User Manual

for S6 Series Hybrid Inverter



Applicable models

S6-EH3P5K2-H
S6-EH3P6K2-H
S6-EH3P8K2-H
S6-EH3P10K2-H
S6-EH3P5K-H-EU
S6-EH3P6K-H-EU
S6-EH3P8K-H-EU
S6-EH3P10K-H-EU
S6-EH3P12K-H-EU(21A)

Applicable System

Three phase system

Version 1.1, Release Date: 08,2026

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1.1 Product Description

The Solis S6 Series is designed for residential hybrid systems, which can work with batteries to optimize self-consumption. The unit can operate in both off- and on-grid modes. This manual covers the Solis S6 Series inverter model listed below:
S6-EH3P5K2-H, S6-EH3P6K2-H, S6-EH3P8K2-H, S6-EH3P10K2-H, S6-EH3P5K-H-EU, S6-EH3P6K-H-EU, S6-EH3P8K-H-EU, S6-EH3P10K-H-EU, S6-EH3P12K-H-EU(21A)

The model list in this manual is Solis entire range of models in this series. Please contact your local sales representative for the list of available models.

The standard AFCI function provides normal identification of arc fault and circuit interruption functionality but does not meet IEC 63027 or UL 1699B standards.
If compliance with IEC 63027 or UL 1699B standards is required, please contact the local Solis sales to order models that meet the requirements of these standards.

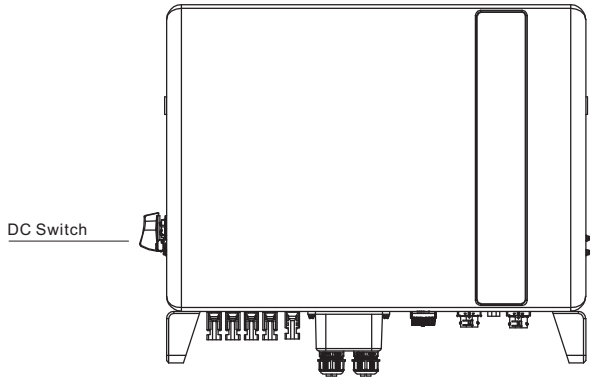


Figure 1.1 Front side view

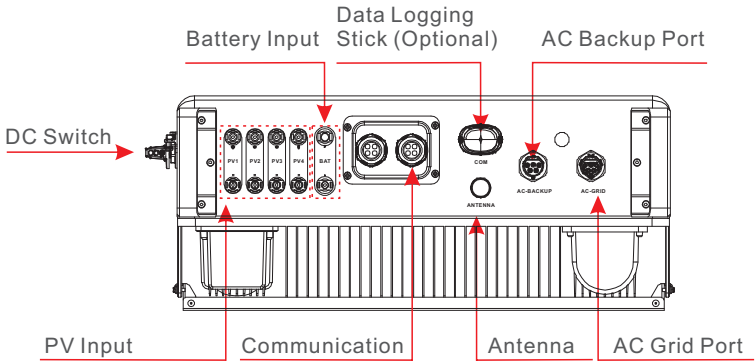
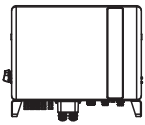


Figure 1.2 Bottom side view

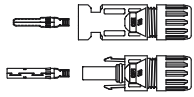
1.2 Packaging

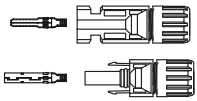
Please ensure that the following items are included in the packaging with your machine:

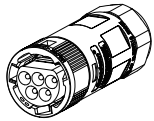

Inverter x1

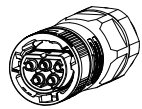

Back Plate x1


Fixing Screws(M4*12) x4


PV Connector x4
(basis on actual string number of inverter)

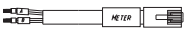

Battery Connector x1


AC Backup x1

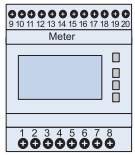

AC Grid x1



CAN cable x1



Meter cable x1



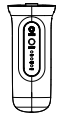
Eastron Meter x1


CT x3


Dust Cover x1


RJ45 connector x6


Bluetooth Antenna x1


Data Logging Stick (Optional) x1



User Manual x1

If anything is missing, please contact your local Solis distributor.

NOTE:

- The meter configuration include CT, the meter, and the meter communication cable.
  40mA Meter+120A/40mA CT; MODEL: SDM630MCT+ESCT-TA16.
- If more than 3 devices are connected in parallel, you need select a separate kit. The accessories include CT and the meter.
  Separate Kit: 5A Meter+300A/5A CT, MODEL: SDM630MCT V2+ESCT-T50.

1.3 Tools Required for Installation


Technician Screwdriver


Torqx T20 Screwdriver


Wire Strippers
12AWG to 6AWG


Wire Strippers
20AWG to 10AWG


LUG Crimping Tool


Channel Locks


Multimeter (AC/DC amps)


Drill and Impact Driver


Torque Screwdriver


MC4 Crimping Tool

2.1 Safety

The following types of safety instructions and general information appear in this document as described below:

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, could result in death or serious injury.

CAUTION:
"Caution" indicates a hazardous situation which if not avoided, could result in minor or moderate injury.

NOTE:
"Note" provides tips that are valuable for the optimal operation of your product.

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.

2.2 General Safety Instructions

WARNING:
Only devices in compliance with SELV (EN 69050) may be connected to the RS485 and USB interfaces.

WARNING:
Please don't connect PV array positive (+) or negative (-) to ground, it could cause serious damage to the inverter.

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



WARNING:
Do not touch any inner live parts until 5 minutes after disconnection from the utility grid and the PV input.



WARNING:
To reduce the risk of fire, over-current protective devices (OCPD) are required for circuits connected to the inverter.
The DC OCPD shall be installed per local requirements. All photovoltaic source and output circuit conductors shall have isolators that comply with the NEC Article 690, Part II.



CAUTION:
Risk of electric shock, do not remove cover. There is no user serviceable parts inside, refer servicing to qualified and accredited service technicians.



CAUTION:
The PV array supplies a DC voltage when they are exposed to sunlight.



CAUTION:
The surface temperature of the inverter can reach up to 75℃ (167 F). To avoid risk of burns, do not touch the surface of the inverter while it's operating. Inverter must be installed out of the reach of children.



NOTE:
PV module used with inverter must have an IEC 61730 Class A rating.



WARNING:
Operations below must be accomplished by licensed technician or Solis authorized person.



WARNING:
Operator must put on the technicians' gloves during the whole process in case of any electrical hazards.



WARNING:
AC BACKUP Port of S6 Series is not allowed to connect to the grid.



WARNING:
Please refer to the specification of the battery before configuration.

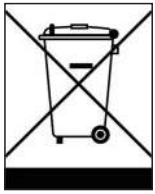
2.3 Notice for Use

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

1. Permanent installation is required.
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 inverter must be installed according to the correct technical specifications.

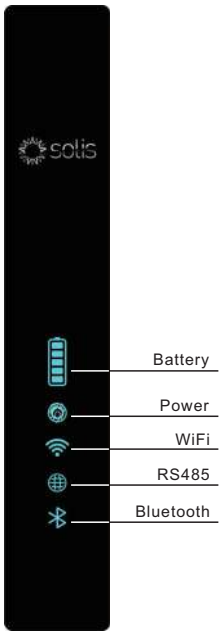
2.4 Notice for Disposal

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 .



3.1 Intelligent LED Indicators

There are five indicators on the The Solis S6 Series Inverter (Battery, Power, WiFi, Ethernet and Bluetooth) which indicate the working status of the inverter.
The Bluetooth Antenna or WiFi datalogger shall be installed at the Antenna/COM port of the hybrid inverter before local debugging.



Light	Status	Description
Battery	Blue Flashing every 3s	Battery discharging.
	Blue Flashing every 1.5s	Battery charging.
	Blue Solid ON	Idle.
	OFF	No Battery or not working.
Power	Blue Solid ON	Normally Operating.
	Yellow Solid ON	Warning.
	RedSolid ON or flashing every 3s	Alarm.
	OFF	No Battery or not working.
WiFi	Blue Solid ON	COM Port is using.
	OFF	COM Port is not used.
RS485	Blue Solid ON	RS485 Port is using.
	OFF	RS485 Port is not used.
Bluetooth	Blue Solid ON	Bluetooth Port is using.
	OFF	Bluetooth Port is not used.

Turning On the LED Indicator Lights

After a few minutes, the LED indicator lights will turn off to conserve power. To turn the lights back on, short-press the Inverter LED light.



