



Solis Three Phase Inverter

(150-200)K **Installation and Operation Manual**

Ver 1.0

Ginlong Technologies Co., Ltd.

No. 57 Jintong Road, Binhai Industrial Park, Xiangshan, Ningbo,

Zhejiang, 315712, P.R.China.

Tel: +86 (0)574 6578 1806

Email: info@ginlong.com

Web: www.solisinverters.com

Please adhere to the actual products in case of any discrepancies in this user manual.

If you encounter any problem on the inverter, please find out the inverter S/N and contact us, we will try to respond to your question ASAP.



Ginlong Technologies Co., Ltd.

1. Introduction	4
1.1 Product Description	4
1.2 Unpacking and storage	5
1.2.1 Storage	6
2. Safety instructions	7
2.1 Safety symbols	7
2.2 General safety instructions	7
2.3 Notice for use	8
2.4 Notice for Disposal	8
3. Installation	9
3.1 Environmental considerations	9
3.2 Product handling	12
3.3 Mounting the Inverter	14
3.4 Electrical Connections	16
4. Communication & Monitoring	27
4.1 RS485 and PLC communication connection	27
4.2 Inverter remote monitoring connection	30
4.3 Logic interface connection	31
5. Commissioning	32
5.1 Preparation	32
5.2 Start and Shutdown	32
5.3 Start-up procedure	34
5.4 Shutdown procedure	35
6. Normal operation	36
6.1 APP Download	36
6.2 Log in the APP via bluetooth	36
6.3 Home Page	38
6.4 Info Page	39
6.5 Alarm Page	39
6.6 Setting Page	40
6.7 EPM Setting(Optional)	41
6.8 AFCI Function(Optional)	49
7. Maintenance	51
7.1 Anti-PID Function	51
7.2 Fan Maintenance	52
7.3 DC Switch Maintenance	53
7.4 Emergency Handling	53
8. Troubleshooting	54
9. Specifications	56

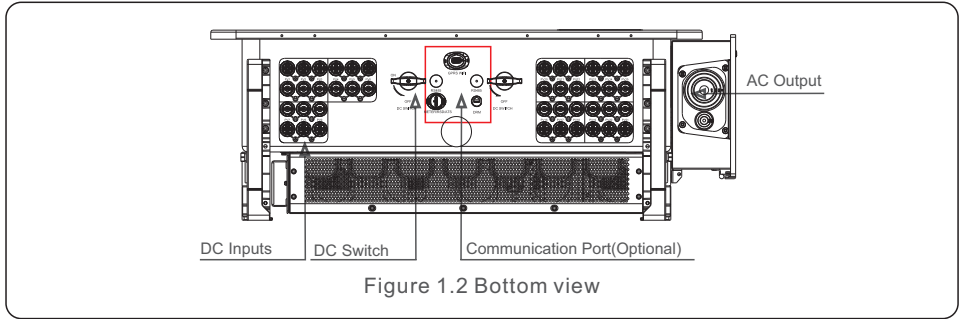
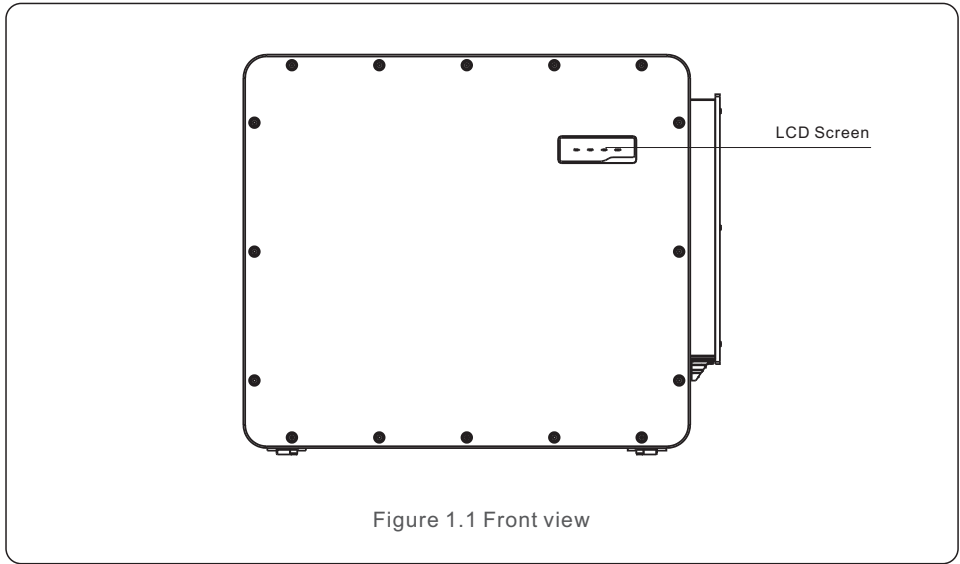
1. Introduction

1.1 Product Description

Solis Three phase Inverters covert DC power from the photovoltaic(PV) array into alternating current(AC) power that can satisfy local loads as well as feed the power distribution grid.

This manual covers the three phase inverter model listed below:

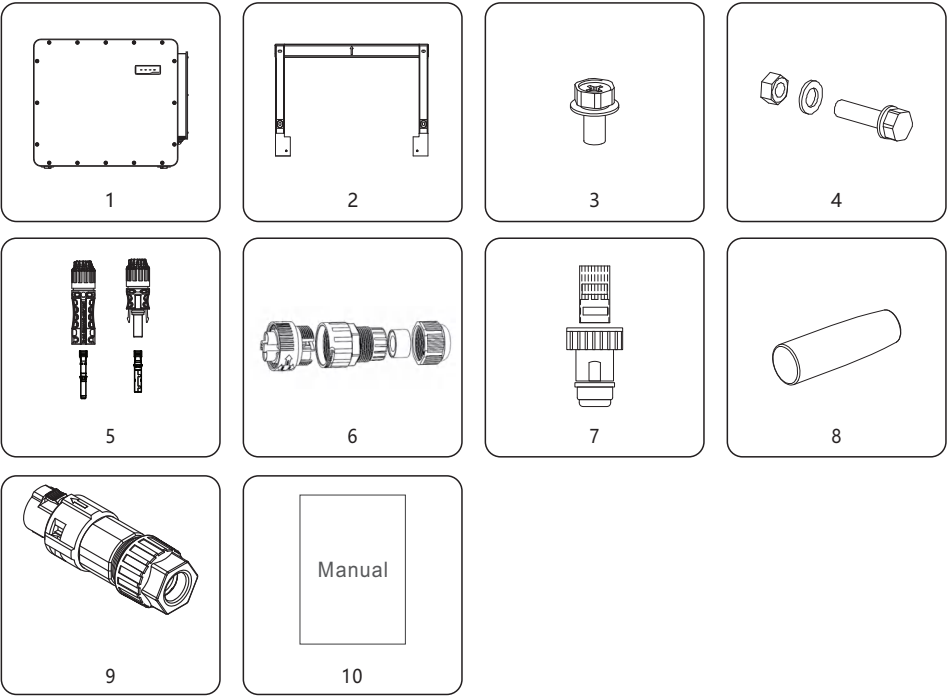
S6-GC3P150K07-NV-ND, S6-GC3P200K07-HV-ND, S6-GC3P80K07-LV-ND, S6-GC3P100K07-LV-ND



1. Introduction

1.2 Unpacking and storage

The inverter ships with all accessories in one carton.
When unpacking, please verify all the parts listed below are included:



Part #	Description	Number	Remarks
1	Inverter	1	
2	Mounting Bracket	1	
3	Fastening screw	2	Hexagon bolt M6*14
4	Fastening screw, hex nut and flat gasket	4	Hexagon bolt M10*40
5	DC connector	21	Screw M10X40, Hexagonal nut M10, flat pad 10
6	2 pin port	2	
7	RJ45 connector	1	
8	Handle	4	
9	16-pin COM connector	1	
10	User manual	1	

Inverter packing list

1. Introduction

1.2.1 Storage

If the inverter is not installed immediately, storage instructions and environmental conditions are below:

- Use the original box to repackage the inverter, seal with adhesive tape with the desiccant inside the box.
- Store the inverter in a clean and dry place, free of dust and dirt. The storage temperature must be between -40 - 70°C and humidity should be between 0 to 95%, non-condensing.
- Do not stack more than three (3) inverters high on a single pallet.
- Keep the box(es) away from corrosive materials to avoid damage to the inverter enclosure.
- For temporary outdoor storage, stacking of pallets is prohibited, and rain protection measures such as tarpaulins must be applied. Inverters shall be protected from erosion caused by rainwater or accumulated ground water.
- Inspect the packaging regularly. If packing is damaged (wet, pest damages, etc.), repackage the inverter immediately.
- Store inverters on a flat, hard surface -- not inclined or upside down.
- After 100 days of storage, the inverter and carton must be inspected for physical damage before installing. If stored for more than 1 year, the inverter needs to be fully examined and tested by qualified service or electrical personnel before using.
- Restarting after a long period of non-use requires the equipment be inspected and, in some cases, the removal of oxidation and dust that has settled inside the equipment will be required.



**DO NOT STACK
MORE THAN 3 HIGH**

Figure 1.3

2. Safety Instructions

Improper use may result in electric shock hazards or burns. This product manual contains important instructions that are required to be followed during installation and maintenance. Please read these instructions carefully before use and keep them in an easily locatable place for future reference.

2.1 Safety symbols

Safety symbols used in this manual, which highlight potential safety risks and important safety information, are listed below:



WARNING

Symbol indicates important safety instructions, which if not correctly followed, could result in serious injury or death.



NOTE

Symbol indicates important safety instructions, which if not correctly followed, could result in damage to or the destruction of the inverter.



CAUTION, RISK OF ELECTRIC SHOCK

Symbol indicates important safety instructions, which if not correctly followed, could result in electric shock



CAUTION, HOT SURFACE

Symbol indicates safety instructions, which if not correctly followed, could result in burns.

2.2 General safety instructions



WARNING

Do not connect PV array positive (+) or negative (-) to ground – doing so could cause serious damage to the inverter.



WARNING

Electrical installations must be done in accordance with local and national electrical safety standards.



WARNING

To reduce the risk of fire, branch circuit over-current protective devices (OCPD) are required for circuits connected to the Inverter.



CAUTION

The PV array (solar panels) supplies a DC voltage when exposed to light.

2. Safety Instructions



CAUTION

Risk of electric shock from energy stored in the inverter's capacitors. Do not remove cover until 20 minutes after disconnecting all sources of supply have passed, and this can only be done by a service technician. The warranty may be voided if any unauthorized removal of cover occurs.



CAUTION

The inverter's surface temperature can reach up to 70°C. To avoid risk of burns, do not touch the surface when the inverter is operating. Inverter must be installed out of the reach of children.



WARNING

The inverter can only accept a PV array as a DC input. Using any other type of DC source could damage the inverter.

2.3 Notice for use

The inverter has been constructed according to applicable safety and technical guidelines. Use the inverter in installations that meet the following requirements ONLY:

- 1). The inverter must be permanently installed.
- 2). The electrical installation must meet all the applicable regulations and standards.
- 3). The inverter must be installed according to the instructions stated in this manual.
- 4). The system design must meet inverter specifications.
- 5). The inverter can only be used for industrial.

To start-up the inverter, the Grid Supply Main Switch (AC) must be turned on, BEFORE the DC Switch is turned on. To stop the inverter, the Grid Supply Main Switch (AC) must be turned off before the DC Switch is turned off.

2.4 Notice for Disposal

This product shall not be disposed of with household waste. They should be segregated and brought to an appropriate collection point to enable recycling and avoid potential impacts on the environment and human health. Local rules in waste management shall be respected.



3. Installation

3.1 Environmental considerations

3.1.1 Select a location for the inverter

When selecting a location for the inverter, consider the following:



WARNING: Risk of fire

Despite careful construction, electrical devices can cause fires.

- Do not install the inverter in areas containing highly flammable materials or gases.
- Do not install the inverter in potentially explosive atmospheres.
- The mounting structure where the inverter is installed must be fireproof.

- The temperature of the inverter heat-sink can reach 75°C.
- The inverter is designed to work in an ambient temperature range between -30 to 60°C.
- If multiple inverters are installed on site, a minimum clearance of 700mm should be kept between each inverter and all other mounted equipment. The bottom of the inverter should be at least 700mm above of the ground or floor (see Figure 3.1).
- The LED status indicator lights located on the inverter's front panel should not be blocked.
- Adequate ventilation must be present if the inverter is to be installed in a confined space.
- When multiple inverters are installed, horizontal installation is recommended. The spacing for horizontal installation is 700 mm.
- If multiple inverters are stacked, the following figure shows the installation distance between inverters.
- When inverters are installed back-to-back, the distance between two inverters must be at least 700 mm.

