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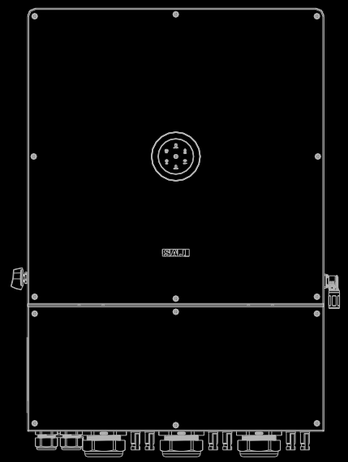

CH2 Series

SAJ HYBRID SOLAR INVERTER

USER MANUAL

CH2-(29.9K-63K)-(T4-T6)

Preface

Thank you for choosing SAJ products. We are pleased to provide you first-class products and exceptional service.

This manual includes information for installation, operation, maintenance, trouble shooting and safety. Please follow the instructions of this manual so that we can ensure delivery of our professional guidance and wholehearted service.

Customer-orientation is our forever commitment. We hope this document proves to be of great assistance in your journey for a cleaner and greener world.

Please check for the latest version at https://www.saj-electric.com/

Guangzhou Sanjing Electric Co., Ltd.

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1.

SAFETY PRECAUTIONS

1.1. Scope of Application

This User Manual describes instructions and detailed procedures for installing, operating, maintaining, and troubleshooting of the following SAJ product:

- CH2-29.9K-T4, CH2-30K-T4, CH2-40K-T5
- CH2-49.9K-T6, CH2-50K-T6, CH2-63K-T6

1.2. Safety Instructions

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

WARNING
·WARNING indicates a hazardous situation which, if not avoided, can result in death or serious injury or moderate injury.

CAUTION
· CAUTION indicates a hazardous condition which, if not avoided, can result in minor or moderate injury.

NOTICE
· NOTICE indicates a situation that can result in potential damage, if not avoided.

1.3. Target Group

Only qualified electricians who have read and fully understood all safety regulations in this manual can perform installation and maintenance. Operators must be aware of the high-voltage device.

2.

PREPARATION

2.1. Safety Instructions

For safety, be sure to read all the safety instructions carefully prior to any operations, and follow the appropriate rules and regulations of the country or region where you install the energy storage system.

DANGER

- Possible danger to life due to electrical shock and high voltage.
- Do not touch the operating component of the inverter; it might result in burning or death.
- To prevent risk of electric shock during installation and maintenance, make sure all AC and DC terminals are plugged out.
- Do not touch the surface of the equipment while the housing is wet. Otherwise, it can cause electrical shock.
- Do not stay close to the equipment while there are severe weather conditions including storm, lighting, etc.
- Before opening the housing, the SAJ inverter must be disconnected from the grid and PV generator; you must wait for at least five minutes to let the energy storage capacitors completely discharged after disconnecting from power source.

WARNING

- The installation, service, recycling and disposal of the inverters must be performed by qualified personnel only in compliance with national and local standards and regulations.
- 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.
- The SAJ inverter must only be operated with PV generator. Do not connect any other source of energy to the SAJ inverter.
- Be sure that the PV generator and inverter are well grounded to protect the properties and persons.

CAUTION

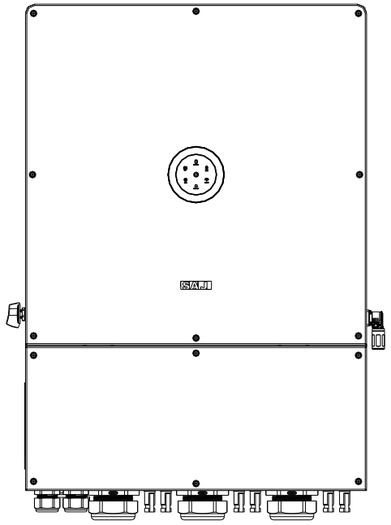
- The inverter becomes hot during operation. Do not touch the heat sink or peripheral surface during or shortly after operation.
- Risk of product damage due to improper modifications.

NOTICE

- The inverter is designed to feed AC power directly to the public utility power grid; do not connect the AC output of the inverter to any private AC equipment.

2.2. Explanations of Symbols

Symbol	Description
	**Danger of electrical voltage** This device is directly connected to public grid. All operations to the battery shall only be carried out by qualified personnel.
	**Danger to life due to high electrical voltage** There might be residual currents in inverter because of large capacitors. Wait at least 5 minutes before you remove the front lid.
	**No open flames** Do not place or install near flammable or explosive materials.
	**Danger of hot surface** The components inside the inverter will release a lot of heat during operation. Do not touch the metal plate housing during operating.
	**Attention** Keep the product out of reach of children.
	**An error has occurred** See the Troubleshooting section to remedy the error.
	**This device shall NOT be disposed of in residential waste.**
	**This battery module shall NOT be disposed of in residential waste.**
	**CE Mark** Equipment with the CE mark fulfills the requirements of the Low Voltage Directive and Electro Magnetic Compatibility.
	**Recyclable**



3.

PRODUCT INFORMATION

3.1. Product Application Scope

CH2 series are hybrid photovoltaic inverters applicable to both on-grid and off-grid solar systems. The energy generated by the PV system is fed to the loads first, and then the surplus energy can charge the battery for later use. More energy produced by the PV system can be exported to the grid.

CH2 series inverters can significantly improve the self-consumption rate of the solar energy and lower the dependency on the grid.

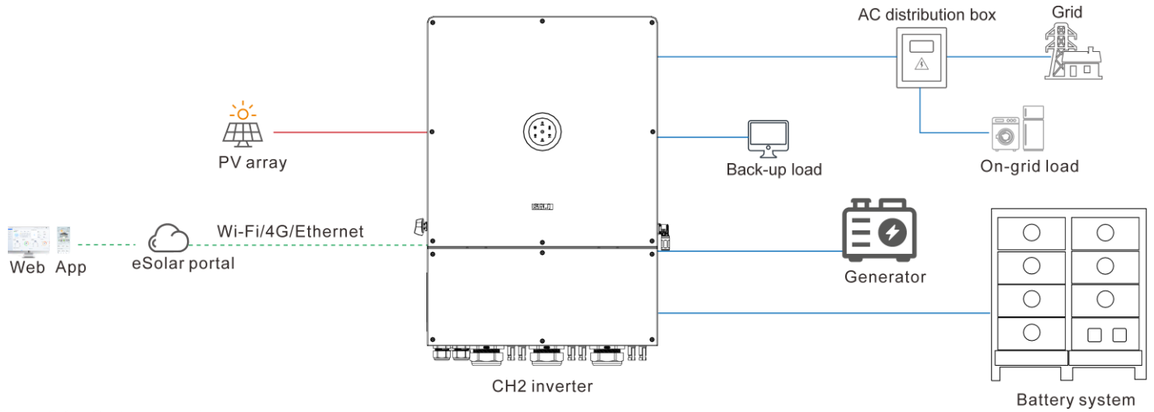


Figure 3.1. System overview

3.2. Specification of Product Model

CH2 – *X*K – T*x*

① ② ③

① CH2 represents the product name.

② *X*K means the rated power of the inverter. For example, 30K means 30 kW.

③ T means three phases; *x* means that the inverter has the function of X MPP trackers.

3.3. Dimension

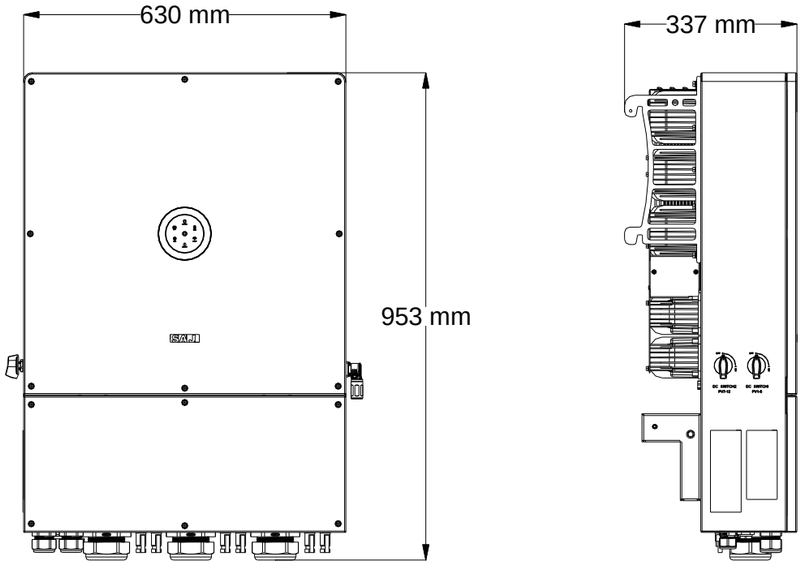


Figure 3.2. Dimensions of the inverter

3.4. Terminals Description

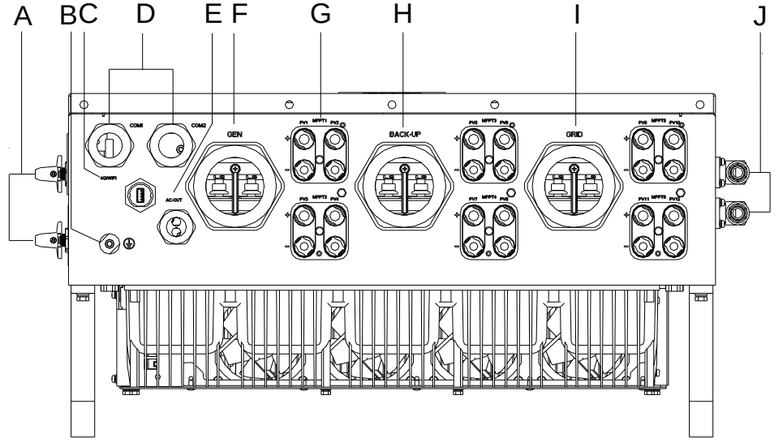


Figure 3.3. Electrical interface of CH2 Inverter

Callout	Silkscreen	Function
A	DC SWITCH	Direct current (DC) switches
B	/	Ground connection. Two additional ground connection ports are provided under the battery connection ports on the right side of the inverter for operation convenience. The three ports provide the same ground protection function. The installer can select any one of them as needed.
C	4G/WIFI	USB port for 4G/Wi-Fi communication
D	COM1 COM2	Communication ports
E	AC-OUT	AC output connection
F	GEN	Generator connection
G	MPPT1/2/3/4/5/6	PV input connections
H	BACK-UP	Backup generator connection
I	GRID	Grid connection
J	BAT+, BAT-	Battery connections

Table 3.1. Terminal descriptions

3.5. Datasheet

3.5.1. CH2-(29.9K, 30K)-T4

Model	CH2-29.9K-T4	CH2-30K-T4	CH2-40K-T5
DC Input			
Max. PV Array Power [Wp]@STC	59800	60000	80000
Max. DC Voltage [V]	1000		
MPPT Voltage Range [V]	180–850		
Rated DC Voltage [V]	600		
Start Voltage [V]	200		
Max. DC Input Current [A]	4*45		5*45
Max. DC Input Current per String [A]	22.5		
Max. DC Short Circuit Current [A]	4*55		5*55
Number of Strings per MPPT	2		
Battery Parameters			
Battery Type	LiFePO4		
Rated Energy [kWh]	57.3–100.3		
Battery Voltage Range [V]	179.2–403.2		
Max. Charging/Discharging Current [A]	150		
AC Output [On-grid]			
Rated AC Power [VA]	29900	30000	40000
Max. Apparent Power [VA]	29900	33000	44000
Rated Output Current [A]@230V AC	43.3	43.5	58.0
Max. AC Continuous Current [A]	43.3	47.9	63.8
Current Inrush [A]	192		
Max. AC Fault Current [A]	182.6		
Rated AC Voltage [V]	3L+N+PE, 380/400		
Rated Output Frequency/Range [Hz]	50 Hz: 45–55; 60 Hz: 55–65		
Power Factor [cos φ]	0i - 1 - 0c		
Total Harmonic Distortion [THDi]	<3%		
AC Input [On-grid]			
Rated AC Voltage [V]	3L+N+PE, 380/400		
Rated Frequency [Hz]	50, 60		
Max. Input Current [A] ①	80	80	200
Max. Input Current [A] ②	43.3	47.9	63.8
AC Input [Generator]			
Max. Input Power [VA]	138000	138000	138000
Max. Input Current [A]@230V	200	200	200

Model	CH2-29.9K-T4	CH2-30K-T4	CH2-40K-T5
Rated Input Voltage [V]	3L+N+PE, 380/400		
Rated Input Frequency/Range [Hz]	50 Hz: 45–55; 60 Hz: 55–65		
AC Output [Back-up]			
Max. Apparent Power [VA]	29900	33000	44000
Peak Output Apparent Power [VA]	29900	45000, 5s	60000, 5s
Rated AC Voltage [V]	3L+N+PE, 380/400		
Rated Output Frequency/Range [Hz]	50 Hz: 45–55; 60 Hz: 55–65		
Output THDv (@ Linear Load)	<3%		
Efficiency			
Max. Efficiency	≥98.0%		
Euro Efficiency	97.3%		
Max. Battery to AC Efficiency	96.0%		
Protection			
PV String Current Monitoring	Integrated		
PV Insulation Resistance Detection	Integrated		
Residual Current Monitoring	Integrated		
PV Reverse Polarity Protection	Integrated		
Anti-islanding Protection	Integrated		
AC Overcurrent Protection	Integrated		
AC Short Circuit Protection	Integrated		
AC Overvoltage Protection	Integrated		
DC Switch	Integrated		
DC Surge Protection	II		
AC Surge Protection	II		
AFCI	Integrated		
RSD	Optional		
General Parameters			
Communication	Wi-Fi/Ethernet/CAN/RS485		
Topology	Transformer-less		
Operating Temperature Range	-40℃ to +60℃ (45℃ to 60℃ with derating)		
Cooling Method	Smart fan cooling		
Ambient Humidity	0–100% Non-condensing		
Altitude [m]	≤3000		
Ingress Protection	IP66		
Dimensions [H*W*D] [mm]	630*953*337		
Weight [kg]	89		
Warranty [Year]	5, 10		

Model	CH2-29.9K-T4	CH2-30K-T4	CH2-40K-T5
Standard	VDE4105, IEC61727/62116, VDE0126, AS4777.2, CEI 0 21, EN50549-1, G98, G99, C10-11, UNE217002, NBR16149/NBR16150, IEC62109-1/-2, NBT32004-2018, EN61000-6-2, EN61000-6-4		

Note: X=204.8V/280Ah/51.5kWh, 256.0V/280Ah/64.4kWh, 307.2V/280Ah/77.3kWh, 358.4V/280Ah/90.2kWh

① The inverter is working for both battery charging and the bypass mode.

② The inverter is working for battery charging only.