Alarm State

When the inverter has an alarm, the Inverter LED light turns red and starts flashing. It is recommended to connect to the inverter with the Bluetooth tool. Then you can determine what the alarm code is.



NOTE:

Battery/WiFi/Ethernet/Bluetooth indicators will automatically turn off after 1 minute. The Power indicator will remain on with lower brightness. Short press the Power indicator can wake up all indicators.

3.2 Password Reset

When the password of the owner or the installer needs to be reset,please long press the Inverter indicator for 5s.

If the reset command is successfully triggered,the status indicator will be blue and blink for 3s at the frequency of 0.5s, then restore the original state of the indicator.

If the command fails to be triggered,the status indicator will be yellow and blink for 3s at the frequency of 0.5s,then restore the original state of the indicator.

If the command is successfully triggered,the Bluetooth password can be reset in the APP.

3.3 Inverter built-in Bluetooth description

Blueooth: BDR、EDR、BLE

frequency band(s) in which the radio equipment operates:2400-2483.5MHZ

Maximum transmitting power: 10dBm

Hereby, Ginlong Technologies Co.,Ltd.declares that the radio equipment type hybrid inverter is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the follow address: www.solisinverters.com

3.4 System Description

3.4.1 Single system

The single system consists of PV module, battery, hybrid inverter, smart meter.

The PV Module converts solar energy into electric energy, which is then converted by the inverter to charge the battery or power loads or feed into the grid.

The backup load should be less than or equal to the rated power and the single-phase max.output power is 50% of the total AC power.

The system has four working modes: self-use mode, feed in priority mode, off-grid mode and peak shaving mode.

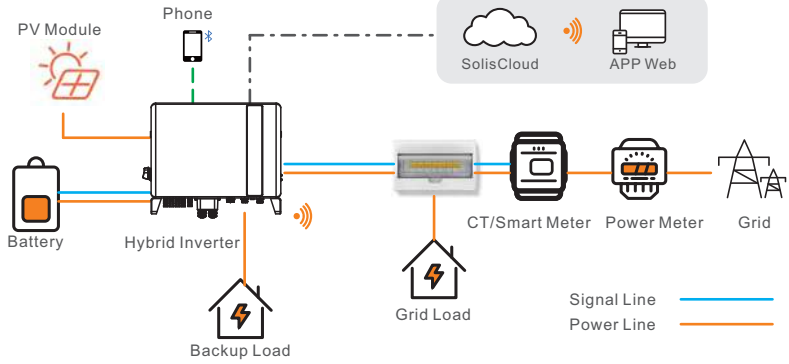


Figure 3.1 Single System

3.4.2 Parallel System

User can add inverters and batteries to increase capacity. The system supports up to 6 inverters in parallel. Each battery connects to the inverter with an independent CAN line and is managed by the inverter connected to it.

In a parallel system, the Grid port does not support the three-phase unbalance output function.

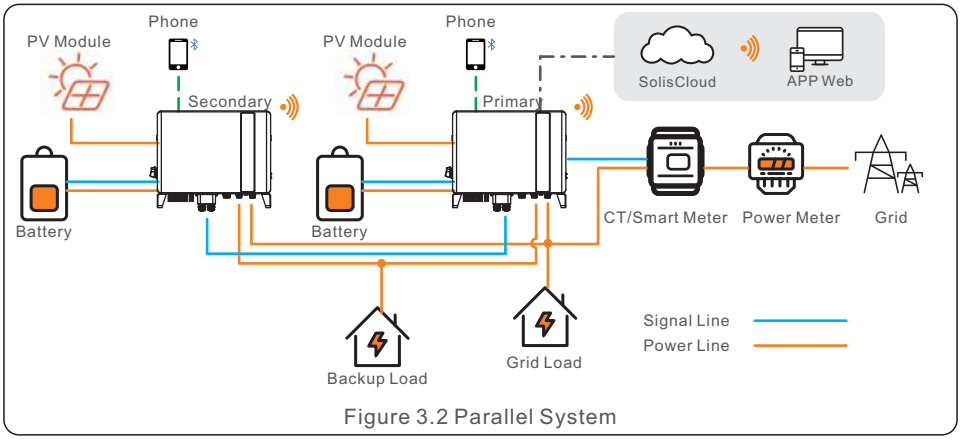


Figure 3.2 Parallel System

3.4.3 Access of third-party grid-tied inverter(Grid side)

Working with grid-tied inverter and monitor the grid-tied inverter output via meter.

The output power of the grid-tied inverter can be displayed on soliscloud use the same meters in parallel. Meter1 address: 001 (grid side), meter2 address: 002 (PV inverter).

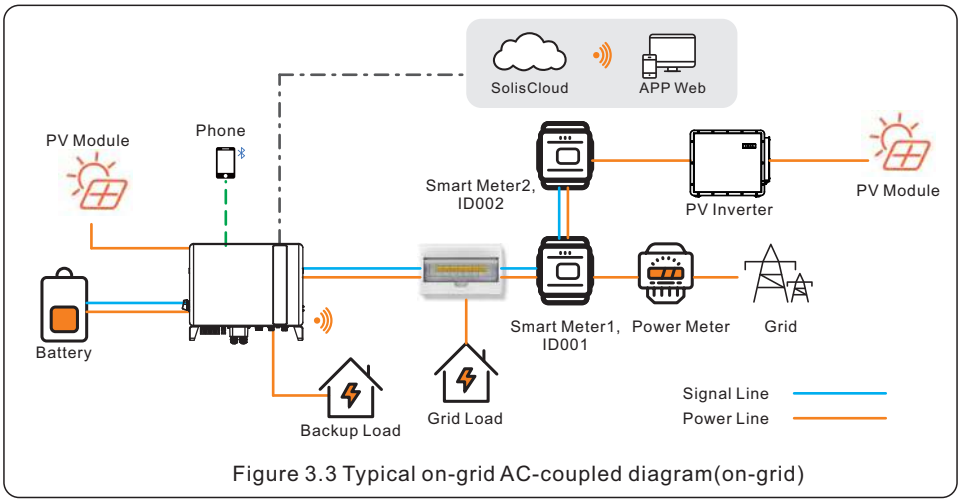


Figure 3.3 Typical on-grid AC-coupled diagram(on-grid)

4.1 Select a Location for the Inverter

To select a location for the inverter, the following criteria should be considered:

- Exposure to direct sunlight may cause output power derating. It is recommended to avoid installing the inverter in direct sunlight.
- It is recommended that the inverter is installed in a cooler ambient which doesn't exceed 104℉/40℃.

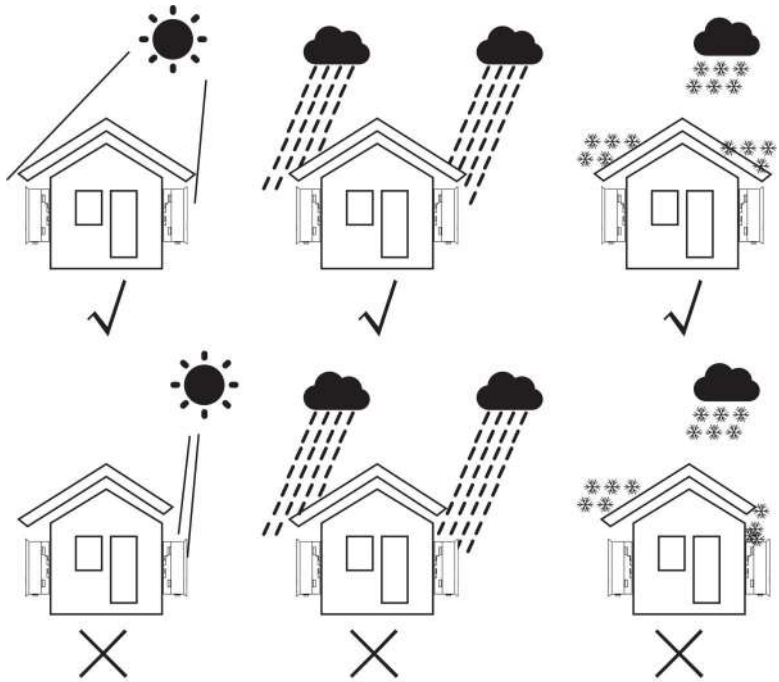


Figure 4.1 Recommended Installation locations

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.

