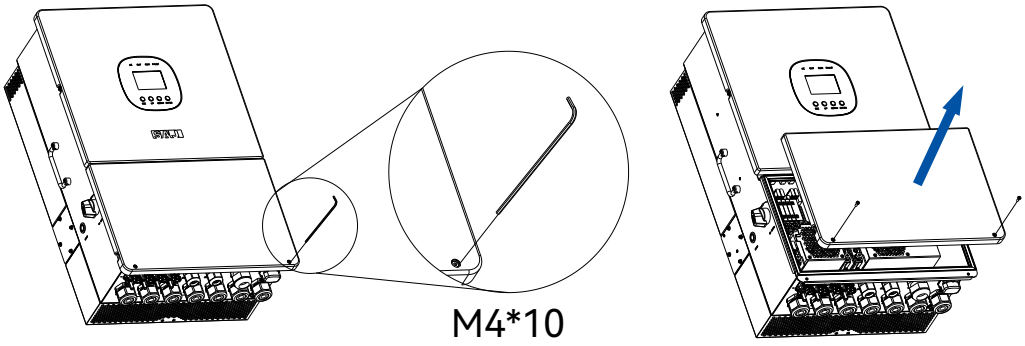



M5*12
2 N • m

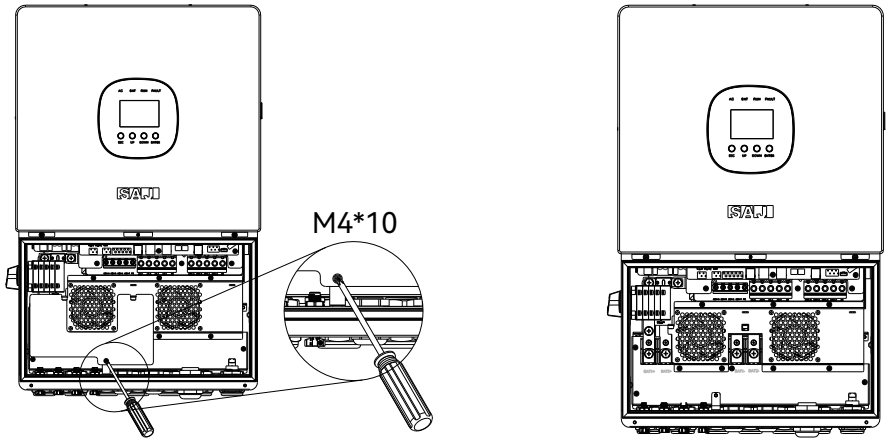
 

## 8. Open the junction box of the inverter

1. Loosen the two screws on the cover to remove the cover.




2. Use a screwdriver to loosen the internal cover. Lift the cover outwards.




## 9. Connect the battery to the inverter

The H2 series inverter is compatible with the following SAJ batteries. For details, refer to the corresponding battery user manual.

| Brand | Compatible battery model |
|---|---|
| SAJ | B3-5.0-LV |

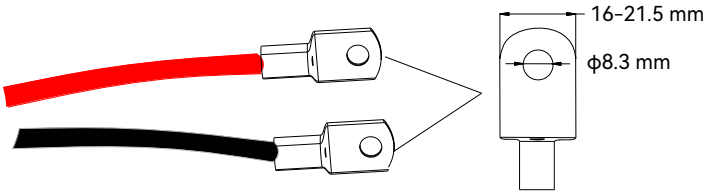
**Note:**

- For batteries from other suppliers, consult SAJ product support. Do not use untested battery which may cause damage to the inverter and thus void the inverter warranty.
- Some utility companies or electrical regulations may require a battery isolator to be installed near the inverter. Choose a ≥70A battery isolator for regulation compliance.

1. Prepare the cables and strip the insulation on the positive and negative battery cable ends.

| Cable (Copper) | Recommended Specification ($mm^2$) | | | Stripping Length (mm) | Recommended torque |
|---|---|---|---|---|---|
| | H2-(8K-10K)-LT2 | H2-(12K-15K)-LT2 | H2-(16K-20K)-LT2 | | |
| BAT+ and BAT- | 30 | 40 | 50 | 15  | 4.5 N·m / 39.83 LB-IN |

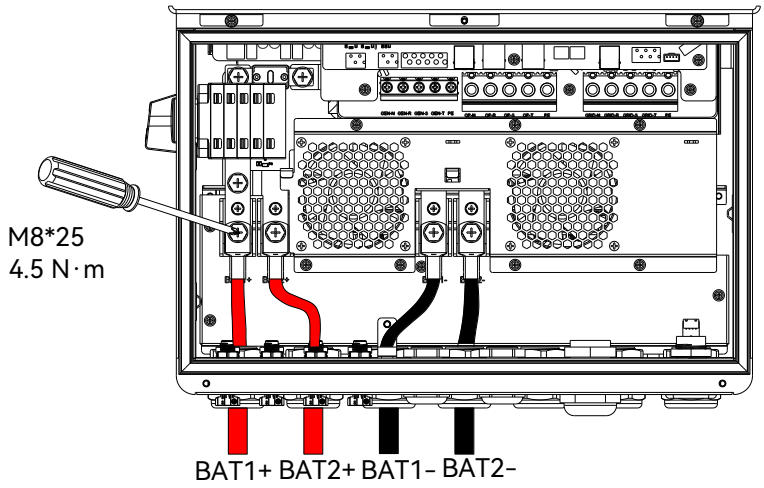
2. Crimp an terminal lug on the cable end shown as follows:



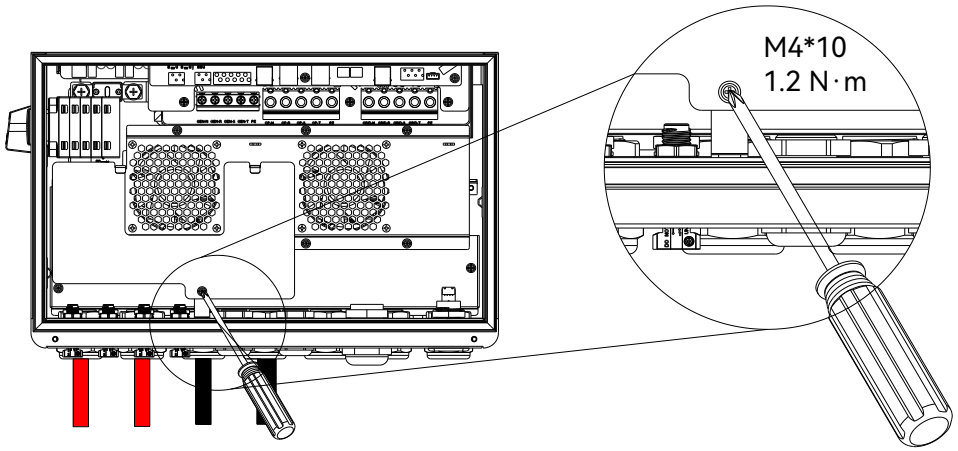

 

3. Insert the cables through the cable glands **BAT 1+/2+** and **BAT 1-/2-**.

   Connect the cables to the battery terminals **BAT 1+/2+** and **BAT 1-/2-** in the junction box.




4. Install the inner cover back to the inverter and tighten the screws.




## 10. Assemble the AC-side electrical connection

> ⚠ **WARNING**
>
> **Risk of high voltage and electric shock**
>
> - Before carrying out any wiring operations, ensure that the device is powered off.
> - Before applying power to the device, ensure that all connections are made correctly, in accordance with the instructions in this manual, and with local wiring codes and regulations. Improper wiring of AC conductors can result in electrical failure or equipment damage.

1. Prepare the cables and strip the insulation on the cable ends.

   - Basic system connection

| Cable (Copper) | Recommended Specification ($mm^2$) H2-(8K-20K)-LT2 | Stripping Length (mm) | Recommended Torque |
|---|---|---|---|
| GEN | 8-10 | 12 | 2.5 N·m / 22.13 LB-IN |
| LOAD/GRID | 10 | 15 | |

   - Whole home backup system connection

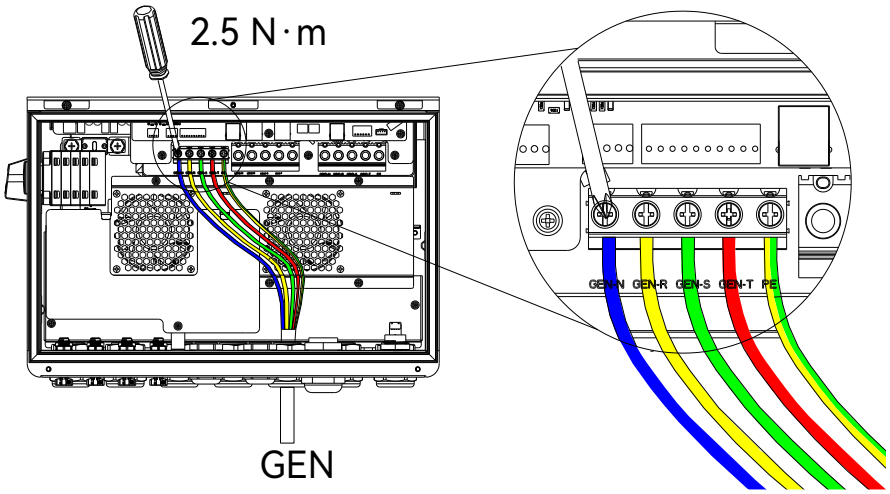
| Cable (Bypass) (Copper) | Recommended Specification ($mm^2$) H2-(8K-20K)-LT2 | Stripping Length (mm) | Recommended Torque |
|---|---|---|---|
| GEN | 8-10 | 12 | 2.5 N·m / 22.13 LB-IN |
| LOAD/GRID | 16 | 15 | |