3.5.2. CH2-(49.9K, 50K)-T6

Model	CH2-49.9K-T6	CH2-50K-T6	CH2-60K-T6
DC Input			
Max. PV Array Power [Wp]@STC	99998	100000	126000
Max. DC Voltage [V]	1000		
MPPT Voltage Range [V]	180–850		
Rated DC Voltage [V]	600		
Start Voltage [V]	200		
Max. DC Input Current [A]	6*45		
Max. DC Input Current per String [A]	22.5		
Max. DC Short Circuit Current [A]	6*55		
Number of Strings per MPPT	2		
Battery Parameters			
Battery Type	LiFePO4		
Rated Energy [kWh]	57.3–100.3		
Battery Voltage Range [V]	179.2–403.2		
Max. Charging/Discharging Current [A]	150		
AC Output [On-grid]			
Rated AC Power [VA]	49999	50000	63000
Max. Apparent Power [VA]	49999	55000	63000
Rated Output Current [A]@230V AC	72.1	72.5	91.3
Max. Continuous Current [A]	72.1	79.8	91.3
Current Inrush [A]	192		
Max. AC Fault Current [A]	182.6		
Rated AC Voltage [V]	3L+N+PE, 380/400		
Rated Output Frequency/Range [Hz]	50 Hz: 45–55; 60 Hz: 55–65		
Power Factor [cos φ]	0i - 1 - 0c		
Total Harmonic Distortion [THDi]	<3%		

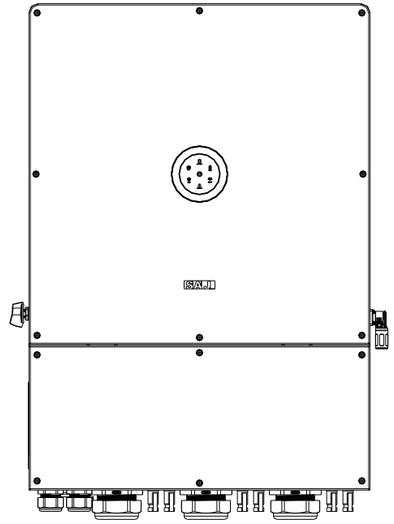
Model	CH2-49.9K-T6	CH2-50K-T6	CH2-60K-T6
AC Input [On-grid]			
Rated AC Voltage [V]	3L+N+PE, 380/400		
Rated Frequency [Hz]	50, 60		
Max. Input Current [A] ①	200	200	200
Max. Input Current [A] ②	72.1	79.8	91.3
AC Input [Generator]			
Max. Input Power [VA]	138000	138000	138000
Max. Input Current [A]@230V	200	200	200
Rated Input Voltage [V]	3L+N+PE, 380/400		
Rated Input Frequency/Range [Hz]	50 Hz: 45–55; 60 Hz: 55–65		
AC Output [Back-up]			
Max. Apparent Power [VA]	49999	55000	63000
Peak Output Apparent Power [VA]	49999	75000, 5s	75000, 5s
Rated AC Voltage [V]	3L+N+PE, 380/400		
Rated Output Frequency/Range [Hz]	50 Hz: 45–55; 60 Hz: 55–65		
Output THDv (@ Linear Load)	<3%		
Efficiency			
Max. Efficiency	≥98.0%		
Euro Efficiency	97.3%		
Max. Battery to AC Efficiency	96.0%		
Protection			
PV String Current Monitoring	Integrated		
PV Insulation Resistance Detection	Integrated		
Residual Current Monitoring	Integrated		
PV Reverse Polarity Protection	Integrated		
Anti-islanding Protection	Integrated		
AC Overcurrent Protection	Integrated		
AC Short Circuit Protection	Integrated		
AC Overvoltage Protection	Integrated		
DC Switch	Integrated		
DC Surge Protection	II		
AC Surge Protection	II		
AFCI	Integrated		
RSD	Optional		
General Parameters			
Communication	Wi-Fi/Ethernet/CAN/RS485		
Topology	Transformer-less		
Operating Temperature Range	-40℃ to +60℃ (45℃ to 60℃ with derating)		

Model	CH2-49.9K-T6	CH2-50K-T6	CH2-60K-T6
Cooling Method	Smart fan cooling		
Ambient Humidity	0~100% Non-condensing		
Altitude [m]	≤3000		
Ingress Protection	IP66		
Dimensions [H*W*D] [mm]	630*953*337		
Weight [kg]	89		
Warranty [Year]	5, 10		
Standard	VDE4105, IEC61727/62116, VDE0126, AS4777.2, CEI 0 21, EN50549-1, G98, G99, C10-11, UNE217002, NBR16149/NBR16150, IEC62109-1/-2, NBT32004-2018, EN61000-6-2, EN61000-6-4		

Note: X=204.8V/280Ah/51.5kWh, 256.0V/280Ah/64.4kWh, 307.2V/280Ah/77.3kWh, 358.4V/280Ah/90.2kWh

③ The inverter is working for both battery charging and the bypass mode.

④ The inverter is working for battery charging only.



4.

INSTALLATION INSTRUCTIONS

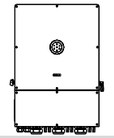
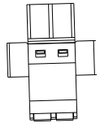
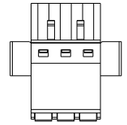
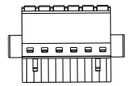
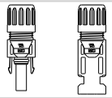
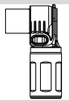
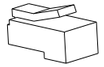
4.1. Unpacking

4.1.1. Check the Outer Package

Although SAJ's products are thoroughly tested and checked before delivery, the products may suffer damages during transportation. Check the package for any obvious signs of damage, and if such evidence is present, do not open the package and contact your dealer as soon as possible.

4.1.2. Scope of Delivery

Contact after-sales if there are missing or damaged components.

					
CH2 inverter	Back panel	Side bracket x2	2-Pin plug x4	3-Pin plug x2	6-Pin plug x4
					
PV connector T4*8 x2 T5*10 x2 T6*12 x2	Positive battery connector (Orange)	Negative battery connector (Black)	OT/DT terminal (RNBS 38-8) x5 (RNB70-10) x12 (SC50-10) x12	RJ45 plug x10	Eyebolts (M12*20) x2
					
M4*10 flat-head screw x4	M10*100 expansion bolt x4	M6*30 screw x2	M10*45 screw x4	Communication module (optional)	D4 assembly tool
					
Documents					

4.2. Installation Method and Position

4.2.1. Installation Position and Space Requirement

This device is cooled by natural convection and suggested an indoor installation or an installation under a sheltered place to prevent the product from exposure to direct sunlight, rain and snow erosion.

Poor air ventilation will affect the working performance of internal electronic components and shorten the service life of the system. Reserve enough clearance around the product to ensure a good air circulation at the installation area.

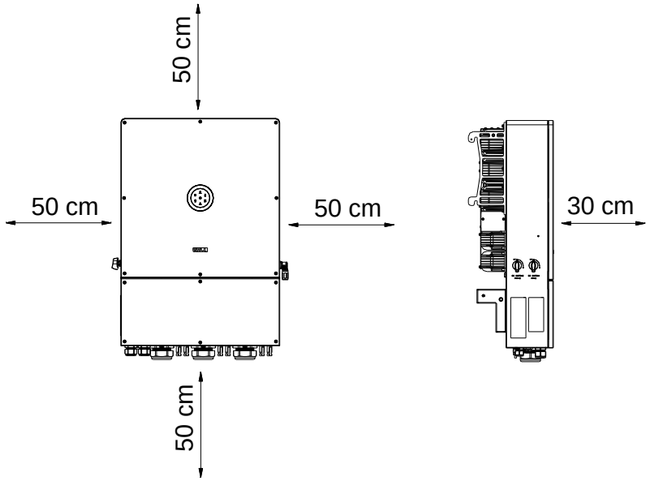


Figure 4.1. Installation clearance

4.2.2. Mounting Method

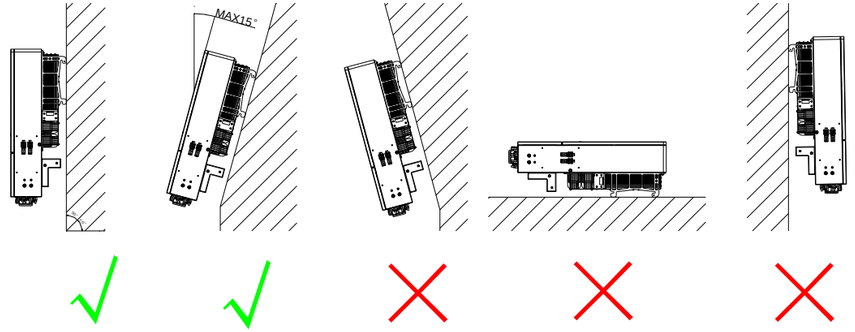


Figure 4.2. Mounting method

- The equipment employs natural convection cooling, and it can be installed indoor or outdoor.
- Mount vertically. Never install the device tilted forwards, sideways, horizontally or upside down.
- Choose a solid and smooth wall to ensure that the inverter can be installed securely on the wall. Make sure that the wall can bear the weight of the inverter and accessories.

Installation Environment Requirements

- The installation environment must be free of inflammable or explosive materials.
- Install the device away from heat source.
- Do not install the device at a place where the temperature changes extremely.
- Keep the device away from children.
- Do not install the device in the bedroom, toilet, or bathroom.
- When installing the device at the garage, please keep it away from the drive way.
- Keep the device from water sources such as taps, sewer pipes and sprinklers to prevent water seepage.
- The product is to be installed in a high traffic area where the fault is likely to be seen.

Note: When installing outdoors, the height of the device from the ground should be considered to prevent the device from soaking in water. The specific height is determined by the site environment.

4.3. Mounting Procedure

4.3.1. Installation Tools

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

Figure 4.3. Suggested installation tools

4.3.2. Mount the Inverter

Select one of the following options to mount the inverter:

- Mount the inverter on the wall.
- Mount the inverter on a frame. With this option, the installer needs to prepare the frame that can bear the weight of the inverter. Four M10*45 screws are provided in the delivery for securing the mounting bracket to the frame.

To install the inverter on the wall:

Step 1. Secure the back panel with the two side brackets to assemble the mounting bracket.

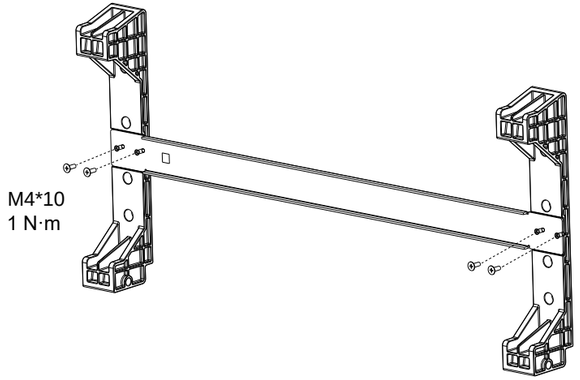


Figure 4.4. Assembling the mounting bracket

Step 2. Mark the drilling positions on the wall with the mounting bracket.

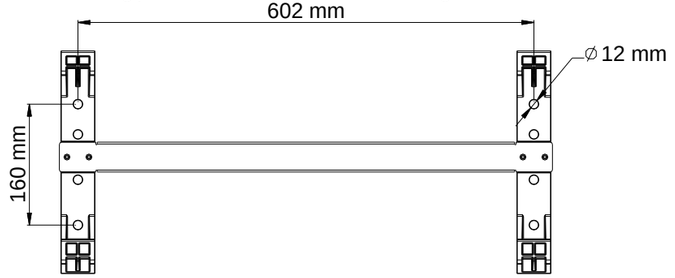


Figure 4.5. Marking drilling positions

Step 3. Drill four holes at the depth of 80-90 mm in the wall and place the expansion tubes in the holes using a rubber mallet.

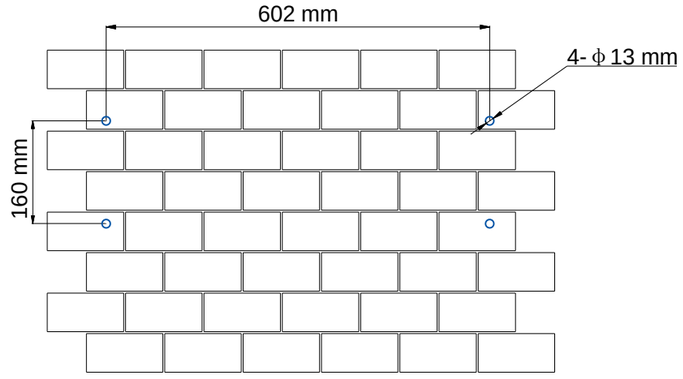


Figure 4.6. Drilling holes

Step 4. Secure the mounting bracket to the wall with screws.

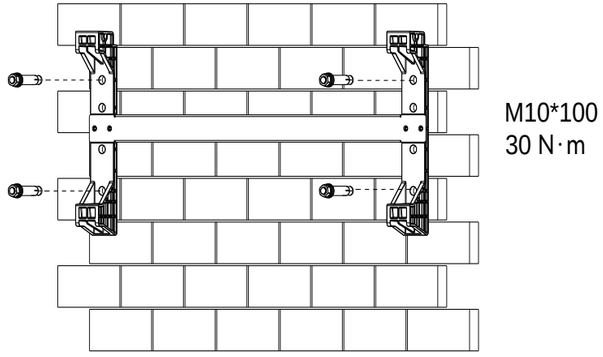


Figure 4.7. Securing the mounting bracket

Step 5. Carefully mount the inverter onto the mounting bracket. Make sure that the rear part of the inverter is closely mounted into the bracket.

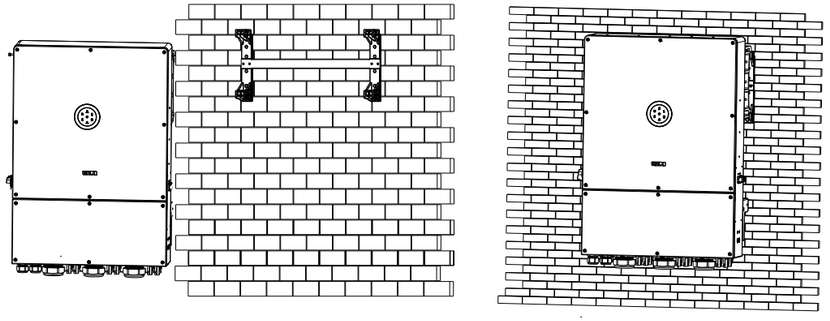


Figure 4.8. Mounting the inverter

Step 6. Secure the inverter to the mounting bracket with one screw on each side.

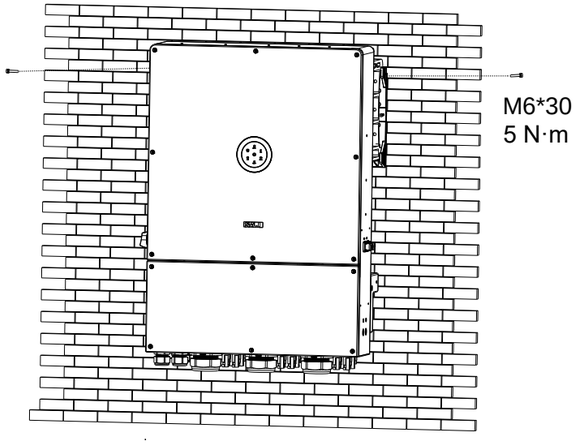


Figure 4.9. Securing the inverter

To install the inverter on a frame:

Step 1. Secure the back panel with the two side brackets to assemble the mounting bracket.

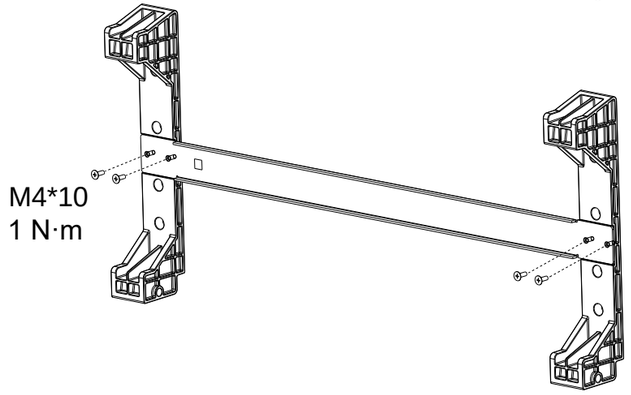


Figure 4.10. Assembling the mounting bracket

Step 2. Drill four holes on the frame or adjust the existing positions of the frame according to the mounting bracket as needed.

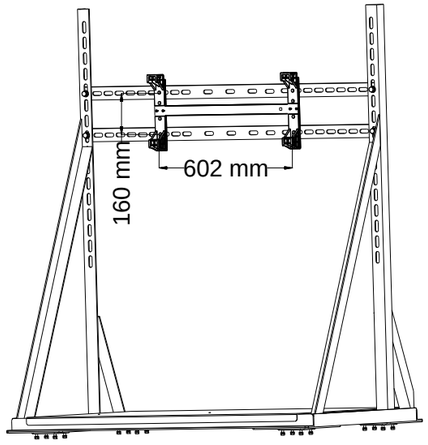


Figure 4.11. Adjusting frame position

Step 3. Secure the mounting bracket to the frame with screws.