- Install on a wall or strong structure capable of bearing the weight of the machine.
- Install vertically with a maximum incline of +/- 5 degrees, exceeding this may cause output power derating.
- To avoid overheating, always make sure the flow of air around the inverter is not blocked. A minimum clearance of 200mm should be kept between inverters or objects and 200mm clearance between the bottom of the machine and the ground.

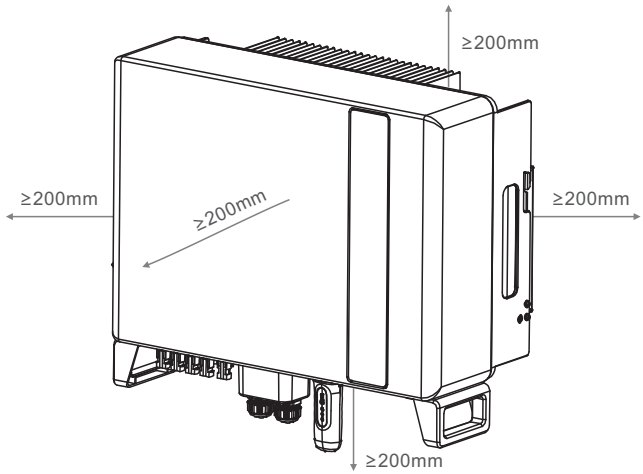


Figure 4.2 Inverter Mounting clearance

- Adequate ventilation must be provided.

NOTE:
Nothing should be stored on or placed against the inverter.

4.2 Mounting the Inverter

Dimensions of mounting bracket:

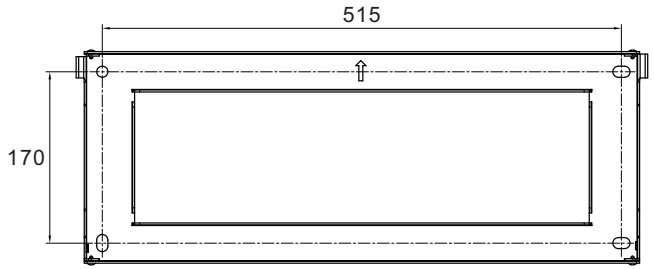


Figure 4.3 Inverter wall mounting

Once a suitable location has be found accordingly to 4.1 using figure 4.3 mount the wall bracket to the wall.

The inverter shall be mounted vertically.

The steps to mount the inverter are listed below:

1. Select the mounting height of the bracket and mark the mounting holes.
   For brick walls, the position of the holes should be suitable for the expansion bolts.

2.Lift up the inverter (be careful to avoid body strain), and align the back bracket on the inverter with the convex section of the mounting bracket. Hang the inverter on the mounting bracket and make sure the inverter is secure (see Figure 4.4)

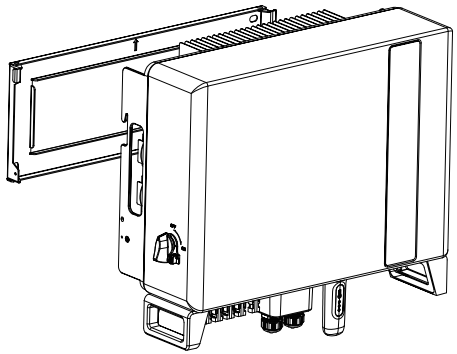


Figure 4.4 Wall Mount Bracket

WARNING:
The inverter must be mounted vertically.

4.3 PE Cable Installation

An external ground connection is provided at the right side of inverter.

Prepare OT terminals: M4. Use proper tooling to crimp the lug to the terminal.

Connect the OT terminal with ground cable to the right side of inverter. The torque is 2N.m.

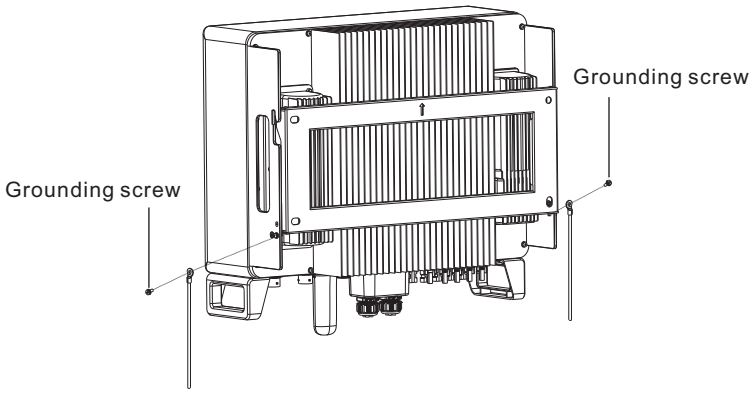


Figure 4.5 Connect the external grounding conductor

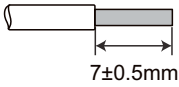
4.4 PV Input Cable Installation

Before connecting inverter, please make sure the PV array open circuit voltage is within the limit of the inverter.

Before connection, please make sure the polarity of the output voltage of PV array matches the“DC+”and“DC-”symbols.

Please use approved DC cable for PV system.

1. Select a suitable DC cable and strip the wires out by 7±0.5mm. Please refer to the table below for specific specifications.



Cable type	Cross section（mm²）	
	Range	Recommended value
Industry generic PV cable	4.0~6.0 (12~10AWG)	4.0（12AWG）

Figure 4.6

2. Take the DC terminal out of the accessory bag, turn the screw cap to disassemble it, and take out the waterproof rubber ring.

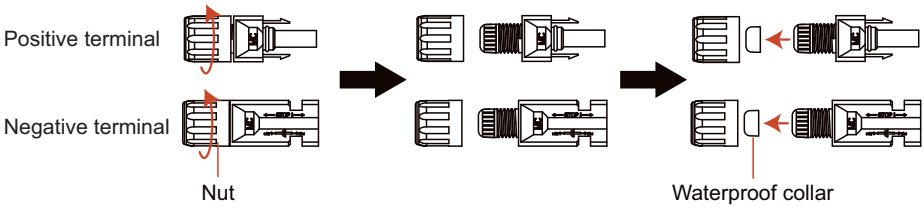


Figure 4.7

3. Pass the stripped DC cable through the nut and waterproof rubber ring.

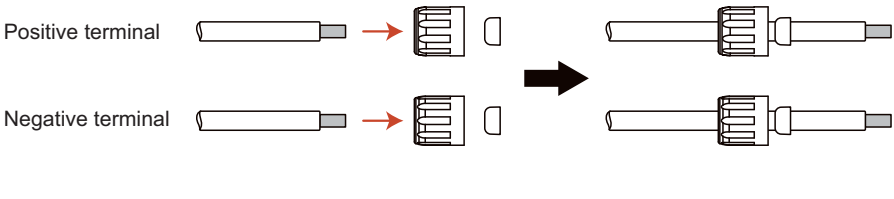


Figure 4.8

4. Connect the wire part of the DC cable to the metal DC terminal and crimp it with a special DC terminal crimping tool.

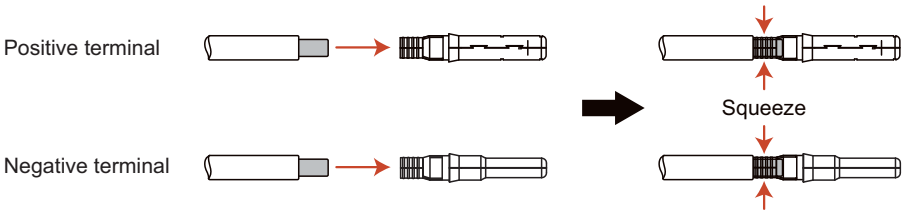


Figure 4.9

5. Insert the crimped DC cable into the DC terminal firmly, then insert the waterproof rubber ring into the DC terminal and tighten the nut.