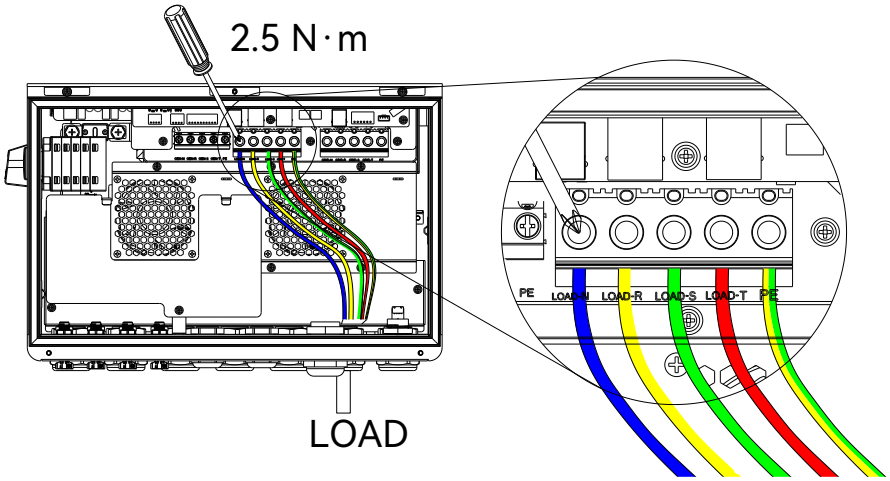
 

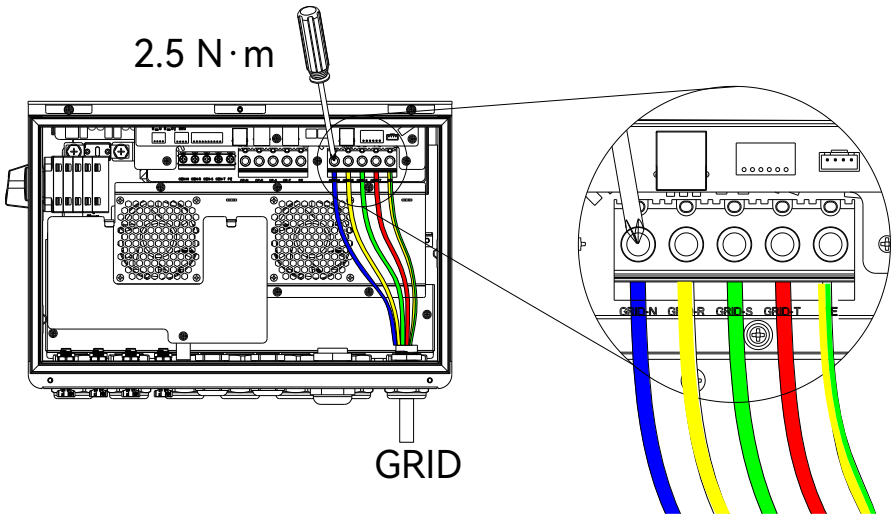
2. Insert the cables through the cable glands **GEN, LOAD, GRID** and connect the cables to the corresponding terminals.

Then, use standard torque to tighten the screws on the terminals to secure the cable connection.

| Cable gland | Terminals |
|---|---|
| GEN | GEN-N, GEN-R, GEN-S, GEN-T, PE |
| LOAD | LOAD-N, LOAD-R, LOAD-S, LOAD-T, PE |
| GRID | GRID-N, GRID-R, GRID-S, GRID-T, PE |



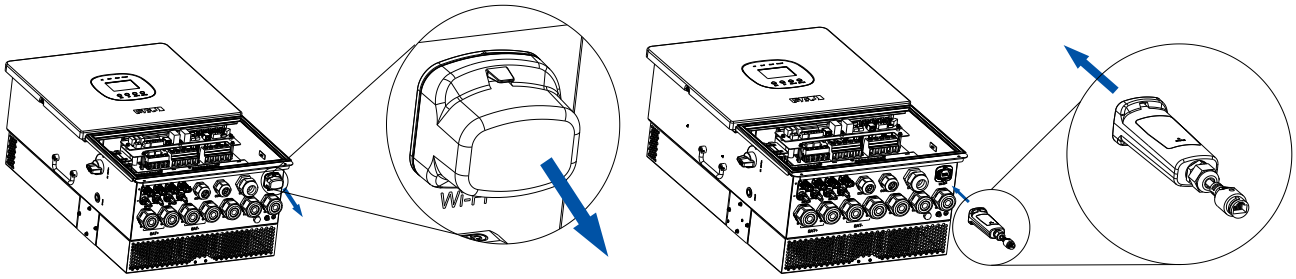



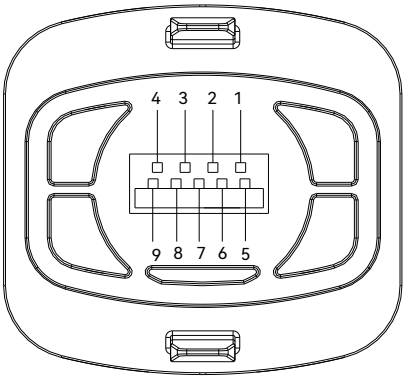

 

## 11. Assemble the communication connection

1. Connect communication module
   a. Remove the cover on the **WIFI** port.
   b. Insert the communication module to the **WIFI** port.