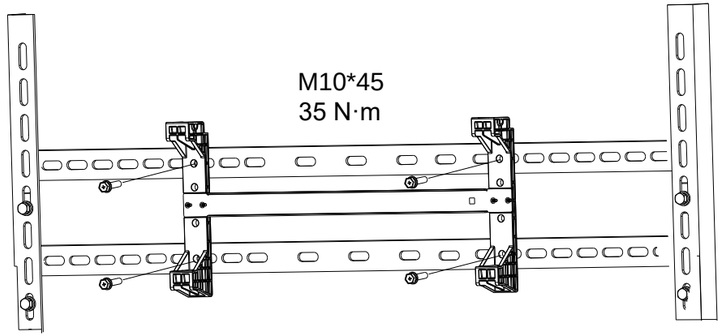


Figure 4.12. Securing the mounting bracket

Step 4. Carefully mount the inverter onto the mounting bracket. Make sure that the rear part of the inverter is closely mounted into the bracket.

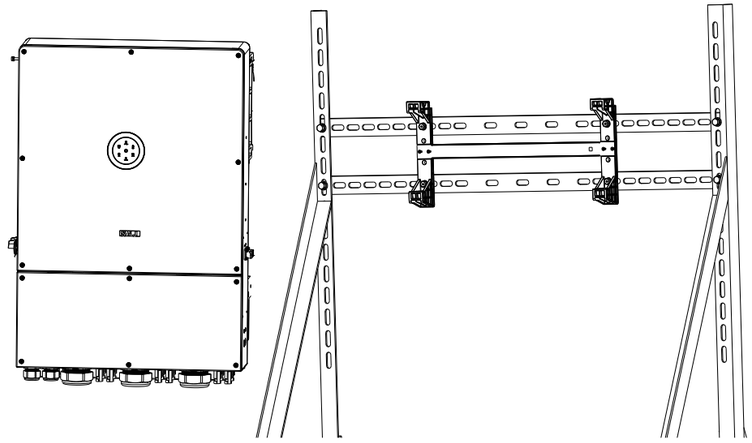


Figure 4.13. Mounting the inverter

Step 5. Secure the inverter to the mounting bracket with one screw on each side.

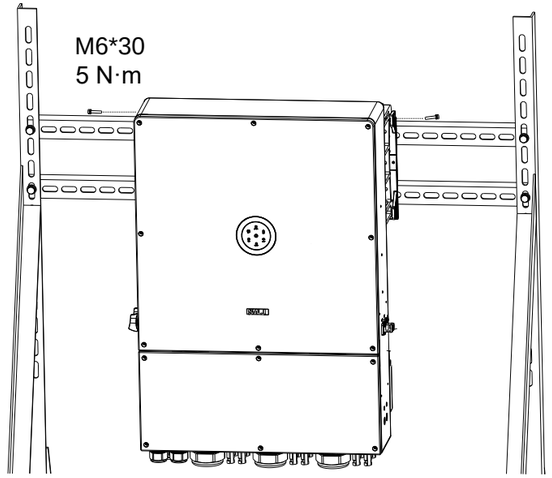
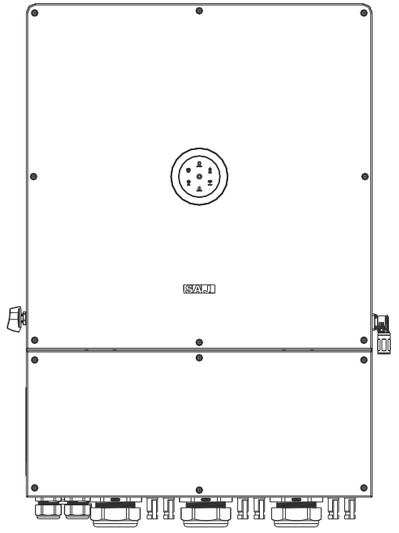


Figure 4.14. Securing the inverter



5.

ELECTRICAL CONNECTION

5.1. Connect the Grounding Cable

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

⚠ WARNING

· Connect the grounding cable before other electrical connections.

The users need to prepare the cables and OT/DT terminals themselves. The recommended conductor cross-sectional area of the grounding cable is 6 mm².

Step 1. Assemble the cables with the RNBS38-8 OT/DT terminals as follows:

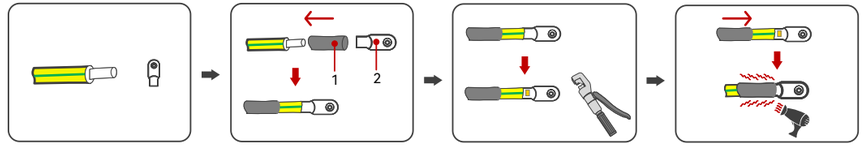


Figure 5.1. Preparing the grounding cable

1. Heat shrink tubing 2. OT/DT terminal

Step 2. Remove the screw of the grounding terminal, insert the screw through the OT/DT terminal, and tighten the cable with the screw.

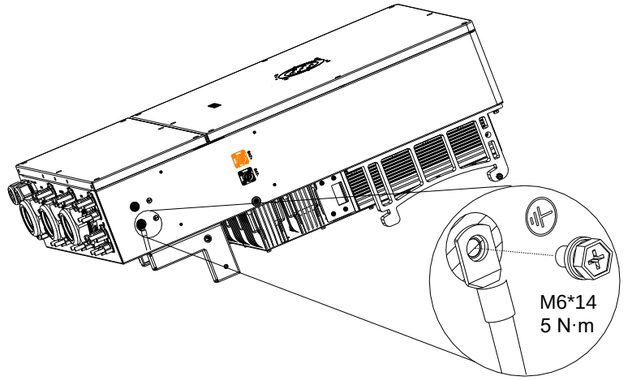


Figure 5.2. Connecting the grounding cable

5.2. Communication Connection

5.2.1. Communication Interfaces Overview

The inverter provides the communication interfaces and ports that allow the inverter to communicate with external equipment and systems like the generator, the energy management system (EMS), and so on. The following figure shows the communication ports of the inverter:

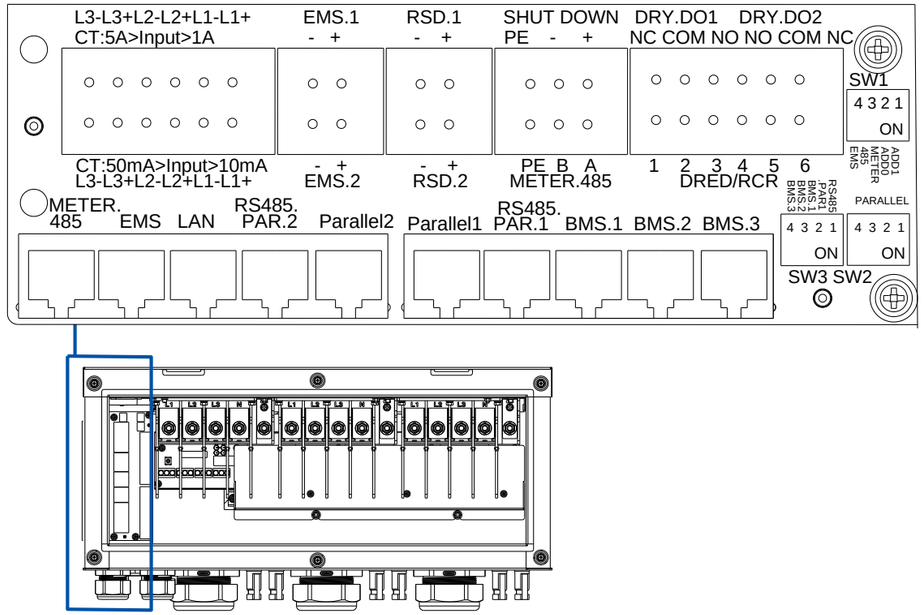


Figure 5.3. Communication interfaces overview

5.2.2. Connect the Communication Cables and Plugs

Step 1. Remove the front cover of the inverter, and keep the cover and the screws in a proper location.

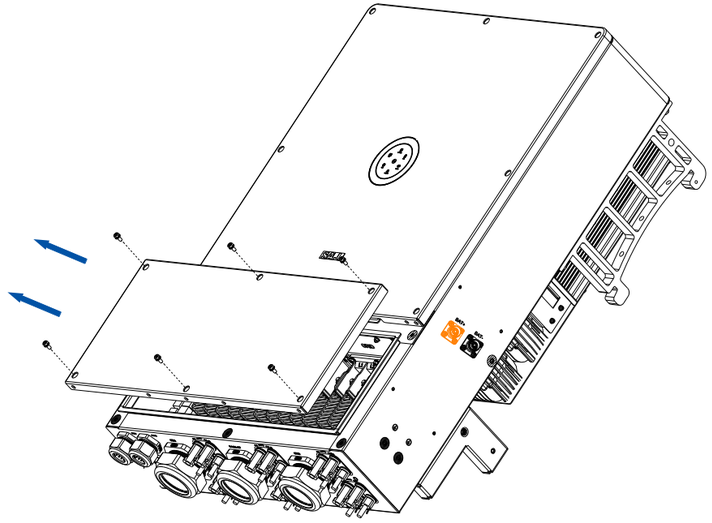


Figure 5.4. Untighten the cover

Step 2. Prepare the wires for the 2-pin, 3-pin, and 6-pin plugs depending on which communication functions are required.

The recommended wire is of 12-24 AWG.

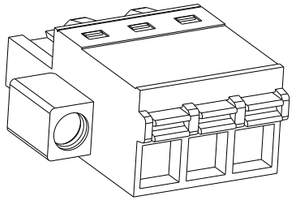


Figure 5.5. 3-pin plug

Step 3. Loosen the water-proof cable gland and insert the wires through the COM1 or COM2 cable gland.

Step 4. Peel off the insulation skin of the wire by proper length. Insert the wire into the plug and press the orange button to secure the cable.

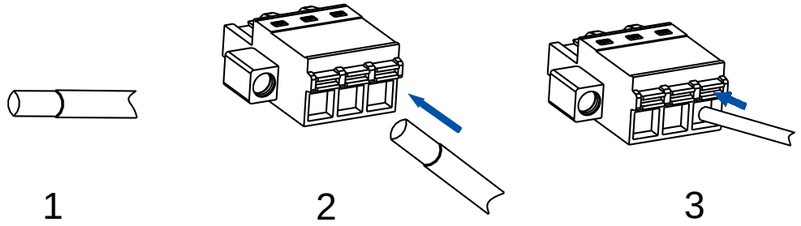


Figure 5.6. Assembling wires for plugs

Step 5. Connect the communication plugs for the corresponding functions according to the port descriptions in sections 5.2.3 Grid Current Transformer Connection to 5.2.11 DIP Switch Connection.

Example:

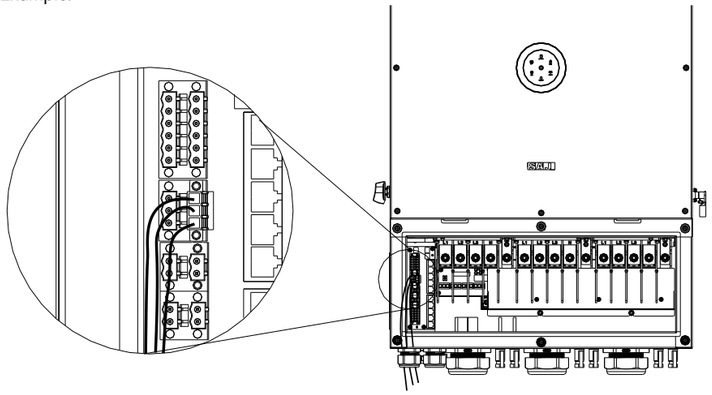


Figure 5.7. Connecting communication plugs

5.2.3. Grid Current Transformer Connection

The CT ports are provided to connect with the current transformers (CT) to sample the current flowing through the grid. The installer can select the corresponding terminals for connection depending on the following input current range of the CTs:

- 10 mA to 50 mA
- 1 A to 5 A

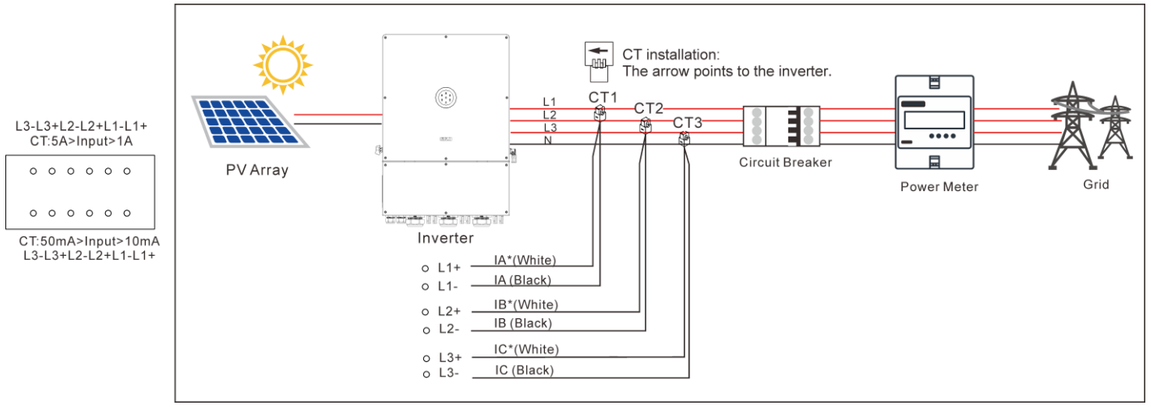


Figure 5.8. Grid Current Transformer Connection

5.2.4. EMS Connection

The EMS.1 and EMS.2 ports can supply power to the external energy management system (EMS) at the rated output voltage of 20 V in parallel deployment.

Multiple inverters in parallel deployment can supply power to the EMS at the same time, and at least two inverters must provide the power supply to the EMS. The length of the power supply wire to the EMS is limited to 50 meters.

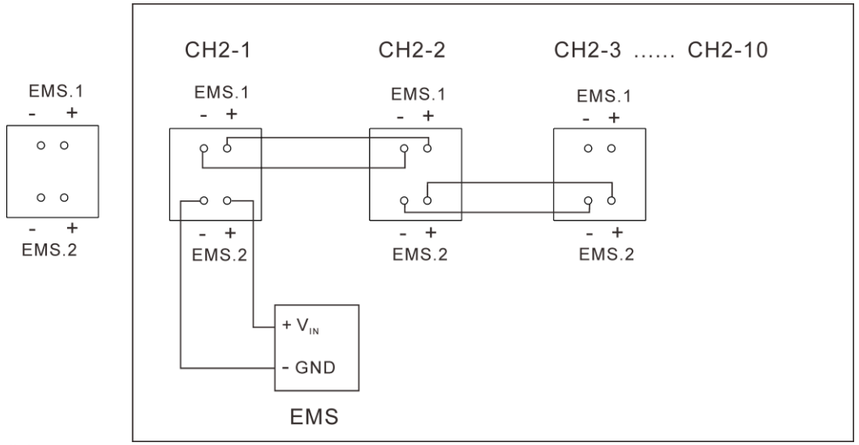


Figure 5.9. EMS connection in parallel

5.2.5. PV Connection

The RSD.1 and RSD.2 ports can supply power to the fast shutdown module of the photovoltaic system at the rated voltage of 12 V. The two ports control the fast shutdown and startup of the PV system by turning on or off the power supply to the fast shutdown module.

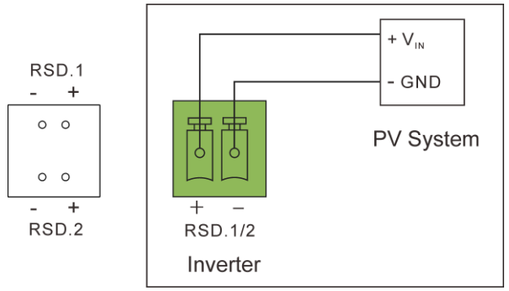


Figure 5.10. PV connection

5.2.6. Generator Connection

The DRY.DO1 port can connect with the generator to control the start and stop of the generator.

