H2-(5K-12K)-LS2 Quick Guide

This quick guide provides installation operations. For safety precautions and detailed product information, refer to the H2-(5K-12K)-LS2 *User Manual* on the SAJ Website www.saj-electric.com. You can scan the QR code below to access all the product documentation.

> **NOTICE**
>
> - Before installation, operation, and maintenance, read the product documentation carefully.
> - Only qualified and trained electricians who have read and fully understood all 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.

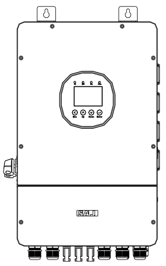
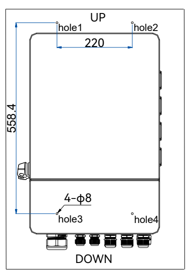
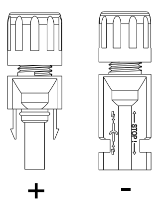
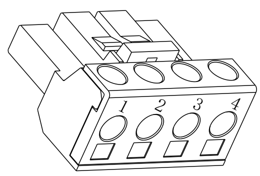
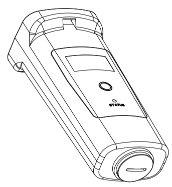
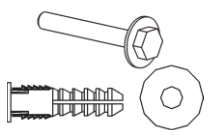
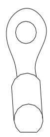
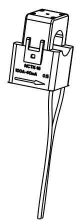
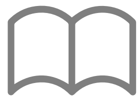
☐ 1. Check the outer packing

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

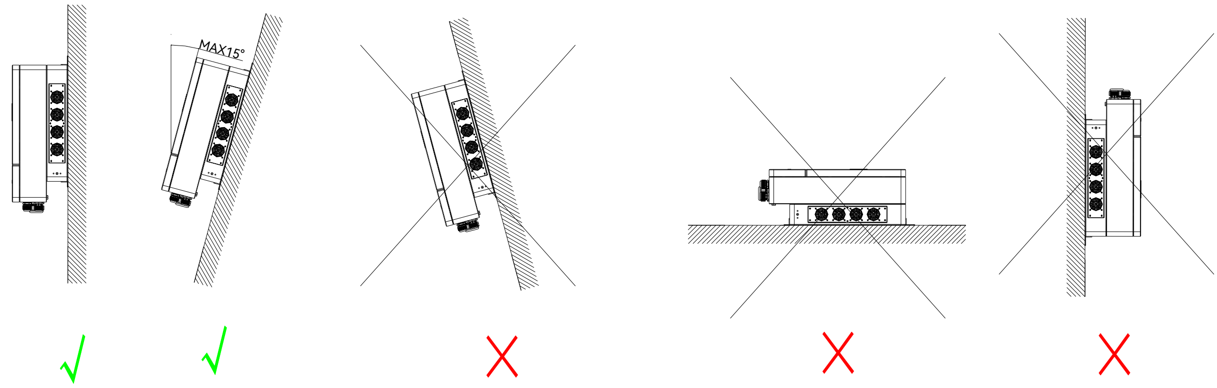
Place the connectors separately after unpacking to avoid confusion for connection of cables.

				
H2 inverter	Hole positioning paper	PV connectors x4	Terminal	Communication module
				
M6*50 screw suite x4	Terminal lug x4	Current transformer	Communication cable	Documents

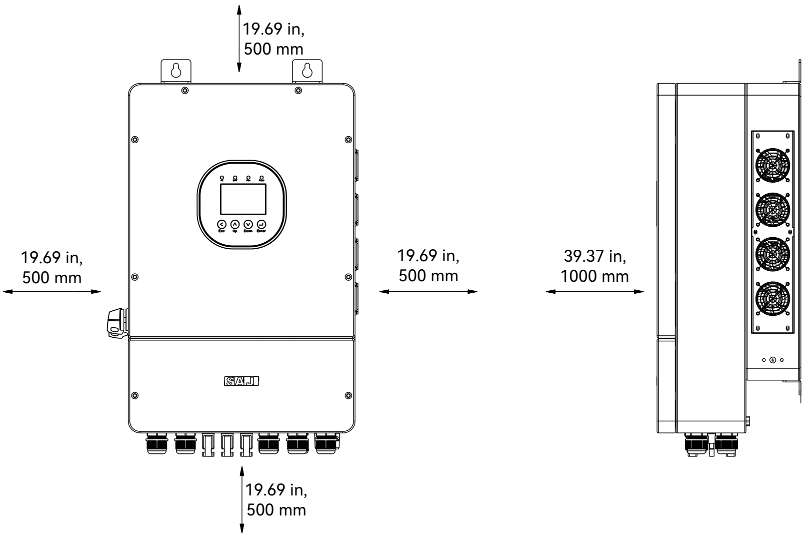
Note: The documents include a *Warranty Card* and a *Quick Guide*.

☐ 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.



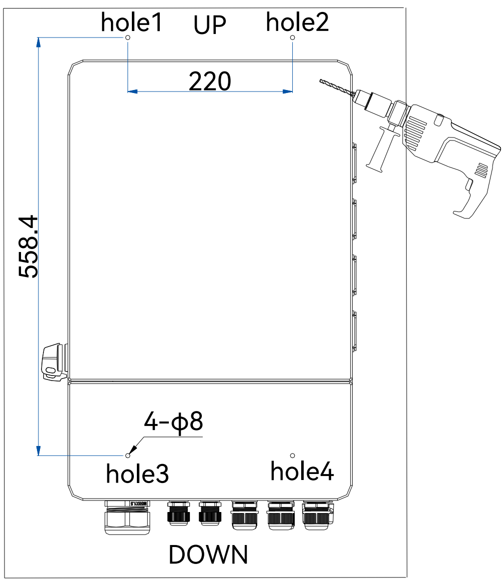
- For multiple inverters, maintain a minimum clearance on all sides of each inverter for ventilation and service access.



