H2-(3K-6K)-LS2-S Quick Guide

This quick guide provides installation operations. For safety precautions and detailed product information, refer to the H2-(3K-6K)-LS2-S *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

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

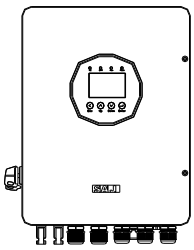
☐1. Check the outer packing

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

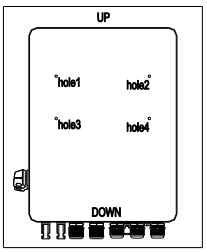
Note: If any serious damage is found or the model is not what you requested, do not unpack the product, and contact your dealer as soon as possible.

☐2. Check the product packages

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

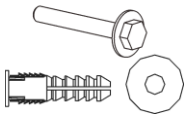


H2 inverter

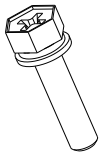


Hole positioning paper

Wall mounting bracket

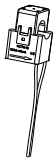


M6*50 screw suite x4

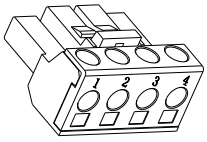


M4*10 screw x2

Terminal lug x2

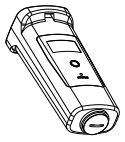


Current transformer

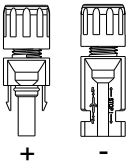


Terminal

Communication cable



Communication module



PV connectors x2

Documents

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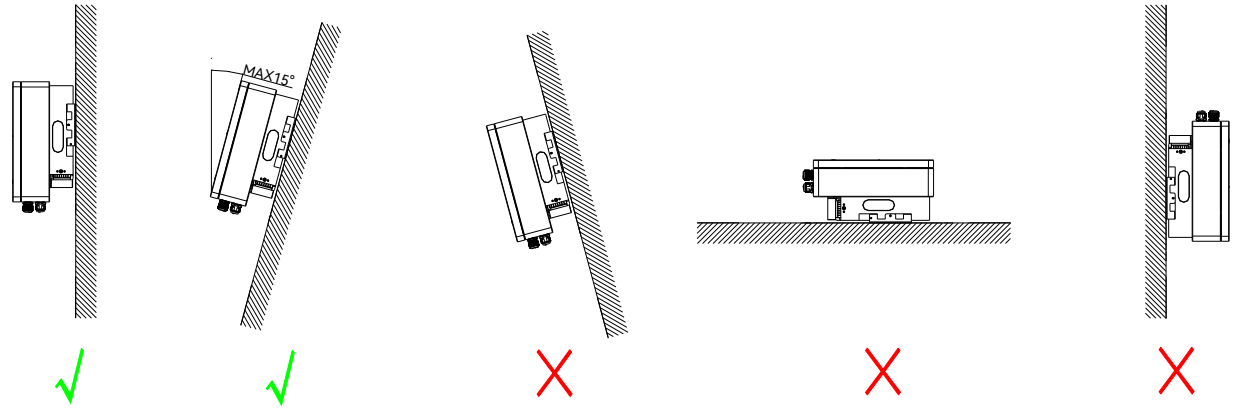
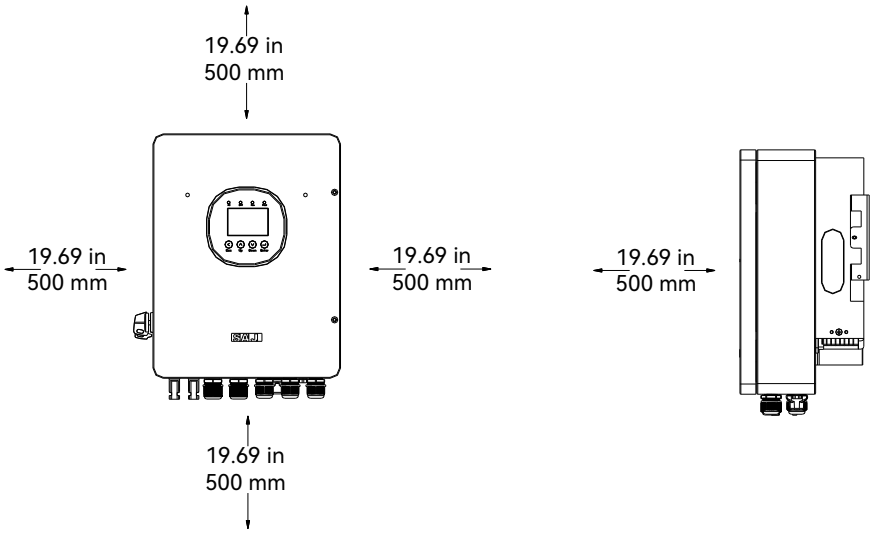
☐3. Check installation position and gaps

- 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.



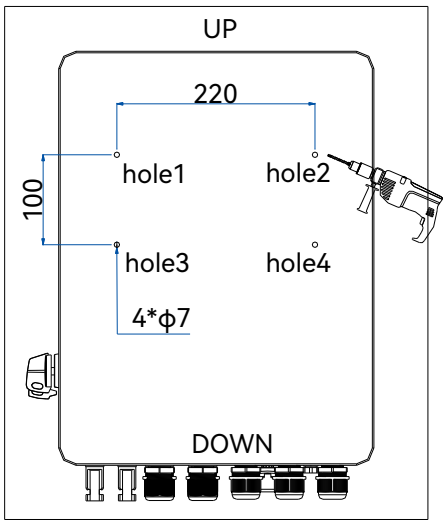
- The minimum clearance requirement for inverter installation is shown below.
  For one or multiple inverters, maintain a minimum clearance of 500 mm on all sides of each inverter for ventilation and service access.