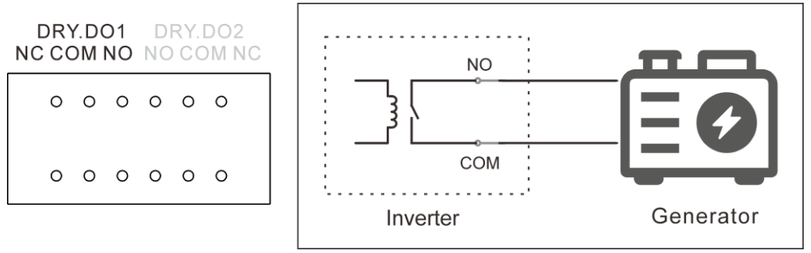


Figure 5.11. Generator connection

5.2.7. Dry Contact Connection

The DRY.DO2 port is reserved as an output dry contact for future use.

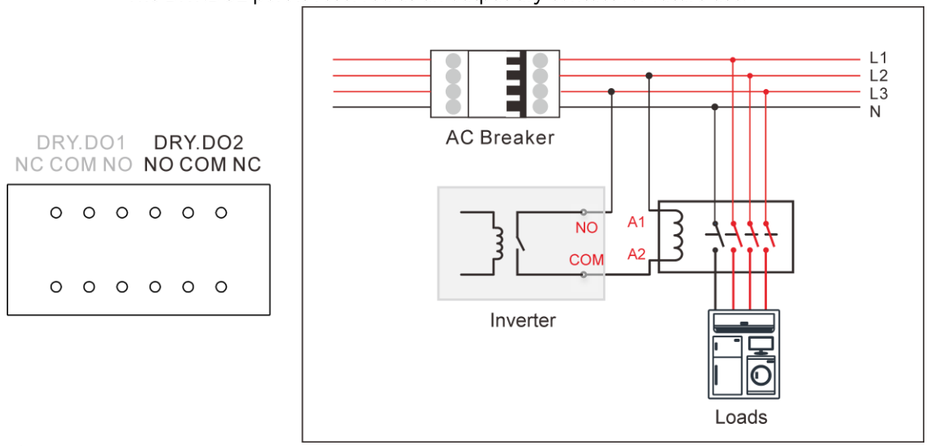


Figure 5.12. Output dry-contact connection

5.2.8. Emergency Stop Switch Connection

The SHUT DOWN port can connect with an external switch to stop the inverter immediately in emergent situations.

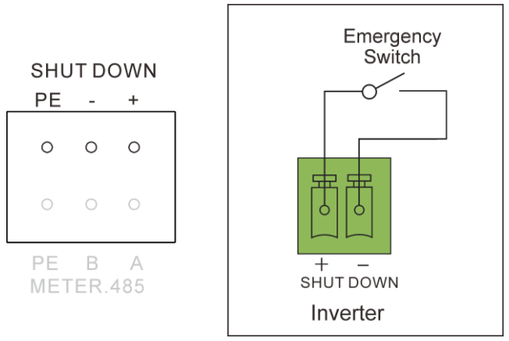
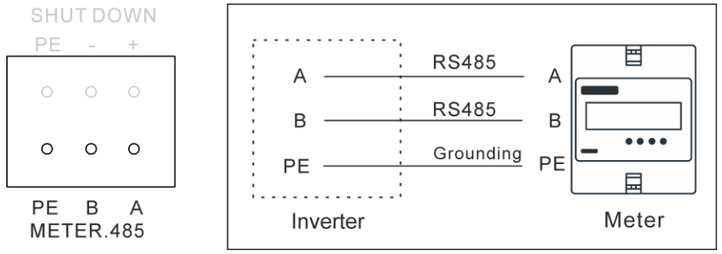


Figure 5.13. Emergency stop switch connection

5.2.9. Meter Connection

The METER.485 port can connect with an external meter to provide RS485 communication. The additional grounding through the PE pin can be connected as needed.



5.2.10. RCD Connection

The DRED/RCR ports can connect with external residual current devices (RCD) or demand response enabling devices (DRED) to provide the RCR signal control function. This function meets the power grid dispatching requirements in Germany and other countries and regions.

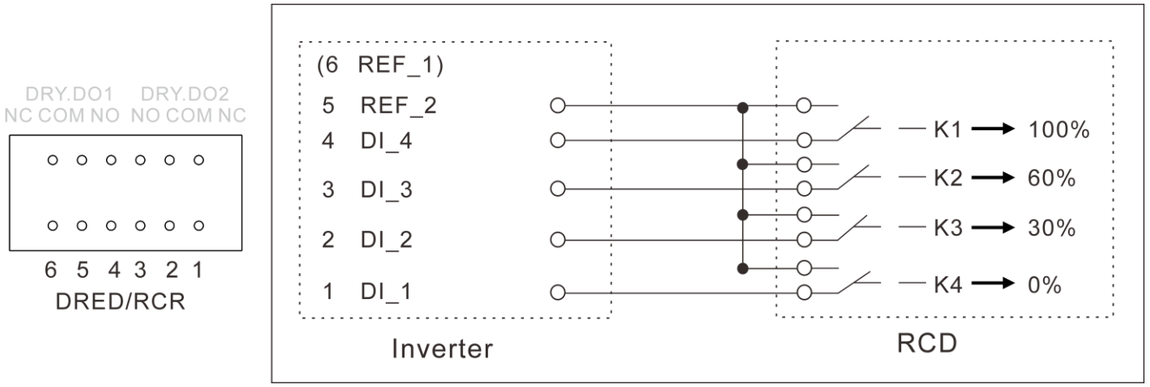


Figure 5.14. RCD connection

5.2.11. DIP Switch Connection

The SW1/2/3 dual inline package (DIP) switches are provided to control the activation of 120 Ω terminal resistors to ensure the communication stability of the corresponding communication functions.

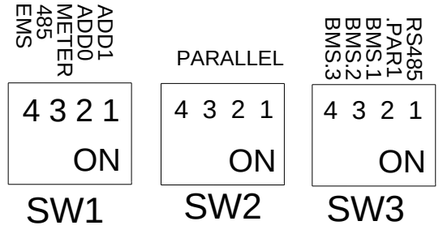


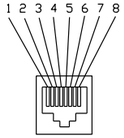
Figure 5.15. DIP switches

Port	Switch	Function
SW1	ADD1, ADD2	Reserved for future use.
	METER.485	Provide the 120 Ω terminal resistors for RS485 communication with the external meters. Turn the switch on as needed.
	EMS	Provide the 120 Ω terminal resistors for RS485 communication with the EMS. Turn the switch on as needed.
SW2	PARALLEL	Provide the 120 Ω terminal resistors when multiple inverters are deployed in parallel. Turn the 3 and 4 switches to the ON position on the two inverters that are physically farthest apart.
SW3	RS485.PAR1	Provide the 120 Ω terminal resistors for RS485 PAR1 communication. Turn the switch on as needed.
	BMS.1, BMS.2, BMS.3	Provide the 120 Ω terminal resistors for the CAN communication between battery management systems (BMS). Turn the switch on as needed.

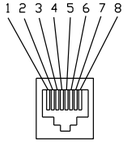
Table 5.1. DIP switch functions

5.2.12. RJ45 Ports Connection

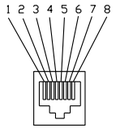
EMS	
1	NC
2	NC
3	NC
4	NC
5	NC
6	NC
7	RS485-A
8	RS485-B



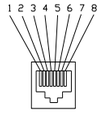
RS485.PAR.1/RS485.PAR.2	
1	NC
2	NC
3	NC
4	NC
5	NC
6	NC
7	RS485-A
8	RS485-B



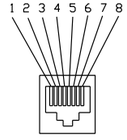
METER.485	
1	RS485-B
2	RS485-A
3	NC
4	RS485-B
5	RS485-A
6	NC
7	RS485-A
8	RS485-B



BMS.1/ BMS.2/ BMS.3	
1	Shut down—BMS
2	GND_S
3	NC
4	CANH
5	CANL
6	NC
7	NC
8	NC



Parelle1/ Parelle2	
1	SYN B
2	SYN A
3	SYN B
4	SYN A
5	SYN B
6	SYN A
7	CANL
8	CANH



LAN	
1	TX_D1+
2	TX_D1-
3	RX_D2+
4	BI_D3+
5	BI_D3-
6	RX_D2-
7	BI_D4+
8	BI_D4-

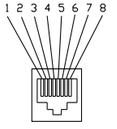


Table 5.2. RJ45 pin definitions

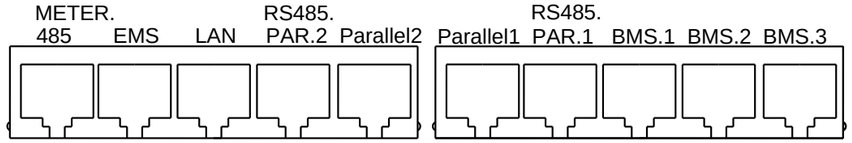


Figure 5.16. RJ45 ports

NOTICE
Confirm that the DC switch is OFF during installation to avoid short circuit.

Prepare the RJ45 cables using the original RJ45 plugs in the delivery package. Connect the cables for the corresponding functions as needed.

Table 5.3. RJ45 plug

5.3. Connect the AC Cables

Prepare the GRID, GEN, and Backup cables according to different deployment scenarios of the customer. For detailed cable specifications, see section 5.8 “System Connection Diagram”.

Procedure

Step 1. Loosen the water-proof nuts of GEN, BACK-UP, and GRID cable glands at the bottom of the inverter.

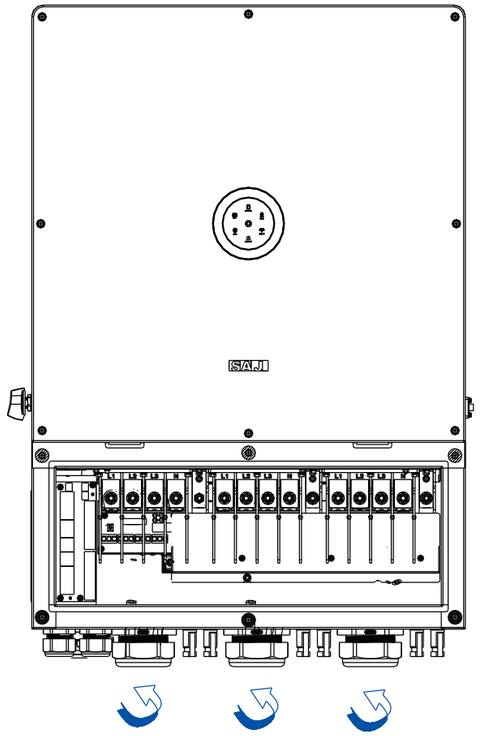


Figure 5.17. Loosening the nuts

Step 2. Insert the AC cables through the corresponding cable glands at the bottom of the inverter.

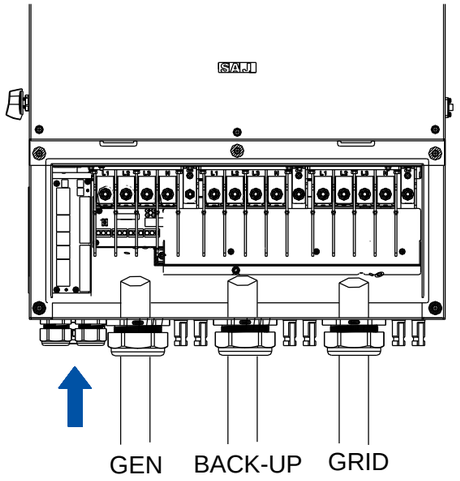


Figure 5.18. Inserting the cables

Step 3. Peel off the insulation skin of the AC cables at proper length and crimp the cable ends with the RNB70-10 or SC50-10 OT/DT terminals tightly. Select the corresponding terminals depending on the cable specification.

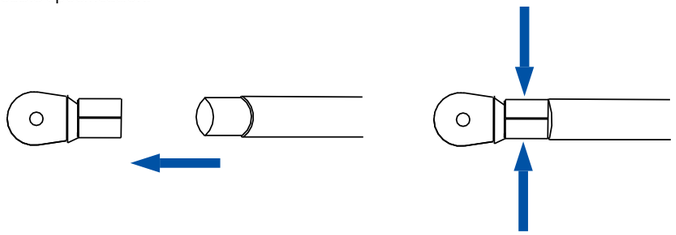


Figure 5.19. Assembling the cables

Step 4. Loosen the screws on the L1, L2, L3, N and PE ports. Secure the AC cables to the corresponding ports of L1, L2, L3, N and PE with the screws. (L1/L2/L3/N: 15 N·m; PE: 8 N·m)

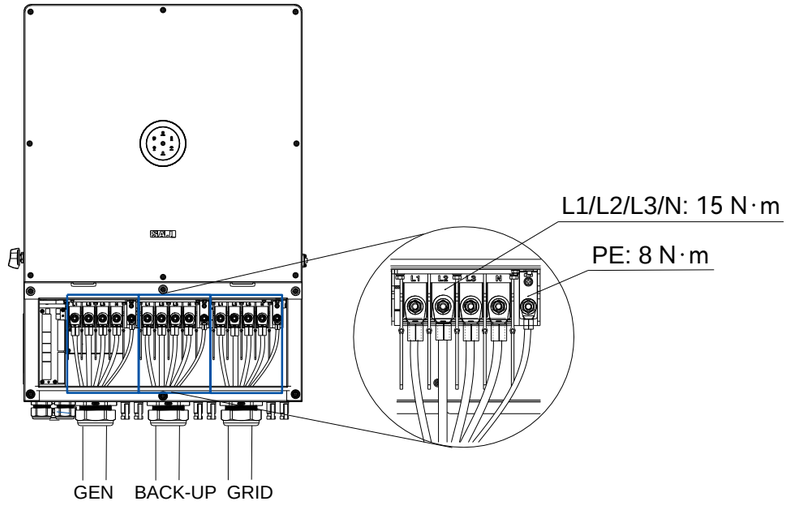


Figure 5.20. Securing the AC cables

Note: During off-grid operation time, PE line at the BACK-UP end will remain to be connected with the PE line at the power grid end inside the inverter. (Only applicable to market in Australia)

Step 5. Fasten the water-proof nuts of GEN, BACK-UP, and GRID cable glands at the bottom of the inverter.

5.3.1. Earth Fault Alarm

This inverter complies with IEC 62109-2 clause 13.9 for earth fault alarm monitoring. If an earth fault alarm occurs, the ring light on the inverter LED panel will be lit up in red and an error code <31> can be viewed on the elekeeper App.

Note: The inverter cannot be used with functionally earthed PV arrays.

5.3.2. External AC Circuit Breaker

Install an external circuit breaker to ensure that the inverter can be disconnected from the grid safely. Prepare the circuit breaker according to the following recommended rated current (A) specification:

Model	Backup load connected	
	Yes	No
CH2-(29.9K-63K)-(T4-T6)	200 A	100 A
Notice: Do not connect multiple inverters to one AC circuit breaker.		

Table 5.4. Recommended circuit breaker specification

5.3.3. Residual Current Device

The inverter is integrated with a RCMU that can detect the real time external current leakage. When the detected current exceeds the limitation, the inverter will be disconnected from the grid quickly.

An external residual current device can be connected with the inverter to protect the system from tripping when it is required by regional or local regulations. Either type A or type B RCD is compatible with the inverter. The action current of external residual current device should be 300 mA.

5.4. Connect the PV-side Cables

⚠ WARNING
Make sure the PV array is well insulated to the ground before connecting it to the inverter.

Conductor cross-sectional area of cables (mm^2)		Conductor material
Range	Recommended value	Outdoor multi-core copper wire cable, complying with 1000 V DC
4.0–6.0	4.0	

Table 5.5. Recommended specifications of DC cable

⚠ WARNING
· Danger to life due to electric shock from touching the live components or DC cables. · When the photovoltaic array is exposed to light, it supplies DC voltage to the PCE. Touching live DC cables can result in death or lethal injures. · DO NOT touch the non-insulated parts or cables. · Disconnect the inverter from voltage sources. · DO NOT disconnect the DC connectors under load. · Wear suitable personal protective equipment for all operations.