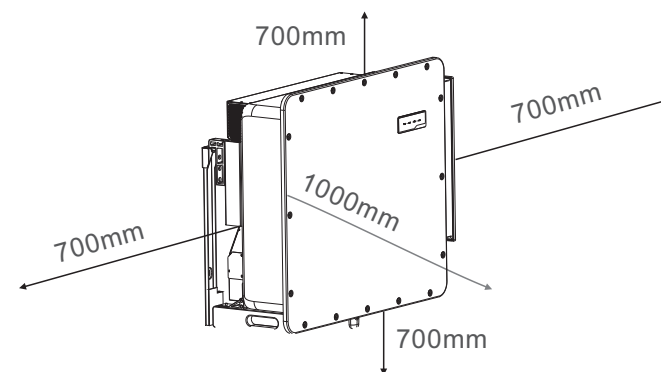


Figure 3.1 Distances required between inverters

3. Installation

3. Installation

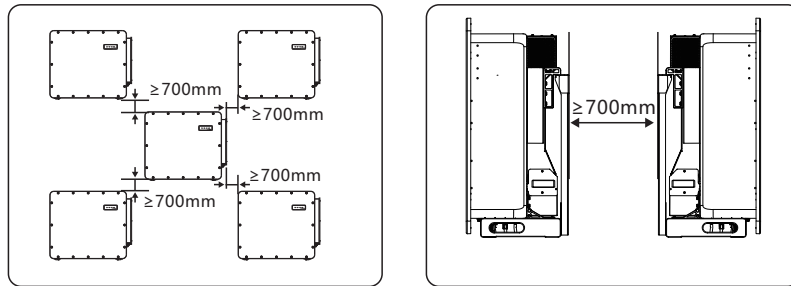


Figure 3.2 Distances required between inverters



NOTE

Nothing should be stored on or placed against the inverter.

3.1.1.1 Examples of correct and incorrect installations

Ingress protection: IP66

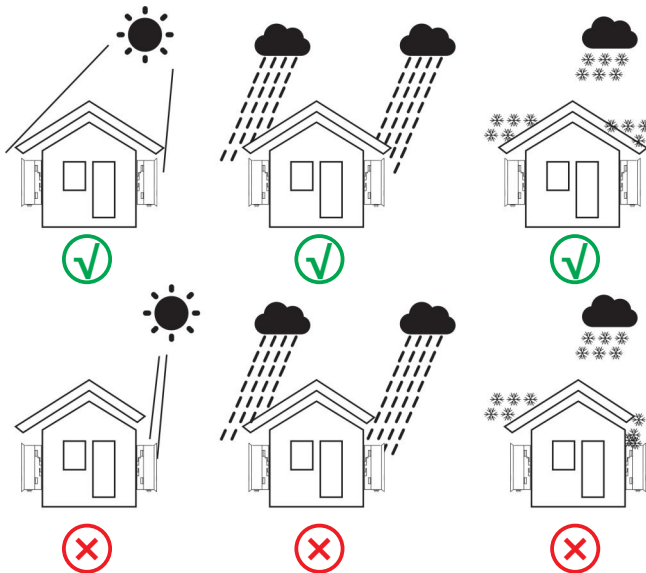


Figure 3.3 Recommended Installation locations

3.1.2 Other environmental considerations

3.1.2.1 Consult technical data

Consult the specifications section (section 9) for additional environmental conditions (protection rating, temperature, humidity, altitude, etc.).

3.1.2.2 Avoiding direct sunlight

Installation of the inverter in a location exposed to direct sunlight should be avoided.

Direct exposure to sunlight could cause:

- Power output limitation (with a resulting decreased energy production by the system).
- Premature wear of the electrical/electromechanical components.
- Premature wear of the mechanical components (gaskets) and user interface.

3.1.2.3 Air circulation

The inverter shall be installed in a well-ventilated environment to ensure effective heat dissipation.

If the inverter is installed in an enclosed space, heat dissipation or ventilation devices shall be fitted to ensure that the indoor ambient temperature during operation does not exceed the outdoor ambient temperature.

It is recommended to select an installation location with shelter or build a sunshade to avoid direct sunlight. Sufficient space for installation and heat dissipation shall be reserved around the inverter.

3.1.2.4 Flammable substances

It is strictly prohibited to install inverters in areas containing flammable, explosive or corrosive substances to prevent personal injury or property damage.

3.1.2.5 Living area

The inverter generates noise during operation, so it is not recommended to install it in living areas.

If installation in a living area is unavoidable, the installation position shall be at least 40 meters away from noise-sensitive areas, or noise reduction measures shall be adopted. It is strictly prohibited to install the inverter on carriers that may cause resonance, so as to prevent noise generated during its operation from disturbing residents in living areas.

If the inverter is installed in a densely vegetated location, the ground beneath the inverter needs to be renovated, for example by laying cement or gravel (the recommended area is 3m × 2.5m), and regular weeding shall be carried out. The load-bearing capacity of the installation carrier shall be at least four times the weight of the inverter to prevent personal injury or property damage caused by collapse of the installation carrier or other factors.

3. Installation

3.2 Product handling

Please review the instruction below for handling the inverter:

1. The red circles below denote cutouts on the product package.
Push in the cutouts to form handles for moving the inverter around 135KG.

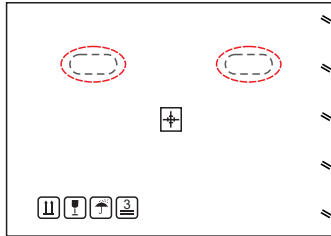


Figure 3.4 Handles used to move the inverter shown circled in red

2. Two people are required to remove the inverter from the shipping box. Use the handles integrated into the heat sink to remove the inverter from the carton (see Figure 3.5).

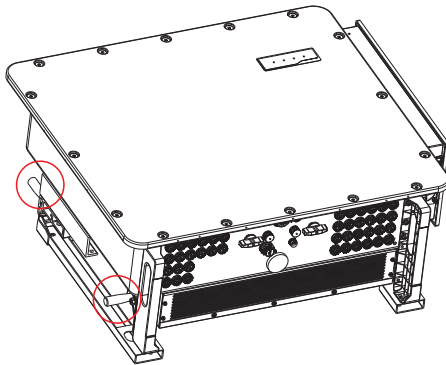


Figure 3.5 Inverter handles



WARNING

Due to the weight of the inverter, contusions or bone fractures could occur when incorrectly lifting and mounting the inverter. When mounting the inverter, take the weight of the inverter into consideration. Use a suitable lifting technique when mounting. When installers are carrying the inverter, please use 4 handles to secure safety. Lifting force of each handle shall not exceed 1.5 times of the inverter weight.

3. Installation

In case of using hoisting to lift the inverter, fix the hoisting cable to the hanger shown in the graph. Please make a reasonable selection of hoisting equipment considering the inverter weight of 105kg.

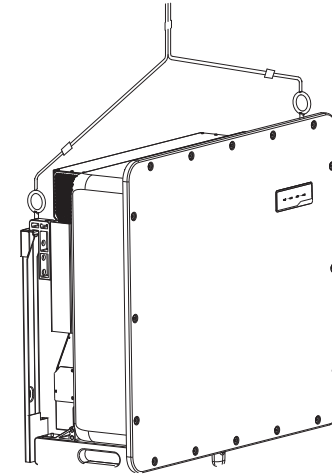
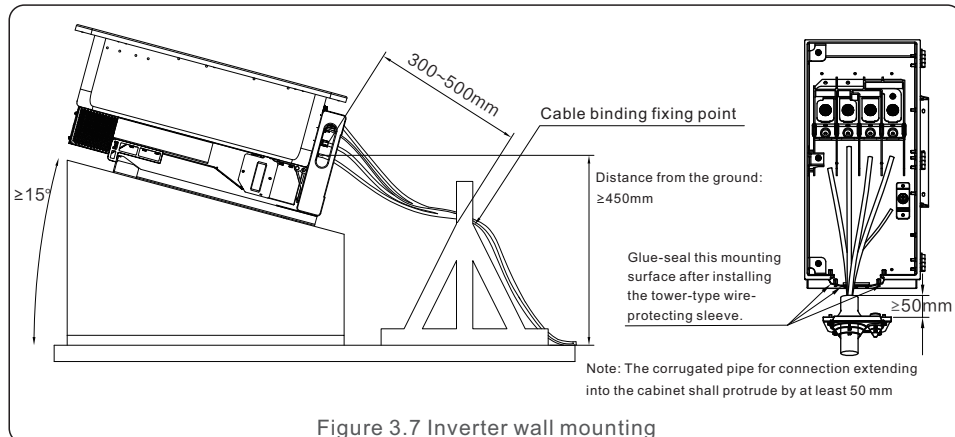


Figure 3.6 Hoisting sketch

3. Installation

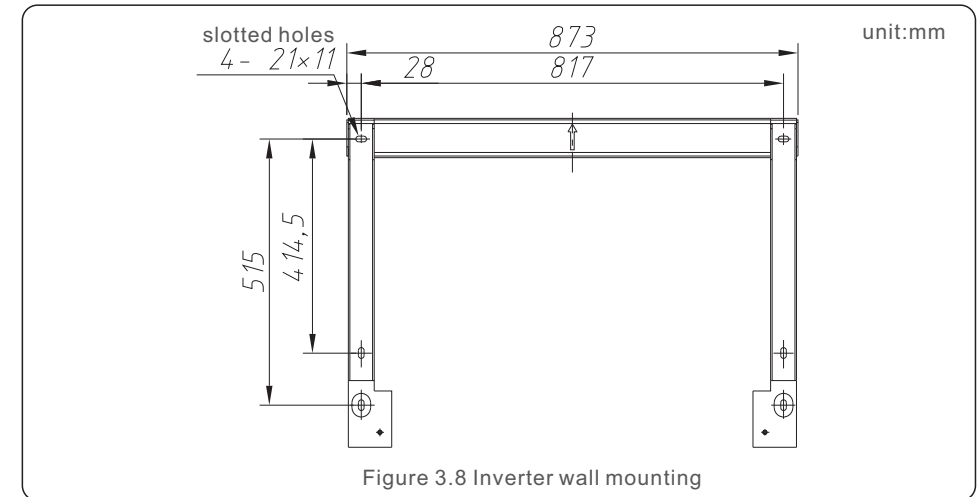
3.3 Mounting the Inverter

- Local climatic conditions shall be taken into account, and rain-proof, snow-proof and other measures shall be adopted when necessary. If the ambient temperature remains below zero for a long time, install the inverter in a place sheltered from rain and snow or fit a canopy above the inverter. The canopy shall be installed 50 cm higher than the inverter.
- The installation angle between the inverter and the mounting roof shall be $\geq 15^\circ$.
- The distance between the bottom DC terminal and the ground shall be ≥ 450 mm.
- Cables shall be bound and fixed at a position 300~350 mm away from the DC terminals and AC terminals to prevent loose waterproof terminals caused by cable sagging and vibration, which may degrade the protection rating of the product.
- Tighten each waterproof terminal in accordance with the torque requirements shown in the figure below to ensure proper fastening and good sealing.
- Keep cables naturally straight and avoid subjecting cables to stress.



3. Installation

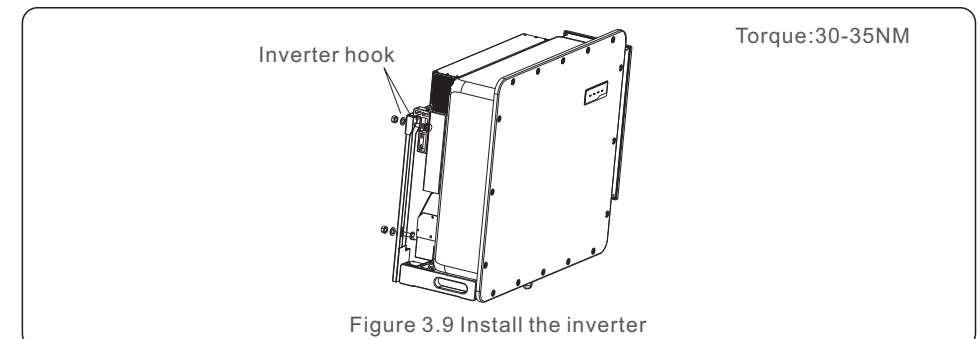
The inverter can be mounted to the wall or metal array racking. The mounting holes should be consistent with the size of the bracket or the dimensions shown in Figure 3.8.



3.3.1 Wall mounting

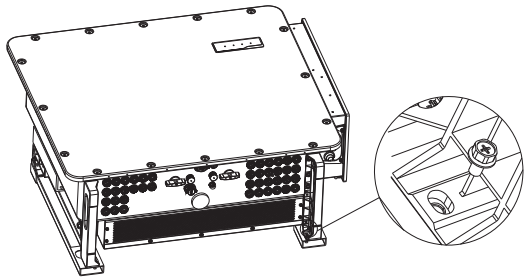
Inverter shall be mounted vertically. The steps to mount the inverter are listed below.