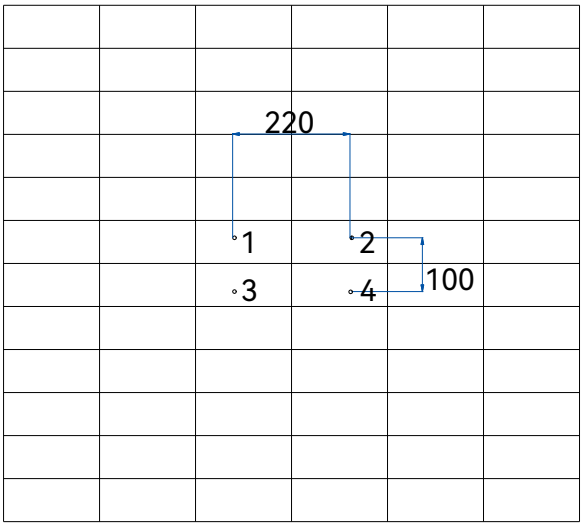


☐4. Install the inverter onto the wall

1. Stick the hole positioning paper onto the wall. Drill four holes according to the instructions of four holes (hole1, hole2, hole3, and hole4). Then, remove the paper.

   Note: Reserve enough distance at the bottom for cable connection.





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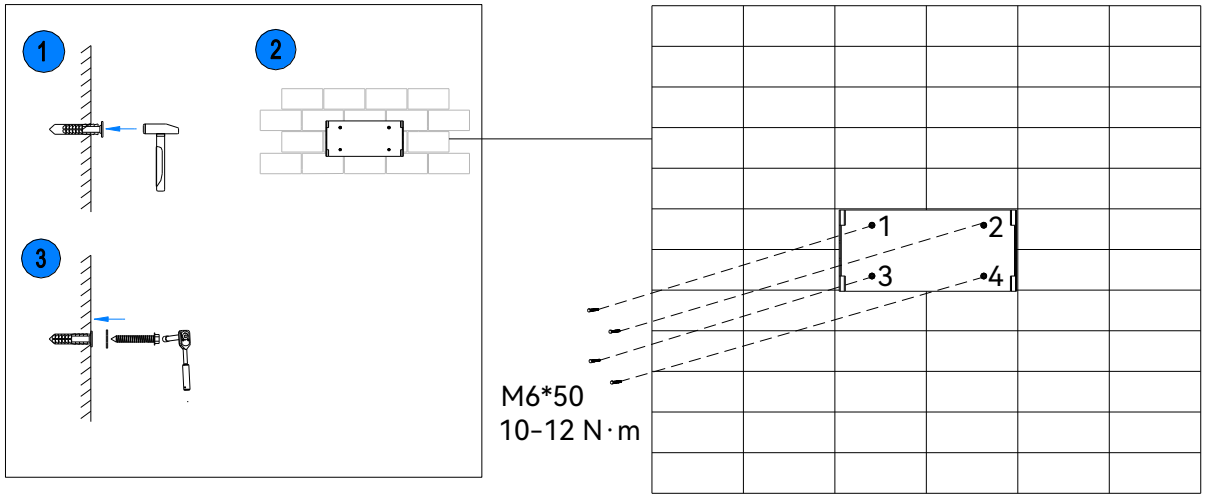
2. Install the mounting bracket onto the wall.

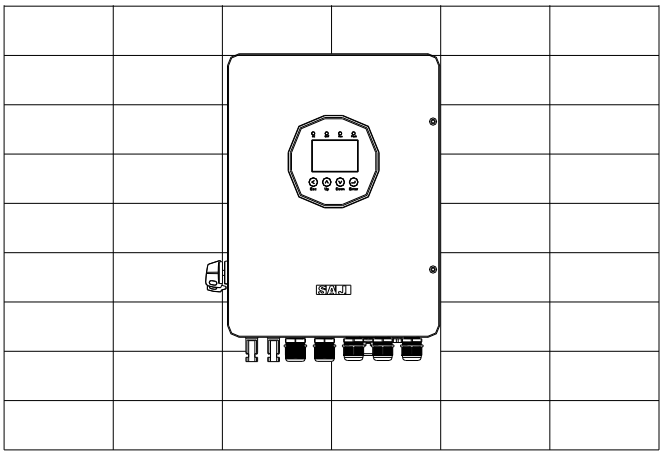
① Use a rubber mallet to insert four expansion tubes into the holes.

② Align the holes of the mounting bracket to the drilled holes in the wall.

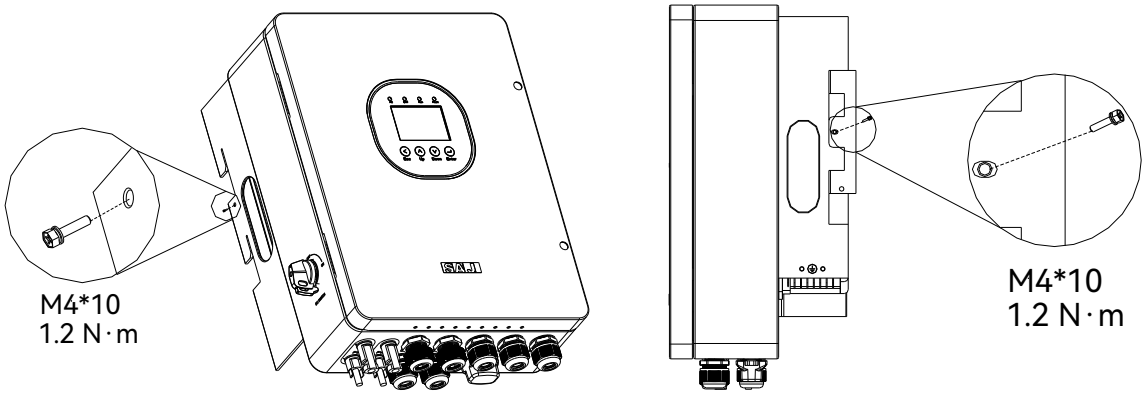
③ Insert and tighten the screws into the drilled holes to fix the mounting bracket to the wall.



3. Mount the inverter onto the mounting bracket.



4. Insert two M4*10 screws on both sides of the inverter to secure it to the wall.



☐5. Install the battery

For details, refer to the battery *User Manual*.