☐ 4. Install the inverter onto the wall

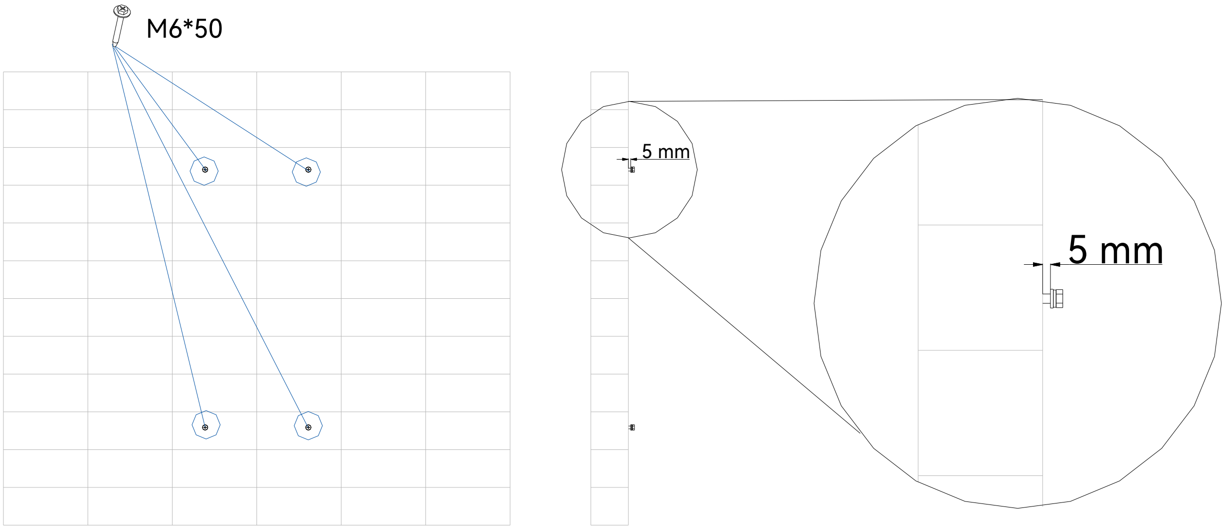
1. Stick the hole positioning paper onto the wall. Drill four holes (hole1, hole2, hole3, and hole4) according to the instructions. Then, remove the paper.

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

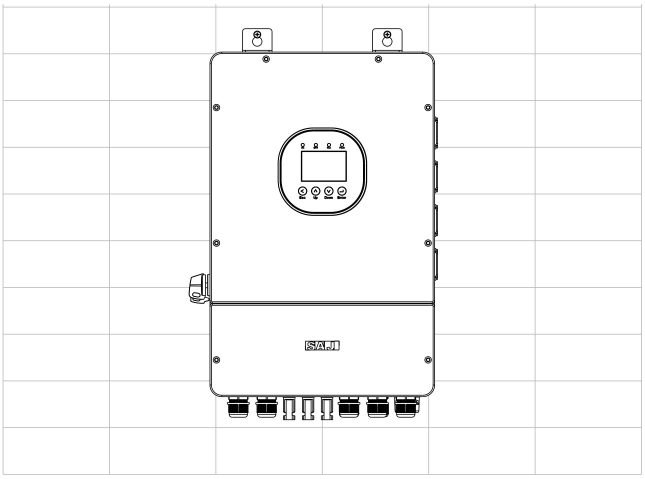


2. Use a rubber mallet to insert four expansion tubes into the holes.

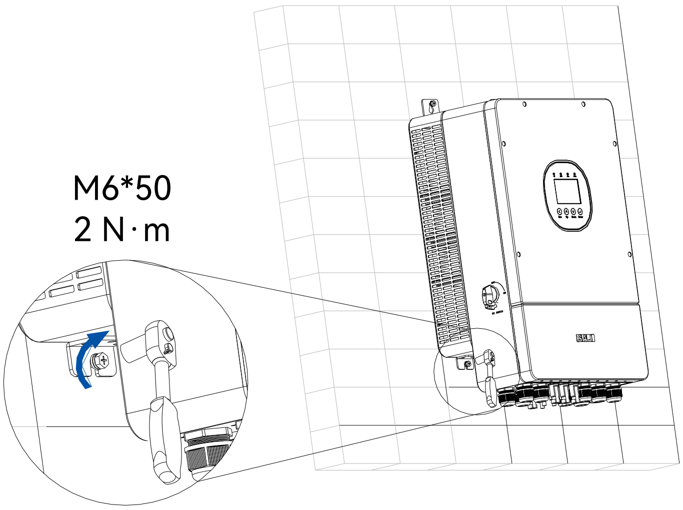
Insert four M6*50 expansion bolts into the drilled holes. Reserve 5 mm distance between the wall surface and the head of the screws.