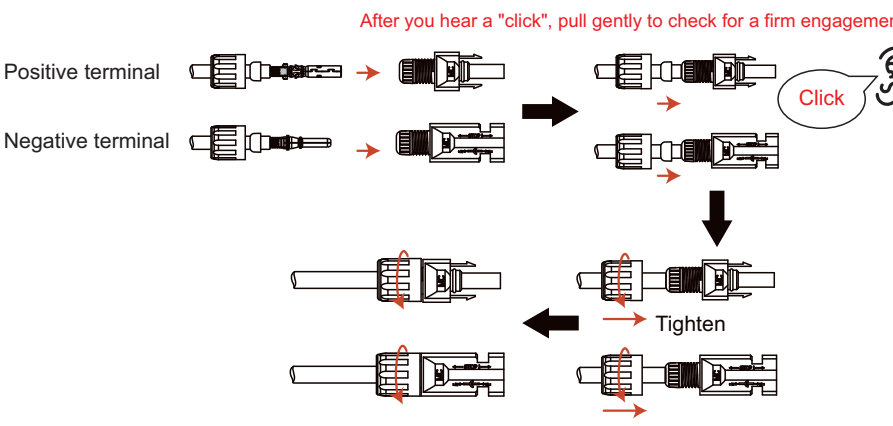


Figure 4.10

6. Measure PV voltage of DC input with multimeter, verify DC input cable polarity.

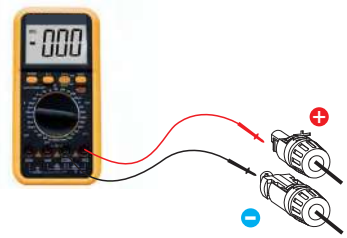


Figure 4.11

7. Connect the wired DC terminal to the inverter as shown in the figure, and a slight "click" is heard to prove the connection is correct.

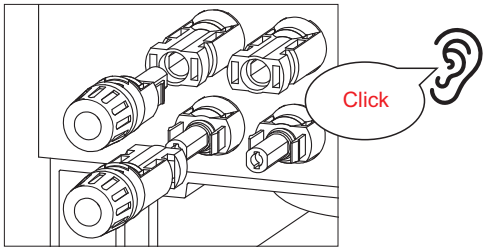


Figure 4.12

CAUTION:

If DC inputs are accidently 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 aviod 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.

4.5 Battery Power Cable Installation

1. Take out the two battery connectors from the package and crimp them as shown in the Figure 4.13.

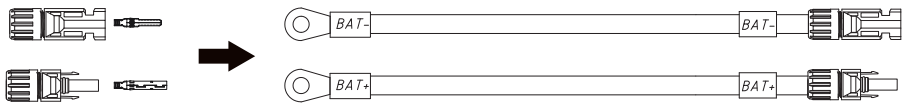


Figure 4.13

Recommended battery connection size: 10 mm²/8AWG.(range: 8~10mm²)

NOTE:
Before connecting the battery, please carefully read the product manual of the battery and perform the installation exactly as the battery manufacturer specifies in the manual.

2. Connect the battery ends to the battery module positive and negative terminals.
3. Measure DC voltage of DC input with multimeter, verify DC input cable polarity.

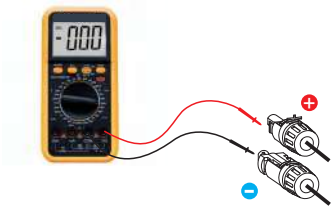


Figure 4.14

4. Connect the inverter end to the battery input port of the inverter as shown below, and push it in until you hear a "Click" sound which proves the fastened connection.

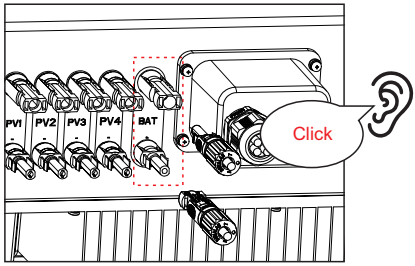


Figure 4.15

4.6 AC Cable Installation

There are two AC terminals on the inverter and the assembly steps are similar.
AC Grid Port is to connect to the grid and AC Backup Port is to connect to the critical load circuit.

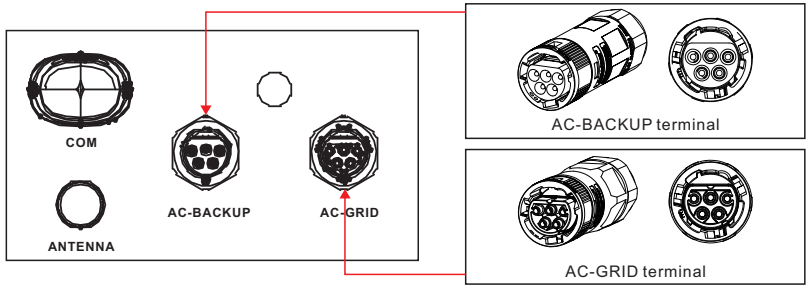


Figure 4.16

NOTE:
AC Backup Connector is longer while the AC Grid Connector is shorter.

4.6.1 AC Grid Port Connection

Describe	Numerical value
Cable diameter	14~17mm
Traverse cross sectional area range	2.5~6mm^2
Exposure Length	7mm

Table 4.1

1. Strip the AC wires about 7mm.

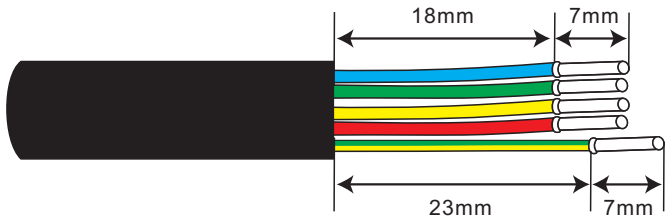
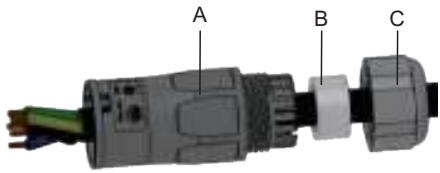


Figure 4.17

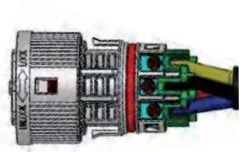
2. Disassemble the AC Grid Connector and set the parts on the cable.



A: Body
B: Seal body
C: Nut

Figure 4.18

3. Crimp wires, screw torque 0.8N·m±0.1N·m.





AC Grid

Figure 4.19

4. Push Housing into Body until you hear a “click” sound.

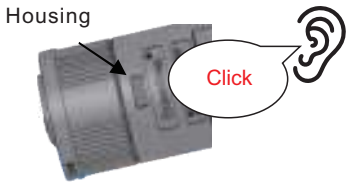


Figure 4.20

5. Insert Seal Body and Claw into the Body, and then tighten the Nut with torque 2.5N·m±0.5N·m.



Figure 4.21

6. Push the AC Grid Connector into the AC Grid Port on the inverter and rotate the rotatory ring on the AC Grid connector to the direction as marked “LOCK” on the connector. (Hold the Body while rotating the ring).

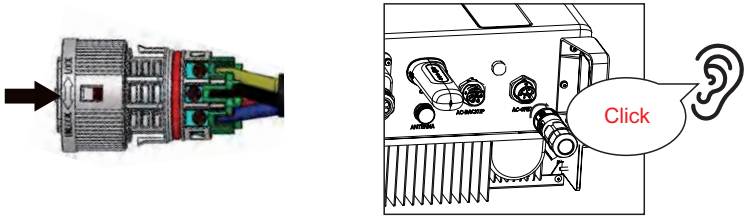


Figure 4.22

NOTE:
A continuity test shall be made to ensure that the correct terminations have been made after field wiring.

4.6.2 AC Backup Port Connection

Describe	Numerical value
Cable diameter	14~17mm
Traverse cross sectional area range	2.5~6mm^2
Exposure Length	7mm

Table 4.2

1. Strip the AC wires about 7mm.

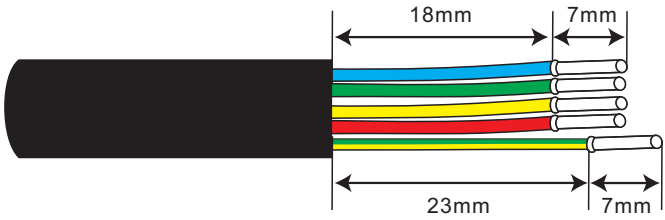
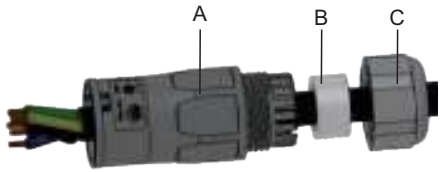


Figure 4.23

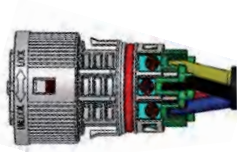
2. Disassemble the AC Backup Connector and set the parts on the cable.