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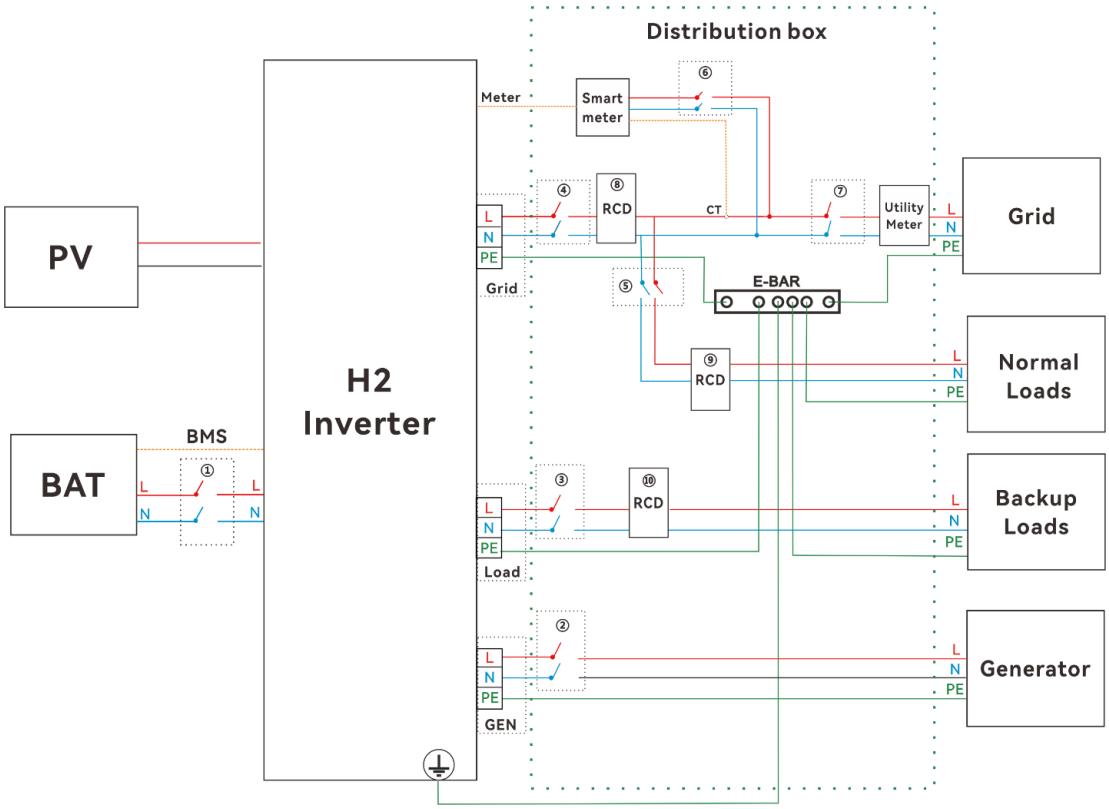
☐6. Prepare the circuit breakers and cables

For safety operation and regulation compliance, circuit breakers should be installed between devices. 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.

1. 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
H2-3K-LS2-S	100 A/60 V	20 A/230 V	20 A/230 V	20 A/230 V	Depending on loads and meter	Main breaker	300 mA RCD	30 mA RCD
H2-3.6K-LS2-S	125 A/60 V	20 A/230 V	20 A/230 V	20 A/230 V				
H2-4K-LS2-S	125 A/60 V	25 A/230 V	25 A/230 V	25 A/230 V				
H2-4.6K-LS2-S	160 A/60 V	25 A/230 V	25 A/230 V	25 A/230 V				
H2-5K-LS2-S	160 A/60 V	32 A/230 V	32 A/230V	32 A/230V				
H2-6K-LS2-S	180 A/60 V	40 A/230 V	40 A/230 V	40 A/230 V				

Cable (90℃, Copper)	Recommended cross-sectional area (mm^2)						Stripping Length (mm)
	H2-3K-LS2-S	H2-3.6K-LS2-S	H2-4K-LS2-S	H2-4.6K-LS2-S	H2-5K-LS2-S	H2-6K-LS2-S	
Ground	4	6	6	6	6	6	15
PV	4	4	4	4	4	4	10
Battery	16	16	25	25	35	50	15
GEN	4	4	4	6	6	6	12
LOAD	4	4	4	6	6	6	12
GRID	4	4	4	6	6	6	12

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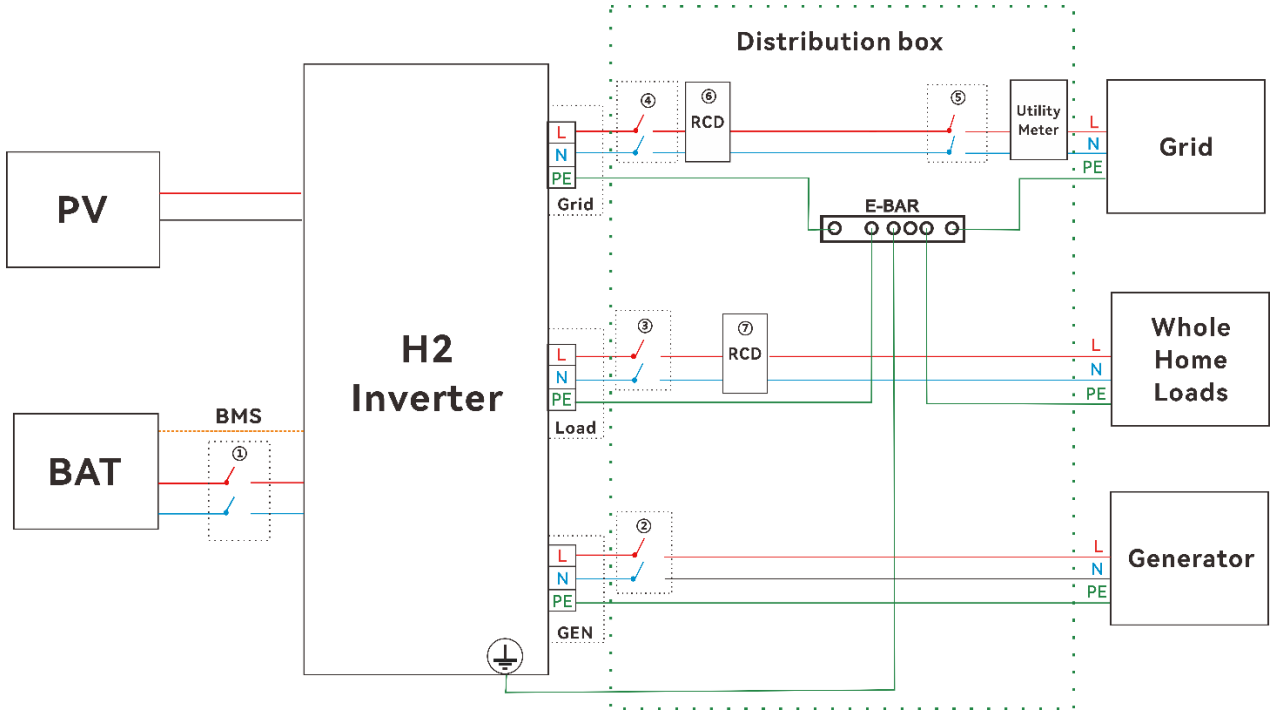
2. Whole home backup connection