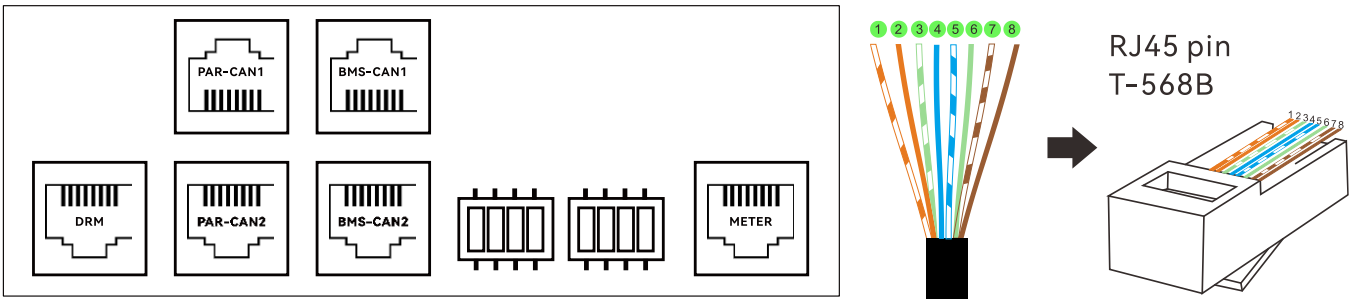


The **WIFI** port is an RS232 USB communication port. See detailed pin definitions below:




| Pin | Description |
|---|---|
| 1 | +5V: Power supply |
| 2 | 232TX: Transmit data |
| 3 | 232RX: Receive data |
| 4 | GND |
| 5 | GND |
| 6 | NULL |
| 7 | NULL |
| 8 | NULL |
| 9 | +5V: Power supply |

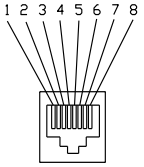
2. Connect communication cables
   - **RJ45 ports**
     a. Per your needs, prepare communication cables according to the description of communication ports.



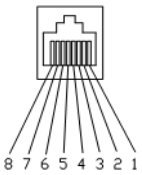

| Port | Description |
|---|---|
| DRM | The inverter complies with AS/NZS 4777.2 and supports the Demand Response Mode (DRM).<br>For detailed connection methods, refer to ***DRM connection*** of the User Manual. |
| PAR-CAN1 | Parallel connection is performed through the PAR1-CAN1 and PAR2-CAN2 terminals.<br>For detailed parallel connection methods, refer to ***Parallel connection*** of the User Manual. |
| PAR2-CAN2 | |
| BMS-CAN1 | The inverter can communicate with the battery control unit through BMS-CAN1 and BMS-CAN2 terminals.<br>For detailed connection methods, refer to ***BMS connection*** of the User Manual. |
| BMS-CAN2 | |
| METER | The inverter can communicate with the meter through METER terminal.<br>For detailed connection methods, refer to ***Smart meter connection*** of the User Manual. |

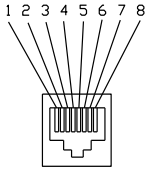
| DRM | |
|---|---|
| 1 | DRM 1/5 |
| 2 | DRM 2/6 |
| 3 | DRM 3/7 |
| 4 | DRM 4/8 |
| 5 | RefGen |
| 6 | Com/DRM 0 |
| 7 | V+ |
| 8 | V- |



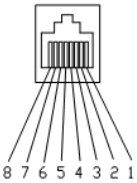

| PAR-CAN1 | |
|---|---|
| 1 | CANH_PAR |
| 2 | CANL_PAR |
| 3 | GND_S |
| 4 | SYN_BUS+ |
| 5 | CANH_DSP |
| 6 | HOST_BUS+ |
| 7 | CANL_DSP |
| 8 | TRF_BUS+ |



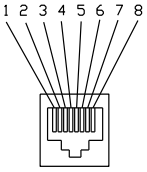

| PAR-CAN2 | |
|---|---|
| 1 | CANH_PAR |
| 2 | CANL_PAR |
| 3 | GND_S |
| 4 | SYN_BUS+ |
| 5 | CANH_DSP |
| 6 | HOST_BUS+ |
| 7 | CANL_DSP |
| 8 | TRF_BUS+ |