A: Body
B: Seal body
C: Nut

Figure 4.24

3. Crimp wires, screw torque 0.8N·m±0.1N·m.





AC Backup

Figure 4.25

4. Push Housing into Body until you hear a “click” sound.

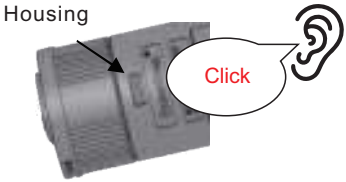


Figure 4.26

5. Insert Seal Body and Claw into the Body, and then tighten the Nut with torque 2.5N·m±0.5N·m.



Figure 4.27

6. Push the AC Backup Connector into the AC Backup Port on the inverter and rotate the rotatory ring on the AC Backup connector to the direction as marked “LOCK” on the connector. (Hold the Body while rotating the ring).

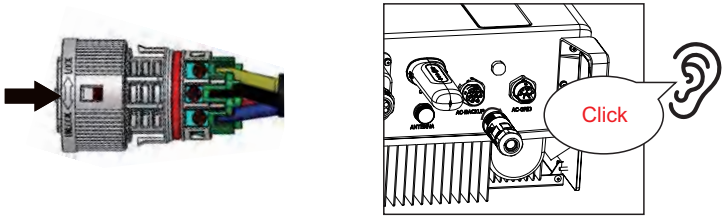


Figure 4.28

NOTE:
A continuity test shall be made to ensure that the correct terminations have been made after field wiring.

4.6.3 Disassembly Connector

1. Separate the male and female connector, rotate the locker according to the direction instructed by the marks on the locker.

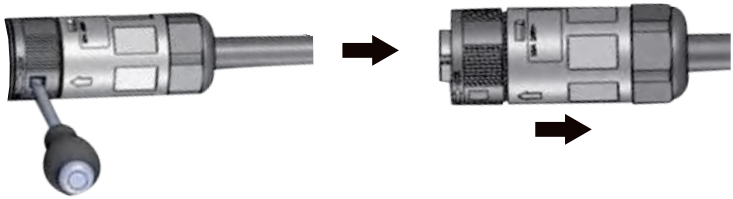


Figure 4.29

2. Disassembling body and housing for rewire.



Figure 4.30

4.7 Communication Cable Installation

4.7.1 Protective Cover for Communication Ports

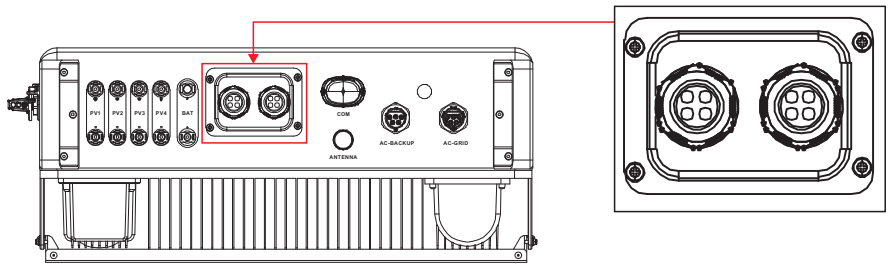


Figure 4.31

Inverter in the package is with a protective cover assembled to protect the communication ports.

Step 1. Use Phillips screwdriver to take out the 4 screws on the cover.

Step 2. Read through the following sections of the manual and prepare the internet cables correspondingly.

Step 3. Loose the cable gland and remove the watertight caps inside the cable gland based on the number of the cables and keep the unused holes with watertight cap.

Step 4. Lead the cables into the holes in the cable gland. (Hole Diameter: 6mm)

Step 5. Crimp the RJ45 connectors onto the cables according to the pin definitions described in the following sections and connect to the ports accordingly.

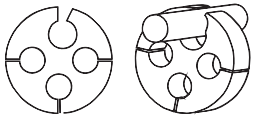
Step 6. Fasten the 4 screws on the cover (Torque: 1.7N.m-2 N.m)

Step 7. Reassemble the cable gland and ensure there is no bending or stretching of the internet cables inside the cover.

NOTE:

The 4-hole fastening rings inside the cable gland are with openings on the side.

Please separate the gap with hand and squeeze the cables into the holes from the side openings.



4.7.2 Communication Port Definition

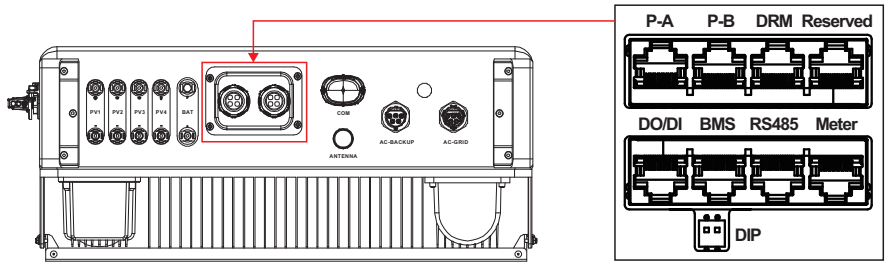


Figure 4.32

Port	Function
BMS	Used for CAN communication between inverter and Lithium battery BMS.
Meter	Used for RS485 communication between inverter and the smart meter. It is necessary to realize the normal hybrid control logics.
DRM	(Optional)To realize Demand Response or Logic interface function, this function may be required in UK and Australia.
RS485	(Optional) Used for Modbus RTU communication with 3rd party external device or controller.
P-A/P-B	(Optional) Parallel operation communication ports (Reserved).
DO/DI	PIN1:+12Vdc;PIN3:GND(applicable for Generator connection) PIN5 & PIN 7(applicable for Heat Pump connection)
DIP	Both the first and the last inverter(Primary & Secondary5(N)) have 2 DIP switches enabled (Both Pin1 & Pin2).

Table 4.3

4.7.3 BMS Port Connection

Take out the pre-made CAN cable from the package and connect one end to battery CAN port and then connect another end to the inverter BMS port.
Cable Length: 3 meters.

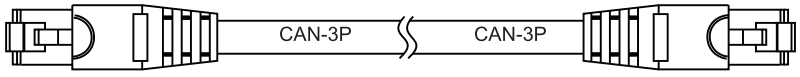
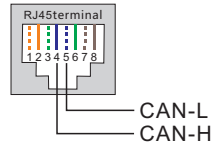


Figure 4.33

NOTE:
Pin definition of the BMS Port is following EIA/TIA 568B.
CAN-H on Pin 4: Blue
CAN-L on Pin 5: Blue/White



4.7.4 Meter Port Connection

Take out the pre-made Meter cable from the package and connect RJ45 end to inverter Meter port and then connect another end with loose RS485 A & B pins to the meter RS485 terminal.
Cable Length: 5 meters.

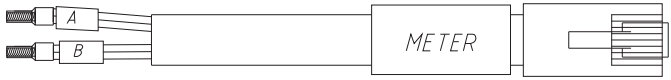
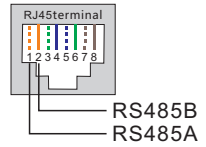


Figure 4.34

NOTE:
Pin definition of the Meter Port is following EIA/TIA 568B.
RS485A on Pin 1:Orange/white
RS485B on Pin 2:Orange



NOTE:
Compatible Smart Meter Pin definition.
Eastron SDM630MCT – Pin 13 is RS485B & Pin 14 is RS485A.
Meter Configuration: 40mA Meter+120A/40mA CT;
MODEL:SDM630MCT+ESCT-TA16.
If more than 3 devices are connected in parallel, you need select a separate kit. The accessories include CT and the meter.
Separate Kit: 5A Meter+300A/5A CT, MODEL: SDM630MCT V2+ESCT-T50.

4.7.5 DRM Port Connection (Optional)

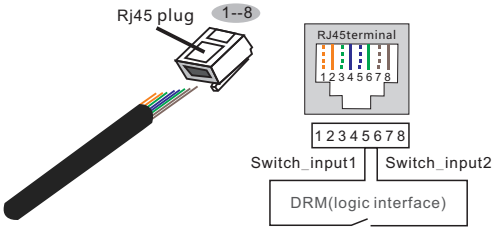
4.7.5.1 For Remote Shutdown Function

Solis inverters support different operation modes under the different logic signals of ripple controllers remotely.

The DRM port is provided with an RJ45 terminal and its Pin5 and Pin6 can be used for remote stop function.

Signal	Function
Short Pin5 and Pin6	Inverter Generates
Open Pin5 and Pin6	Inverter stop exporting in 5s

Table 4.4



Correspondence between the cables and the stitches of plug, Pin5 and Pin6 of RJ45 terminal is used for the logic interface, other Pins are reserved.