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
H2-3K-LS2-S	100 A/60 V	20 A/230 V	63 A/230V	63 A/230V	Main breaker	300 mA RCD	30 mA RCD
H2-3.6K-LS2-S	125 A/60 V	20 A/230 V	63 A/230V	63 A/230V			
H2-4K-LS2-S	125 A/60 V	25 A/230 V	63 A/230V	63 A/230V			
H2-4.6K-LS2-S	160 A/60 V	25 A/230 V	63 A/230V	63 A/230V			
H2-5K-LS2-S	160 A/60 V	32 A/230 V	63 A/230V	63 A/230V			
H2-6K-LS2-S	180 A/60 V	40 A/230 V	63 A/230V	63 A/230V			

Cable (90℃, Copper)	Recommended cross-sectional area (mm²)						Stripping Length (mm)
	H2-3K-LS2-S	H2-3.6K-LS2-S	H2-4K-LS2-S	H2-4.6K-LS2-S	H2-5K-LS2-S	H2-6K-LS2-S	
Ground	4	6	6	6	6	6	15
PV	4	4	4	4	4	4	10
Battery	16	16	25	25	35	50	15
GEN	4	4	4	6	6	6	12
LOAD	10	10	10	10	10	10	12
GRID	10	10	10	10	10	10	12

Note:

- 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.

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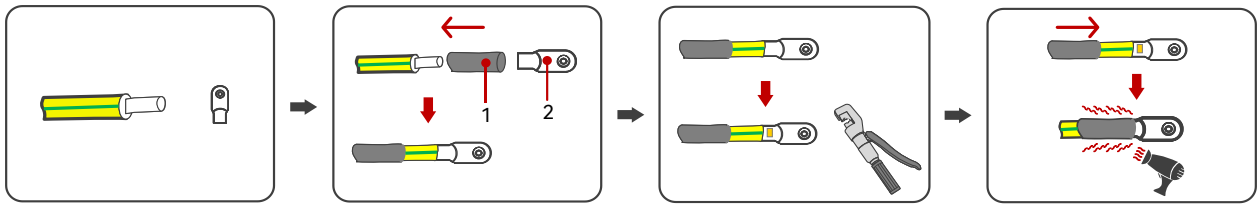
☐ 7. Connect the grounding cable

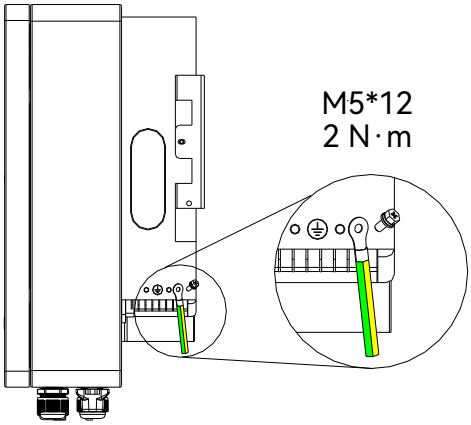
1. Prepare a cable with a cross-sectional area of 4-6 mm². Crimp the cable and ground terminal.

Cable (90℃, Copper)	Recommended cross-sectional area (mm²)		Stripping length	Recommended torque
	H2-3K-LS2-S	H2-(3.6K-6K)-LS2-S		
Ground	4	6	15 mm / 0.59 inch	2 N·m / 17.70 LB-IN



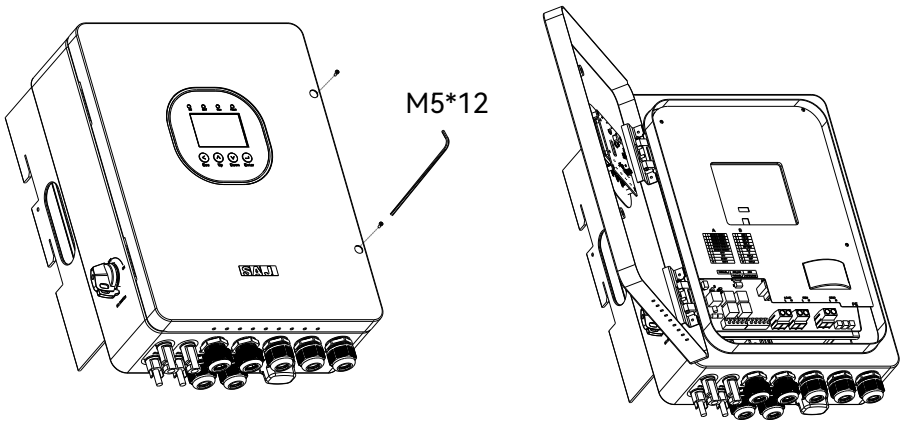
1-Heat shrink tube 2-OT/DT terminal

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



☐ 8. Open the junction box of the inverter

1. Use an Allen Wrench to loosen the two screws and open the cover.



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☐ 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 models
SAJ	B2-5.0-LV1, B2-5.0-LV2, B3-5.0-LV

Note:

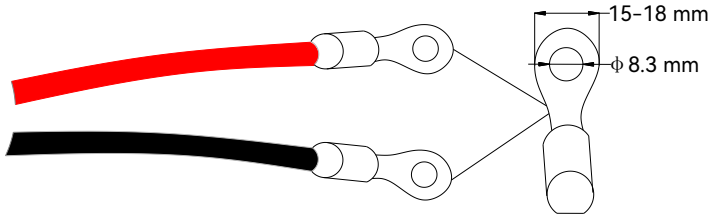
- For batteries from other suppliers, consult SAJ product support. Do not use an untested battery which may cause damage to the inverter and thus void the inverter warranty.
- Some utility companies or electrical regulations may require a battery isolator to be installed near the inverter. Choose a ≥70A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

1. Strip the insulation on the positive and negative battery cable ends.

   Note: Use double-insulated cables for safety.