3. Mount the inverter onto the wall.



4. Tighten the four expansion bolts.



☐ 5. Install the battery

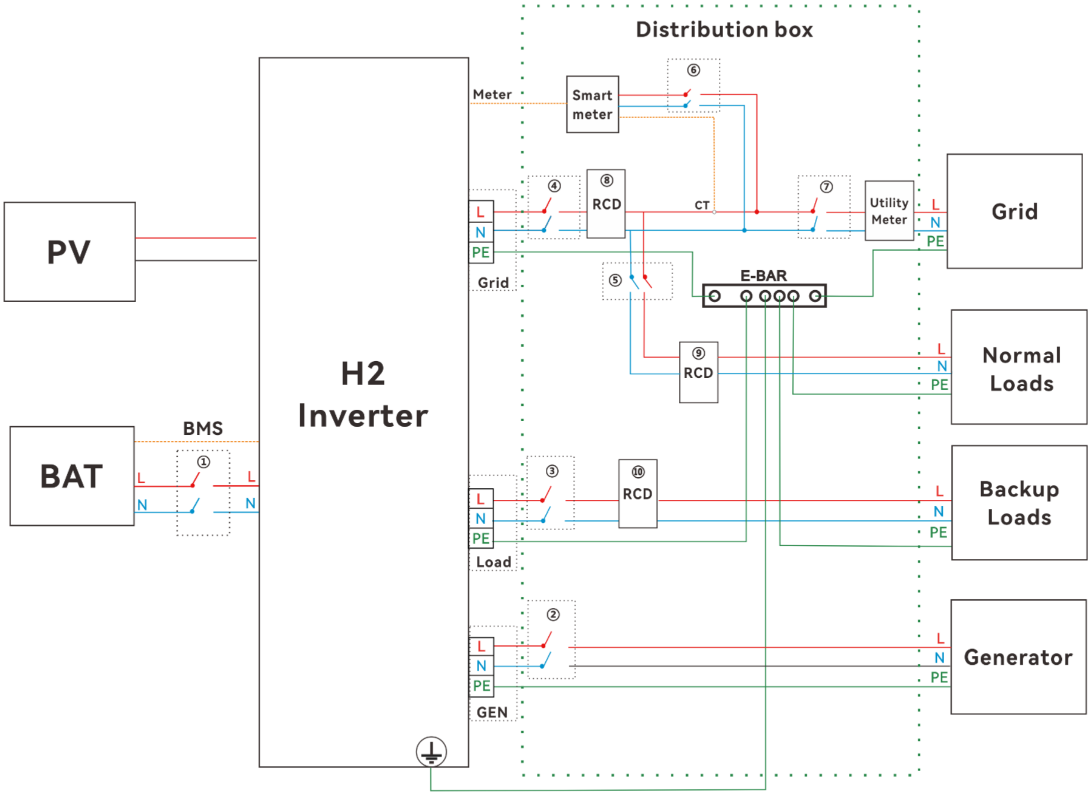
For details, refer to the battery *User Manual*.

☐ 6. Prepare the circuit breakers and cables

For safety operation and regulation compliance, an overcurrent protection device (circuit breaker) should be installed while connecting battery cable, generator cable, load cable, and grid cable.

Before electrical connection, prepare appropriate circuit breakers and cables based on different connection scenarios. Check the recommended specification in the following tables. For proper cable specifications, refer to local regulations and actual installation scenario.

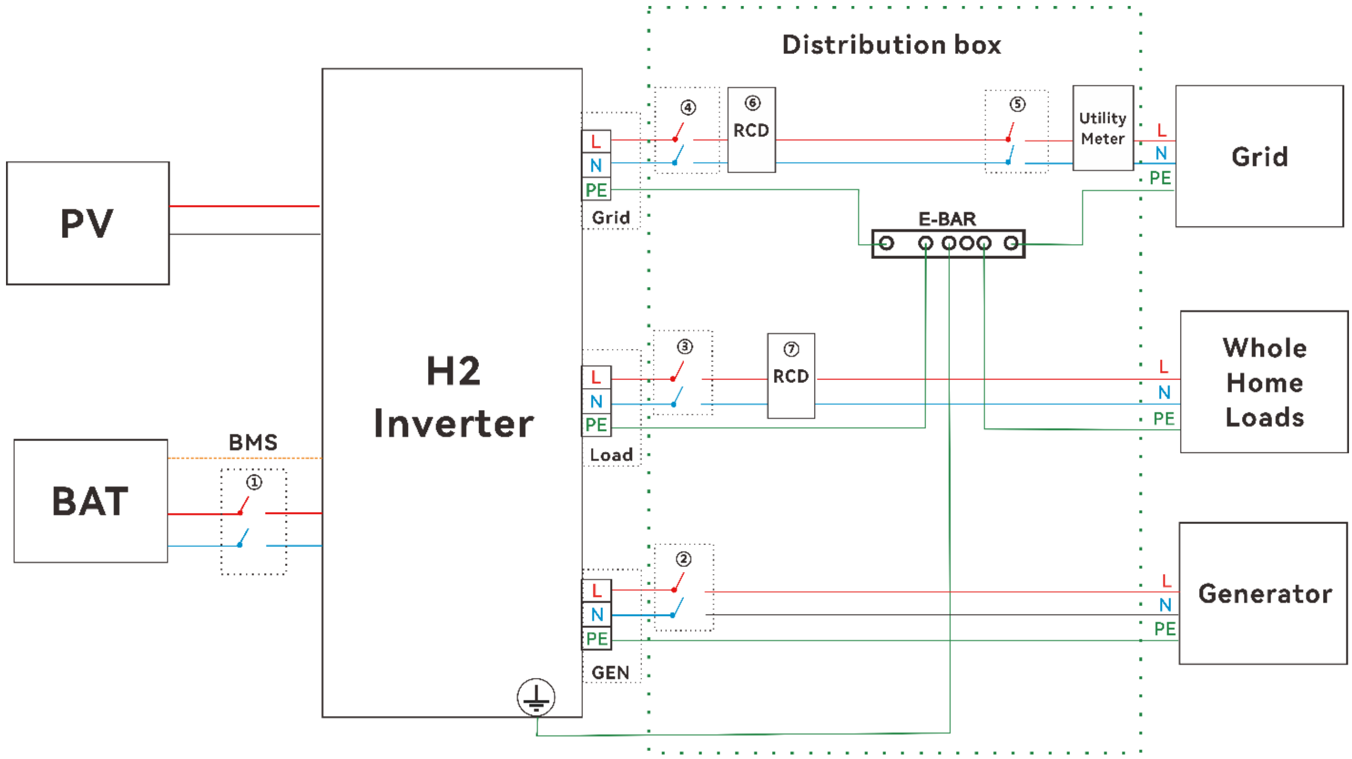
1. Basic system connection



Model	① DC breaker for battery	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
H2-5K-LS2	125 A/60 V	32 A/230 V	32 A/230 V	32 A/230 V	Depends on loads and meter	Main breaker	300 mA RCD	30 mA RCD
H2-6K-LS2	150 A/60 V	40 A/230 V	40 A/230 V	40 A/230 V				
H2-7.6K-LS2	250A/60 V	50 A/230 V	50 A/230 V	50 A/230 V				
H2-8K-LS2	250A/60 V	50 A/230 V	50 A/230 V	50 A/230 V				
H2-10K-LS2	300A/60 V	63 A/230 V	63 A/230 V	63 A/230 V				
H2-12K-LS2	300 A/60 V	63 A/230 V	63 A/230 V	63 A/230 V				