Pin 1: Reserved; Pin 2: Reserved

Pin 3: Reserved; Pin 4: Reserved

Pin 5: Switch_input1; Pin 6: Switch_input2

Pin 7: Reserved; Pin 8: Reserved

Figure 4.35 Strip the insulation layer and connect to RJ45 plug

4.7.5.2 For DRED Control Function (For AU and NZ Only)

DRED means demand response enable device. The AS/NZS 4777.2:2020 required inverter need to support demand response mode(DRM).

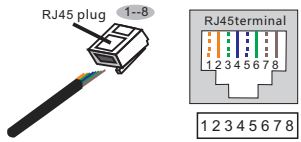
This function is for inverter that comply with AS/NZS 4777.2:2020 standard.

A RJ45 terminal is used for DRM connection.

Pin	Assignment for inverters capable of both charging and discharging	Pin	Assignment for inverters capable of both charging and discharging
1	DRM 1/5	5	RefGen
2	DRM 2/6	6	Com/DRM0
3	DRM 3/7	7	V+
4	DRM 4/8	8	V-

Table 4.5

NOTE:
Solis hybrid inverter is designed to provide 12V power for DRED.



Correspondence between the cables and the stitches of plug
Pin 1: white and orange ; Pin 2: orange
Pin 3: white and green; Pin 4: blue
Pin 5: white and blue; Pin 6: green
Pin 7: white and brown; Pin 8: brown

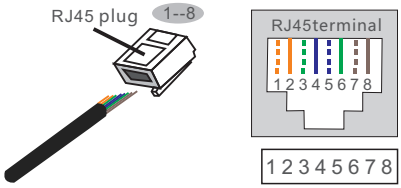
Figure 4.36 Strip the insulation layer and connect to RJ45 plug

4.7.5.3 For remote control from grid operator

1)Solis inverters support accepting switching signals from ripple control receivers to adjust the generating power limit of the inverter. The DRM port is provided with an RJ45 terminal.

Switching Signal	RJ45 Socket Asserted by shorting pins	Function
S0	Pin 5 and Pin 6	Keep inverter generating and ensure effectiveness of switching signal S1-S4 (Open Pin 5 and Pin 6 will stop the export of inverter)
S1	Pin 1 and Pin 7	Limit inverter power to S1 power limit (Default 0%)
S2	Pin 2 and Pin 7	Limit inverter power to S2 power limit (Default 30%)
S3	Pin 3 and Pin 7	Limit inverter power to S3 power limit (Default 60%)
S4	Pin 4 and Pin 7	Limit inverter power to S4 power limit (Default 100%)

NOTE:
S0 needs to be closed, so that S1-S4 can be effective.
In case multiple switching signal from S1-S4 are received, inverter will perform power limitation in priority S1>S2>S3>S4.
S1-S4 power limit can be adjusted in range 0%~100%.



Correspondence between the cables and the stitches of plug
Pin 1: white and orange; Pin 2: orange
Pin 3: white and green; Pin 4: blue
Pin 5: white and blue; Pin 6: green
Pin 7: white and brown; Pin 8: brown

Figure 4.37 Strip the insulation layer and connect to RJ45 plug

2)According to the latest regulations in Germany(Renewable Energy Sources Act - EEG 2023), Solis DRM function also provide DRM-mode2 to realize export power limit and system consumption power limit with the signal of ripple controller.

Switching Signal	RJ45 Socket Asserted by shorting pins	Function
S0	Pin 5 and Pin 6	Keep inverter generating and ensure effectiveness of switching signal S1-S4 (Open Pin 5 and Pin 6 will stop the export of inverter)
S1	Pin 1 and Pin 7	Limit inverter power to S1 power limit (Default 0%)
S2	Pin 2 and Pin 7	Limit inverter power to S2 power limit (Default 30%)
S3	Pin 3 and Pin 7	Limit inverter power to S3 power limit (Default 60%)
S4	Pin 4 and Pin 7	Limit the inverter import power to S4 limit (default 4.2kW) The inverter will generate or take the power from the grid to keep this power balanced at S4 value.

NOTE:

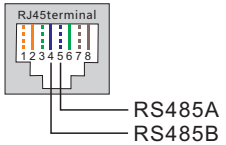
S4 (demand control) is higher priority than S1, S2, S3(genration control).
If the load consumption is above S4 limit value and the inverter does not have enough capability to feed in the load (PV+Battery), this limit will still be broken through. In DRM-mode2, priority: S4>S1>S2>S3.

4.7.6 RS485 Port Connection (Optional)

If a 3rd party external device or controller needs to communicate with the inverter, the RS485 port can be used. Modbus RTU protocol is supported by Solis inverters. To acquire latest protocol document, please contact Solis local service team or Solis sales.

NOTE:

Pin definition of the RS485 Port is following EIA/TIA 568B.
RS485A on Pin 5: Blue/White
RS485B on Pin 4: Blue



4.7.7 Parallel Terminal Connection (Optional)

In parallel-system scenarios, maximum support 6 parallel connections.
Parallel connection of different models is not supported.
(Like 8K and 10K can't be connected in parallel).
Parallel connection of BAT port is not supported.
In the parallel system, each inverter is recommended to plug in the datalogger, otherwise, the remote upgrade cannot be performed.
Parallel cable use standard CAT5 (recommended distance ≤ 5 meters between two inverter) with shielding layers internet cable can be used.

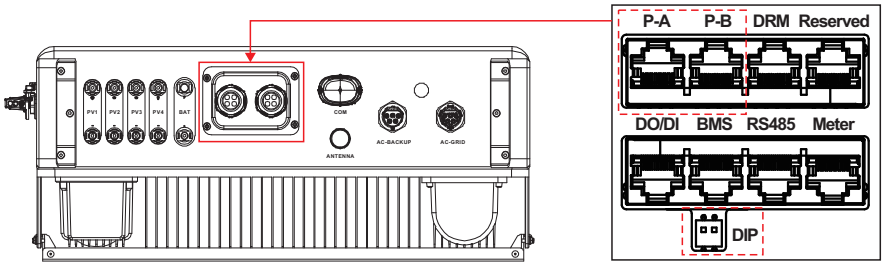


Figure 4.38

Step 1: Connect parallel cables to the parallel system use PAR-A and PAR-B.

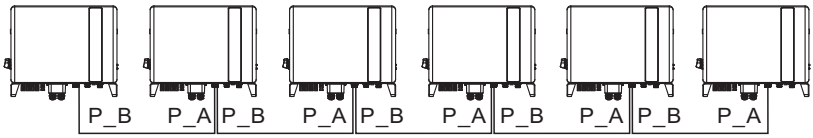


Figure 4.39 Parallel Terminal Connection

Step 2: Adjust the inverter DIP switch
Both the first and the last inverter(Primary & Secondary5(N)) have 2 DIP switches enabled (Both Pin1 & Pin2)
Step 3:Set parallel system
Refer to chapter 5.5 Parallel Settings.
The Primary inverter address is set to 1, the Secondary is 2, and so on. The address of the Primary must be 1.

4.8 Meter Installation

CAUTION:
Make sure the AC cable is totally isolated from AC power before connecting the Smart Meter and CT.

The Solis S6 Series inverter is able to connected standard Eastron meters to fulfill the control logic of the self-consumption mode, export power control, monitoring, etc.
Eastron 3ph meter (With CT): SDM630MCT (Provided by default)

NOTE:
Please note that the CT orientation must be correct, otherwise the system will not work properly.