NOTICE

· Place the connector separately after unpacking to avoid confusion about cable connections.
· Connect the positive connector to the positive side of the solar panels, and connect the negative connector to the negative side of the solar side. Be sure to connect them in the correct way.

Procedure

Step 1. Loosen the lock screws on the positive and negative connectors.

Step 2. Use a 3-mm wide-bladed screwdriver to strip the insulation layer by 8 to 10 mm from one end of each cable.

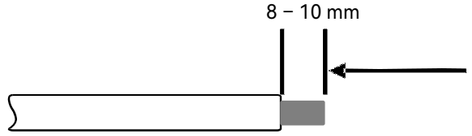


Figure 5.21. Striping the insulation

Step 3. Insert the cable ends to the sleeves. Use a crimping plier to assembly the cable ends.

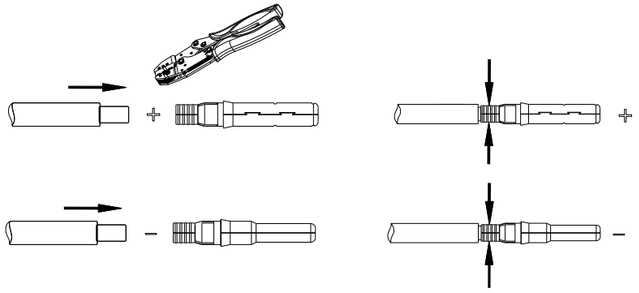


Figure 5.22. Assembling the cable ends

Step 4. Insert the positive and negative cables into the positive and negative connectors. Gently pull the cables backward to ensure firm connection.

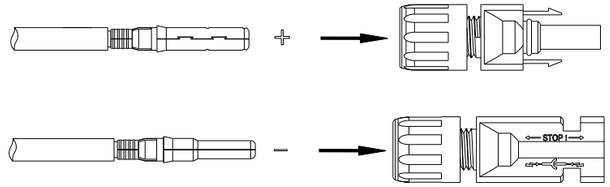


Figure 5.23. Assembling the cables

Step 5.Tighten the lock screws on the positive and negative cable connectors with the D4 assembly tool.

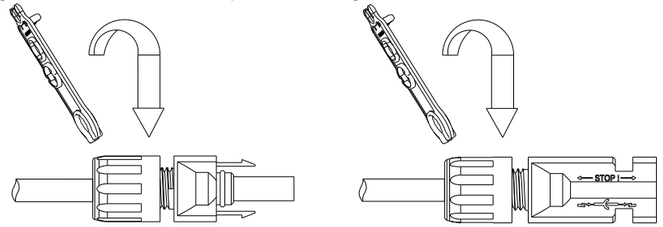


Figure 5.24. Tightening the connectors

Step 6. Make sure the two DC switches are at the OFF position.

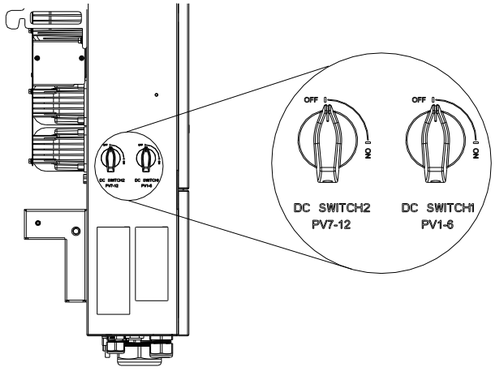


Figure 5.25. DC switch OFF

Step 7. Insert the positive and negative cable connectors into the positive and negative PV ports on the inverter until you hear a “click” sound.

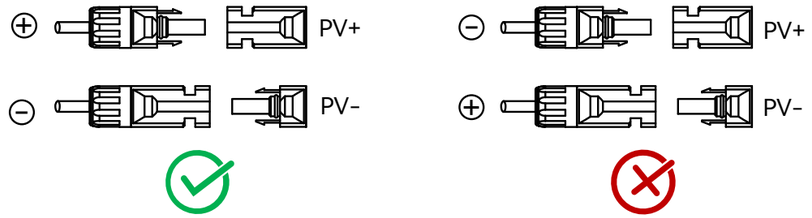


Figure 5.26. Inserting PV connectors

Step 8. Install the front cover back to the inverter with the six screws.

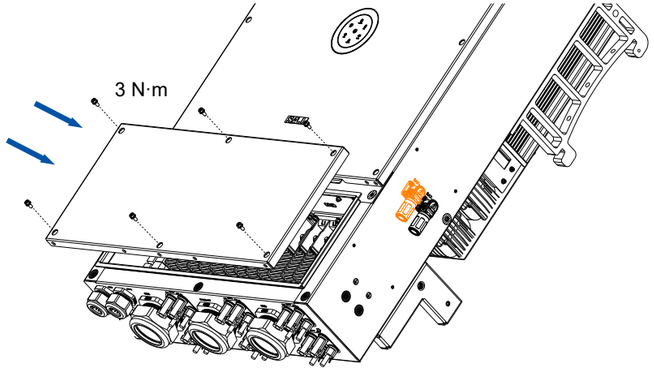


Figure 5.27. Installing front cover

5.5. Communication Module Installation

Remove the dust-proof cover from the 4G/WIFI port, plug in the communication module, and rotate less than 90 degrees to secure the module.

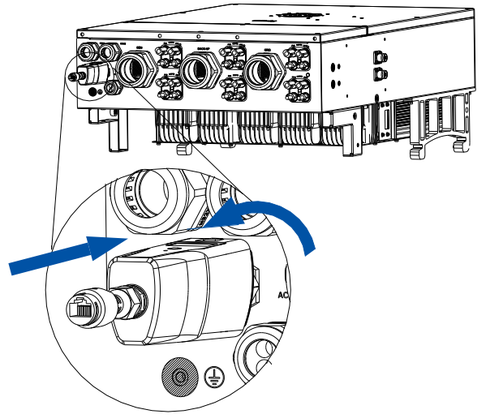


Figure 5.28. Installing communication module

The 4G/WIFI port can be connected with the eSolar 4G module, eSolar Wi-Fi module, or eSolar AIO3 module. For operation details, refer to the communication module Quick Installation Guide at https://www.saj-electric.com/.

5.6. Connect the Battery Power Cable

⚠

- Power off the battery system before connecting the power cable to avoid high voltage danger.
- The electrical connection of high voltage battery systems must be operated by qualified technicians in accordance with local and national power grid standards and regulations.

Prepare the battery connection cables according to the following specification:

Recommended cable cross-sectional area (mm^2)
42

Table 5.6. Recommended specifications of battery connection cables

It is optional to install a breaker between the battery system and the inverter.

Procedure

Step 1. Loosen the lock screw off the positive and negative connectors of the battery cables.

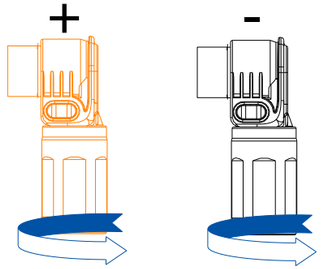


Figure 5.29. Loosening lock screws

Step 2. Insert the cable into the cable connector, and crimp the cable and the copper tube of the connector.

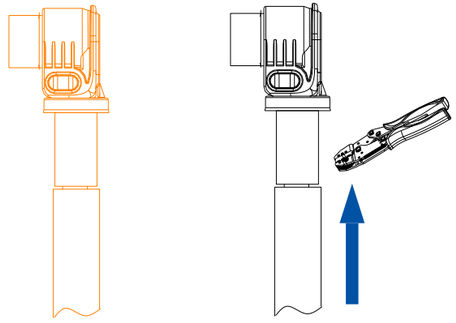
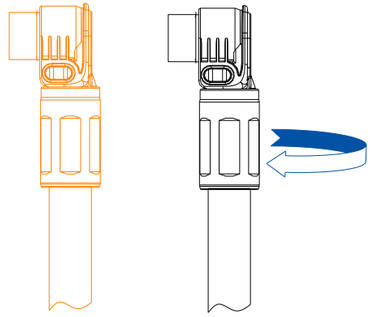


Figure 5.30. Assembling battery connectors

Step 3. Fasten the lock screws back to the positive and negative connectors.



Step 4. Insert the positive and negative battery cables to the corresponding ports on the right side of the inverter.

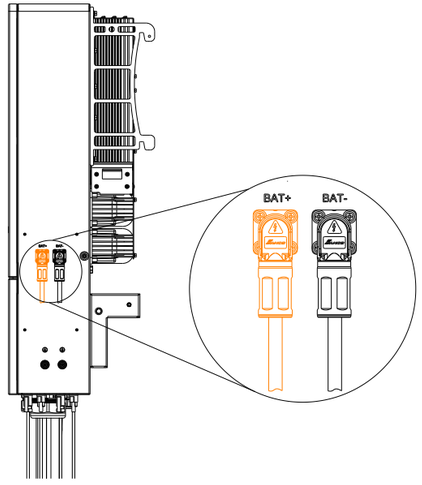
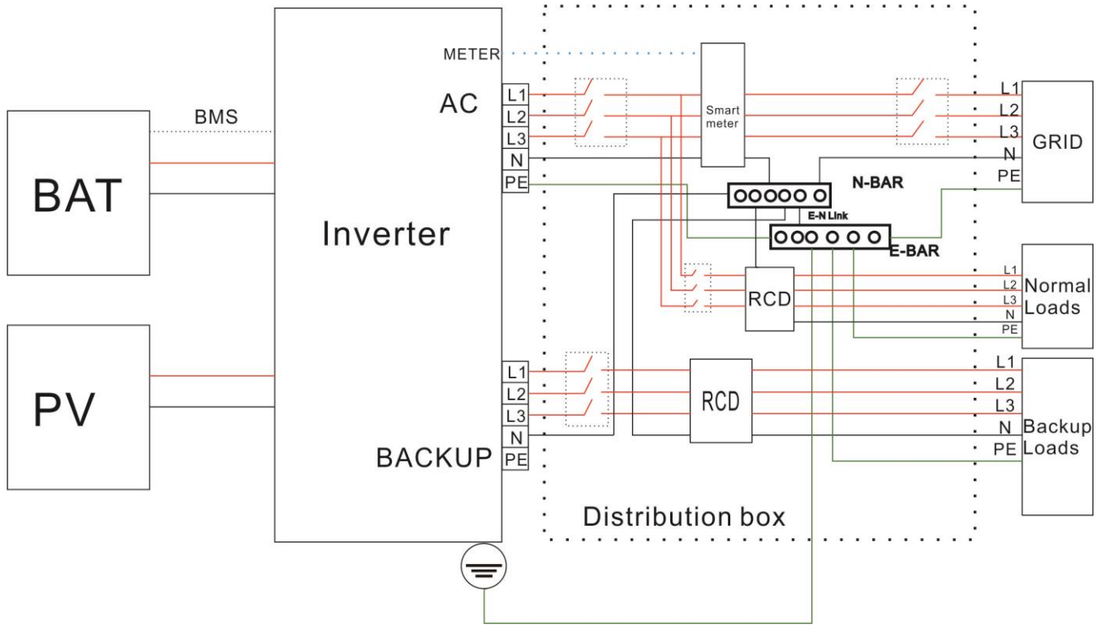


Figure 5.31. Connecting battery power cable

5.7. System Connection

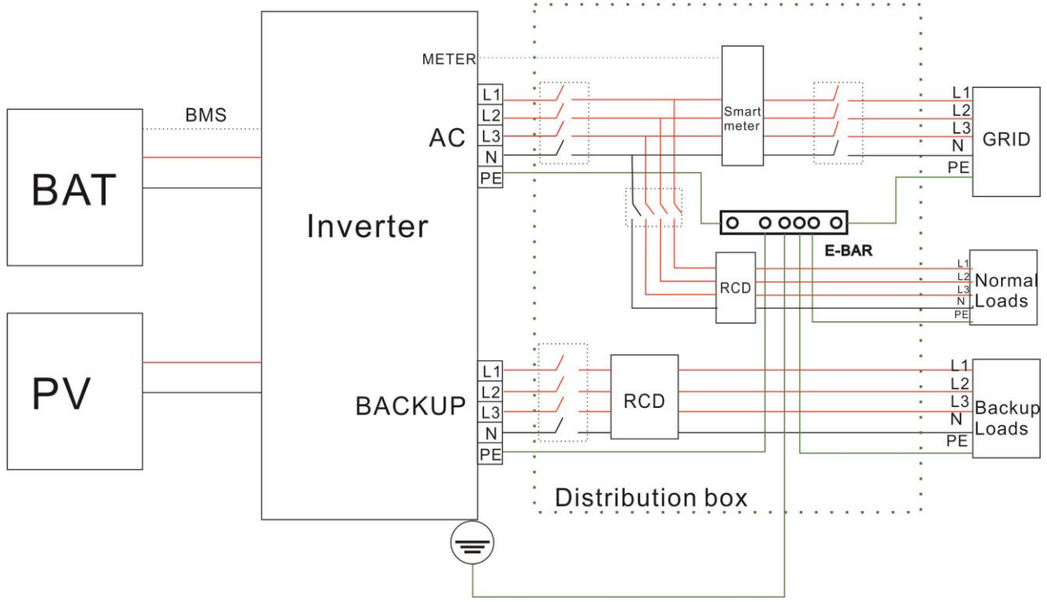
The following figure shows the system connection applicable in Australia and New Zealand. The neutral cable of AC and backup side must be connected together for safety purpose.

Note: DO NOT connect the PE terminal of the BACKUP side.



The following figure shows the system connection for the grid system without special requirements.

Note: The backup PE line and earthing bar must be grounded properly. Otherwise, the backup function may be inactive during blackout.



5.8. System Connection Diagram

5.8.1. Backup Single Deployment

The following diagram shows the system connections of a single machine where both the backup and the on-grid loads are enabled.

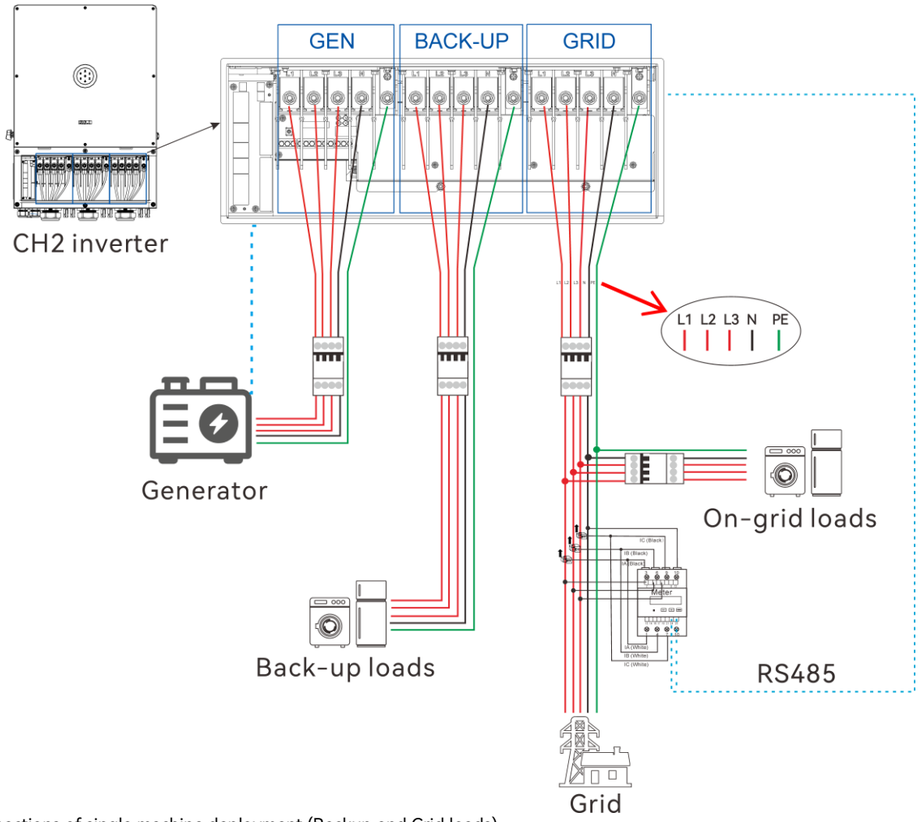


Figure 5.32. System connections of single machine deployment (Backup and Grid loads)

In this deployment, prepare the GRID, GEN, and Backup AC cables according to the following specifications:

Model	Cable cross-sectional area (mm²)		Conductor material
	Value range	Recommended value	
CH2-29.9K-T4	16-35	25	Copper
CH2-30K-T4	16-35	25	
CH2-40K-T5	25-70	50	
CH2-49.9K-T6	25-70	50	
CH2-50K-T6	25-70	50	
CH2-63K-T6	25-70	50	

Note: If the grid-connection distance is large, select AC cables with larger diameter for the actual condition.