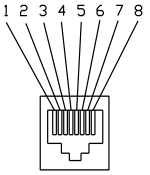

| BMS-CAN1 | |
|---|---|
| 1 | NC |
| 2 | NC |
| 3 | NC |
| 4 | CANH |
| 5 | CANL |
| 6 | NC |
| 7 | NC |
| 8 | NC |




| BMS-CAN2 | |
|---|---|
| 1 | NC |
| 2 | NC |
| 3 | NC |
| 4 | CANH |
| 5 | CANL |
| 6 | NC |
| 7 | NC |
| 8 | NC |




| METER | |
|---|---|
| 1 | RS485_A |
| 2 | RS485_B |
| 3 | NC |
| 4 | NC |
| 5 | NC |
| 6 | NC |
| 7 | RS485_A |
| 8 | RS485_B |

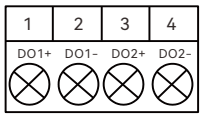


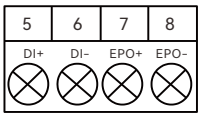

b. Insert the communication cables through the cable glands **COM2** and **COM3** and connect to corresponding RJ45 ports.

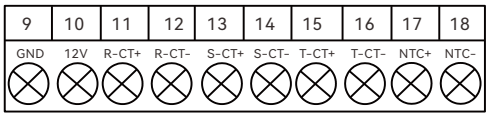
| RJ45 port | Through (Cable gland on the inverter) |
|---|---|
| DRM | COM2 |
| PAR-CAN1 | |
| PAR-CAN2 | |
| BMS_CAN1 | |
| BMS_CAN2 | |
| METER | COM3 |

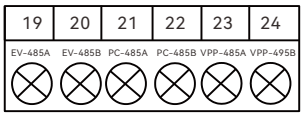
- **Communication ports**

a. Per your needs, prepare communication cables according to the port description below.




| Number | Port | Description |
|---|---|---|
| 1 | DO1+ | For connecting the positive cable 1 of dry contact output. |
| 2 | DO1- | For connecting the negative cable 1 of dry contact output. |
| 3 | DO2+ | For connecting the positive cable 2 of dry contact output. |
| 4 | DO2- | For connecting the negative cable 2 of dry contact output. |
| 5 | DI+ | For connecting the positive cable of dry contact input. |
| 6 | DI- | For connecting the negative cable of dry contact input. |
| 7 | EPO+ | For connecting the positive cable of external Emergency Power Off switch. |
| 8 | EPO- | For connecting the negative cable of external Emergency Power Off switch. |
| 9 | GND | For connecting to external devices. Serves as the ground reference for safe operation and stable communication with external devices. |
| 10 | 12V | For connecting to external devices. Serves as a 12V power supply for external devices such as Energy Management System (EMS). |
| 11 | R-CT+ | For connecting the positive cable of the R-phase grid current transformer. |
| 12 | R-CT- | For connecting the negative cable of the R-phase grid current transformer. |

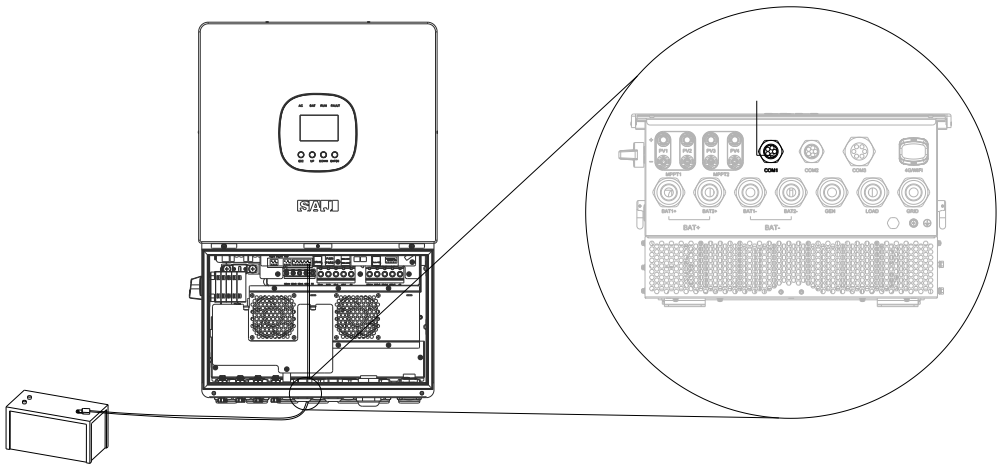
 

| | | |
|---|---|---|
| 13 | S-CT+ | For connecting the positive cable of the S-phase grid current transformer. |
| 14 | S-CT- | For connecting the negative cable of the S-phase grid current transformer. |
| 15 | T-CT+ | For connecting the positive cable of the T-phase grid current transformer. |
| 16 | T-CT- | For connecting the negative cable of the T-phase grid current transformer. |
| 17 | NTC+ | For connecting the positive cable of the battery temperature sensor (only for lead-acid batteries). |
| 18 | NTC- | For connecting the negative cable of the battery temperature sensor (only for lead-acid batteries). |
| 19 | EV-485A | For connecting cable A of EV charger. |
| 20 | EV-485B | For connecting cable B of EV charger. |
| 21 | PC-485A | For connecting cable A of personal computer. |
| 22 | PC-485B | For connecting cable B of personal computer. |
| 23 | VPP-485A | For connecting cable A of virtual power plant. |
| 24 | VPP-485B | For connecting cable B of virtual power plant. |