Cable	Recommended Specification (mm^2)						Stripping Length (mm)
	H2-5K-LS2	H2-6K-LS2	H2-7.6K-LS2	H2-8K-LS2	H2-10K-LS2	H2-12K-LS2	
Ground	6	6	6	10	10	10	15
PV	4	4	4	4	4	4	10
Battery	25	50	2*35	2*35	2*50	2*50	15
GEN	4	6	6	10	10	10	12
LOAD	4	6	6	10	10	10	12
GRID	4	6	6	10	10	10	12

2. Whole home backup system connection



Model	① DC breaker for battery	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
H2-5K-LS2	125 A/60 V	32 A/230 V	63 A/230 V	63 A/230 V	Main breaker	300 mA RCD	30 mA RCD
H2-6K-LS2	150 A/60 V	40 A/230 V	63 A/230 V	63 A/230 V			
H2-7.6K-LS2	250A/60 V	50 A/230 V	63 A/230 V	63 A/230 V			
H2-8K-LS2	250A/60 V	50 A/230 V	63 A/230 V	63 A/230 V			
H2-10K-LS2	300A/60 V	63 A/230 V	63 A/230 V	63 A/230 V			
H2-12K-LS2	300 A/60 V	63 A/230 V	63 A/230 V	63 A/230 V			

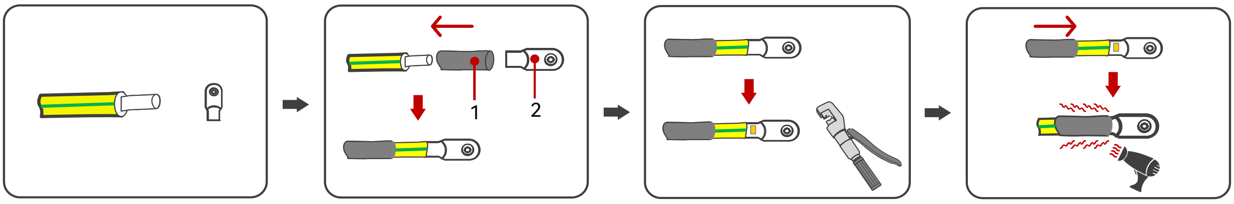
Cable	Recommended Specification (mm^2)						Stripping Length (mm)
	H2-5K-LS2	H2-6K-LS2	H2-7.6K-LS2	H2-8K-LS2	H2-10K-LS2	H2-12K-LS2	
Ground	6	6	6	10	10	10	15
PV	4	4	4	4	4	4	10
Battery	25	50	2*35	2*35	2*50	2*50	15
GEN	4	6	6	10	10	10	12
LOAD	10	10	10	10	10	10	12
GRID	10	10	10	10	10	10	12

NOTICE

- Do not connect multiple inverters to one circuit breaker.
- 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.

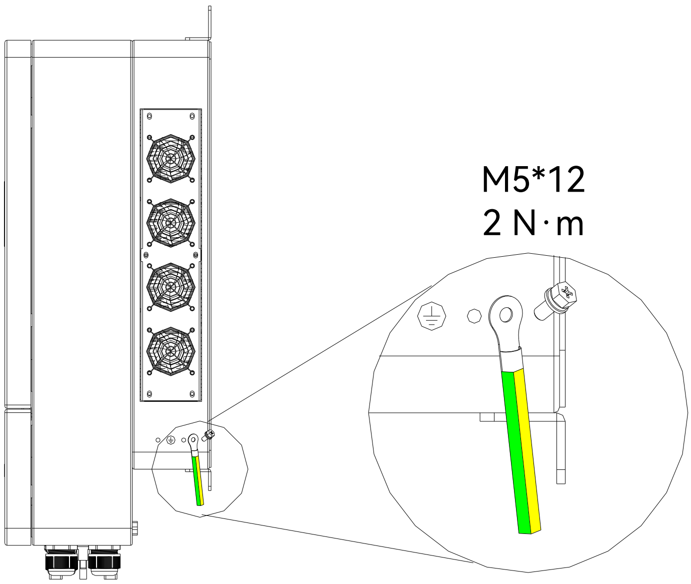
☐ 7. Connect the grounding cable

1. Prepare a cable with a cross-sectional area of 6-10 mm². Crimp the cable and ground terminal.



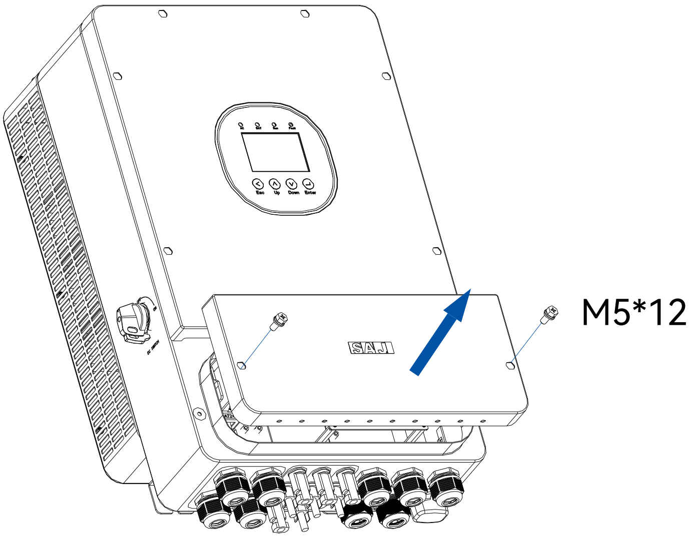
1-Heat shrink tube 2-OT/DT terminal

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



☐ 8. Open the junction box of the inverter

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



☐ 9. 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 (12-mm/0.47-inch length) on the GEN/LOAD/GRID cable ends.