Table 5.7. Recommended specifications of GRID, GEN, and Backup cables

5.8.2. On-grid Single Deployment

When only the on-grid loads are enabled and the backup loads are disabled, prepare the GRID AC cables according to the following specifications:

Model	Cable cross-sectional area (mm²)		Conductor material
	Value range	Recommended value	
CH2-29.9K-T4	16-35	16	Copper
CH2-30K-T4	16-35	16	
CH2-40K-T5	25-70	25	
CH2-49.9K-T6	25-70	25	
CH2-50K-T6	25-70	25	
CH2-63K-T6	25-70	25	

Note: If the grid-connection distance is large, select AC cables with larger diameter for the actual condition.

Table 5.8. Recommended specifications of GRID cables

See the following diagram of system connections for single deployment with on-grid loads only:

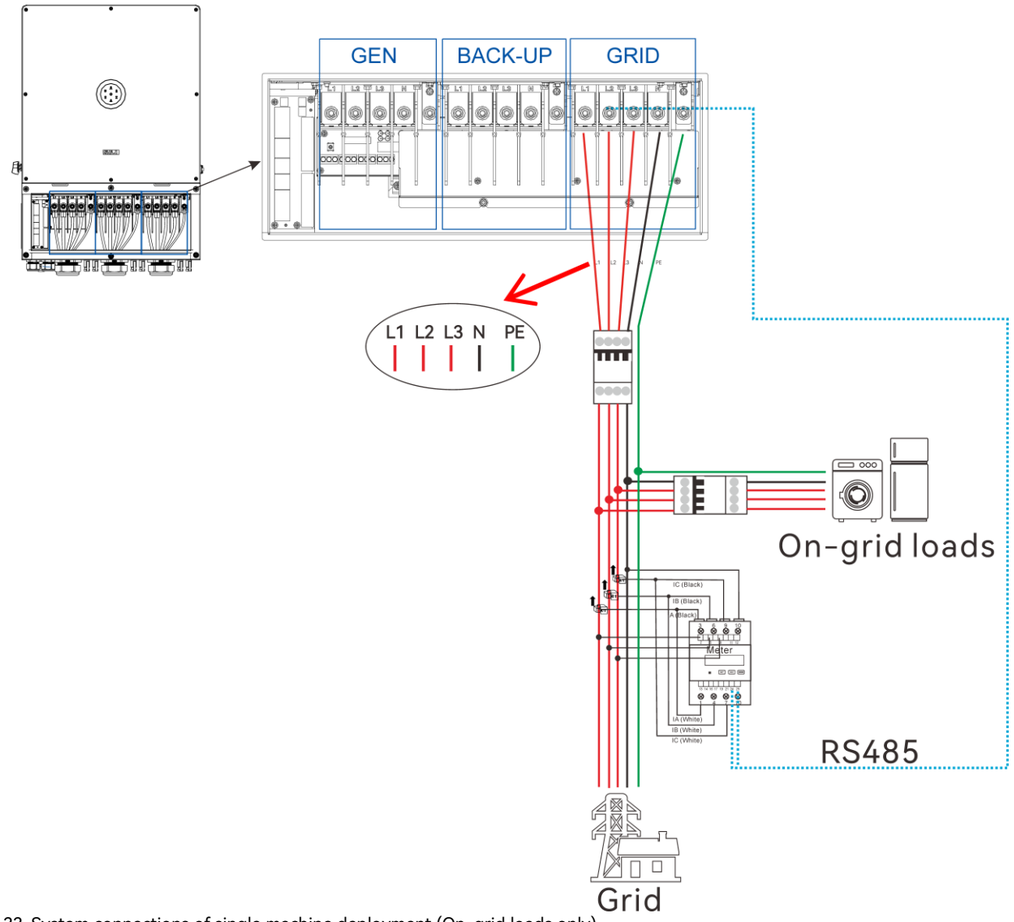
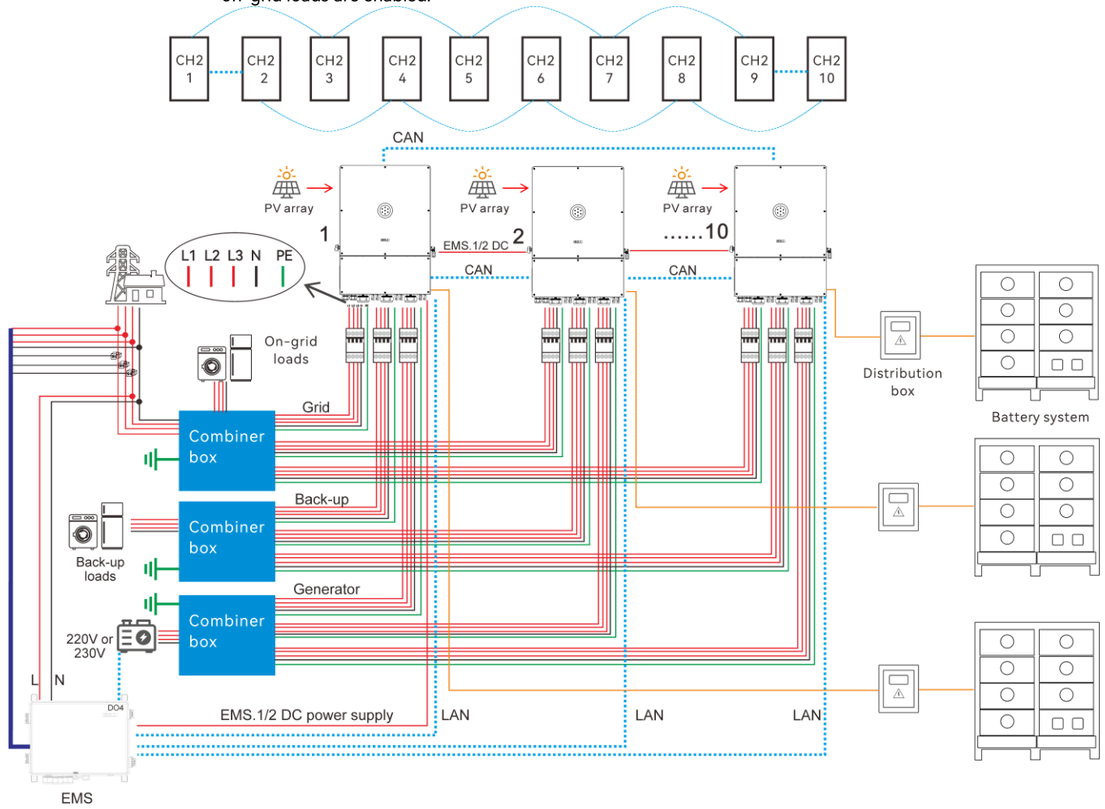


Figure 5.33. System connections of single machine deployment (On-grid loads only)

5.8.3. Backup Parallel Deployment

The following diagram shows the system connections of parallel deployment where both the backup and the on-grid loads are enabled.



Note: For detailed meter and EMS connections, see section 5.2 “Communication Connection”.

Figure 5.34. System connections of parallel deployment (Backup and on-grid loads)

In this deployment, prepare the GRID, GEN, and Backup AC cables according to the following specifications:

Model	Cable cross-sectional area (mm²)		Conductor material
	Value range	Recommended value	
CH2-40K-T5	70-120	70	Copper
CH2-49.9K-T6	70-120	70	
CH2-50K-T6	70-120	70	
CH2-63K-T6	70-120	70	

Note: If the grid-connection distance is large, select AC cables with larger diameter for the actual condition.

Table 5.9. Recommended specifications of GRID, GEN, and Backup cables

Note:

- All the power cables from the back-up terminals of the inverters in the combined cabinet to the combiner box shall be of equal length.
- All the power cables from the generator terminals of the inverters in the combined cabinet to the combiner box shall be of equal length.
- For EMS connections in parallel deployment, see Figure 5.9 EMS connection in parallel.

5.8.4. On-grid Parallel Deployment

The following diagram shows the system connections for parallel deployment with on-grid load enabled only:

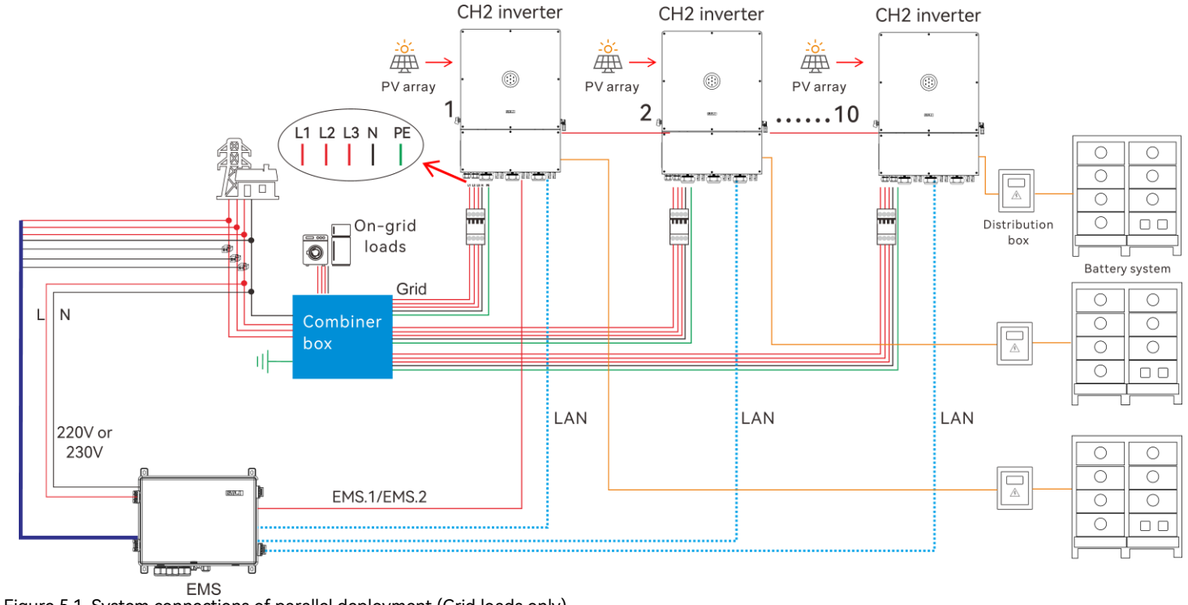


Figure 5.1. System connections of parallel deployment (Grid loads only)

In this deployment, prepare the GRID AC cables according to the following specifications:

Model	Cable cross-sectional area (mm²)		Conductor material
	Value range	Recommended value	
CH2-40K-T5	25-70	25	Copper
CH2-49.9K-T6	25-70	25	
CH2-50K-T6	25-70	25	
CH2-63K-T6	25-70	25	

Note: If the grid-connection distance is large, select AC cables with larger diameter for the actual condition.

Table 5.10. Recommended specifications of GRID cables

Note: For detailed meter and EMS connections, see section 5.2 “Communication Connection”.

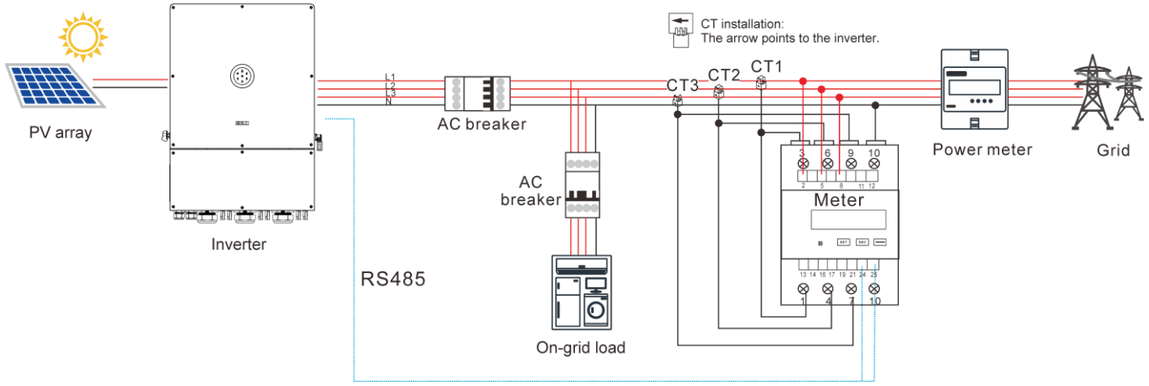
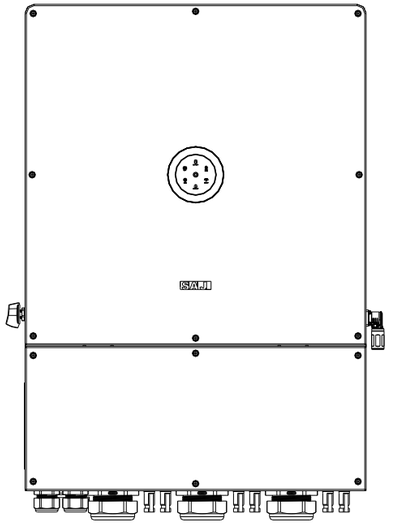


Figure 5.2. System connection

5.9. AFCI

The inverter is equipped with an arc-fault circuit interrupter (AFCI). With AFCI protection, when there is an arc signal on the DC side due to the aging of the cable or loose contact, the inverter can quickly detect it and cut off the power to prevent fire to ensure the PV system safety.



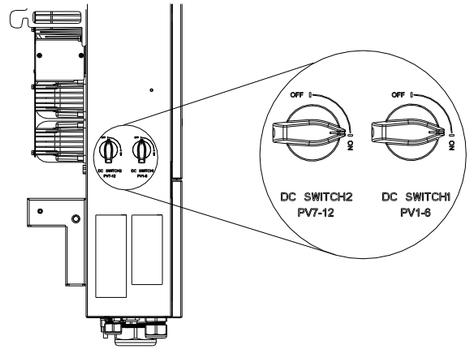
6.

COMMISSIONING

6.1. Start Up and Shut Down the Inverter

6.1.1. Start Up

Turn on the DC switches on the left side of the inverter to start up the inverter. When the LED indicator shows solid green, it indicates that the inverter is up and running.



6.1.2. Shut Down

When the solar light intensity is not strong enough or the output voltage of the photovoltaic system is less than the minimum input power of the inverter, the inverter will shut down automatically.

To shut down the inverter manually, disconnect the AC side circuit breaker first. When multiple inverters are connected, disconnect the minor circuit breaker first, and then disconnect the main circuit breaker. Disconnect the DC switch after the inverter reports the grid connection lost alarm.

6.2. LED Indicators Introduction

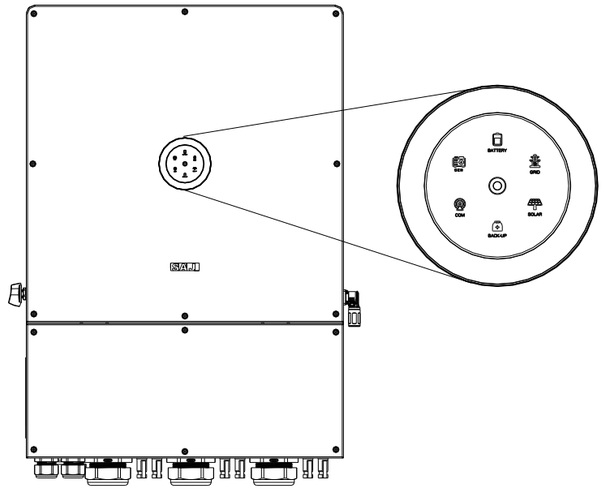


Figure 6.1. LED indicators

LED indicator	Status	Description
○	LED off	The inverter is powered off.
○	Breathing	The inverter is at the initial state or standby state.
○	Solid	The inverter is running properly.
○	Breathing	The inverter is upgrading.
○	Solid	The inverter is faulty.