Compatible Smart Meter Model	Meter RS485 Pin Definition
SDM630MCT	Pin 13 – RS485B, Pin 14 – RS485A
SDM630MCT V2	Pin 13 – RS485B, Pin 14 – RS485A
SDM630 MODBUS V2	Pin A-RS485A, Pin B-RS485B

Table 4.6

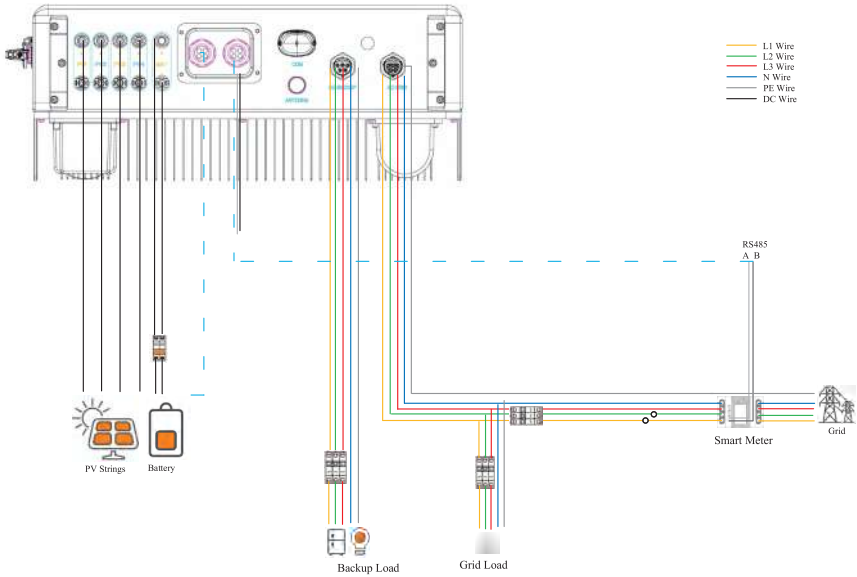


Figure 4.40 SDM630 MODBUS V2

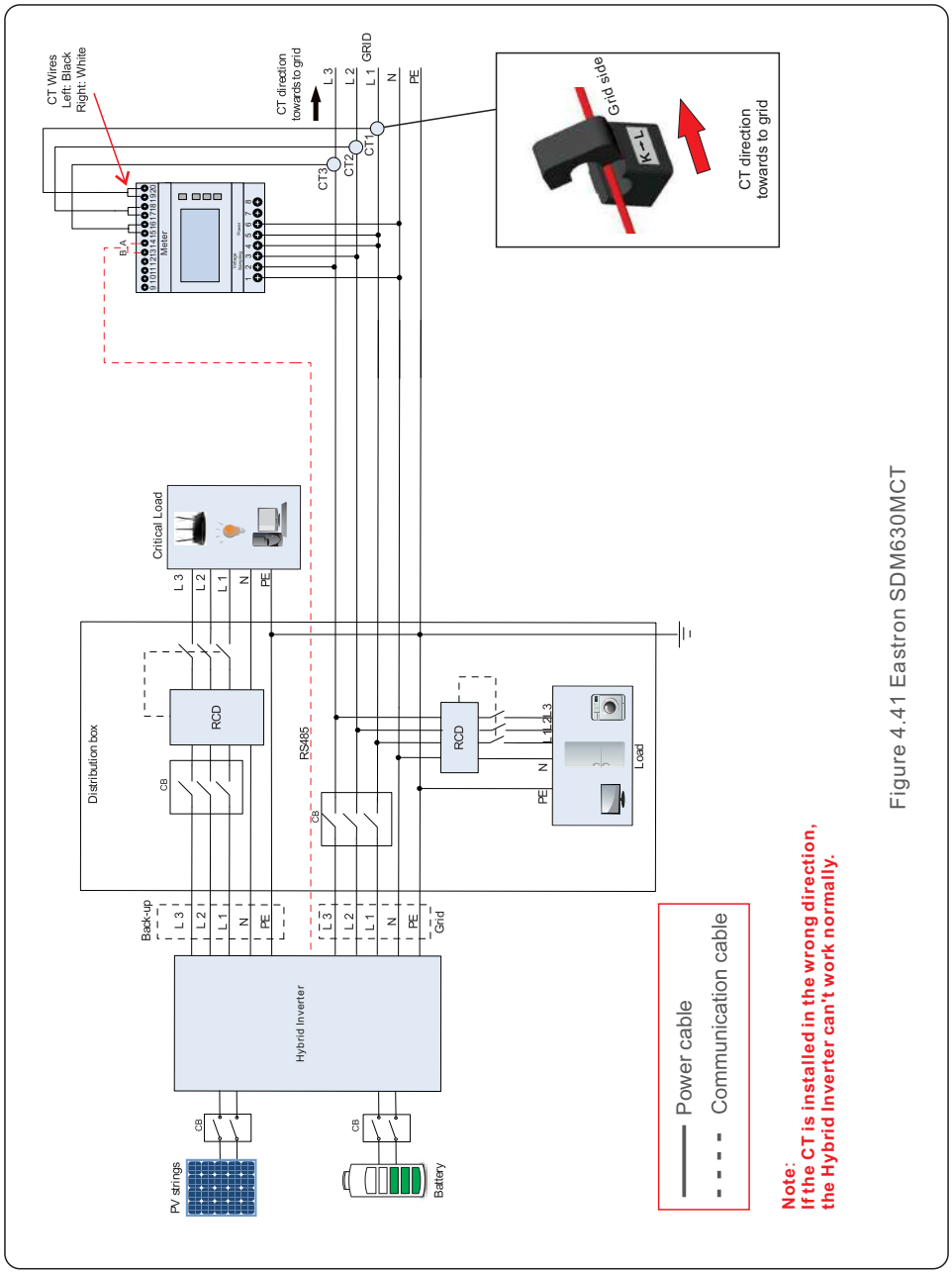


Figure 4.41 Eastron SDM630MCT

4.9 Parallel System Wiring

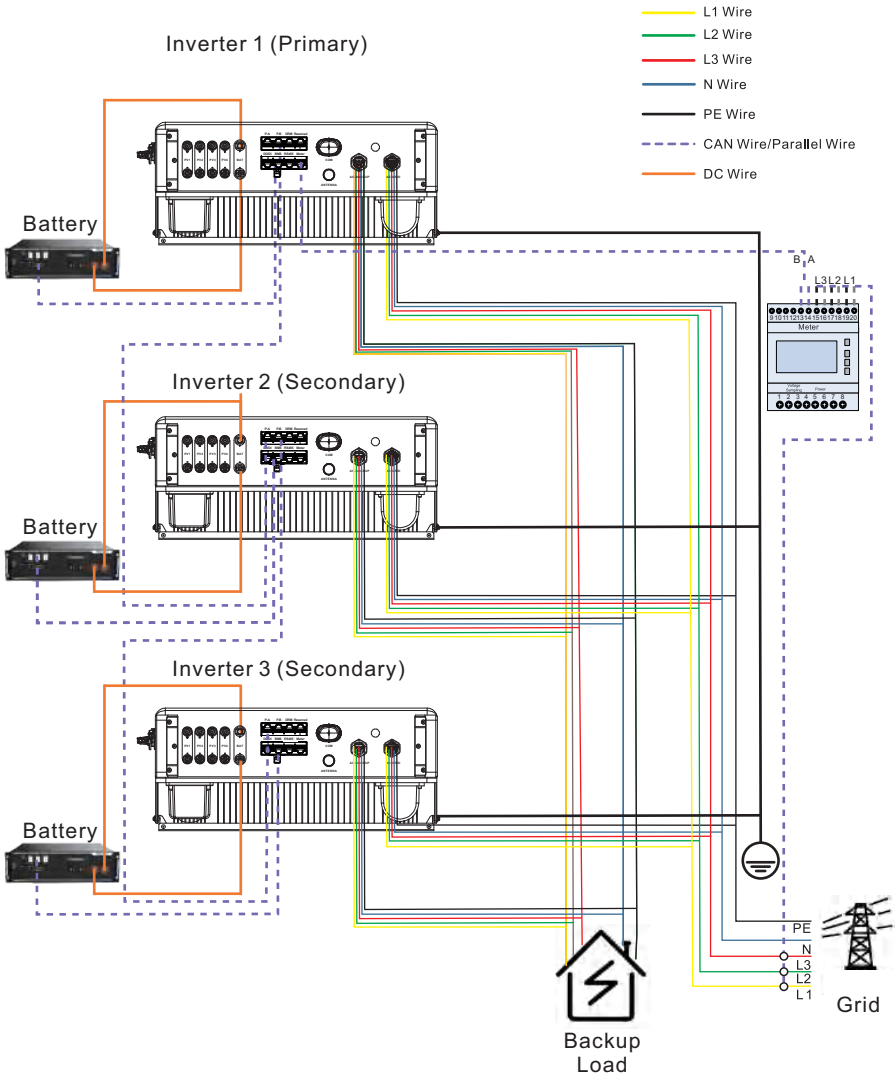
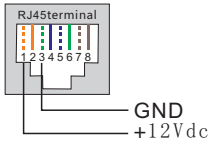


Figure 4.42

4.10 Generator connection (Grid side)

DI/DO port:Use PIN1&PIN3.



PIN1&PIN2:+12Vdc
PIN3&PIN4:GND
The DI terminal is a 12Vdc signal for connecting with generator side, 220VAC/12VDC transformer is needed.
When generator is running, Pin1 and Pin3 is in short circuit.
When generator operation is stop, Pin1 and Pin3 is in open circuit.