- Refer to Figure 3.9, drill holes for mounting screws based on the hole diameter of bracket using a precision drill keeping the drill perpendicular to the wall. Max depth is 3.8 in.
- Make sure the bracket is horizontal. And the mounting holes are marked correctly. Drill the holes into wall at your marks.
- Use the suitable mounting screws to attach the bracket on the wall.
- Lift the inverter and hang it on the bracket, and then slide down to make sure they match perfectly.



3. Installation

5. Use screws in the packaging to fix the inverter to the mount bracket.



Fixing screw M6x14
Quantity: 2
Torque:2-3NM

Figure 3.10 Fix the inverter

3.4 Electrical Connections

Inverter design uses PV style quick-connect terminal. The top cover needn't be opened during DC electrical connection. The labels located the bottom of the inverter are described below in table 3.1. All electrical connections are suitable for local or national standard.

Parts	Connection	Cable size	Torque
DC terminal	PV strings	4-6mm ²	NA
Ground terminal	AC ground	35-50mm ² (> 1/2 cross-sectional area of phase wire)	10-12N.m
Grid terminal	Grid	95-400mm ²	10-20N.m
RS-485 terminal	Communication cable	0.5-0.75mm ²	0.6N.m
RJ45 terminal	Communication cable	Ethernet cable	NA
COM terminal	Datalogger	NA	NA
DC SPD	NA	NA	NA

Table 3.1 Electrical connection symbols

The electrical connection of the inverter must follow the steps listed below:

1. Switch the Grid Supply Main Switch (AC) OFF.
2. Switch the DC Isolator OFF.
3. Ensure proper grounding of the inverter.
4. Connect AC grid cable to the inverter.
5. Connect PV strings to the Inverter.

3. Installation

3.4.1 Grounding

To effectively protect the inverter, two grounding methods must be performed.

Connect the AC grounding cable (Please refer to section 3.4.3)

Connect the external grounding terminal.

To connect the grounding terminal on the heat sink, please follow the steps below:

- 1) Prepare the grounding cable: recommend to use the outdoor copper-core cable. The grounding wire should be at least half size of the hot wires.
- 2) Prepare OT terminals: M10.



Important:

For multiple inverters in parallel , all inverters should be connected to the same ground point to eliminate the possibility of a voltage potential existing between inverter grounds.

- 3) Strip the ground cable insulation to a suitable length.

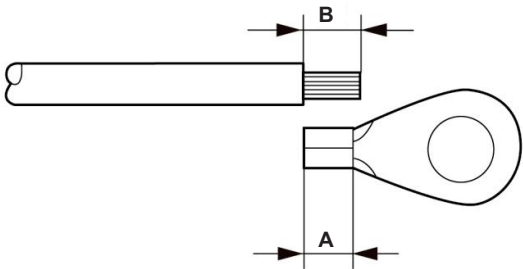


Figure 3.11 Suitable length



Important:

B (insulation stripping length) is 2mm~3mm longer than A (OT cable terminal crimping area) .

3. Installation

- 4) Insert the stripped wire into the OT terminal crimping area and use the hydraulic clamp to crimp the terminal to the wire.

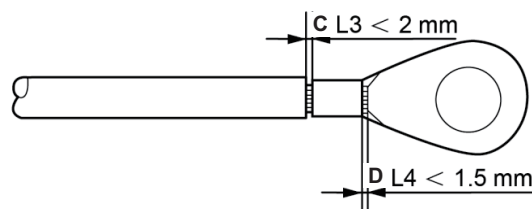


Figure 3.12 Strip wire

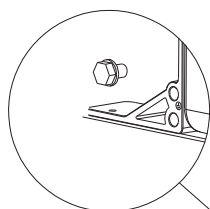


Important:

After crimping the terminal to the wire, inspect the connection to ensure the terminal is solidly crimped to the wire.

- 5) Remove the screw from the heat sink ground point.
6) Connect the grounding cable to the grounding point on the heat sink, and tighten the grounding screw, Torque is 10-12Nm.

Grounding Screw



Grounding Screw M10×20
Torque: 10-12N.m

Figure 3.13 Fixed cable



Important:

For improving anti-corrosion performance, after ground cable installed, apply silicone or paint.

3. Installation

3.4.2 Connect PV side of inverter



WARNING

Before connecting the inverter, make sure the PV array open circuit voltage is not more than 1100V. Otherwise, the inverter could be damaged.



WARNING

DO NOT connect the PV array positive or PV array negative cable to ground. This can cause serious damage to the inverter!



WARNING

MAKE SURE the polarity of the PV array output conductors matches the DC- and DC+ terminal labels before connecting these conductors to the terminals of the inverter.



WARNING

Please use the original DC MC4 terminals, otherwise the unqualified DC connectors may cause damages to the inverter.



Important:

The inverter has a DC fuseless design with internal overcurrent protection. It is not needed to install any external DC string fuses or DC circuit breakers. If customers want to have redundant protection, they can choose to install external DC overcurrent protection devices with 1.5~2.4 times of the string I_{mp} . External DC overcurrent protection devices shall comply with IEC/EN 60269-6.



NOTE:

DC terminal dust plugs are provided as original equipment. Cover unused string terminals promptly; otherwise, moisture may ingress over time.

Please see table 3.1 for acceptable wire size for DC connections. Wire must be copper only.

The steps to assemble the DC connectors are listed as follows:

1. Strip off the DC wire for about 7mm, Disassemble the connector cap nut.
2. Insert the wire into the connector cap nut and contact pin.

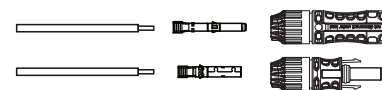


Figure 3.14 Disassemble the Connector Cap nut

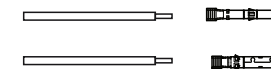


Figure 3.15 Insert the Wire into the Connector Cap nut and contact pin

- 3. Crimp the contact pin to the wire using a proper wire crimper.
- 4. Insert metal connector into top of connector, and tighten nut with torque 3-4 Nm.

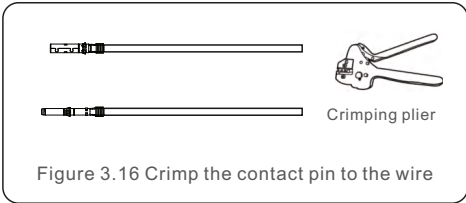


Figure 3.16 Crimp the contact pin to the wire

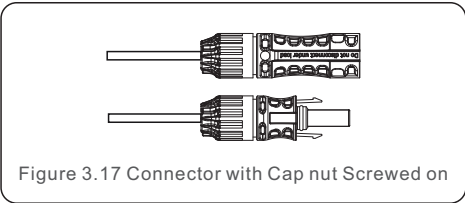


Figure 3.17 Connector with Cap nut Screwed on

- 5. Measure PV voltage of DC input with multimeter, verify DC input cable polarity (see figure 3.18), and ensure each string voltage is in range of inverter operation. Connect DC connector with inverter until hearing a slight clicking sound indicating successful connection. (see figure 3.19)

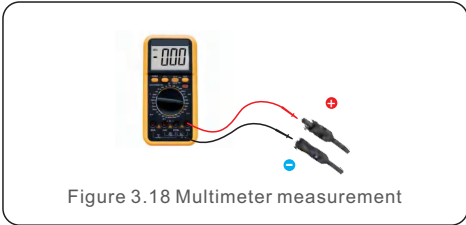


Figure 3.18 Multimeter measurement

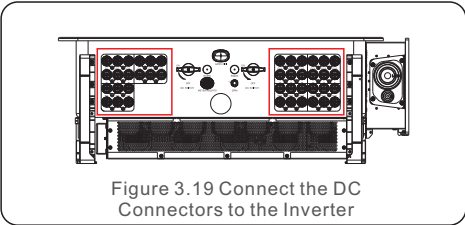


Figure 3.19 Connect the DC Connectors to the Inverter

Cable type	Traverse area (mm ²)		Outside diameter of cable (mm)
	Range	Recommended value	
Industry generic PV cable (model:PV1-F)	4.0~6.0 (12~10AWG)	4.0 (12AWG)	5.5~9.0



Caution: If DC inputs are accidentally reversely connected or inverter is faulty or not working properly, it is NOT allowed to turn off the DC switch. Otherwise it may cause DC arc and damage the inverter or even lead to a fire disaster. The correct actions are:

- *Use a clip-on ammeter to measure the DC string current.
- *If it is above 0.5A, please wait for the solar irradiance reduces until the current decreases to below 0.5A.
- *Only after the current is below 0.5A, you are allowed to turn off the DC switches and disconnect the PV strings.
- * In order to completely eliminate the possibility of failure, please disconnect the PV strings after turning off the DC switch to avoid secondary failures due to continuous PV energy on the next day.

Please note that any damages due to wrong operations are not covered in the device warranty.

- Requirements for the PV modules per MPPT input:
- All PV modules must be of the same type and power rating.
 - Please ensure the PV strings are evenly connected to the inverter and try to utilize all the MPPT trackers.
 - All PV modules must be aligned and tilted identically.
 - The open-circuit voltage of the PV array must never exceed the maximum input voltage of the inverter, even at the coldest expected temperature. (see section 9 “Specifications” for input current and voltage requirements)
 - The voltage difference between the two PV inputs within the same MPPT of the inverter shall not exceed 20 V. Connect two strings with identical PV voltages to the same MPPT, and strings with different voltages shall be separately connected to two different MPPTs.

3.4.2.1 DC connection high voltage danger notice



CAUTION
RISK OF ELECTRIC SHOCK

Do not touch an energized DC conductor. There are high voltages present when PV modules are exposed to light causing a risk of death due to an electric shock from touching a DC conductor!

Only connect the DC cables from the PV module to the inverter as described in this manual.



CAUTION
POTENTIAL DAMAGE TO THE INVERTER DUE TO OVERVOLTAGE

The DC input voltage of the PV modules must not exceed the maximum rating of the inverter. (see section 10 “Specifications”)

Check the polarity and the open-circuit voltage of the PV strings before connecting the DC cables to the inverter.

Confirm proper string length and voltage range before connecting DC cable to the inverter.

3. Installation

3.4.3 Connect grid side of inverter



WARNING

An over-current protection device must be used between the inverter and the grid.

1. Connect the three (3) AC conductors to the three (3) AC terminals marked "L1", "L2" and "L3". Refer to local code and voltage drop tables to determine the appropriate wire size and type.
2. Connect the grounding conductor to the terminal marked "PE" (protective earth, the ground terminal).
3. Connect the terminal marked "N": NV&LV models only . For HV model DO NOT connect.

Over-Current Protection Device (OCPD) for the AC side

To protect the inverter's AC connection line, we recommend installing a device for protection against over-current and leakage, with the following characteristics noted in Table 3.2 (The OCPD shall comply with IEC/EN60947-3):



NOTE

Use AL-CU transfer (bi-metallic) terminal or anti-oxidant grease with aluminum cables and terminals.

Inverter	Rated voltage(V)	Max. output current (Amps)	Current for protection device (A)
S6-GC3P150K07-NV-ND	220/380V,230/400V	250.6	300
S6-GC3P200K07-HV-ND	480V	240.6	300
S6-GC3P80K07-LV-ND	220/230V	209.9	250
S6-GC3P100K07-LV-ND	220/230V	251.0	300

Table 3.2 Rating of grid OCPD

3.4.3.1 Connecting the inverter to the utility grid

All electrical installations must be carried out in accordance with the local standards and the National Electrical Code® ANSI/NFPA 70 or the Canadian Electrical Code® CSA C22.1. The AC and DC electric circuits are isolated from the enclosure. If required by section 250 of the National Electrical Code®, ANSI/NFPA 70, the installer is responsible for grounding the system.

The grid voltage must be within the permissible range. The exact operating range of the inverter is specified in section 9 "Specifications".

3. Installation

3.4.3.2 Wiring procedure



CAUTION

RISK OF ELECTRIC SHOCK. Prior to starting the wiring procedure, ensure that the three-pole circuit breaker is switched off and cannot be reconnected.



NOTE

Damage or destruction of the inverter's electronic components due to moisture and dust intrusion will occur if the cable outer diameter doesn't match the grommet.



NOTE

Use M10 crimp terminals to connect to the inverter AC terminals.



CAUTION

Risk of fire if two conductors are connected to one terminal. If a connection of two conductors to a terminal is made, a fire can occur. NEVER CONNECT MORE THAN ONE CONDUCTOR PER TERMINAL.