LED indicator	Status	Description
System	Solid	The inverter is importing electricity from the grid.
	On 1s, off 1s	The inverter is exporting electricity to the grid.
	On 1s, off 3s	No importing and exporting.
	Off	Off-grid.
Battery	Solid	The battery is discharging.
	On 1s, off 1s	The battery is charging.
	On 1s, off 3s	Low SOC.
	Off	The battery is disconnected or inactive.
Grid	Solid	The inverter is connected to the grid.
	On 1s, off 1s	Counting down to grid connection.
	On 1s, off 3s	The grid is faulty.
	Off	No grid.
Solar	Solid	The PV array is running properly.
	On 1s, off 1s	The PV array is faulty.
	Off	The PV array is not working.
Backup	Solid	The AC side load is running properly.
	On 1s, off 1s	The AC side consumption is overloaded.
	Off	The AC side is turned off.
Communication	Solid	The communication with both the BMS and the meter is working.
	On 1s, off 1s	The meter communication is working, but the BMS communication is lost.
	On 1s, off 3s	The BMS communication is working, but the meter communication is lost.
	Off	Lost communication with both the BMS and the meter.
GEN	Solid	The power input of the generator is connected.
	On 1s, off 1s	The power output of the generator is connected.
	Off	Disconnected from the generator.

Table 6.1 Interface description

Note: One breathing interval is 6 seconds.

6.3. Install the elekeeper App

The elekeeper App can be ued for both nearby and remote monitoring. It supports Bluetooth/4G or Bluetooth/Wi-Fi connection with the inverter.

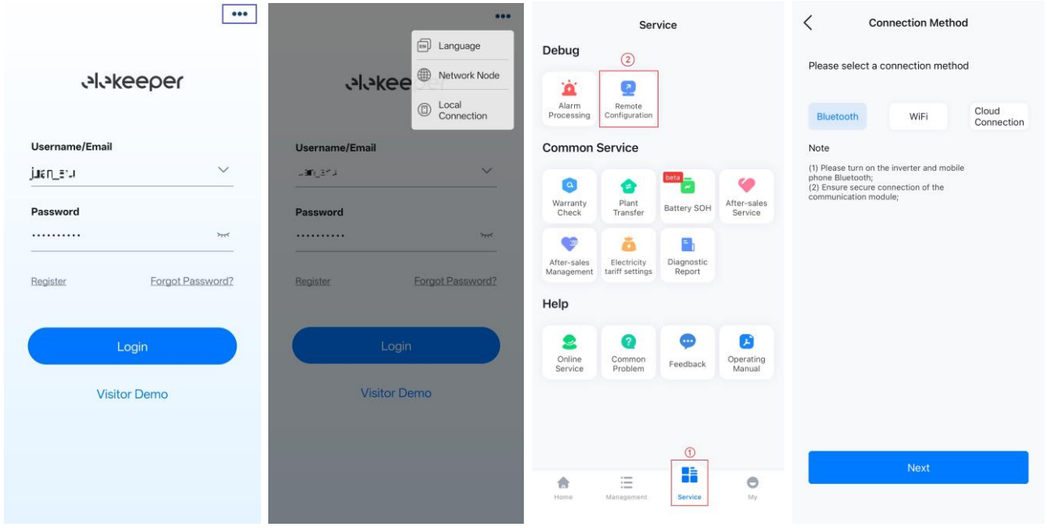
On your mobile phone, search for **elekeeper** in the App store and download the App.

6.4. Perform Initialization

Step 1. Log in to the App. If you do not have an account, register first.

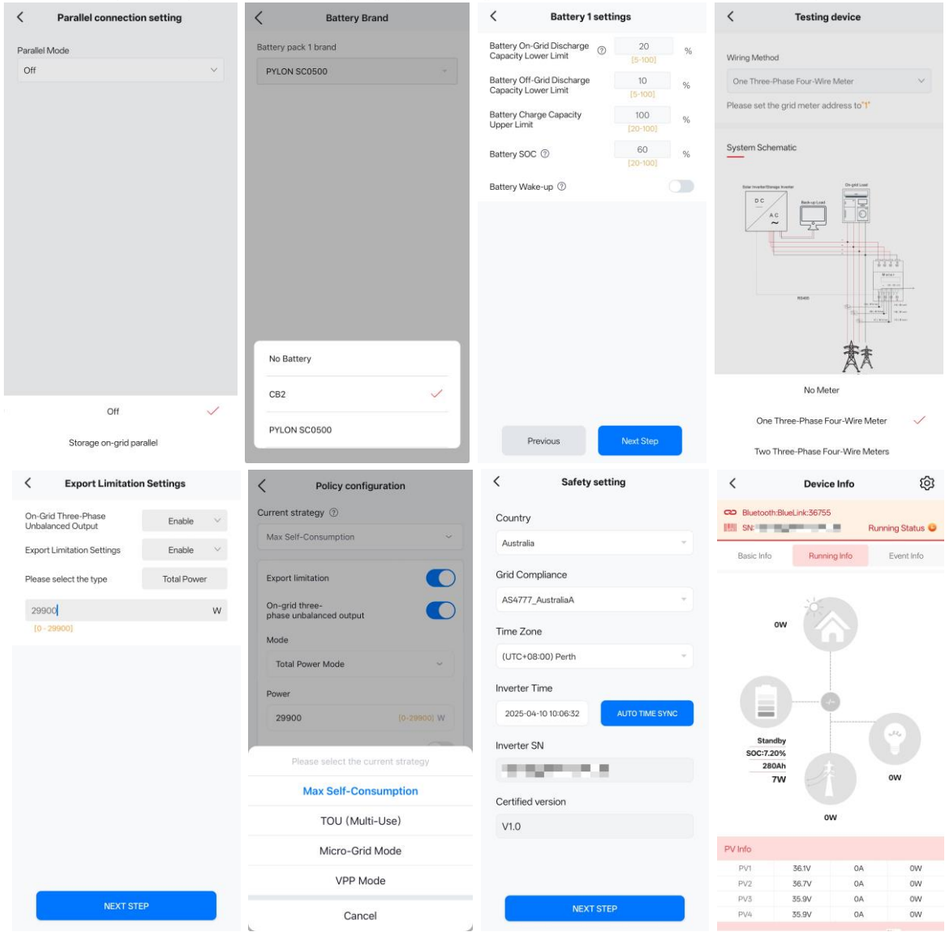
a. Open the App and click on the three-dot icon ••• on the top right corner. Set the **Language** to **English** and **Network Node** to **European Node**.

b. Tap **Service** on the bottom menu and select **Remote Configuration**. Tap **Bluetooth** and enable the Bluetooth function on your mobile phone. Then, click on **Next**.



Step 2. Choose your inverter according to the last five digits of your inverter SN. On the **Device List** page, select the inverter to enter inverter settings.

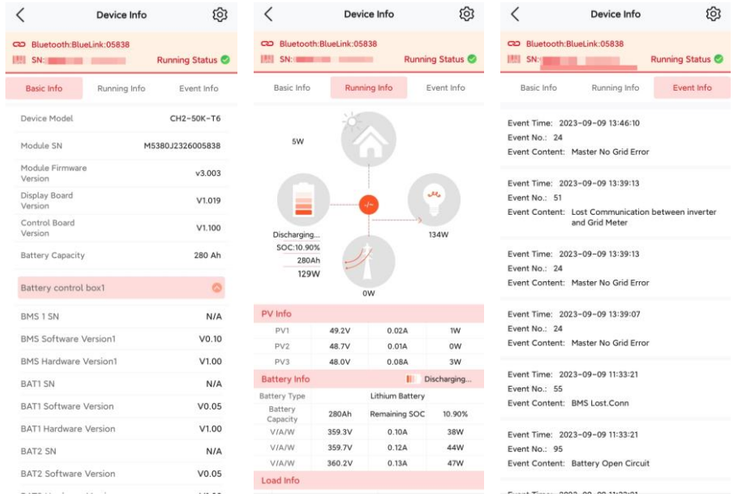
Step 3. Complete the inverter settings by following the instructions on the screen. For example:



6.5. View Inverter Settings

After initialization, the user can monitor the inverter and battery group status on the App. The following device information is available:

- **Basic Info**: The basic device information, such as the device model and serial number.
- **Running Info**: The running statistics of the whole system.
- **Event Info**: The error or faulty events of the inverter.



6.6. Remote Monitoring

Connect to the internet with the eSolar AIO3 module.

For details, refer to the user manual of the communication module.

After the communication module is connected to the Internet, the system running data will be uploaded to the server. You can view the data on the eSAJ All-In-One Smart EMS platform or the elekeeper App.

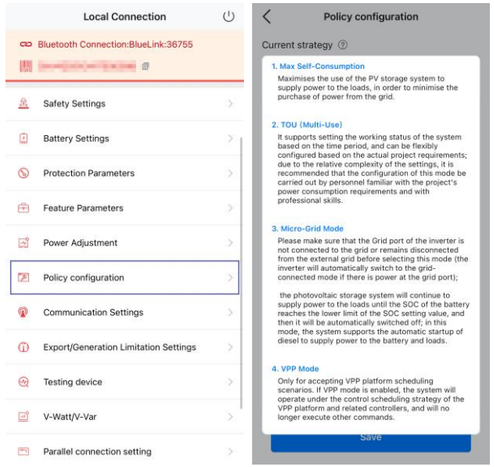
6.7. Change the Working Modes

Select the working mode of the ESS on the App to ensure customized and maximum utilization of the ESS.

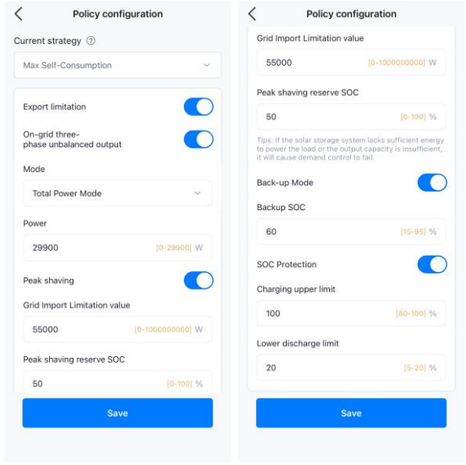
- **Max Self-Consumption Mode**: When the solar is sufficient, the electricity generated by photovoltaic (PV) system will be supplied to load first, the surplus energy will be stored in battery, and then the remaining electricity will be exported to the grid. When the solar is insufficient, the battery will release electricity to supply load.
- **TOU (Multi-Use) Mode**: In the TOU (time-of-use) mode, the battery charges or discharges during the set period. For the other periods, the battery works in the max self-consumption mode.
  In this mode, advanced settings like back-mode and peak shaving are available for various power consumption requirements and local grid policies.
- **Micro-Grid Mode**: The PV system only supplies power to the loads until the battery reaches the set SOC value. In this case, the system can start up the diesel generator automatically to supply power to the battery and the loads.

Note: Before selecting this mode, make sure that the Grid port of the inverter is disconnected from the grid.

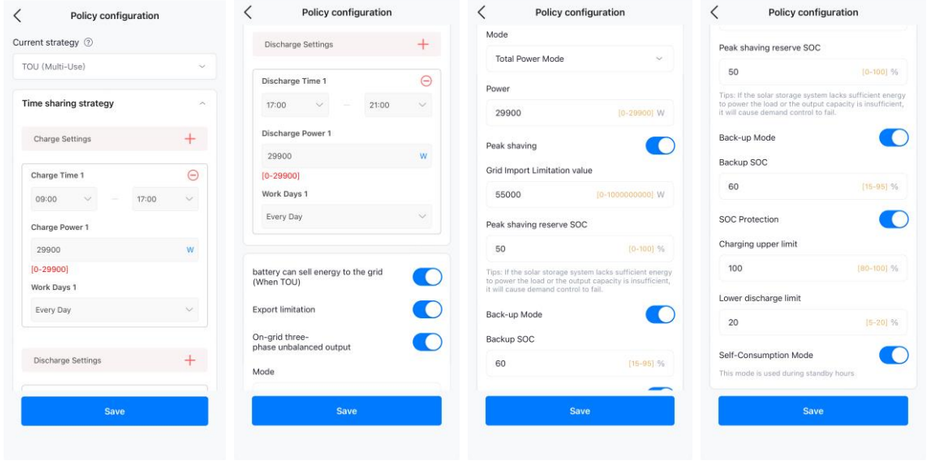
- **VPP Mode**: In this mode, the ESS works according to the scheduling strategy from the VPP platform and related controllers.



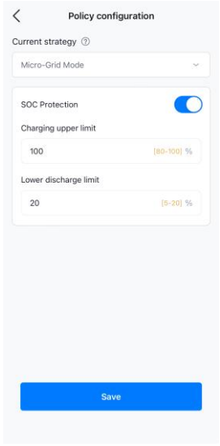
Settings of **Max Self-Consumption** mode:



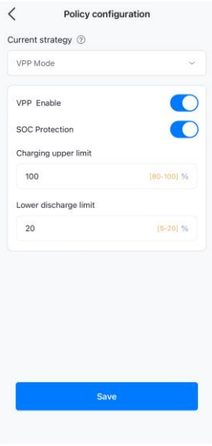
Settings of **TOU** mode:



Settings of **Micro-Grid** mode:



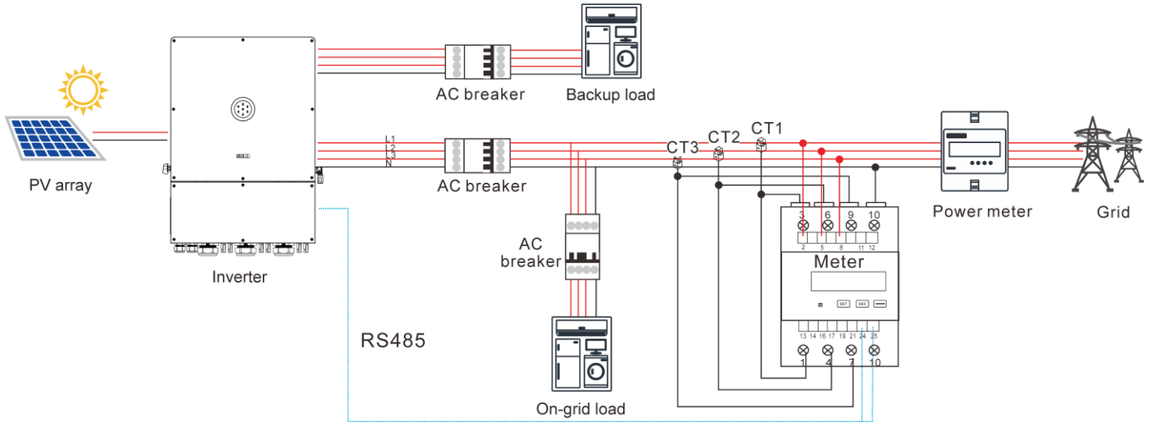
Settings of **VPP** mode:



6.8. Set the Export Limit

The export limit function controls the maximum power that the inverter exports to the grid.

For this function to take effect in single-machine deployment, the user needs to prepare a meter and connect the meter to the inverter as the figure shows:



To enable the export limit function:

Step 1. Log in to the App and connect to the inverter through Bluetooth connection.

Step 2. On the **Device List** page, select the inverter under **Device**.

Step 3. On the **Local Connection** page, select **Export/Generation Limitation Settings**.

Step 4. Tap **Enable** to enable the export limitation function.