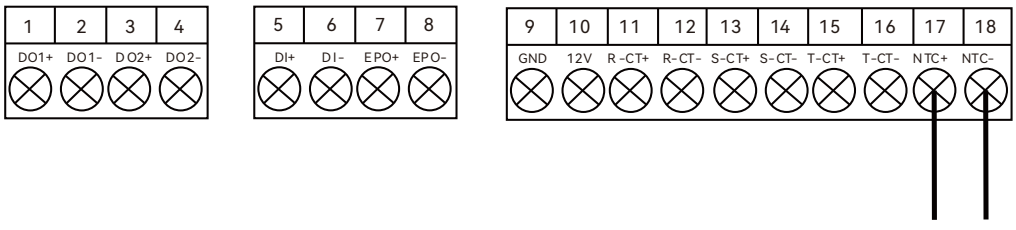
b. Insert the cables through the cable glands **COM1** and **COM3** and connect the cables to the corresponding ports.

| Communication ports | Through (Cable gland on the inverter) |
|---|---|
| DO1+ / DO1- / DO2+ / DO2- | COM1 |
| DI+ / DI- / EPO+ / EPO- | |
| GND / 12V | |
| R-CT+ / R-CT- | |
| S-CT+ / S-CT- | |
| T-CT+ / T-CT- | |
| NTC+ / NTC- | |
| EV-485A / EV-485B | COM3 |
| PC-485A / PC-485B | |
| VPP-485A / VPP-485B | |

3. Connect the battery temperature sensor (for lead-acid batteries)
   a. Connect the battery temperature sensor to the battery.
   b. Insert the cable of the battery temperature sensor through the **COM1** cable gland.

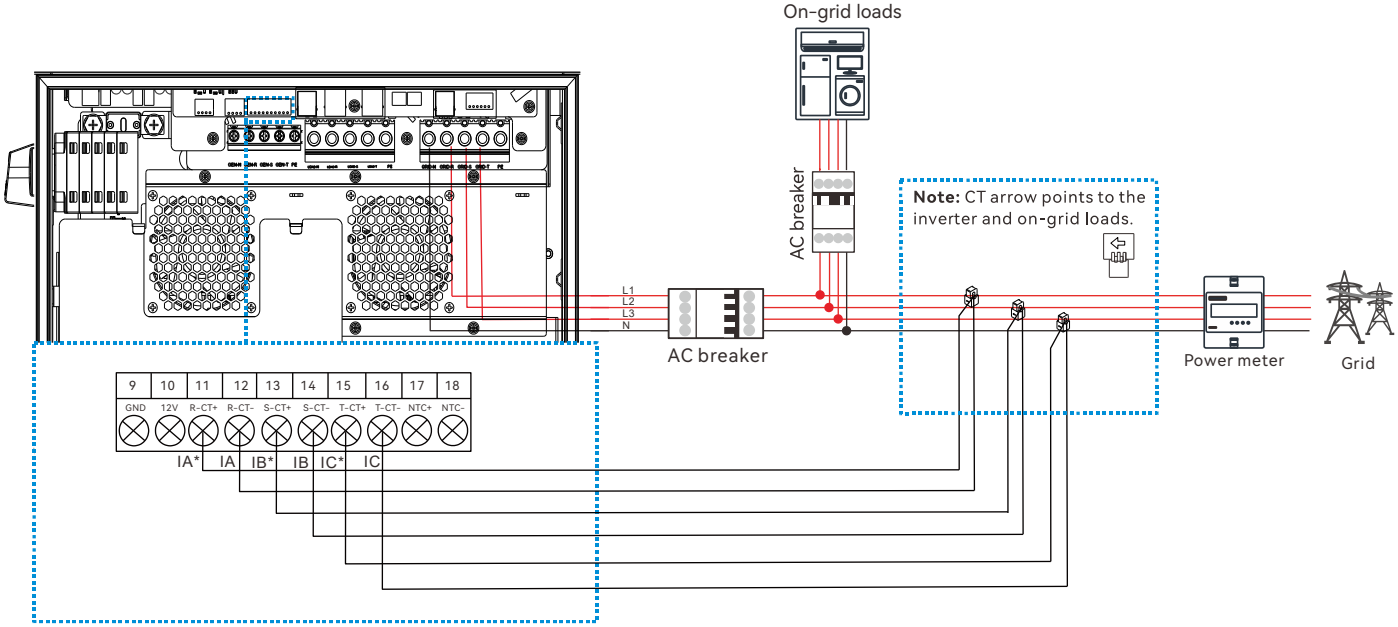


c. Connect the two wires to ports **NTC+** and **NTC-**.