Inverter	Max AC cable length(m)
S6-GC3P150K07-NV-ND	140
S6-GC3P200K07-HV-ND	155
S6-GC3P80K07-LV-ND	90
S6-GC3P100K07-LV-ND	70

Table 3.3

Cable specification		Live wire	Ground wire
Traverse cross sectional area (mm ²)	Range	70-400	35-50
	Recommended	120	50
Conduit diameter (mm)	Range	30-75	30-75



NOTE

Cable ampacity of ground wire should be more than half of cable ampacity of live wire.

3. Installation

- 1) Disconnect the AC circuit breaker and ensure it cannot be closed accidentally.
- 2) Strip the end of AC cable insulating jacket about 200mm then strip the end of each wire.

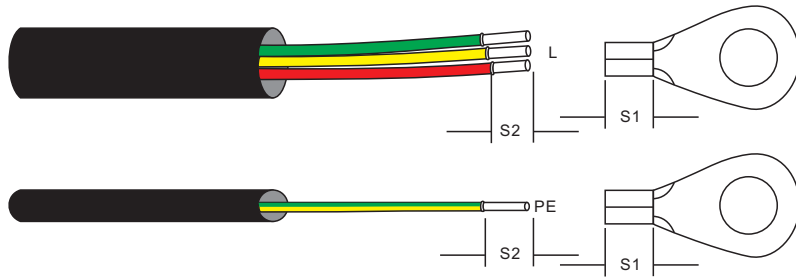


Figure 3.20 Strip AC cable



NOTE

S2 (insulation stripping length) is 2mm-3mm longer than S1.
(OT cable terminal crimping area)

- 3) Strip the insulation of the wire past the cable crimping area of the OT terminal, then use a hydraulic crimp tool to crimp the terminal. The crimped portion of the terminal must be insulated with heat shrinkable tube or insulating tape.



NOTE:

If choosing aluminum alloy cable, you must use copper aluminum transfer terminal in order to avoid direct contact between copper bar and Aluminum alloy cable. (Please select a copper aluminum transfer terminal based on your cable specification).

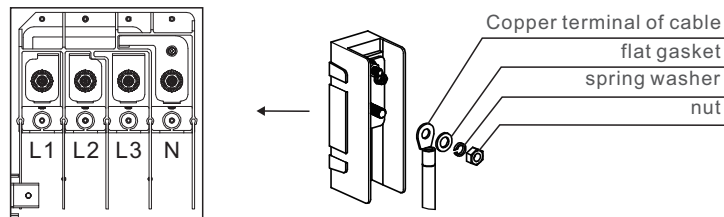


Figure 3.21 Copper aluminum transfer terminal

3. Installation

- 4) Loosen the three screws on the front door of the AC junction box and open the door.

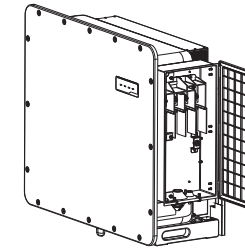


Figure 3.22 Open AC junction door

- 5) Select the matching cable grommet according to the wire gauge of the AC cable, pass the cable through the grommet, and use a socket wrench to connect L1, L2, L3 and N of the inverter to A, B, C and N on the AC side in turn. The torque is as follows:
L1 L2 L3 are using M12 terminal screws and the torque is 20-30 N·m.

N is using M12 terminal screws with torque of 20-30 N·m and M6 terminal screws with torque of 5-7 N·m.

PE is using M10 terminal screw with torque of 12-16 N·m.

Note: For wiring in systems with unbalanced three-phase loads, ensure the phase sequence of primary and secondary units is consistent and the N line must be connected.

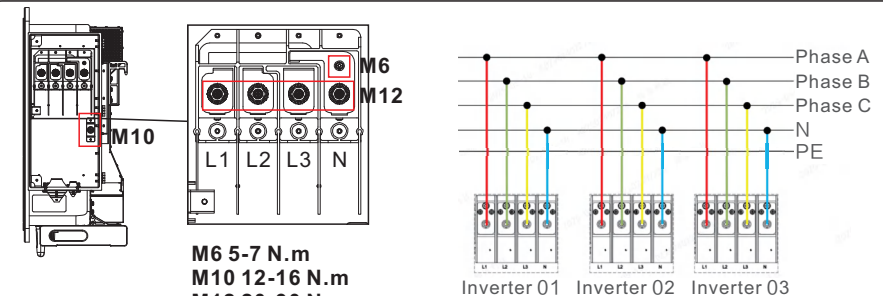


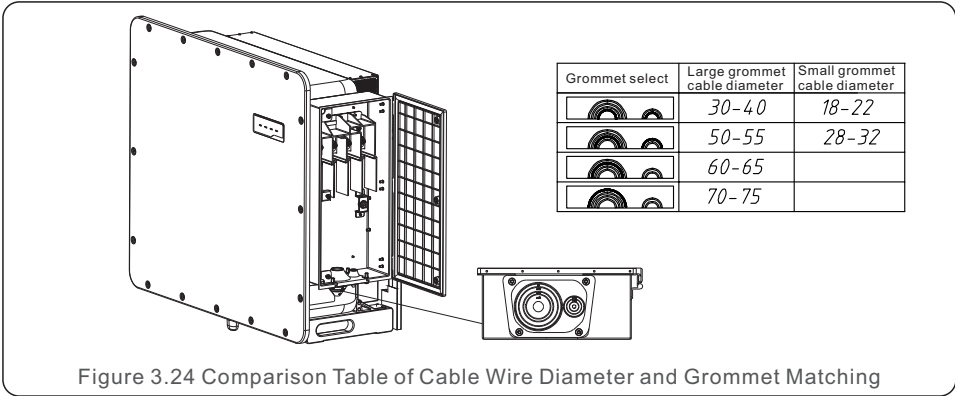
Figure 3.23 Fasten the AC terminal



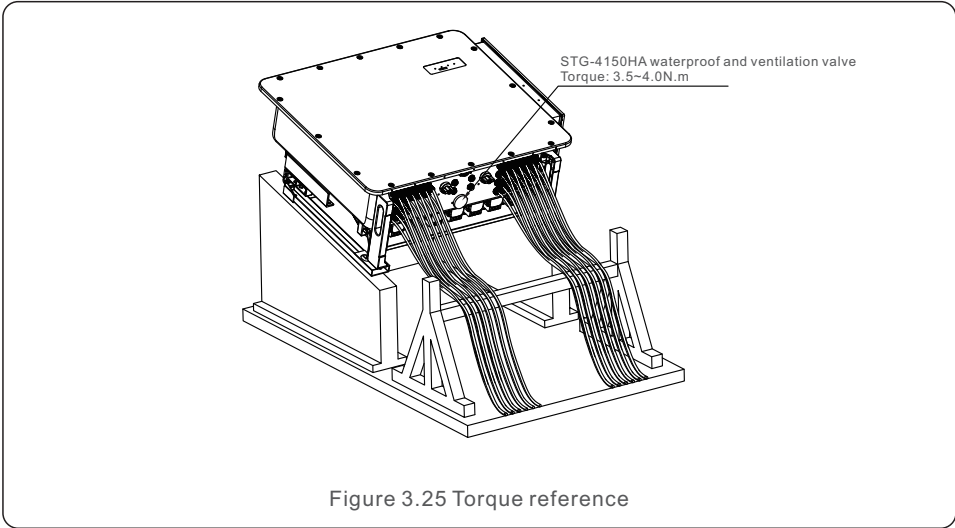
NOTE

Transformer needs to be connected during installation.

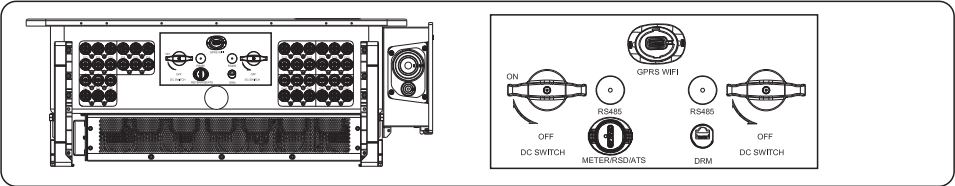
3. Installation



6. Refer to the drawing below for the torque of the vent valve and waterproof connector



4. Comm. & Monitoring



There are 5 communication terminals on the inverters.

Port No	Silkscreen printing	Description
1	GPRS WIFI	Special USB port for datalogger
2	RS485	2 ports in total for RS485 communication connection between inverters, multiple inverters can be monitored by daisy chain topology.
3	METER/RSD/ATS	Used for external meter, rapid shutdown devices, other communication equipment, optional primary-secondary control function, etc. The pin definition is shown in the table below(Section 4.1).
4	DRM	Used for DRM connection or the AC Source Box connection of the Primary-Secondary EPM function.

4.1 RS485 and PLC communication connection

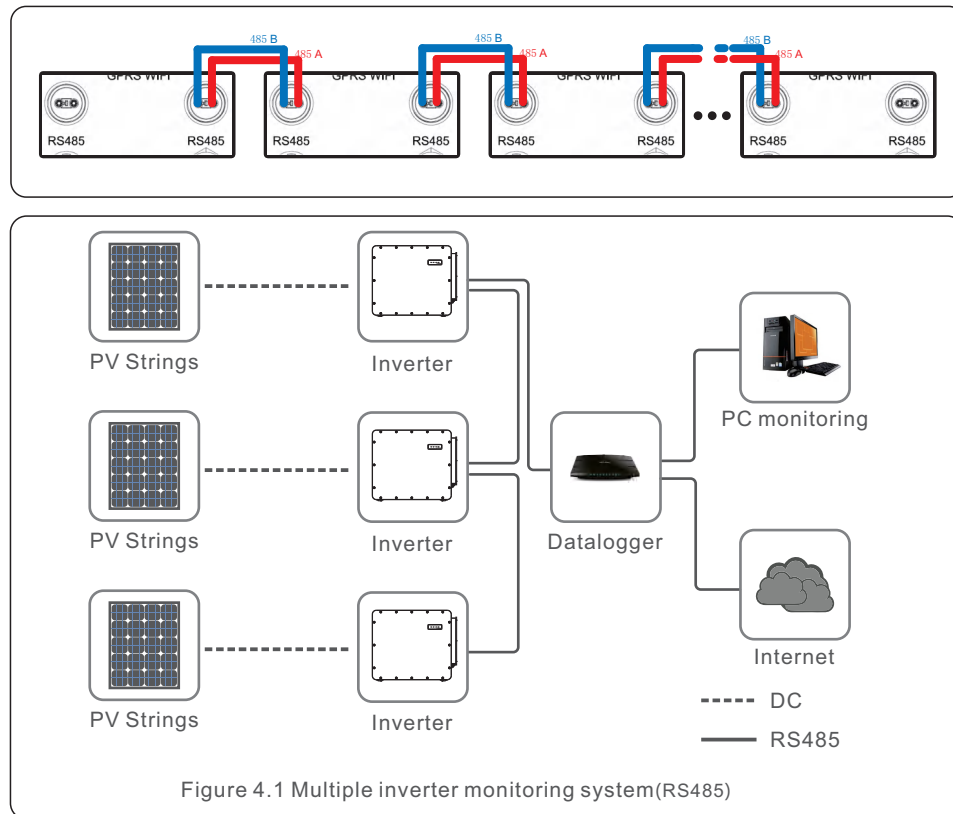
Monitoring system for multiple inverters

The inverter assembly will include a 16-pin connector for the METER/RSD/ATS 16-pin port. The pin definition is shown in the figure below(PC-485-IN/OUT are only used for Primary-Secondary EPM daisy-chaining and shall not be used for external 485 communication). When facing the connector, Pin 1 is on the first row on the left.

Pin number	Definition	Description
1	PC-485-IN	485 B
2		485 A
3		GND
4	Meter-2	A
5		B
6	ATS-IN	0V
7		5V
8	Meter	A
9		B
10	RSD	RSD+
11		RSD-
14	PC-485-OUT	485 B
15		485 A
16		GND

4. Comm. & Monitoring

Multiple inverters can be monitored through RS-485 daisy chain configuration.