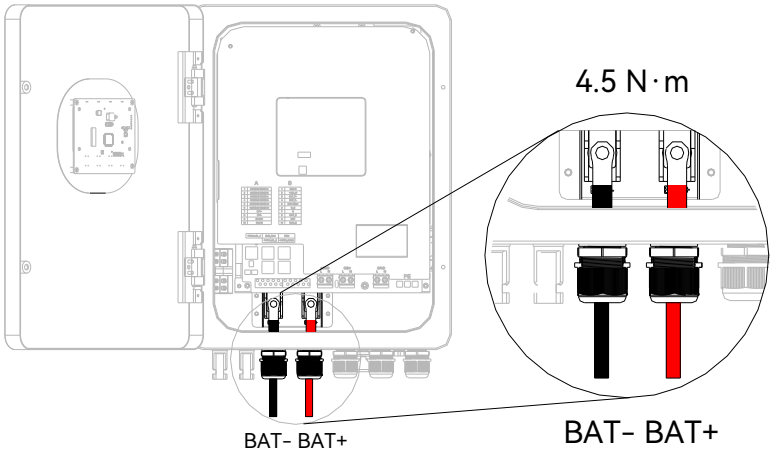
Cable (90℃, Copper)	Recommended cross-sectional area (mm²)		Stripping length	Recommended torque
BAT+ and BAT-	H2-3K-LS2-S	16	15 mm / 0.59 inch	4.5 N·m / 39.83 LB-IN
	H2-3.6K-LS2-S	16		
	H2-4K-LS2-S	25		
	H2-4.6K-LS2-S	25		
	H2-5K-LS2-S	35		
	H2-6K-LS2-S	50		

   If needed, crimp an insulation terminal on the cable end shown as follows:



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

   Connect the cables to the battery terminal **BAT -** and **BAT +** in the junction box.



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☐10. Assemble the AC-side electrical connection

⚠WARNING
Risk of personal injury due to electric shock! • Ensure that the equipment is powered off before performing any wiring operations. • Improper wiring of AC conductors will result in risks of electrical failure or equipment damage. Before applying power to the unit, ensure that all connections are made correctly in accordance with the instructions in this document and in accordance with local wiring codes and regulations.

1. Strip the insulation on the GEN/LOAD/GRID cable ends.

   Note: Use double-insulated cables for safety.

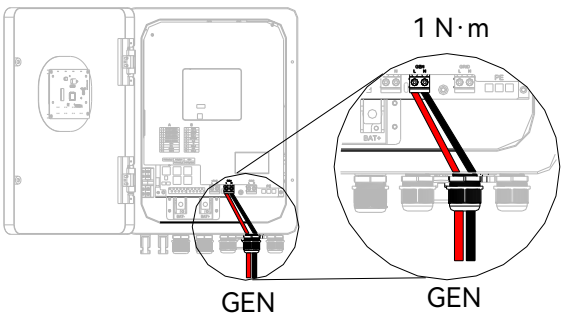
   - Basic electrical connection

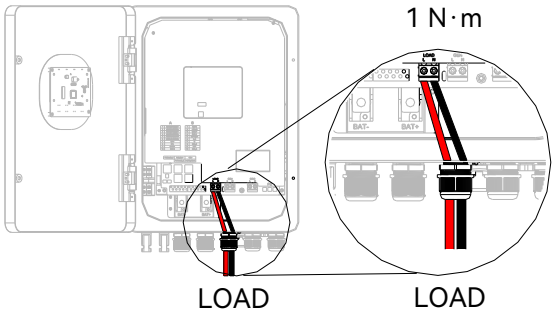
Cable (90℃, Copper)	Recommended cross-sectional area (mm^2)		Stripping length	Recommended torque
	H2-(3K-4K)-LS2-S	H2-(4.6K-6K)-LS2-S		
GEN	4	6	12 mm / 0.47 inch	1 N·m / 8.85 LB-IN
LOAD	4	6		
GRID	4	6		

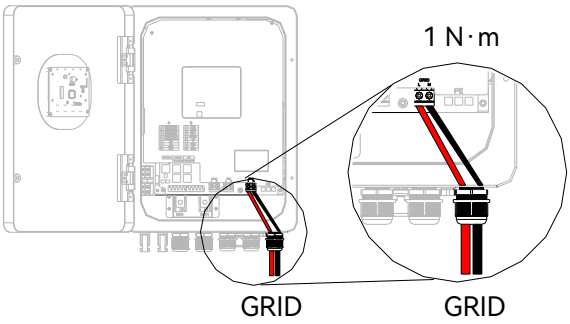
   - Whole home backup connection

Cable (90℃, Copper)	Recommended cross-sectional area (mm^2)		Stripping length	Recommended torque
	H2-(3K-4K)-LS2-S	H2-(4.6K-6K)-LS2-S		
GEN	4	6	12 mm / 0.47 inch	1 N·m / 8.85 LB-IN
LOAD	10			
GRID	10			

2. Insert the cables through the cable glands **GEN, LOAD,** and **GRID**. Connect the cables to the corresponding **L** and **N** terminals. Then, use 1 N·m torque to tighten the screws on the terminals to secure the cable connection.