4. Connect the current transformer (without smart meter)
   a. Clamp three CTs to **Grid L1, L2, L3**.
   b. Connect the three CTs to the inverter's CT communication ports **R-CT+, R-CT-, S-CT+, S-CT-, T-CT+, T-CT-**.

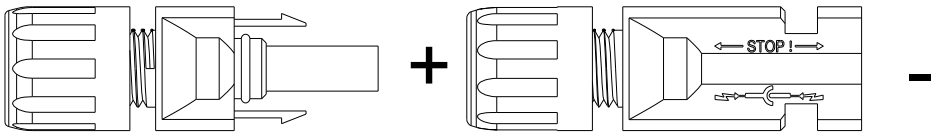



## 12. Assemble the PV-side electrical connection

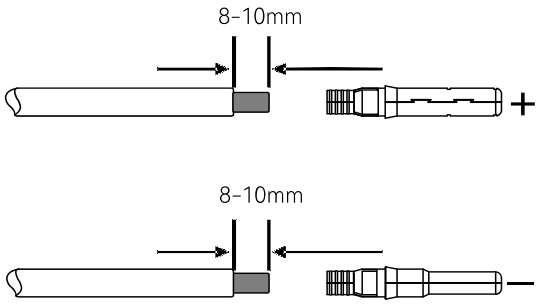
1. Prepare the PV cables according to the following specification.

| Cable | Recommended cross-sectional area ($mm^2$) |
|---|---|
| PV+ and PV- | 4 |

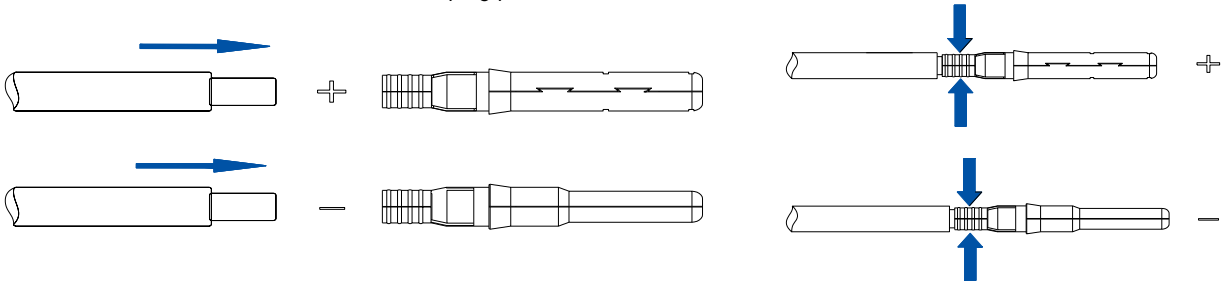
2. Loosen the lock screws on positive and negative connector.




3. Strip off the insulation of the positive and negative cables by 8–10 mm (0.31–0.39 inch).

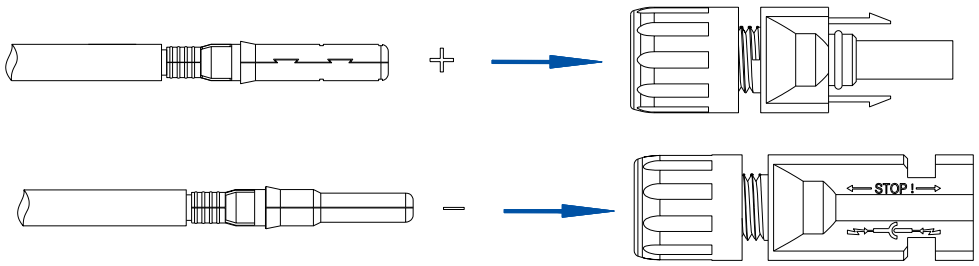



4. Insert the cable ends into the sleeves. Use a crimping plier to assemble the cable ends.

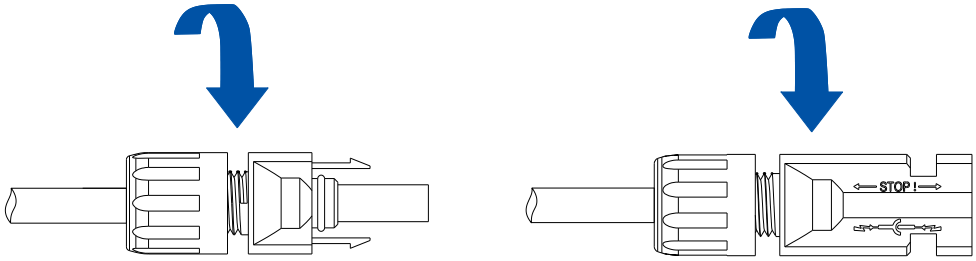


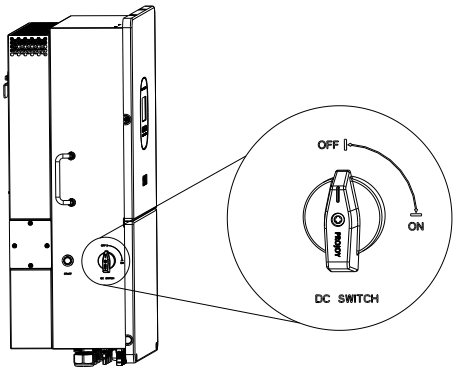
5. Insert the assembled cable ends into the positive and negative PV connectors. Gently pull the cables backwards to ensure firm connection.