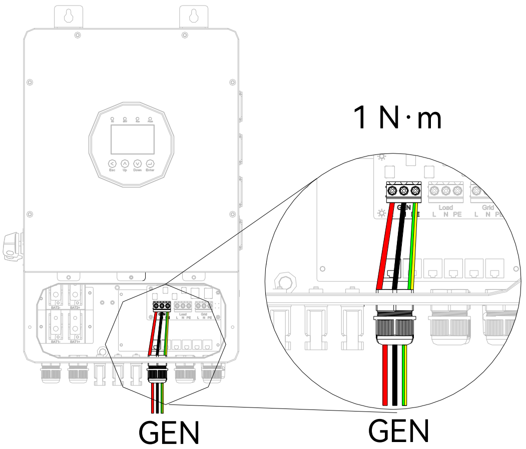
- Basic electrical connection

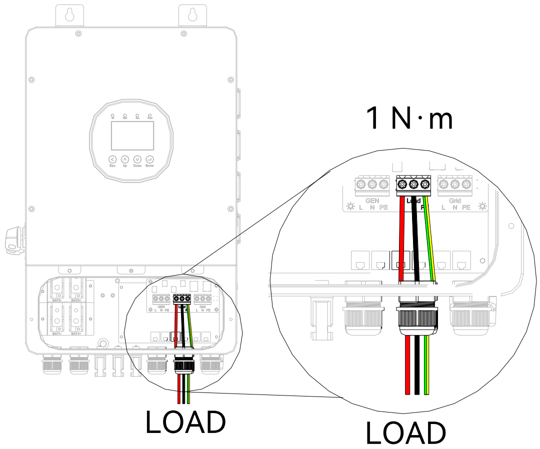
Cable	Recommended Specification (mm^2)						Recommended torque
	H2-5K-LS2	H2-6K-LS2	H2-7.6K-LS2	H2-8K-LS2	H2-10K-LS2	H2-12K-LS2	
GEN	4	6	6	10	10	10	1 N·m / 8.85 LB-IN
LOAD	4	6	6	10	10	10	
GRID	4	6	6	10	10	10	

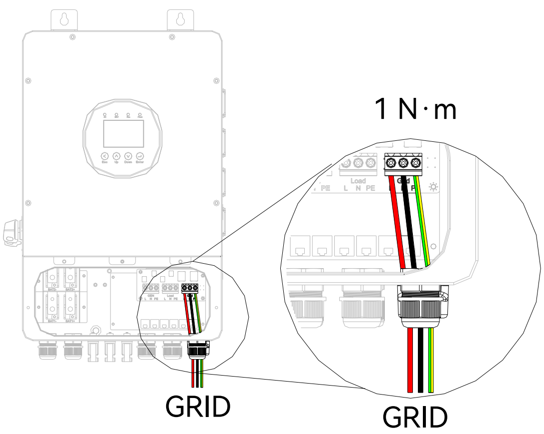
- Whole home backup connection

Cable	Recommended Specification (mm^2)						Recommended torque
	H2-5K-LS2	H2-6K-LS2	H2-7.6K-LS2	H2-8K-LS2	H2-10K-LS2	H2-12K-LS2	
GEN	4	6	6	10	10	10	1 N·m / 8.85 LB-IN
LOAD	10	10	10	10	10	10	
GRID	10	10	10	10	10	10	

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







☐ 10. 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

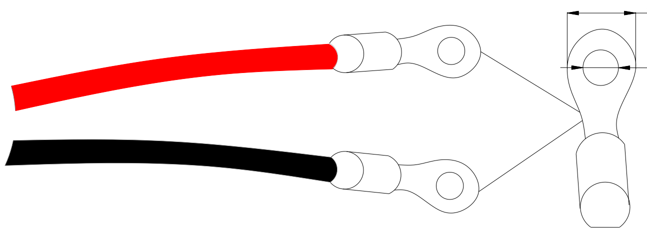
Note:

- 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 (15-mm/0.59-inch length) on the positive and negative battery cable ends.

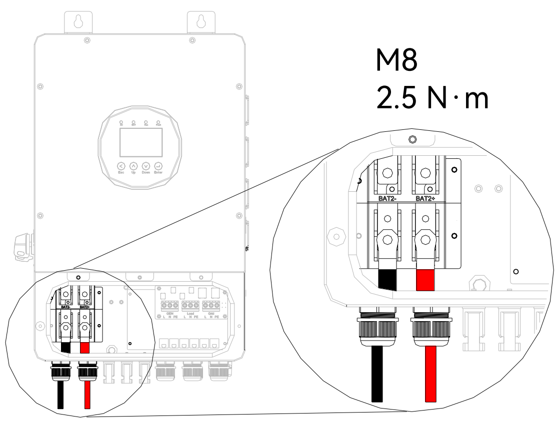
Cable	Recommended Specification (mm^2)		Recommended torque
BAT+ and BAT-	H2-5K-LS2	25	4.5 N·m / 39.83 LB-IN
	H2-6K-LS2	50	
	H2-7.6K-LS2	2*35	
	H2-8K-LS2	2*35	
	H2-10K-LS2	2*50	
	H2-12K-LS2	2*50	