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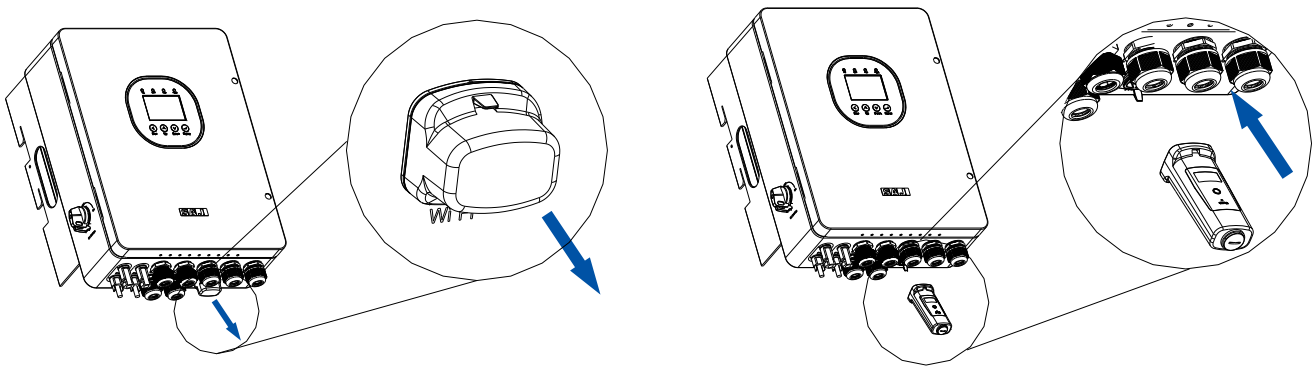
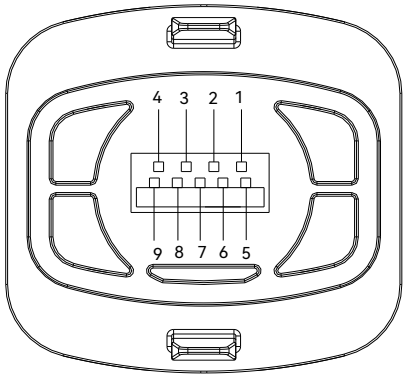
☐ 11. Assemble the communication connection

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



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



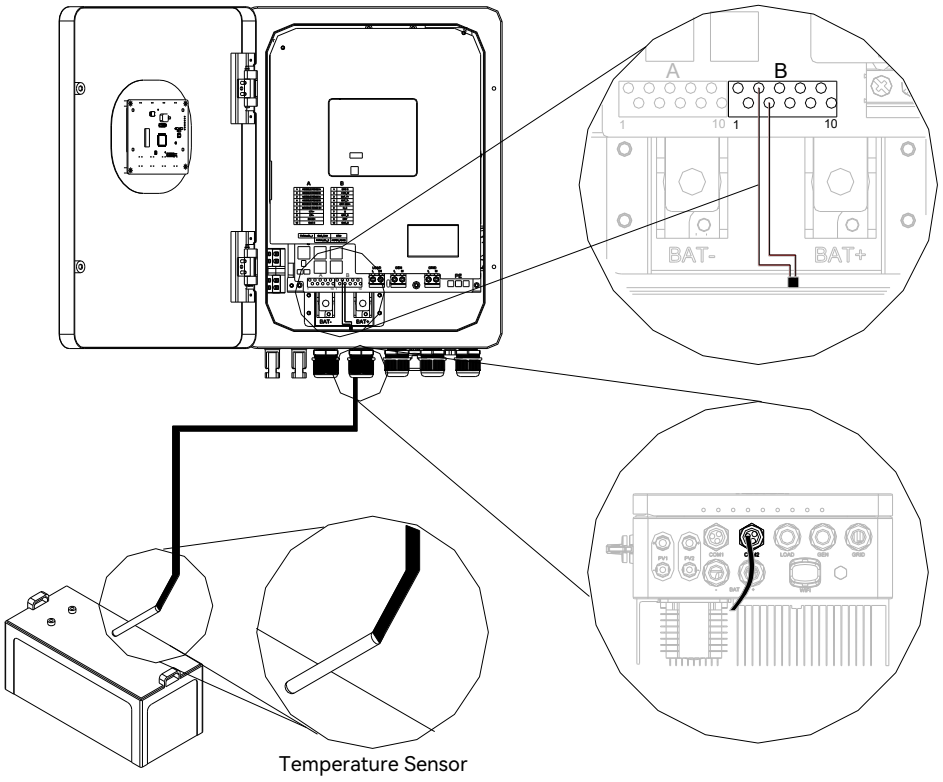
Pin	Description
1	GND: Ground wire
2	485A: 485 communication pin A
3	485B: 485 communication pin B
4	CANL: Low speed CAN signal
5	+5V: Power supply
6	232RX: Receive data
7	232TX: Transmit data
8	CANH: High speed CAN signal
9	NULL: Null

2. (Optional) Connect the battery temperature sensor when the lead-acid batteries are used.

   a. Connect the battery temperature sensor to the battery.

   b. Insert the cable of the battery temperature sensor through **COM2** cable gland.

   Then, connect the two wires to ports **BAT_T+** and **BAT_T-** on **communication port block B.**



Temperature Sensor

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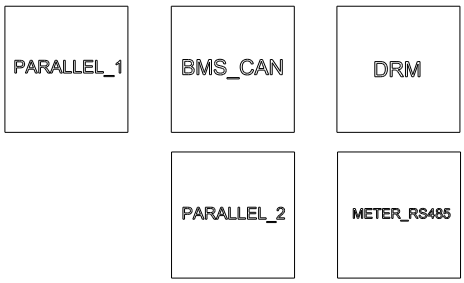
3. Connect communication cables

- **RJ45 ports**

  a. Per your needs, prepare communication cables according to the description of RJ45 ports and pins.

  b. Strip the insulation of the communication cables with a wire stripper and separate the corresponding signal wires according to the pin definition.

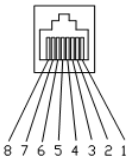
  c. Insert the communication cables through the cable glands **COM1** or **COM2** and connect to corresponding RJ45 ports.