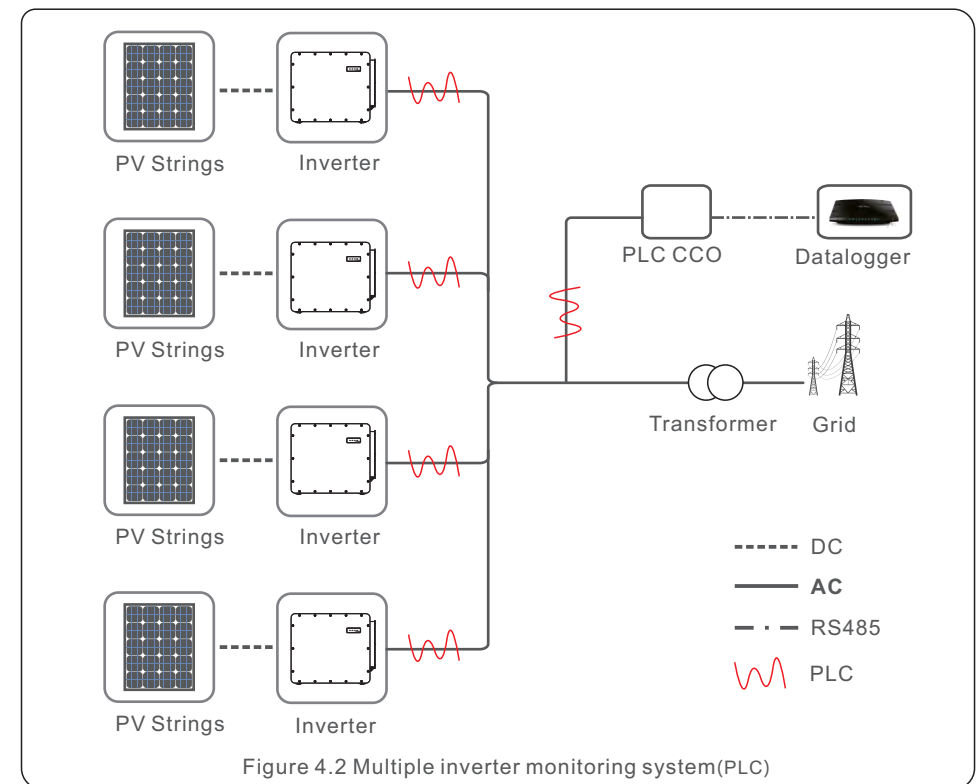


NOTE

One of the RS485 and PLC communication methods is available.

4. Comm. & Monitoring

PLC is available for multiple inverter monitoring.



4. Comm. & Monitoring

4.2 Inverter remote monitoring connection

You can remotely monitor the inverter via Wi-Fi, LAN or 4G.

The USB COM port at the bottom of the inverter can be connected to multiple Solis dataloggers to enable remote monitoring on the SolisCloud platform.

Refer to the corresponding user manual of the Solis datalogger for its installation instructions.

The Solis datalogger is an optional accessory available for separate purchase.

A dust cover is supplied with the inverter package to seal unused ports.



WARNING

USB COM port is only allowed to be connected to the Solis datalogger.
Do not use for other purposes.

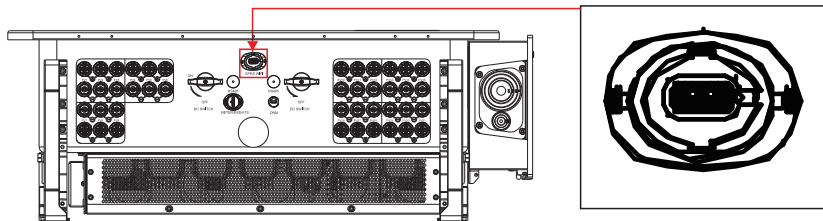


Figure 4.3

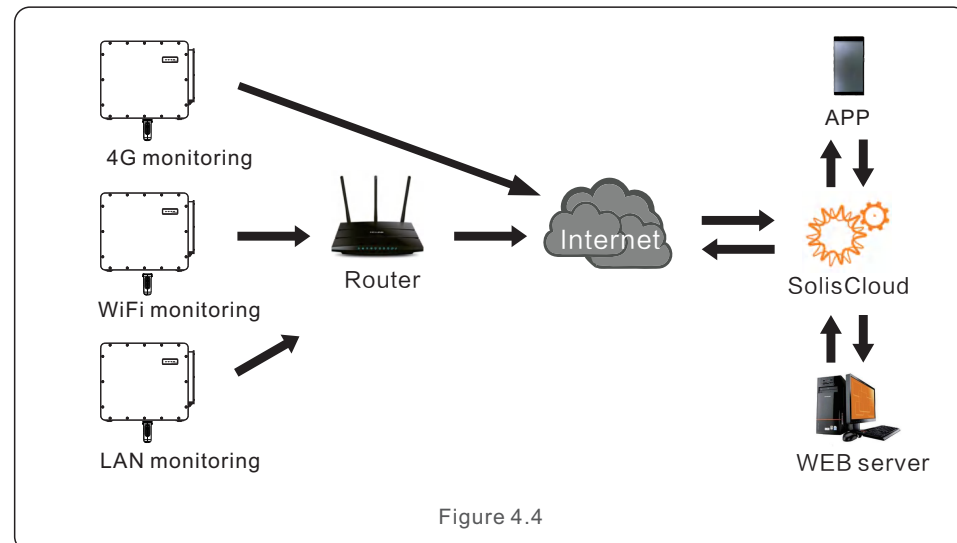


Figure 4.4

4. Comm. & Monitoring

4.3 Logic interface connection

Logic interface is required by some local regulations that can be operated by a simple switch or contactor (Not available in South Africa).

When the switch is closed the inverter can operate normally. When the switch is opened, the inverter will reduce its output power to zero within 5s.

Pin5 and Pin6 of RJ45 terminal is used for the logic interface connection.

Please follow below steps to assemble RJ45 connector.

1. Insert the network cable into the communication connection terminal of RJ45.

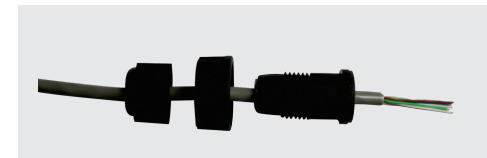


Figure 4.5 RJ45 communication connection terminals

2. Use the network wire stripper to strip the insulation layer of the communication cable.

According to the standard line sequence of figure 4.6 connect the wire to the plug of RJ45, and then use a network cable crimping tool to make it tight.

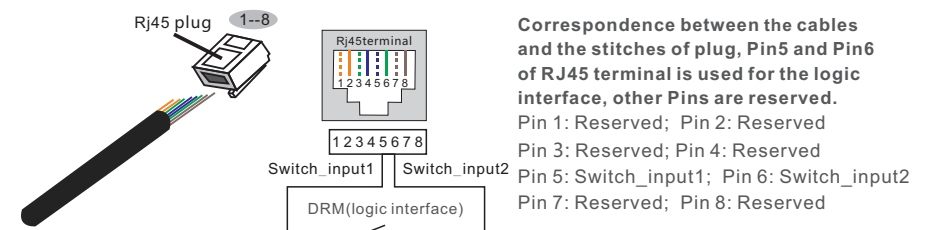


Figure 4.6 Strip the insulation layer and connect to RJ45 plug

3. Connect RJ45 to DRM (logic interface).

5. Commissioning

5.1 Preparation

- Ensure all the devices are accessible for operation, maintenance and service.
- Check and confirm that the inverter is firmly installed.
- Space for ventilation is sufficient for one inverter or multiple inverters.
- Nothing is left on the top of the inverter.
- Inverter and accessories are correctly connected.
- Cables are routed in safe place or protected against mechanical damage.
- Warning signs and labels are suitably affixed and durable.
- An Android or IOS mobile phone with Bluetooth function is available.
- Download and install the latest SolisCloud APP on the mobile phone

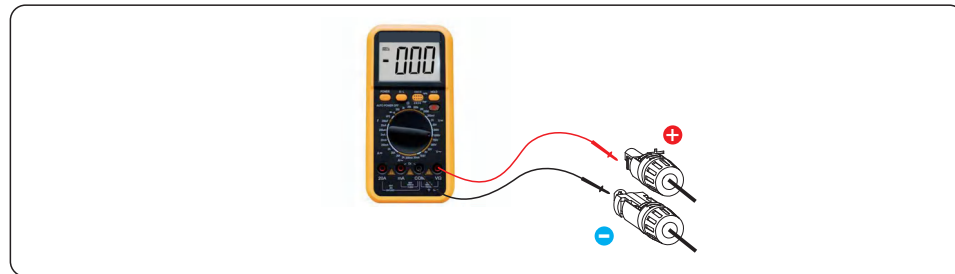
There are three ways to download and install the latest APP:

1. You can visit "www.soliscloud.com" to download the latest version APP.
2. You can search "Soliscloud" in Google Play or App Store.
3. You can scan this QR code below to download "Soliscloud"



5.2 Start and Shutdown

Step 1: Measure DC voltage of PV strings and ensure the polarity is correct.



Step 2: Measure AC voltage and frequency and ensure they are within local standard.

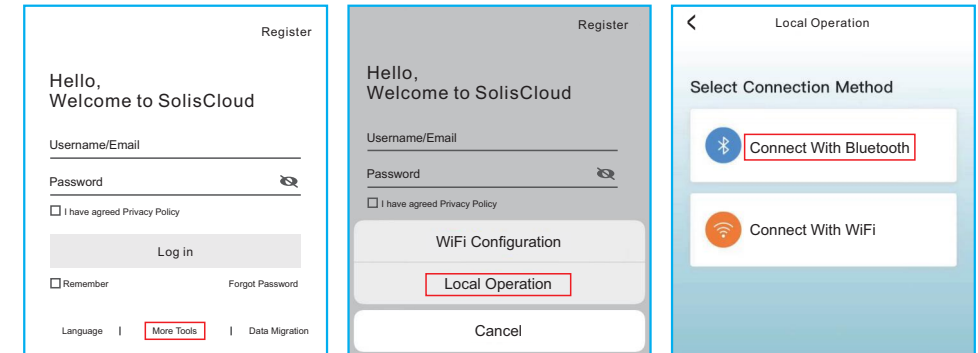
Step 3: Switch on the external AC circuit breaker to power on the inverter.
(Bluetooth signal available)

5. Commissioning

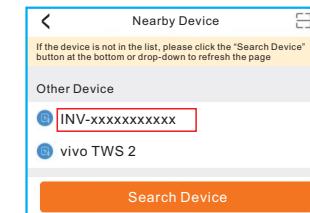
Step 4: **APP Bluetooth connection with inverter.**

Turn on Bluetooth switch on your mobile phone and then open the Soliscloud APP.

Click 'More Tools' -> 'Local Operation' -> 'Connect with Bluetooth'

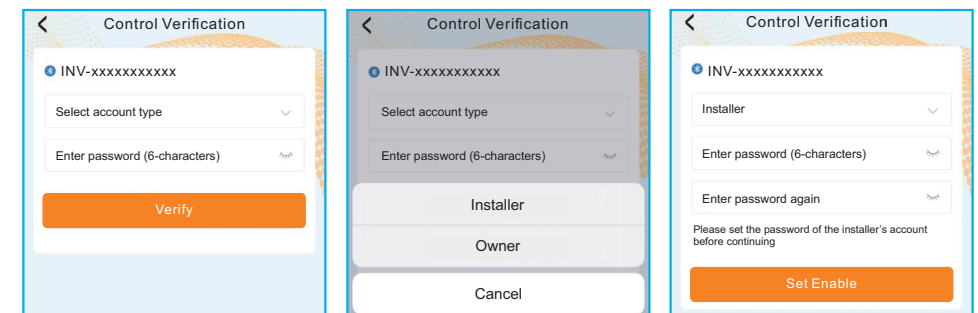


Step 5: Select the Bluetooth signal from the inverter. (Bluetooth Name: INV-Inverter SN)



Step 6: **Login account.**

If you are the installer, please select the account type as Installer. If you are the plant owner, please select the account type as owner. Then set your own initial password for control verification. (The first log-in must be finished by installer in order to do the initial set up)



5. Commissioning

Step 7: After first log-in, initial setup is required.

Step 7.1: **Date and time setting**

It can be set to synchronize with the time on the mobile phone.

Step 7.2: **Grid code setting**

Select the grid code in accordance with local power grid requirements.

Step 8: **Finish settings**

It can be set to synchronize with the time on the mobile phone.

Now the initial settings are completed. You can turn on the DC switch of the inverter to start up the inverter.

You can also browse in the APP to check operating data, alarm messages or other advanced settings.

Step 9: **Change password**

If the owner forgets the password, please contact the installer. After logging in, the installer shall enter 'Settings' -> 'More' -> 'Change Password' to reset the password for the owner's account.

If the installer forgets the password, please contact the Solis Service Team.

5.3 Start-up procedure

To start-up the inverter, it is mandatory that the steps below are followed in the exact order outlined.

1. Ensure the commissioning checks in Section 5.1 and 5.2 have been performed.
2. Switch the AC switch ON.
3. Switch the DC switch ON. If the PV array (DC) voltage is higher than the inverter's start-up voltage, the inverter will start to run. The red POWER LED indicator will be continuously lit.
4. When the inverter detects DC power that is within start-up and operating ranges, the inverter will run.
After running, the inverter will check internal parameters, sense and monitor AC voltage, frequency and the stability of the supply grid.
During this period, the green OPERATION LED indicator will flash.
This means that the inverter is preparing to generate AC power.
5. After the locally mandated delay (300 seconds for IEEE-1547 compliant inverters), the inverter will start to generate AC power. The green OPERATION LED indicator will be continuously lit.