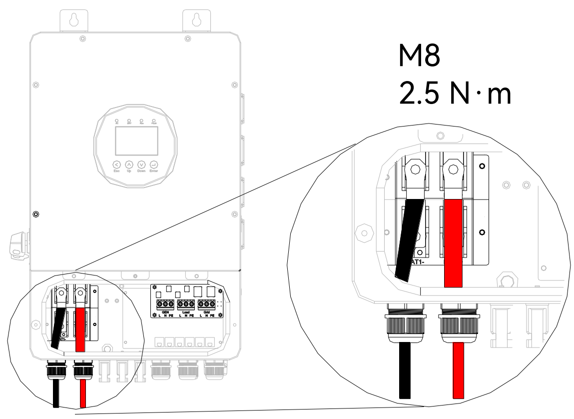
If needed, crimp an insulation terminal on the cable end shown as follows:



2. Insert the cables through the cable gland **BAT 1-/1+** and **2-/2+** and connect the cables to the battery terminals **BAT1-/BAT1+** and **BAT2-/BAT2+** in the junction box.

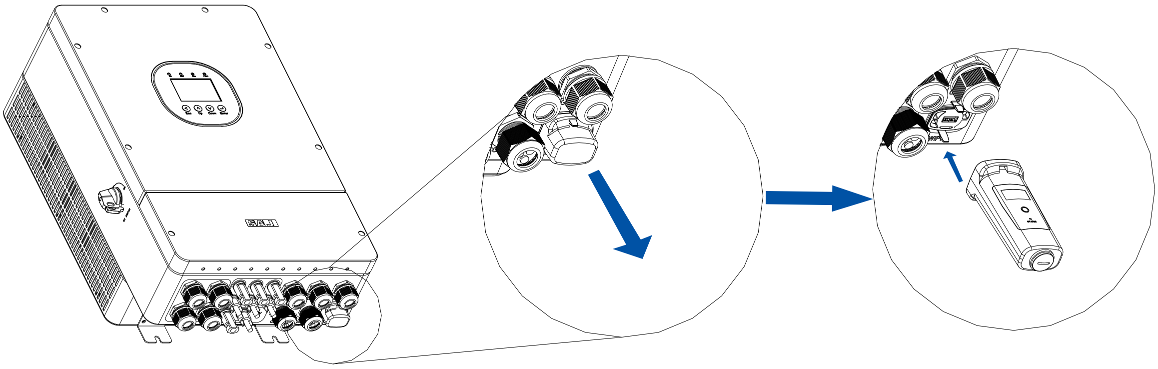
   Note: Each battery string supports a maximum input current of 160A.



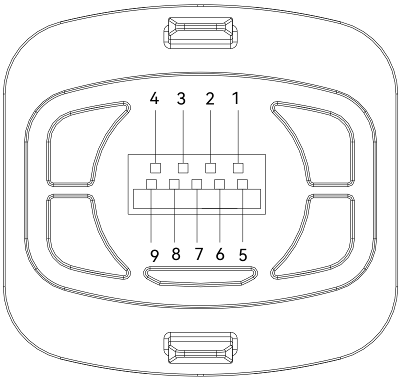


☐11. Assemble the communication connection

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

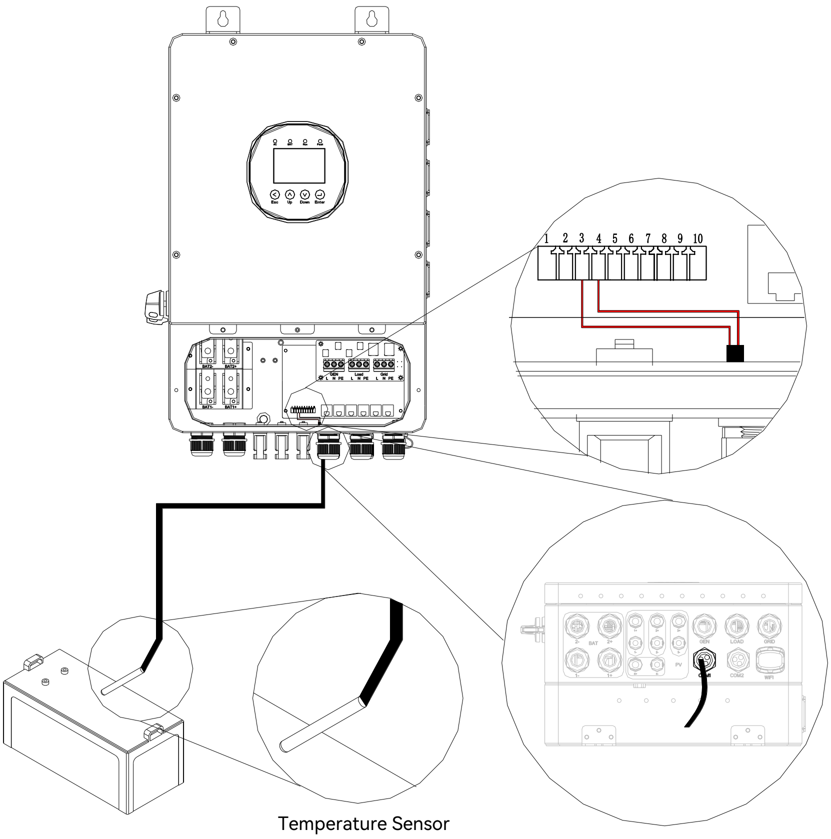


The **WIFI** port is an RS232 USB communication port. See detailed pin definitions below:



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

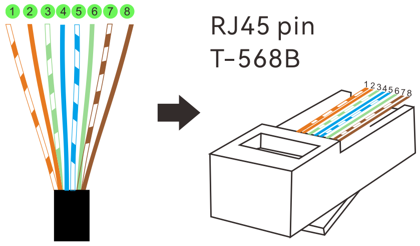
2. (Optional) Connect the battery temperature sensor when the lead-acid batteries are used.
   a. Connect the battery temperature sensor to the battery.
   b. Insert the cable of the battery temperature sensor through the **COM1** cable gland. Then, connect the two wires to terminals **3** and **4** on the communications terminal block.