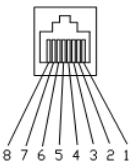
Port	Description
PARALLEL_1	Parallel connection is performed through the PARALLEL_1 and PARALLEL_2 ports. For detailed parallel connection methods, refer to ***Section 5.7.3.2*** "Parallel Connection" of the User Manual.
BMS_CAN	The inverter can communicate with the battery control unit through BMS_CAN port. For detailed connection methods, refer to ***Section 5.7.3.3*** "BMS_CAN connection" of the User Manual.
DRM	According to AS/NZS 4777.2, inverters must support the Demand Response Mode (DRM). With the use of external Demand Response Enabling Device (DRED), the inverter can adjust active and reactive power output to maintain grid stability and efficiency. For detailed connection methods, refer to ***Section 5.7.3.1*** "DRM connection" of the User Manual.
PARALLEL_2	Parallel connection is performed through the PARALLEL_1 and PARALLEL_2 ports. For detailed parallel connection methods, refer to ***Section 5.7.3.2*** "Parallel Connection" of the User Manual.
METER_RS485	The inverter can communicate with the meter through METER_RS485 port. For detailed connection methods, refer to ***Section 5.7.3.4***"METER485 connection" of the User Manual.

PARALLRL_1	
1	CANH
2	CANL
3	BKUP TO GRID_BUS+
4	CAN1_H
5	CAN1_L
6	CARRY_BUS+
7	GRID TO BKUP_BUS+
8	GND_S

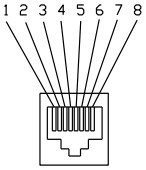
BMS_CAN	
1	NC
2	NC
3	NC
4	CANH
5	CANL
6	NC
7	NC
8	NC



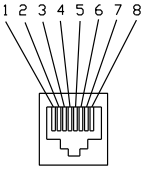
DRM	
1	DRM 1/5
2	DRM 2/6
3	DRM 3/7
4	DRM 4/8
5	RefGen
6	Com/DRM 0
7	V+
8	V-



PARALLEL_2	
1	CANH
2	CANL
3	BKUP TO GRID_BUS+
4	CAN1_H
5	CAN1_L
6	CARRY_BUS+
7	GRID TO BKUP_BUS+
8	GND_S



METER_RS485	
1	RS485_B1
2	RS485_A1
3	GND_S
4	RS485_B1
5	RS485_A1
6	GND_S
7	RS485_B1
8	RS485_A1



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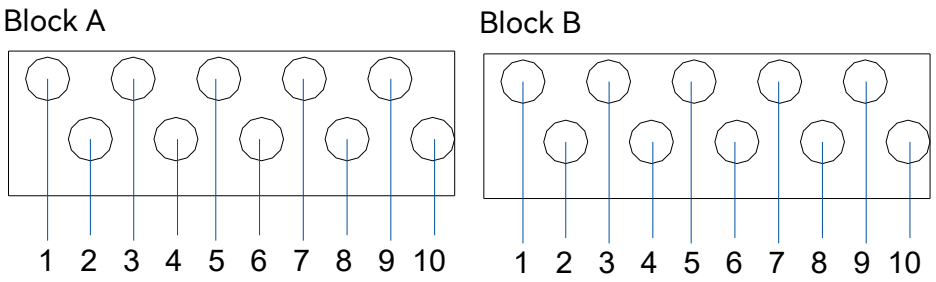
- **Communication ports**

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

  b. Insert the cables through the cable gland **COM1** or **COM2** and connect the cables to the corresponding ports.



Block	Number	Port	Description
A	1	MODBUS RS485 A	Reserved daisy-chaining RS485 communication port for future use.
	2	MODBUS RS485 B	Reserved daisy-chaining RS485 communication port for future use.
	3	MODBUS RS485 A	Reserved daisy-chaining RS485 communication port for future use.
	4	MODBUS RS485 B	Reserved daisy-chaining RS485 communication port for future use.
	5	MODBUS RS485 A1	Reserved independent RS485 communication port for future use.
	6	MODBUS RS485 B1	Reserved independent RS485 communication port for future use.
	7	CT1+	For connecting CT positive cable.
	8	CT1-	For connecting CT negative cable.
	9	EX_SD+	For connecting to external emergency stop switch.
	10	GND	For connecting to external emergency stop switch.
B	1	GND	For connecting to 12V power ground.
	2	+12V_W	For connecting to 12V power supply.
	3	BAT_T+	For connecting the positive cable of the battery temperature sensor (only for lead-acid batteries).
	4	BAT_T-	For connecting the negative cable of the battery temperature sensor (only for lead-acid batteries).
	5	DRY_GEN+	For connecting to external generator dry contact.
	6	G_S	For connecting to external generator dry contact.
	7	G	Reserved dry contact.
	8	DRY_S	Reserved dry contact.
	9	DRY	Reserved protective earth.
	10	GND	Reserved protective earth.

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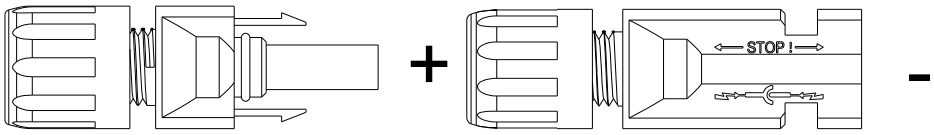
☐ 12. Assemble the PV-side electrical connection

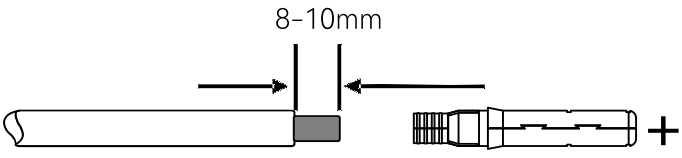
1. Prepare the PV cables according to the following specification.