5. Commissioning



CAUTION

The inverter's surface temperature can reach up to 75°C (167°F). To avoid risk of burns, do not touch the surface when the inverter is in the operational mode. Additionally, the inverter must be installed out of the reach of children.

5.4 Shutdown procedure

To stop the inverter, it is mandatory that the steps below are followed in the exact order outlined.

1. APP Bluetooth connection with inverter, and the blue LED indicator will flash. Shut down the inverter in the SolisCloud APP.
2. Turn off the AC Switch between the inverter and grid.
3. Wait approximately 30 seconds (during this time, the AC side capacitors are dissipating energy). If the inverter has DC voltage above the start-up threshold, the red POWER LED indicator will be lit. Switch off the DC switch.
4. Confirm all LED indicators are off (after about one (1) minute)



CAUTION

Although the inverter DC switch is in the OFF position and all the LED indicators are OFF, operators must wait for five (5) minutes after the DC power source has been disconnected before opening the inverter cabinet.

6. Normal operation

6.1 APP Download

Users need to download the APP before installing it for the first time.

There are three ways to download and install the latest APP:

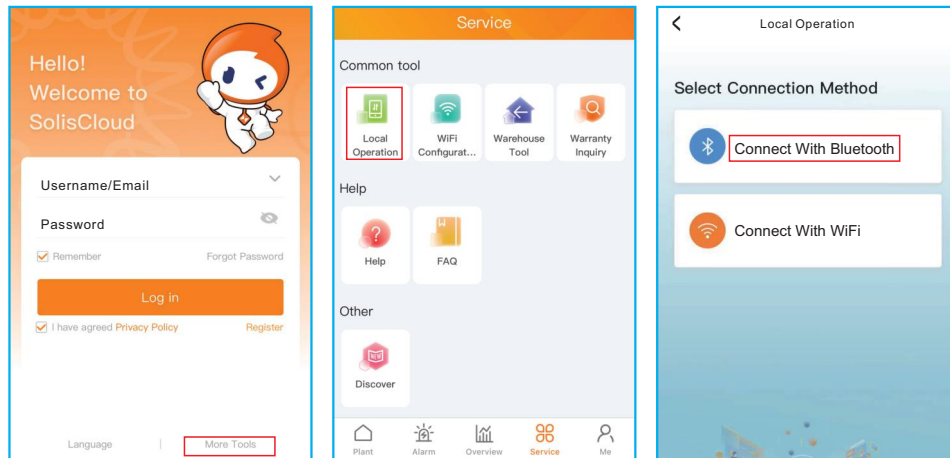
1. You can visit www.soliscloud.com to download the latest version APP.
2. You can search "Soliscloud" in Google Play or App Store.
3. You can scan this QR code below to download "Soliscloud".



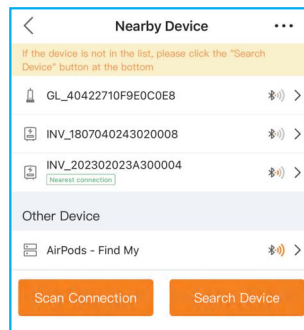
6.2 Log in the APP via bluetooth

Step 1: **Connect with Bluetooth.**

Turn on Bluetooth switch on your mobile phone and then open the Soliscloud APP.
Click "More Tools"->"Local Operation"->"Connect with Bluetooth"



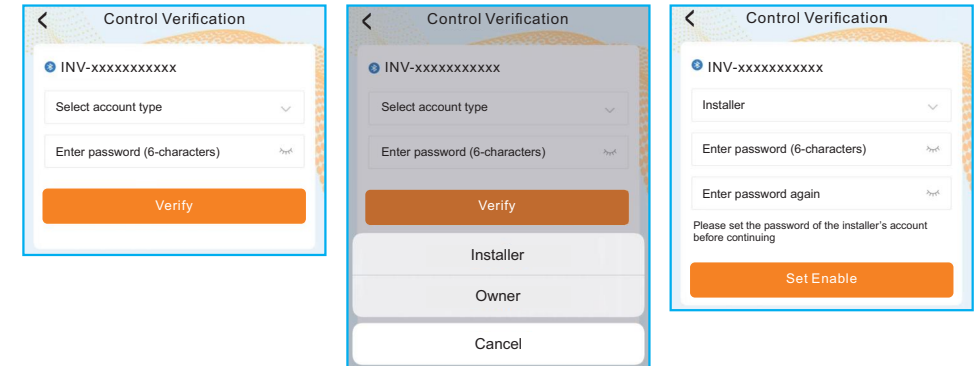
Step 2: Select the Bluetooth signal from the inverter. (Bluetooth Name: INV-Inverter SN)



6. Normal operation

Step 3: **Login account.**

If you are the installer, please select the account type as Installer. If you are the plant owner, please select the account type as owner. Then set your own initial password for control verification. (The first log-in must be finished by installer in order to do the initial set up)



Step 4: Perform the setting configuration for Grid CodeSetting, etc.

Step 5: Switch on the AC breaker, wait till the inverter start generating.

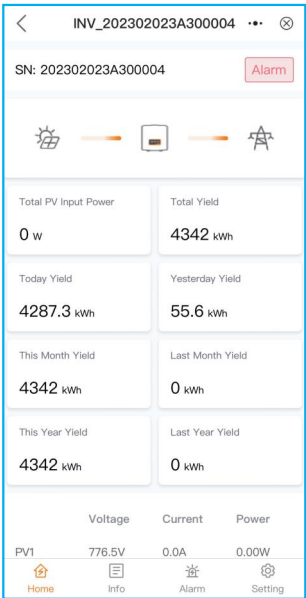
6. Normal operation

The APP interface contains 4 sections:

- 1. Home
- 2. Info
- 3. Alarm
- 4. Settings

6.3 Home Page

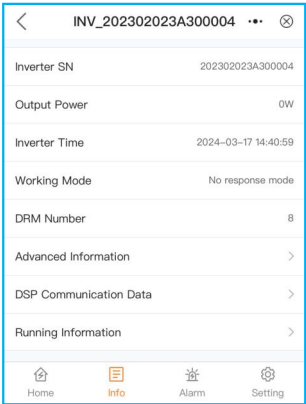
The home page contains the power and energy data of the inverter.
The PV data and AC data are also available under this section.



6. Normal operation

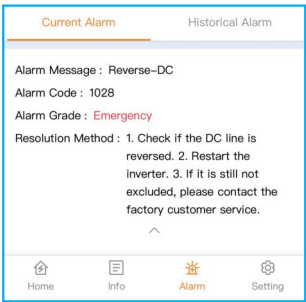
6.4 Info Page

Info page displays the general information of the inverter such as inverter serial number, firmware version, grid code, etc.



6.5 Alarm Page

Alarm page contains the alarm code of the inverter and its corresponding troubleshooting methods.

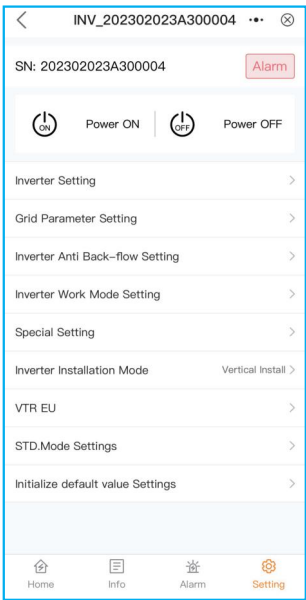


6. Normal operation

6.6 Setting Page

Setting page contains all the setting options of the inverter.

Functions	Setting Path
Switch on/off the inverter	Settings -> "Power ON" & "Power OFF"
Change inverter time setting	Settings -> Inverter Setting-> Inverter Parameter Setting -> Inverter Time Setting
Change inverter output power percentage or power factor	Settings -> Inverter Setting-> Inverter Power Setting
Set grid code and protection parameters	Settings -> Grid Parameter Setting -> Grid Code Setting
Set Export Power control	Settings -> EPM Setting
Set grid code related working modes	Settings -> Inverter Work Mode Setting -> Work Mode



NOTE:

The inverter is by default setting with grid code which complies with local requirements. If there is need to modify the protection limits, please consult and approve by your local grid operator.

6. Normal operation

6.7 EPM Setting(Optional)

Solis inverters have optional export power management (EPM) solutions. For scenarios with requirements on grid feed-in power, this function can ensure grid safety and comply with electricity usage specifications within the scope of regulatory standards.

Solution 1: When the on-site grid-connected point is three-phase, and a meter should be equipped.

Solution 2: When three-phase power grid is connected on site. Meteorological meters or other third-party devices are required, and the number of inverters is not more than 45.

Solution 3: When three-phase power grid is connected on site. Meteorological meters or other third-party devices are required, and the number of inverters is not more than 105.

Solution 4: When the on-site grid-connected point is three-phase, and a meter should be equipped, and the number of inverters is not more than 10.

EPM solution	Solution 1	Solution 2	Solution 3	Solution 4
Required accessories	Solis-EPM3-5G-PRO+ Meter	S3-Logger-EPM+ Meter MB-S4-W4+ Meter	G3-Gateway +Meter	Meter
Number of controlled inverter	≤ 20	≤ 45	≤ 105	≤ 10
Availability of solution	Optional	Optional	Optional	Optional

Table 6.1 EPM Solutions

For specific solutions and system diagrams, please refer to the document 'EPM Solution' or contact our technical staff.



NOTE:

EPM control is implemented within a certain precision range, and adopting this solution does not mean "zero grid feed-in"!

If EPM solutions 1 to 3 are adopted, the EPM channel shall be confirmed in the APP after wiring is completed.



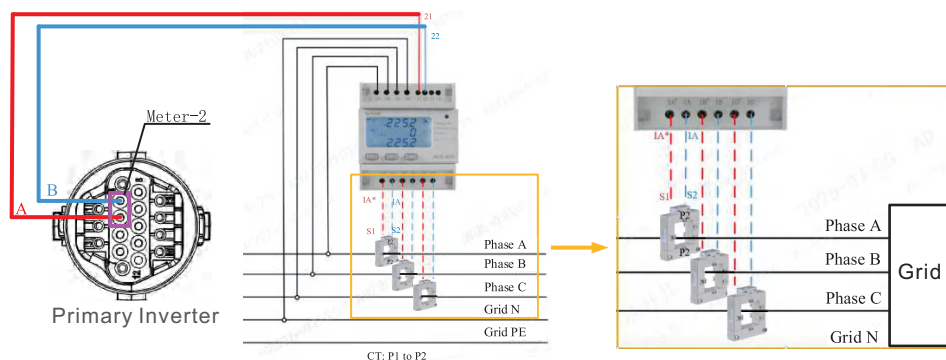
6. Normal operation

When adopting Solution 4, the EPM solution with meter, the system wiring is as follows: Meter and CTs are connected to the METER port of the primary inverter in the system.

Meter model: ADL400-C

CTs: Customers may provide it by themselves according to the maximum output current of the system, or purchase them from Solis.

(The secondary output current of the customer-supplied CT must be less than 6A, with an accuracy class of ≥ 0.5 .)



Connected the METER, CT to METER-2 (4, 5 PIN) of 16-pin connector on the primary inverter.

- Port 21 of METER connect to METER-2 port A of inverter, Port 22 of METER connect to METER-2 port B of inverter
- Connect METER UA、 UB、 UC、 UN to grid side A, B, C, and N in sequence
- Phase A: METER IA* connect to CT S1, METER IA connect to CT S2. Refer the position in the system diagram
- Phase B: METER IB* connect to CT S1, METER IB connect to CT S2. Refer the position in the system diagram
- Phase C: METER IC* connect to CT S1, METER IC connect to CT S2. Refer the position in the system diagram



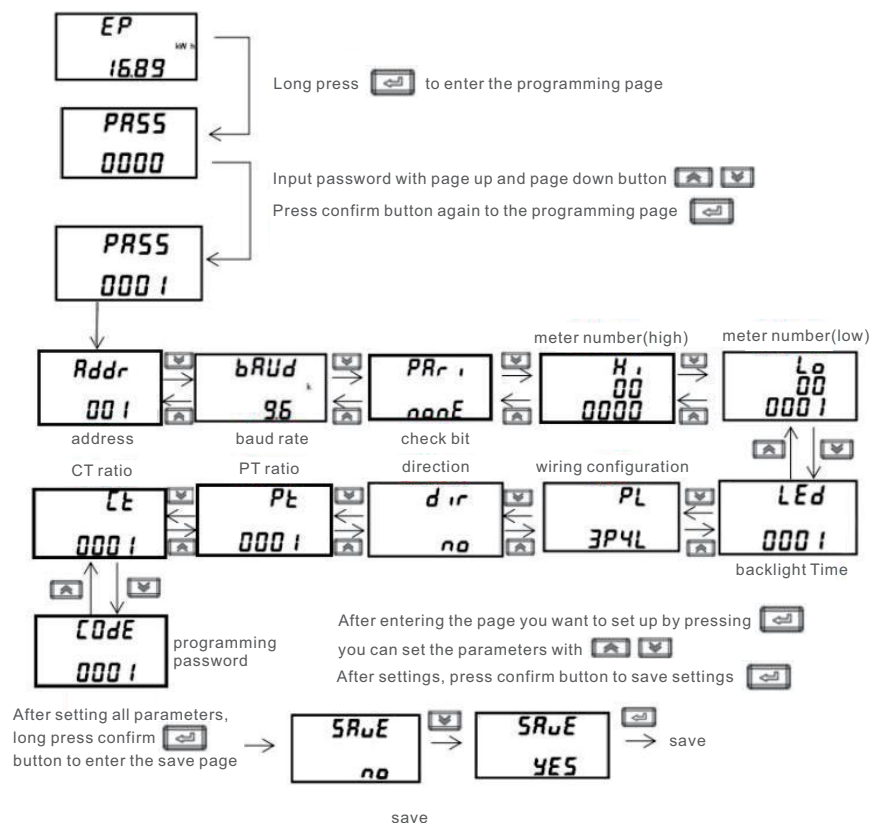
Wiring configuration



Baud rate

6. Normal operation

After the meter is connected, matching settings are required. Set the baud rate of the meter to 38400, and the CT ratio to 400:1. The wiring mode shall be set to the default value no (no - forward direction, yes - reverse direction). Select 3P3W/3P4L for the wiring configuration according to the wire sys of the inverter. The setting operations are as follows:



For more meter usage methods, please refer to document 'ADL400 METER installation manual'.