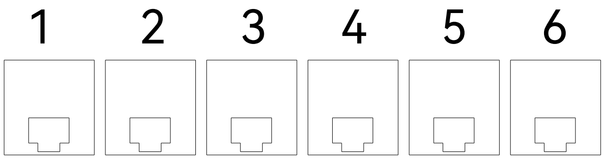


3. Connect communication cables.

- **RJ45 ports**

a. Per your needs, prepare communication cables according to the pin definitions of communication ports on the inverter.





Number	Port	Description
1	MODBUS_RS485	Reserved RS485 communication terminal for future use.
2	BMS_CAN	The inverter can communicate with the battery control unit through BMS_CAN terminal. For detailed connection methods, refer to “BMS connection” of the *User Manual*.
3	PARALLEL_1	Parallel connection is performed through the PARALLEL_1 and PARALLEL_2 terminals. For detailed parallel connection methods, refer to “Parallel connection” of the *User Manual*.
4	PARALLEL_2	Parallel connection is performed through the PARALLEL_1 and PARALLEL_2 terminals. For detailed parallel connection methods, refer to “Parallel connection” of the *User Manual*.
5	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 “DRM connection” of the *User Manual*.
6	METER_RS485	The inverter can communicate with the meter through METER_RS485 terminal. For detailed connection methods, refer to “Meter connection” of the *User Manual*.

MODBUS_RS485 (Reserved for future use)	
1	RS485_B
2	RS485_A
3	GND_S
4	NC
5	NC
6	GND_S
7	RS485_B
8	RS485_A

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

Parellel-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

Parellel-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

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-

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

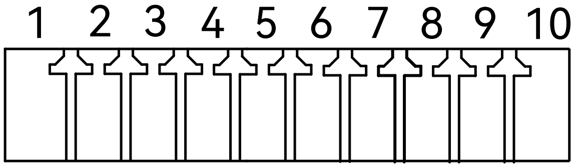
b. Insert the communication cables through the cable glands **COM1** and **COM2** and connect to corresponding RJ45 ports.

RJ45 port	Through (Cable gland on the inverter)
MODBUS_RS485	COM1
BMS_CAN	
PARALLEL_1	COM2
PARALLEL_2	
DRM	
METER_RS485	

- **Communication terminal block**

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

b. Insert the cables through the cable gland **COM1** and connect the cables to the corresponding terminals.



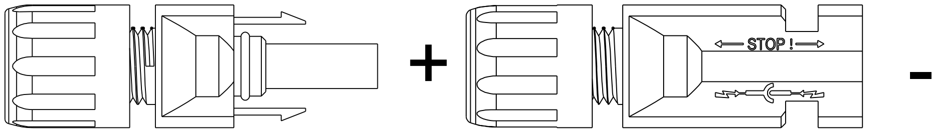
Number	Terminal	Description
1	CT1+	For connecting the CT positive cable.
2	CT1-	For connecting the CT negative cable.
3	BAT_T+	For connecting the positive cable of the battery temperature sensor (only for lead-acid batteries).
4	BAT_T-	For connecting the negative cable of the battery temperature sensor (only for lead-acid batteries).
5	EX_SD+	For connecting to external emergency stop switch.
6	GND_S	For connecting to external emergency stop switch.
7	G	For connecting to external generator dry contact.
8	G_S	For connecting to external generator dry contact.
9	+12V_RSD	For connecting to 12V power supply.
10	GND_S	For connecting to 12V power ground.

☐ 12. Assemble the PV-side electrical connection

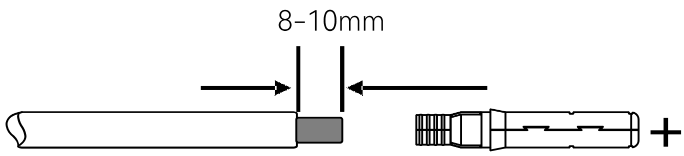
1. Prepare the PV cables according to the following specification.

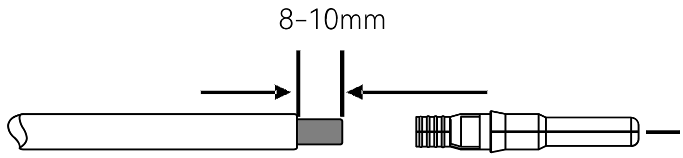
Cable	Recommended Specification (mm^2)
PV+ and PV-	4