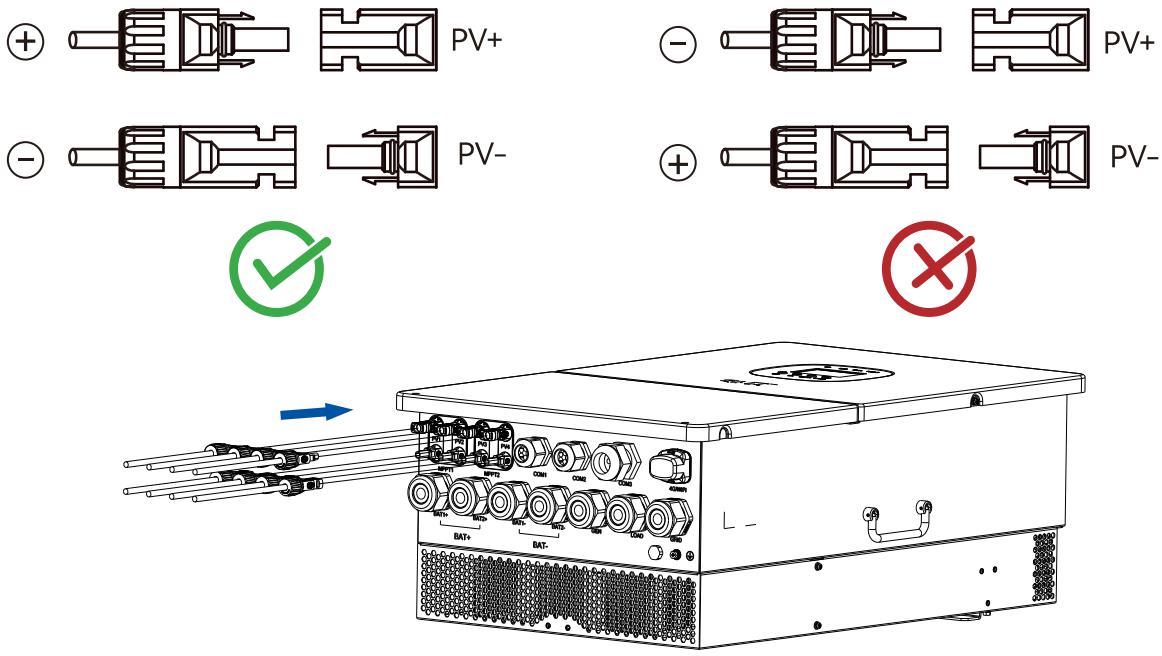

6. Tighten the lock screws on the positive and negative cable connectors.




7. Make sure that the DC switch is at the **OFF** position.



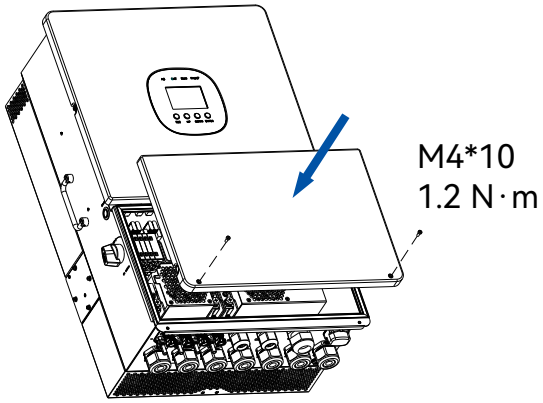

8. Connect the positive and negative connectors into the positive and negative DC input terminals of the inverter. A “click” sound should be heard when the contact cable assembly is seated correctly.



## 13. Close the junction box of the inverter

Use hex wrench to reinstall the cover back to the inverter.




## 14. Start up the system

1. Close the circuit breaker on the grid side to connect to the grid.
2. Turn on the DC switch on the inverter to connect to the PV array.
3. Turn on the battery switch on the battery to connect to the battery.
4. Check the LED indicator status on the inverter panel to ensure that the inverter is running properly.

| LED indicator | Color | Status | Description |
|---|---|---|---|
| AC | Green | Solid on | The grid is connected and is working properly. |
| BAT | Green | Solid on | The battery is working properly. |
| RUN | Green | Solid on | The inverter is working properly. |
| FAULT | Red | Solid on | The inverter is not working properly. |

5. Configure the system on the elekeeper App. For details, refer to Section ***Commissioning on the APP*** in the inverter user manual.
6. If any error occurs, check the error code displayed on the App. For detailed error messages, refer to Section ***Troubleshooting*** in the inverter user manual.

**Installer:** _____

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