NOTE:

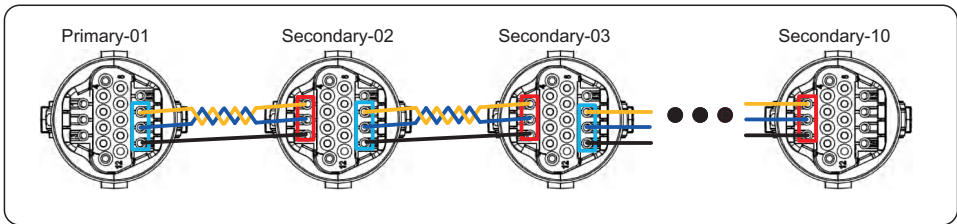
Wire strictly in accordance with the silk screen marking.



WARNING:

The P2 terminal of the CT must face the power grid; otherwise, incorrect readings will lead to functional failure!

6. Normal operation



Starting from the primary inverter, connect all inverters in turn hand by hand.
The PC-485-OUT (Pins 14, 15, 16) of the 16-pin connector on the primary inverter shall be connected to PC-485-IN (Pins 1, 2, 3) of secondary inverter 02, and PC-485-OUT of secondary inverter 02 shall be connected to PC-485-IN of secondary inverter 03.....
Besides the wiring connection of PC-485-A and PC-485-B, ensure that the grounding wire is also connected in a daisy-chain as required.



NOTE:

1. This wiring section is only used for Primary-Secondary EPM control, and the system supports a maximum of 10 inverters in parallel.
2. The monitoring communication control shall be connected normally, and it is independent of the 485 Primary-Secondary EPM control.
3. In a three-phase unbalanced load system, consistent phase sequence and connection of the neutral (N) line must be ensured.

Settings of Primary-Secondary EPM and unbalance output control
Enable Primary-Secondary EPM function on the primary inverter



Path : Setting->EPM Setting->Integrated EPM setting ->EPM Switch

6. Normal operation

Set the primary&secondary inverters address



Path : Inverter Detials-> Inverter Control->EPM Setting -> Integrated EPM setting -> Communication Address Setting
The default value is 100, with an optional range from 1 to 10. Number 1 represents the primary inverter, and numbers 2 to 10 represent secondary inverters.
Each inverter needs to be individually set with a primary or secondary address via Bluetooth.
This comunication address setting is independent of the address configuration of inverters connected to the datalogger, and is only used for configuring the corresponding addresses of inverters in the Primary-Seconday EPM system.



NOTE:

1. The address of the primary inverter must be 1
2. The address of secondary inverter mustn't be the same

Meter model select



Path: Setting->EPM Setting->Integrated EPM setting ->EPM Mode Setting
Meter ADL400C is supported for configuration at present.

6. Normal operation

AC source type select



Path: Setting->EPM Setting->Integrated EPM setting ->EPM Mode Setting->Mode Set

Comparison Table:

Display	AUTO	Forced Grid	Forced Genset	AutoACbox
AC type	ACAuto identify	AC grid	AC generator	AC source BOX

When connecting a single generator, select AUTO mode; when connecting multiple generators, select AutoACbox mode.

AC wiring configuration select

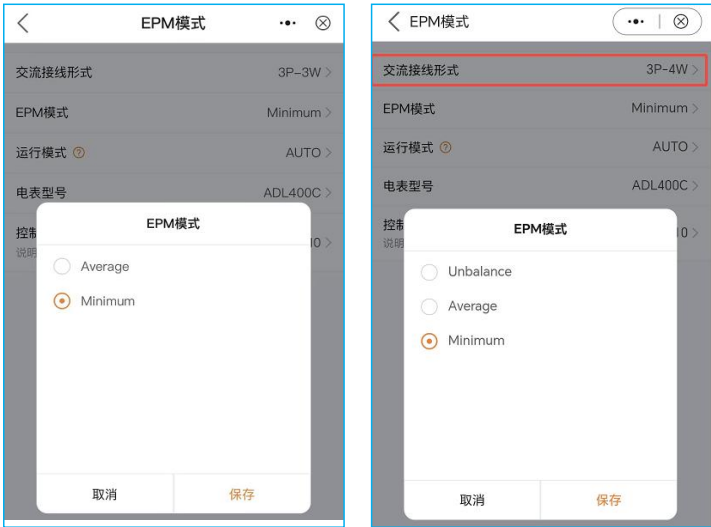


Path: Setting->EPM Setting->Integrated EPM setting ->EPM Mode Setting->Wire_SYS

The wiring modes include 3P-3W and 3P-4W. The standard model only supports 3P-3W, while the optional model supports both 3P-3W and 3P-4W.

6. Normal operation

EPM control mode select



Path : Setting->EPM Setting->Integrated EPM setting ->EPM Mode Setting->EPM Mode
When the Wire_SYS is set to 3P-3W, two EPM mode options are displayed; when the Wire_SYS is set to 3P-4W, three EPM mode options are displayed. The 3P-3W Wire_SYS does not support the Unbalance mode. When the inverter is connected to a generator, only the Minimum or Unbalance mode can be selected, and the Average mode is not available.

Comparison Table:

Display	Minimum	Average	Unbalance
Mode	Minimum phase anti-backflow	Average anti-backflow	Three phase unbalance anti-backflow

6. Normal operation

Set maximum grid feeding power setting and generator power

功率设置	
电网馈网功率	30.0kW >
发电机最小输出功率设定值	0kW >
电网馈网功率	30.0kW >
发电机1最小输出功率设定值	0kW >
发电机2最小输出功率设定值	0kW >
发电机3最小输出功率设定值	0kW >
发电机1&2最小输出功率设定值	0kW >
发电机2&3最小输出功率设定值	0kW >
发电机1&2&3最小输出功率设定值	0kW >

Path: Setting -> EPM Setting -> Integrated EPM setting -> Power Setting
When AUTO mode is selected, only one power setting is displayed for the generator; when AutoACbox mode is selected, eight power setting options are shown for the generator power.



WARNING:
Keep the inverter off-grid when performing above setting.

6. Normal operation

6.8 AFCI Function(Optional)

Solis inverters have the built-in AFCI function, which can detect the arc fault on the DC circuit to a certain extent and shut down the inverter to prevent a fire disaster.

6.8.1 Enable AFCI Function

The AFCI function can be enabled as follows:
Path: Setting -> Inverter Setting -> Inverter Function Setting -> AFCI Setting -> AFCI Protect -> AFCI Protect



WARNING:
The setting of "AFCI Level" can only be modified by Solis engineers.
Do not adjust the sensitivity; otherwise, false alarms or function failure may occur.
Solis shall not be liable for any damage caused by unauthorized and unapproved setting modifications.



NOTE:
The corresponding settings under the current status can also be used to check the on/ off status of the AFCI function.

逆变器详情	
ID: 23D9CD	☆ ...
名称	逆变器控制
SN	20153
状态	升级记录
实时功率	操作日志
额定功率	删除逆变器
所属电站	150 kW
所属采集器	404251050C30B216 >
报警信息	无报警 >
数据上报时间	2025-08-05 10:01:09
质保到期时间	2030-05-24
质保状态	在保
投运时间	2025-05-29
出厂时间 (内部)	2025-02-24
并网时间 (内部)	2025-05-29
从机地址 (内部)	101
备注	-- >

逆变器控制	
逆变器开关	>
逆变器功能设置	>
恢复默认设置	>
逆变器参数设置	>
逆变器功率设置	>
逆变器特殊功能设置	>
电网参数设置	>
EPM设置	>
逆变器工作模式设置	>
50549_2、VDE4110、50549-SW、NC-RFG (波兰) 低压穿越模式设定	>
频率减载设置	>
电压穿越设置	>
设备维护	>
其他设置	>

6. Normal operation

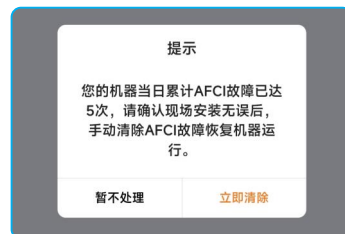


6.8.2 Arc-Fault

During operation, if a DC arc is detected, the inverter will shut down and display the following alarm. The inverter will automatically recover after 5 minutes.



When Arc-Fault error happens more than 5 times, the inverter will stop generating and manually reset is required.



Installers shall conduct a thorough inspection of the DC circuit to ensure all cables are properly connected and secured.

Once the DC circuit fault is rectified and all configurations are confirmed OK, click Clear Immediately on the near-end Bluetooth APP and wait for the inverter to restart.

7. Maintenance

The inverter requires regular maintenance by the user. If debris or dust impairs the heat dissipation performance of the inverter during normal operation, it can be cleaned with a soft brush.



CAUTION:

Do not touch the inverter's surface when it is operating. Some parts of the inverter may be hot and cause burns. Turn off the inverter (refer to Section 5.2) and wait for a cool-down period before any maintenance or cleaning operation.

The LCD and the LED status indicator lights can be cleaned with a damp cloth if they are too dirty to be read.



NOTE:

Never use any solvents, abrasives or corrosive materials to clean the inverter.

7.1 Anti-PID Function

The inverter integrates a PID repair module, which can restore the PID effect at night to protect photovoltaic modules from degradation.

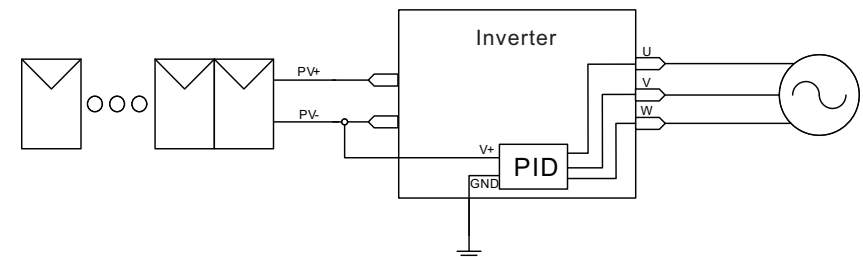


Figure 7.1

The Anti-PID module repairs the PID effect of the PV model at night. When operating, the red LED indicator will be lit.

The Anti-PID function is always ON when AC is applied at night.

If maintenance is required and turn off the AC switch can disable the Anti-PID function.



WARNING :

The PID function is automatic. When the DC bus voltage is lower than 50Vdc, the PID module will start creating 450 Vdc between PV- and ground. No need any control or settings

7. Maintenance



NOTE:

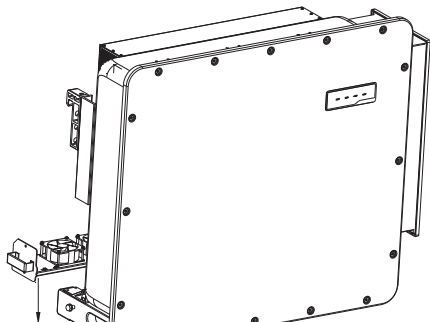
If you need to maintain the inverter at night, please turn off the AC switch first, then turn off the DC switch, and wait 20 minutes before you do other operations.

7.2 Fan Maintenance

If the fan does not work properly, the inverter will not be cooled effectively, and it may affect the effective operation of the inverter .