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

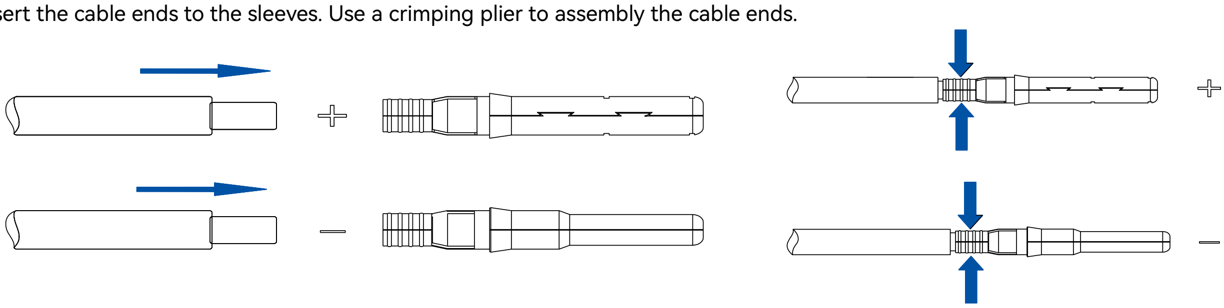


3. Strip off the insulation of the positive and negative cables by 8–10 mm (0.31–0.39 inch).

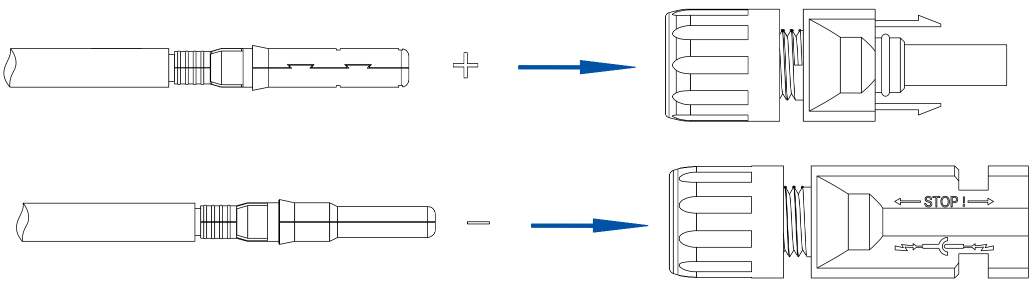




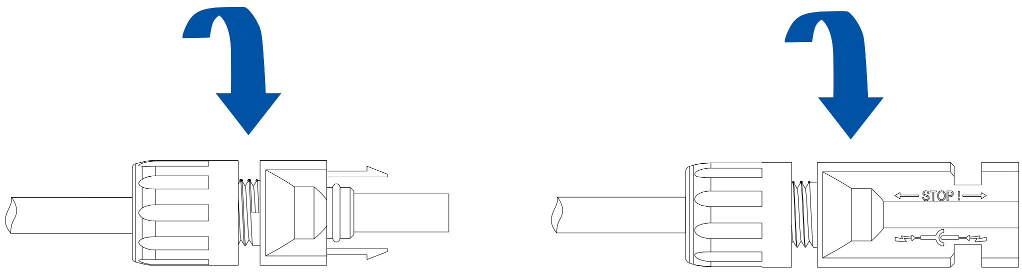
4. Insert the cable ends to the sleeves. Use a crimping plier to assembly the cable ends.



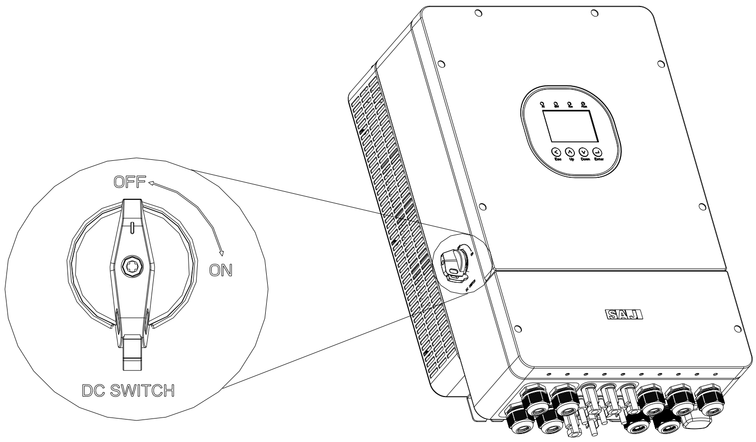
5. Insert the assembled cable ends into the blue positive and negative PV connectors. Gently pull the cables backwards to ensure firm connection.



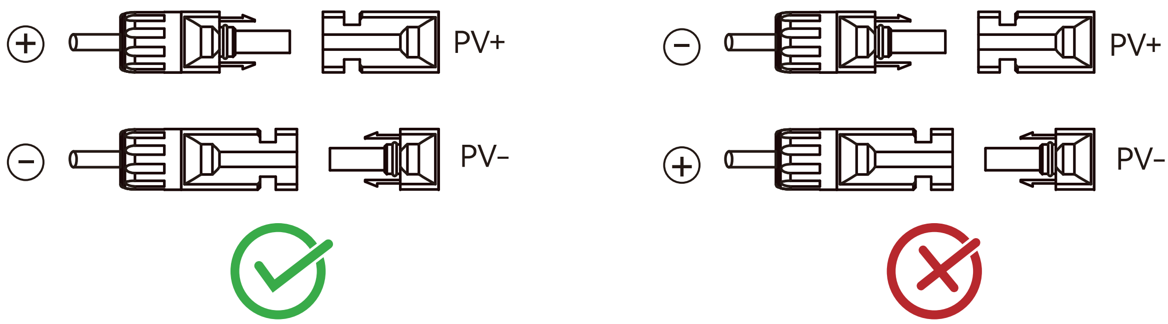
6. Tighten the lock screws on the positive and negative cable connectors.



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

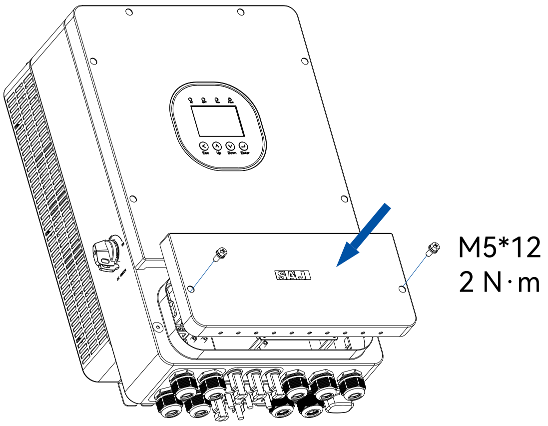


8. Connect the positive and negative connectors into the positive and negative DC input terminals of the inverter. A “click” sound should be heard when the contact cable assembly is seated correctly.



☐13. Close the junction box of the inverter

Reinstall the cover back to the inverter and tighten the screws.



☐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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