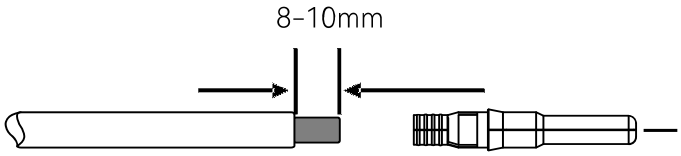
Cable	Recommended cross-sectional area (mm^2)
PV+ and PV-	4

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

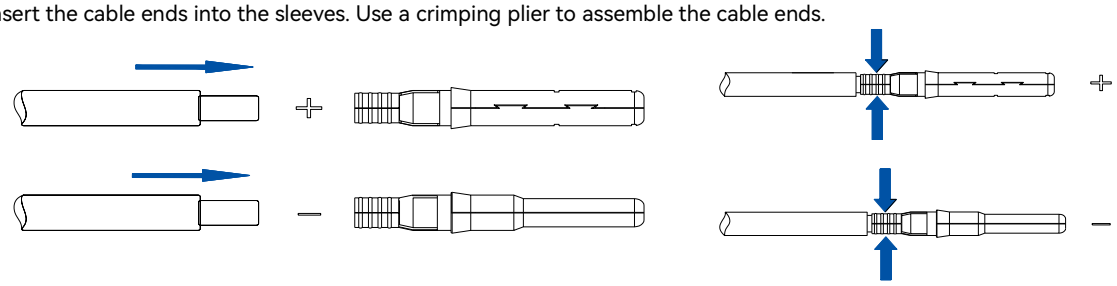


3. Strip off the insulation of the positive and negative cables by 8–10 mm (0.31–0.39 inch).

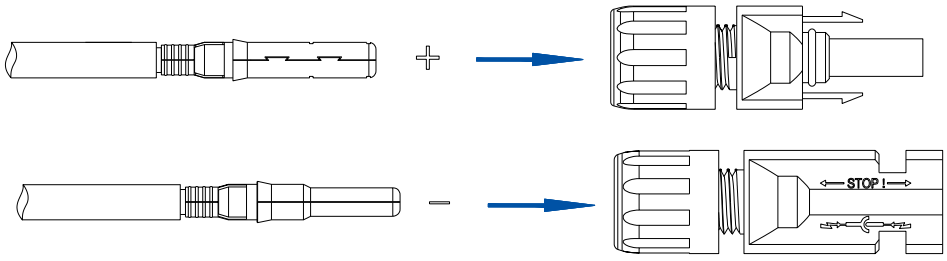




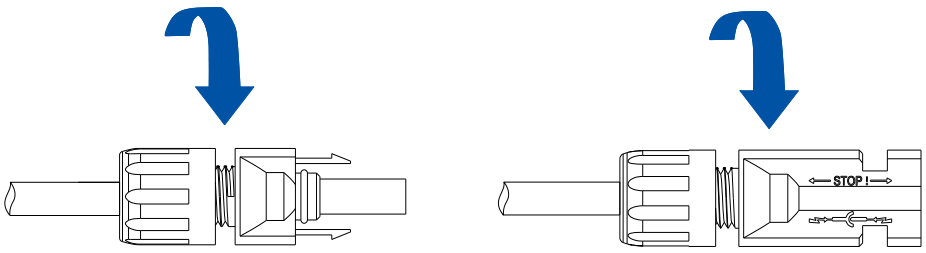
4. Insert the cable ends into the sleeves. Use a crimping plier to assemble the cable ends.



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.



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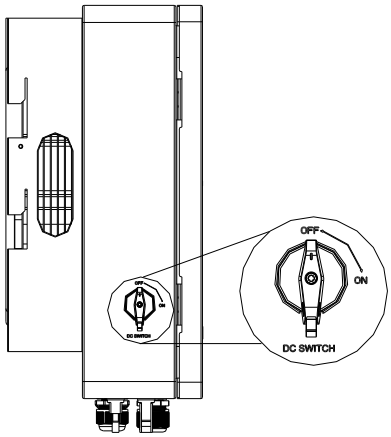
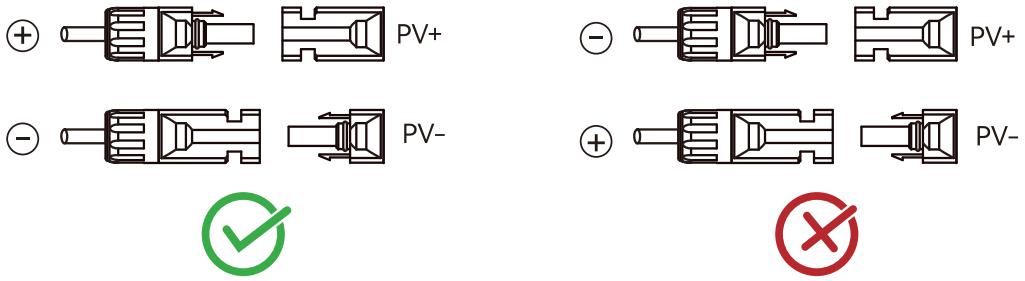
7. Make sure that the DC switch is at the **OFF** position.

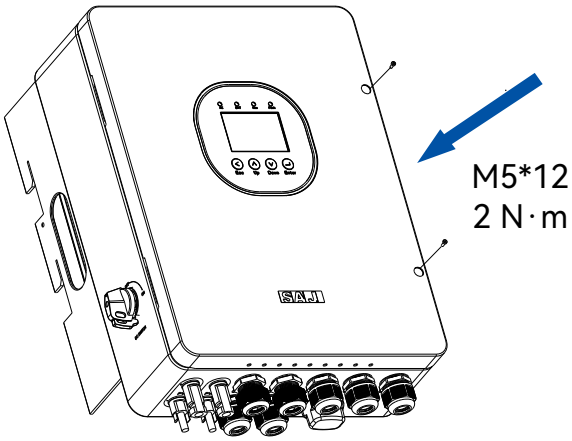


8. Connect the positive and negative connectors into the positive and negative DC input terminals of the inverter. A “click” sound should be heard when the contact cable assembly is seated correctly.



☐13. Close the junction box of the inverter

Close the cover and tighten the screws.



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☐14. Start up the system

1. Turn on the AC 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.
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*" of 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*" of the inverter *User Manual*.

Installer: _____

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