Therefore, it is necessary to clean or replace a broken fan as follows:

1. APP Bluetooth connected with inverter, shut down the inverter in the SolisCloud APP.
2. Disconnect the AC power.
3. Turn the DC switch to "OFF" position.
4. Wait at least 1 minute after the inverter LED indicators are all completely off.
5. Remove the 2 screws on the fan plate.
6. Pull out the fan module slowly and unplug the power plug of the fan.



After withdrawing 600mm
It can be bent down and extracted

Figure 7.2

7. Clean and replace the broken fan.
8. Connect the electrical wire and reinstall the fan. Restart the inverter.

7. Maintenance

7.3 DC Switch Maintenance

If an electronic switch is installed on the DC side of the inverter, the electronic switch will automatically open for protection in the event of reverse connection or short circuit on the DC side, or internal inverter faults.

Troubleshoot the site according to the inverter fault alarm information, and reset the electronic switch after the fault is cleared.

If the electronic switch is not equipped with a jack for the reset rotating lever, manually rotate the switch to perform reset and a click sound indicates successful reset. If the switch has a jack for the reset rotating lever, insert the reset rotating lever into the switch handle and rotate it and a click sound indicates successful reset.



NOTE:

No obstacles are allowed within the rotation travel of the electronic switch; otherwise, the electronic switch may fail to disconnect automatically.

7.4 Emergency Handling

Manufacturers shall consider foreseeable risk scenarios and implement designs to mitigate harm and hazards. However, if any of the following situations occur, proceed as follows:

Situation	Handling Solution
Current Leakage	In the event of electric leakage or current leakage, an inverter alarm will usually be triggered. • Immediate Response: Do not directly touch the inverter or the metal frames of photovoltaic modules. Disconnect the inverter only after ensuring personal safety. • Inspection and Repair: First check whether the malfunction is caused by environmental factors. Then have professionals inspect external circuits. If the alarm persists after external circuit issues are ruled out, the internal components of the inverter may be faulty. Contact the manufacturer's after-sales service for replacement.
Fire	Respond promptly in the event of a fire under special circumstances. • Disconnect the inverter on the premise of ensuring personal safety. Do not use water directly to put out the fire once flames break out. • Use carbon dioxide fire extinguishers or dry powder fire extinguishers preferentially, and maintain a safe distance from live equipment.
Water Ingress	If the bottom of the inverter is submerged or water enters its interior. • Do not power it on hastily. • Immediately contact the local dealer for technical support.
Damaged Packaging	Damaged packaging must be handled with extreme caution. It is no longer fit for use and may pose risks to personnel. Discontinue use immediately and contact your local distributor for technical support.

Safety Reminder: All electrical measurement operations mentioned above must be performed by certified electricians wearing safety equipment such as insulating gloves and insulating shoes.

8. Troubleshooting

The inverter is designed in accordance with the most important international grid-tied standards and safety and electromagnetic compatibility requirements. Before delivering to the customer, the inverter has been subjected to several tests to ensure its optimal operation and reliability.

In case of failure, the fault LED indicator will stay steadily on in red or yellow.

In this case, the inverter may stop feeding into the grid. The failure descriptions and their corresponding alarm messages are listed in Table 8.1:

Alarm Message	Failure description	Solution
OV-G-V01/02/03/04	Over grid voltage	1. Resistant of AC cable is too high. Change bigger size grid cable 2. Adjust the protection limit if it's allowed by electrical company.
UN-G-V01/02	Under grid voltage	1. Use user define function to adjust the protection limit if it's allowed by electrical company.
OV-G-F01/02	Over grid frequency	
UN-G-F01/02	Under grid frequency	
G-IMP	High grid impedance	
NO-GRID	No grid voltage	1. Check connections and grid switch. 2. Check the grid voltage inside inverter terminal.
OV-DC01/02/03/04	Over DC voltage	1. Reduce the module number in series
OV-BUS	Over DC bus voltage	1. Check inverter inductor connection 2. Check driver connection
UN-BUS01/02	Under DC bus voltage	
GRID-INTF01/02	Grid interference	1. Restart inverter 2. Change power board
OV-G-I	Over grid current	
IGBT-OV-I	Over IGBT current	
DC-INTF OV-DCA-I	DC input overcurrent	1. Restart inverter 2. Identify and remove the string to the fault MPPT 2. Change power board
IGFOL-F	Grid current tracking fail	1. Restart inverter or contact installer.
IG-AD	Grid current sampling fail	
OV-TEM	Over Temperature	1. Check inverter surrounding ventilation. 2. Check if there's sunshine direct on inverter in hot weather.
INI-FAULT	Initialization system fault	1. Restart inverter or contact installer.
DSP-B-FAULT	Comm. failure between primary and secondary DSP	
12Power-FAULT	12V power supply fault	

8. Troubleshooting

Alarm Message	Failure description	Solution
PV ISO-PRO 01/02	PV isolation protection	1. Remove all DC input, reconnect and restart inverter one by one. 2. Identify which string cause the fault and check the isolation of the string.
ILeak-PRO 01/02/03/04	Leakage current protection	1. Check AC and DC connection 2. Check inverter inside cable connection.
RelayChk-FAIL	Relay check fail	1. Restart inverter or contact installer.
DCinj-FAULT	High DC injection current	
Reve-DC	One of the DC string is reversely connected	1. Please check the inverters' PV string polarity, if there are strings reversely connected wait for the night when the solar irradiance is low and the PV string current down below 0.5A. Turn off the two DC switches and fix the polarity issue.
Screen OFF with DC applied	Inverter internally damaged	1. Do not turn off the DC switches as it will damage the inverter. 2. Please wait for the solar irradiance reduces and confirm the string current is less than 0.5A with a clip-on ammeter and then turn off the DC switches. 3. Please note that any damages due to wrong operations are not covered in the device warranty.

Table 8.1 Fault message and description



NOTE

Before grid connection, if the string has negative current, it means the voltage between the two strings of one MPPT is unbalanced. One of two string may have more PV panels than another one.



NOTE

If the inverter displays any alarm message as listed in Table 8.1; please turn off the inverter (refer to Section 5.2 to stop your inverter) and wait for 15 minutes before restarting it (refer to Section 5.1 to start your inverter). If the failure persists, please contact your local distributor or the service center. Please keep ready with you the following information before contacting us.

1. Serial number of Solis Three Phase Inverter;
2. The distributor/dealer of Solis Three Phase Inverter (if available);
3. Installation date.
4. The description of problem (i.e. the alarm message showed on Bluetooth APP (refer to Section 6.5) and the status of the LED indicators. Other readings obtained from the information submenu (refer to Section 6.4) will also be helpful.);
5. The PV array configuration (e.g. number of panels, capacity of panels, number of strings, etc.);
6. Your contact details.

9. Specifications

Model	S6-GC3P150K07-NV-ND
Max. DC input voltage (Volts)	1100
Rated DC voltage (Volts)	600
Start-up voltage (Volts)	180
MPPT voltage range (Volts)	160...1000
Max. input current (Amps)	7*54
Max. short circuit current (Amps)	7*75
MPPT number/Max input strings number	7/21
Rated output power (Watts)	150000
Max. output power (Watts)	165000
Max. apparent output power (VA)	165000
Rated grid voltage (Volts)	3/N/PE, 220/380, 230/400
Rated grid output current (Amps)	216.5/227.9
Max. output current (Amps)	250.6
Power Factor (at rated output power)	0.8leading~0.8lagging
THDi (at rated output power)	<3%
Rated grid frequency (Hertz)	50/60
Max. efficiency	98.8%
EU efficiency	98.3%
Dimensions (W*H*D)	1035.5* 869* 396 mm
Weight	105kg
Topology	Transformerless
Self consumption (night)	< 2W
Operating ambient temperature range	-30°C...+60°C
Relative humidity	0~100%
Ingress protection	IP66
Cooling concept	Intelligent redundant cooling
Max. operation altitude	4000m
Grid connection standard	G99, IEC61727, EN50549-1/2, VDE4110
Safty/EMC standard	IEC/EN 62109-1/-2, IEC60947-2, IEC/EN 61000-6-2/-4
DC connection	MC4 connector
AC connection	OT Terminal (max 400 mm²)
Display	LED indicators, Bluetooth+APP
Communication connections	RS485, Optional: Wifi, GPRS , PLC

9. Specifications

Model	S6-GC3P200K07-HV-ND
Max. DC input voltage (Volts)	1100
Rated DC voltage (Volts)	720
Start-up voltage (Volts)	180
MPPT voltage range (Volts)	160...1000
Max. input current (Amps)	7*54
Max. short circuit current (Amps)	7*75
MPPT number/Max input strings number	7/21
Rated output power (Watts)	200000@30°C, 180000@40°C, 160000@50°C
Max. output power (Watts)	200000
Max. apparent output power (VA)	200000
Rated grid voltage (Volts)	3/PE, 480
Rated grid output current (Amps)	240.6
Max. output current (Amps)	240.6
Power Factor (at rated output power)	0.8leading~0.8lagging
THDi (at rated output power)	<3%
Rated grid frequency (Hertz)	50/60
Max. efficiency	98.8%
EU efficiency	98.3%
Dimensions (W*H*D)	1035.5* 869* 396 mm
Weight	105kg
Topology	Transformerless
Self consumption (night)	< 2W
Operating ambient temperature range	-30°C...+60°C
Relative humidity	0~100%
Ingress protection	IP66
Cooling concept	Intelligent redundant cooling
Max. operation altitude	4000m
Grid connection standard	G99, IEC61727, EN50549-1/2, VDE4110
Safty/EMC standard	IEC/EN 62109-1/-2, IEC60947-2, IEC/EN 61000-6-2/-4
DC connection	MC4 connector
AC connection	OT Terminal (max 400 mm²)
Display	LED indicators, Bluetooth+APP
Communication connections	RS485, Optional: Wifi, GPRS , PLC

9. Specifications

Model	S6-GC3P80K07-LV-ND
Max. DC input voltage (Volts)	800
Rated DC voltage (Volts)	450
Start-up voltage (Volts)	180
MPPT voltage range (Volts)	160...1000
Max. input current (Amps)	7*54
Max. short circuit current (Amps)	7*75
MPPT number/Max input strings number	7/21
Rated output power (Watts)	80000
Max. output power (Watts)	88000
Max. apparent output power (VA)	88000
Rated grid voltage (Volts)	3/(N)/PE, 127/220, 133/230
Rated grid output current (Amps)	209.9
Max. output current (Amps)	230.9
Power Factor (at rated output power)	0.8leading~0.8lagging
THDi (at rated output power)	<3%
Rated grid frequency (Hertz)	50/60
Max. efficiency	98.8%
EU efficiency	98.3%
Dimensions (W*H*D)	1035.5* 869* 396 mm
Weight	105kg
Topology	Transformerless
Self consumption (night)	< 2W
Operating ambient temperature range	-30°C...+60°C
Relative humidity	0~100%
Ingress protection	IP66
Cooling concept	Intelligent redundant cooling
Max. operation altitude	4000m
Grid connection standard	IEC 61727L, IEC 62116, C10/11, VDE 4105
Safety/EMC standard	IEC/EN 62109-1/-2, IEC60947-2, IEC/EN 61000-6-2/-4
DC connection	MC4 connector
AC connection	OT Terminal (max 400 mm²)
Display	LED indicators, Bluetooth+APP
Communication connections	RS485, Optional: Wifi, GPRS , PLC

9. Specifications

Model	S6-GC3P100K07-LV-ND
Max. DC input voltage (Volts)	800
Rated DC voltage (Volts)	450
Start-up voltage (Volts)	180
MPPT voltage range (Volts)	160...1000
Max. input current (Amps)	7*54
Max. short circuit current (Amps)	7*75
MPPT number/Max input strings number	7/21
Rated output power (Watts)	100000
Max. output power (Watts)	100000
Max. apparent output power (VA)	100000
Rated grid voltage (Volts)	3/(N)/PE, 127/220, 133/230
Rated grid output current (Amps)	251.0
Max. output current (Amps)	251.0
Power Factor (at rated output power)	0.8leading~0.8lagging
THDi (at rated output power)	<3%
Rated grid frequency (Hertz)	50/60
Max. efficiency	98.8%
EU efficiency	98.3%
Dimensions (W*H*D)	1035.5* 869* 396 mm
Weight	105kg
Topology	Transformerless
Self consumption (night)	< 2W
Operating ambient temperature range	-30°C...+60°C
Relative humidity	0~100%
Ingress protection	IP66
Cooling concept	Intelligent redundant cooling
Max. operation altitude	4000m
Grid connection standard	IEC 61727L, IEC 62116, C10/11, VDE 4105
Safety/EMC standard	IEC/EN 62109-1/-2, IEC60947-2, IEC/EN 61000-6-2/-4
DC connection	MC4 connector
AC connection	OT Terminal (max 400 mm²)
Display	LED indicators, Bluetooth+APP
Communication connections	RS485, Optional: Wifi, GPRS , PLC