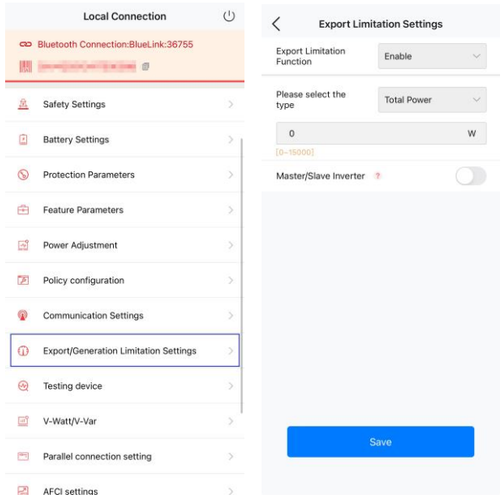
Step 5. Select the following limit control type and set the value:

- **Total power**: The inverter controls the maximum power that is exported to the grid.

  Set the value within the range of 0 to the rated power of the current inverter in W. For example, value 5000 (W) indicates that the overall export power limit is 5000 W from the inverter.

  Note: Control types **Phase Power** and **Phase Current** are not applicable for this inverter series.

Step 6. Tap **Save** and wait a few seconds for the change to take effect.



There are two methods to control the export limit, the two methods are alternative to each other.

Method 1: Export limitation setting is to control the export electricity to the grid.

Method 2: Generation limit is to control the electricity generated by the inverter.

6.9. Self-test (For Italy)

Italian Standard CEI0-21 requires a self-test function for all inverters that connect to the utility grid. During the self-testing time, the inverter will check the reaction time for over-frequency, under-frequency, over-voltage and under-voltage. The self-test ensures that the inverter can disconnect from the grid when required. If the self-test fails, the inverter cannot feed into the grid.

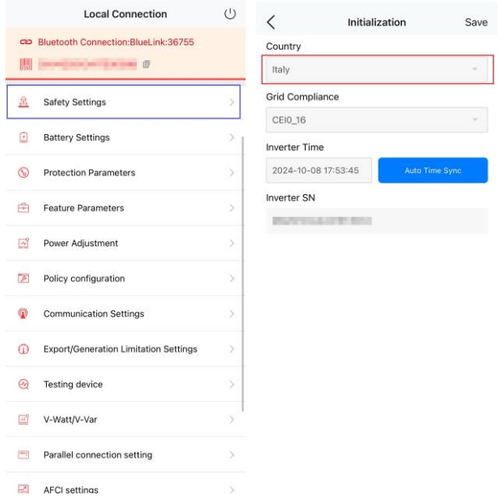
Procedure

Step 1. Make sure that the communication module (Wi-Fi/ 4G/Ethernet) is connected to the inverter. For the connection procedure, refer to the eSolar Module Quick Installation Manual.

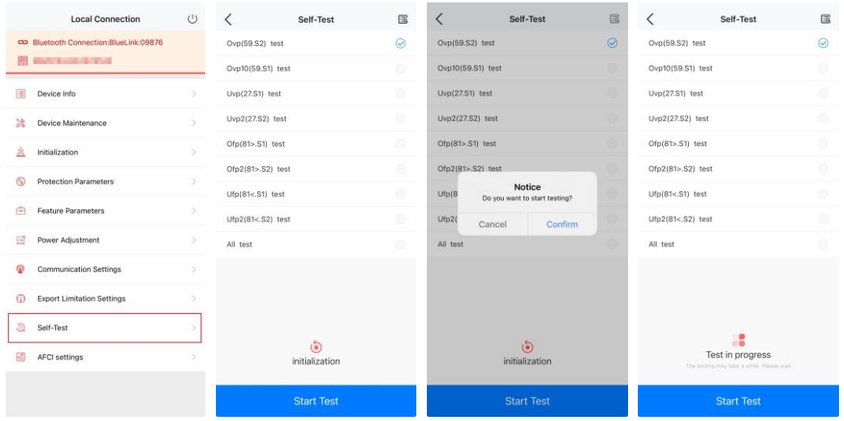
Step 2. Log in to the elekeeper App and connect to the inverter through Bluetooth connection.

Step 3. On the **Device List** page, select the inverter under **Device**, and select **Safety Settings** on the **Local Connection** page.

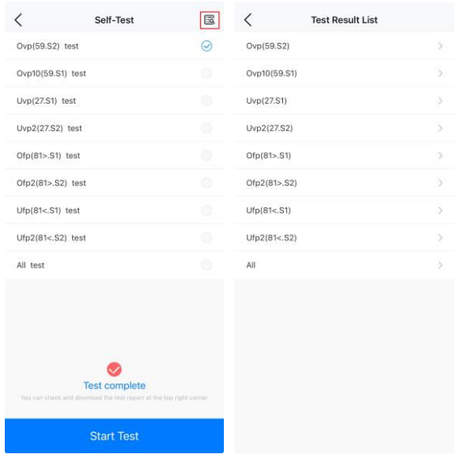
Step 4. Select **Italy** as the country.



Step 5. On the **Local Connection** page, tap **Self-test**. Choose the self-test items as required. It takes around 5 minutes to complete each item, and around 40 minutes to complete all the items.



Step 6. After the self-test is completed, tap the search icon on the top right corner to check the test report. Download the test report if the self-test fails and contact SAJ or your inverter supplier.



6.10. Set Reactive Power Control (For Australia)

6.10.1 Set Fixed Power Factor and Fixed Reactive Power Modes

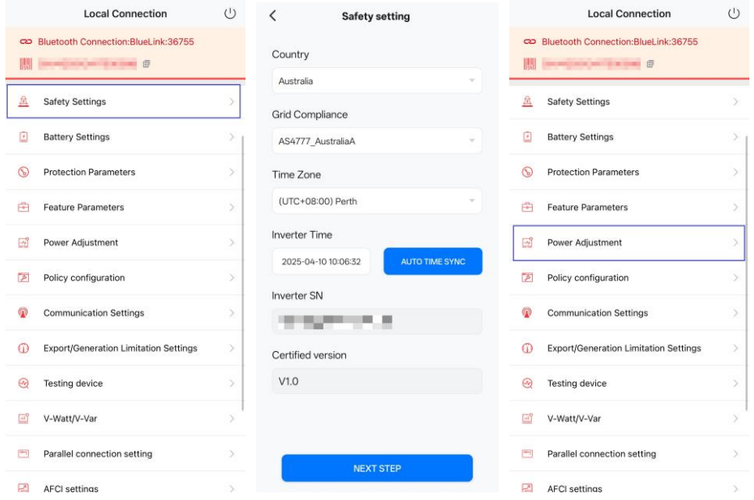
Procedure

Step 1. Log in to the elekeeper App and connect to the inverter through Bluetooth connection.

Step 2. On the **Device List** page, select the inverter under **Device**, and select **Safety Settings** on the **Local Connection** page.

Step 3. Select **Australia** as the country and the corresponding grid compliance.

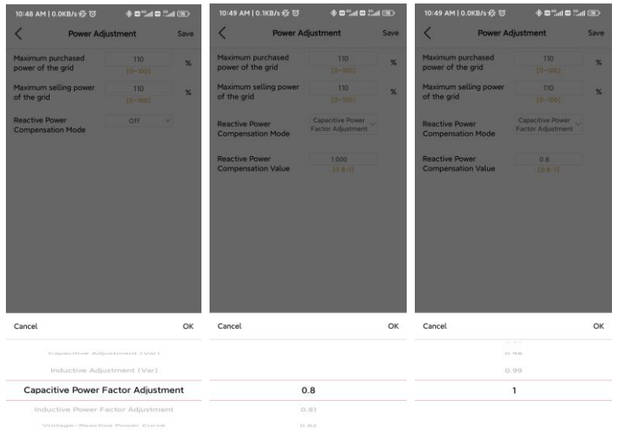
Step 4. On the **Local Connection** page, select **Power Adjustment**.



To set the fixed power factor mode:

Step 1. Select **Capacitive Power Factor Adjustment** or **Inductive Power Factor Adjustment** according to your local grid regulation. The power factor range is from 0.8 leading to 0.8 lagging.

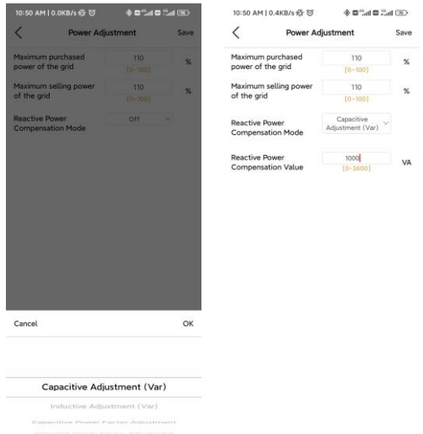
Step 2. Tap **Save** for the changes to take effect.



To set the fixed reactive power mode:

Step 1. Select **Inductive Adjustment (Var)** or **Capacitive Adjustment (Var)** according to your local grid regulation. The power range is from -60%Pn to 60%Pn.

Step 2. Tap **Save** for the changes to take effect.



6.10.2 Set V-Watt and Volt-Var Modes

This inverter complies with AS/NZS 4777.2: 2020 for power quality response modes. The inverter satisfies different regions of DNSPs' grid connection rules requirements for volt-watt and volt-var settings. For example, see the AS4777 series settings as the following figures show:

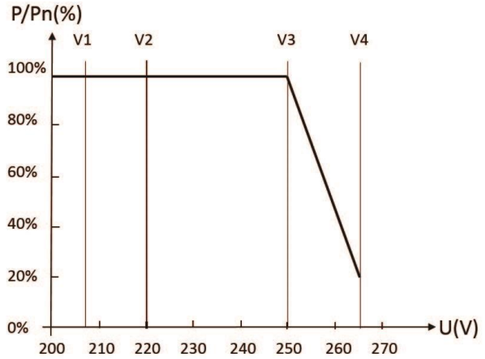
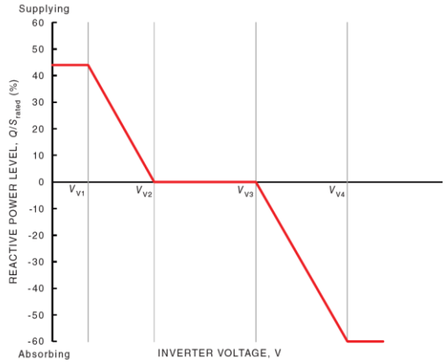


Figure 6.2 Curve for a Volt-Watt response mode (AS4777 Series)



Curve for a Volt-Var control mode (AS4777 Series)

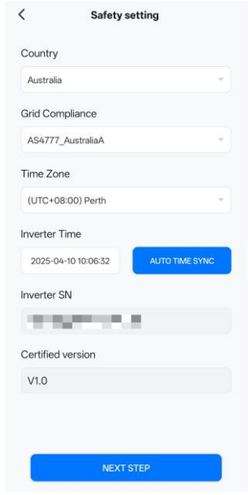
Procedure

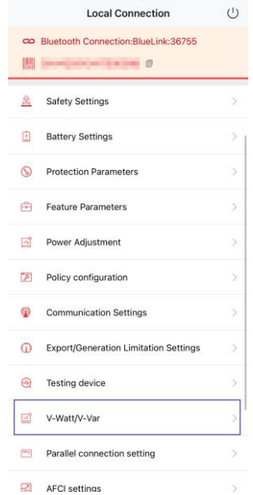
Step 1. Log in to the elekeeper App and connect to the inverter through Bluetooth connection.

Step 2. On the **Device List** page, select the inverter under **Device**, and select **Safety Settings** on the **Local Connection** page.

Step 3. Make sure that the corresponding AS4777 grid compliance is selected.

Step 4. On the **Local Connection** page, tap **V-Watt/V-Var** to enter the DNSP settings, and set the corresponding values as required.





Note: With regard to the power rate limit mode, the product WGra is set to 16.67%Pn by default in the following cases according to the requirements of 3.3.5.2 as 4777.2: 2020.

1. Soft ramp up after connection.
2. Reconnect or soft ramp up/down following a response to frequency disturbance.

7.

TROUBLESHOOTING

7.1 Troubleshooting

Contact your supplier for troubleshooting and remedy.

Error Code	Error Message
1	Master Relay Error
2	Master EEPROM Error
3	Master Temperature High Error
4	Master Temperature Low Error
5	Lost Communication M<->S
6	GFCI Device Error
7	DCI Device Error
8	Current Sensor Error
9	Master Phase1 Voltage High
10	Master Phase1 Voltage Low
11	Master Phase2 Voltage High
12	Master Phase2 Voltage Low
13	Master Phase3 Voltage High
14	Master Phase3 Voltage Low
15	Grid Voltage 10Min High
16	OffGrid Output Voltage Low
17	OffGrid Output Short Circuit
18	Master Grid Frequency High
19	Master Grid Frequency Low
20	BATInputMode Error
21	Phase1 DCV High
22	Phase2 DCV High
23	Phase3 DCV High
24	Master No Grid Error
25	DC ReverseConnect Error
26	Parallel machine CAN Com Error
27	GFCI Error
28	Phase1 DCI Error
29	Phase2 DCI Error
30	Phase3 DCI Error
31	ISO Error
32	Bus Voltage Balance Error
33	Master Bus Voltage High

34	Master Bus Voltage Low
35	Master Grid Phase Lost
36	Master PV Voltage High
37	Master Islanding Error
38	Master HW Bus Voltage High
39	Master HW PV Current High
40	Master Self-Test Failed
41	Master HW Inv Current High
42	Master AC SPD Error
43	Master DC SPD Error
44	Master Grid NE Voltage Error
45	Master Fan1 Error
46	Master Fan2 Error
47	Master Fan3 Error
48	Master Fan4 Error
49	Lost Communication between Master and Meter
50	Lost Communication between M<->S
51	Lost Communication between inverter and Grid Meter
52	HMI EEPROM Error
53	HMI RTC Error
54	BMS Device Error
55	BMS Lost.Conn
56	CT Device Err
57	AFCI Lost Err
58	Lost Com. H<->S Err
59	Lost Communication between inverter and PV Meter
61	Slave Phase1 Voltage High
62	Slave Phase1 Voltage Low
63	Slave Phase2 Voltage High
64	Slave Phase2 Voltage Low
65	Slave Phase3 Voltage High
66	Slave Phase3 Voltage Low
67	Slave Frequency High
68	Slave Frequency Low
73	Slave No Grid Error
74	Slave PV Input Mode Error
75	Slave HW PV Curr High
76	Slave PV Voltage High

77	Slave HW Bus Volt High
81	Lost Communication D<->C
83	Master Arc Device Error
84	Master PV Mode Error
85	Authority expires
86	DRM0 Error
87	Master Arc Error
88	Master SW PV Current High
89	Battery Voltage High
90	Battery Current High
91	Battery Charge Voltage High
92	Battery OverLoad
93	Battery SoftConnet TimeOut
94	Output OverLoad
95	Battery Open Circuit Error
96	Battery Discharge Voltage Low

8.

ROUTINE MAINTENANCE

Inverter Cleaning

Clean the enclosure lid and LED indicator of the inverter with moistened cloth with clear water only. Do not use any cleaning agents as it may damage the components.

Heat Sink Cleaning

Clean the heat sinks with dry cloth or air blower. Do not clean the heat sink with water or cleaning agents. Make sure there is enough space for ventilation of inverter.

9.

APPENDIX

9.1. Recycling and disposal

This device should not be disposed as a residential waste.

The device that has reached the end of its operation life is not required to be returned to your dealer; instead, it must be disposed by an approved collection and recycling facility in your area.

9.2. Transportation and storage

Take care of the product during transportation and storage. Keep less than 4 cartons of inverter in one stack.

9.3. Warranty

Check the product warranty conditions and terms on the SAJ website: https://www.saj-electric.com/

9.4. Contacting support

Online technical support

Go to https://www.saj-electric.com/services-support-technical to check FAQs or send your message or product enquiry.

Call for assistance

For SAJ support telephone numbers, see https://www.saj-electric.com/locations for your region support details.

Head Quarter

Guangzhou Sanjing Electric Co., Ltd.

Address: SAJ Innovation Park, No.9, Lizhishan Road, Guangzhou Science City, Guangdong, P.R.China.

Tel: +86 20 6660 8588

Website: https://www.saj-electric.com/

9.5. Trademark

SAJ is the trademark of Sanjing.