4.10.1 system wiring

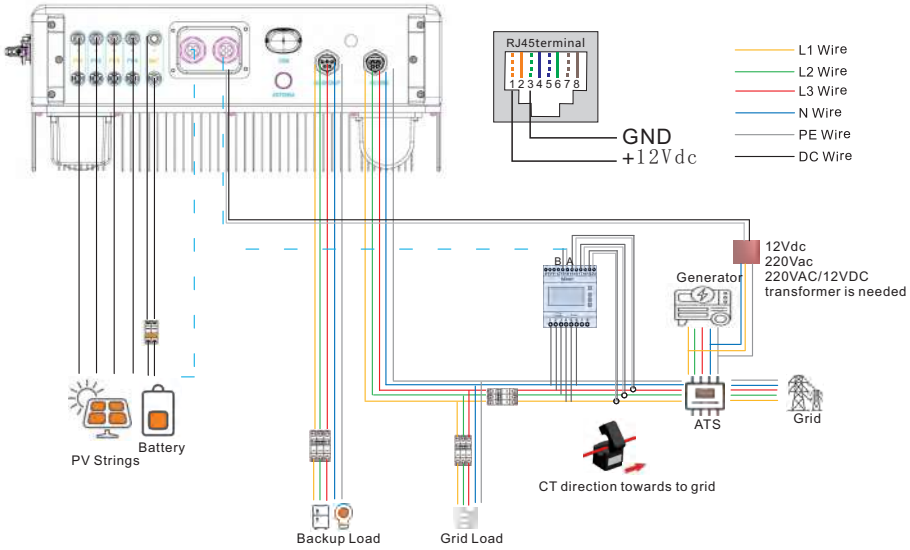
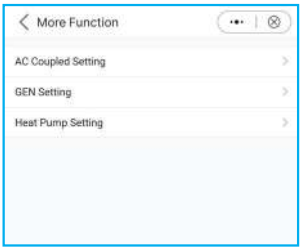
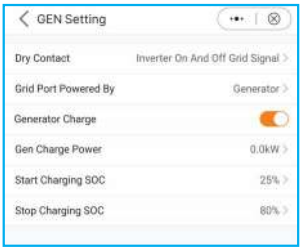


Figure 4.43

4.10.2 APP setting

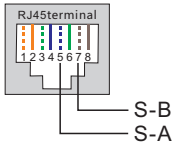
Bluetooth APP-- Setting--More Function--GEN Setting
Dry Contact--Inverter On And Off Grid Signal, the 12Vdc signal informs the inverter that it is the generator connected to the inverter(grid port) now.
Grid port power by--generator(choose the generator when connect to generator.
Generator Charge -- On, allow generator charge the battery.
Gen Charge power-- 0 kW(default),the power of charging battery with the generator.
Start charging SOC--25%(default),when SOC less than 25% generator will charge the battery.
Stop charging SOC--80%(default),when SOC more than 80% generator will stop charge the battery.





4.11 Heat pump connection

DI/DO port:Use PIN5 & PIN 7.



4.11.1 APP setting

Heat Pump setting

Manual mode: In manual control, turn on the switch to activate the Enhanced Mode; turn it off to return the heat pump to Normal Mode.

Smart mode: Turn on/off the heat pump according to the settings.

NOTE:

Enbale Conditions (ALL):

1.Batt SOC≥Enable SOC

2.Grid feed in power≥Enable power

Disable Conditions(One of them)

1.Batt SOC≤disable SOC

2.Grid feed in power≤Disable power

Detection frequency: Minimum Runtime After Startup. The default duration is 10 minutes. This value is configurable between 5 and 60 minutes, in steps of 5 minutes.

Enable SOC: The heat pump will enable when the batt SOC reaches this threshold.

Default:90%

Range: (Overdischarge SOC + 5%) to 100%

Disable SOC: The heat pump will disable when the batt SOC drop to this threshold.

Default: 70%

Range: Overdischarge SOC to(Enable SOC-5%）

Enable Power: The heat pump will enable when the Grid feed in power more than Enable Power.

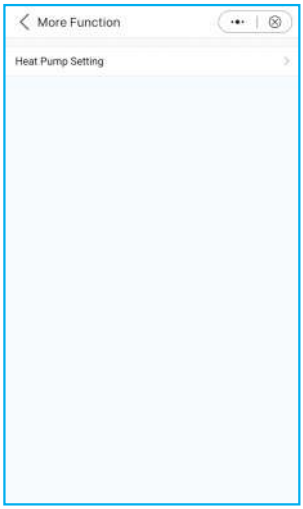
Default:2000W

Range: 100W-1000kW

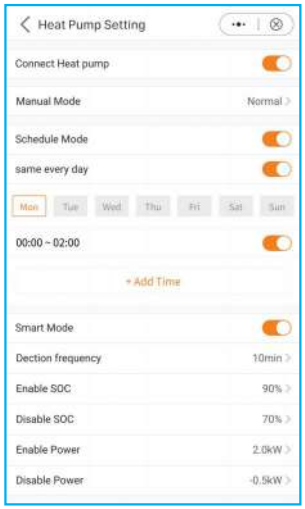
Disable Power: The heat pump will disable when the Grid feed in power less than disable Power.

Default: -500W(A negative value indicates that power is drawn from the grid. A positive value indicates that power is sold to the grid.)

Range: -500W-10kW


More Function
Heat Pump Setting


Heat Pump Setting
Connect Heat pump
Manual Mode
Normal
Schedule Mode
Smart Mode
Manual Mode
Normal
Enhance
Cancel
Save


Heat Pump Setting
Connect Heat pump
Manual Mode
Normal
Schedule Mode
same every day
Mon
Tue
Wed
Thu
Fri
Sat
Sun
00:00 ~ 02:00
+ Add Time
Smart Mode
Dection frequency
10min
Enable SOC
90%
Disable SOC
70%
Enable Power
2.0kW
Disable Power
-0.5kW

4.12 Inverter Remote Monitoring Connection

The inverter can be remotely monitored via WiFi, LAN or 4G.
The USB type COM port at the bottom of the inverter can connect to different kinds of Solis data loggers to realize the remote monitoring on Soliscloud platform.
To install Solis data loggers, please refer to corresponding user manuals of Solis data loggers.
The Solis data loggers are optional and can be purchased separately.
Dust cover is provided the inverter package in case the port is not used.

WARNING:
The USB type COM port is only allowed to connect Solis data loggers.
It is forbidden to be used for other purposes.

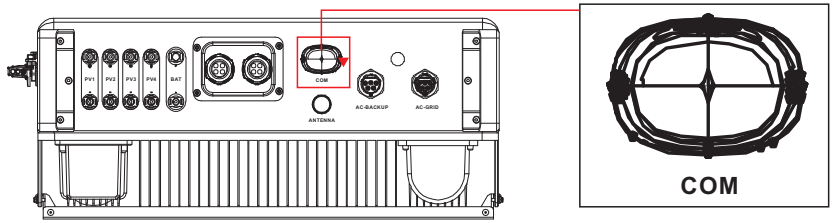


Figure 4.44

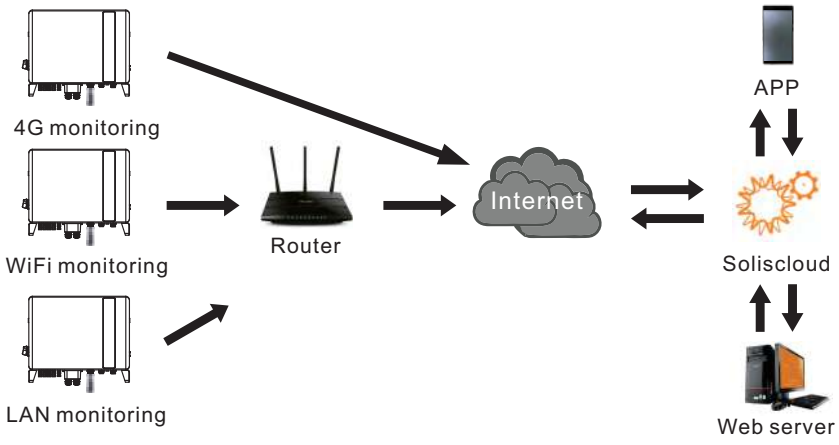


Figure 4.45 Wireless communication function

5.1 Preparation of Commissioning

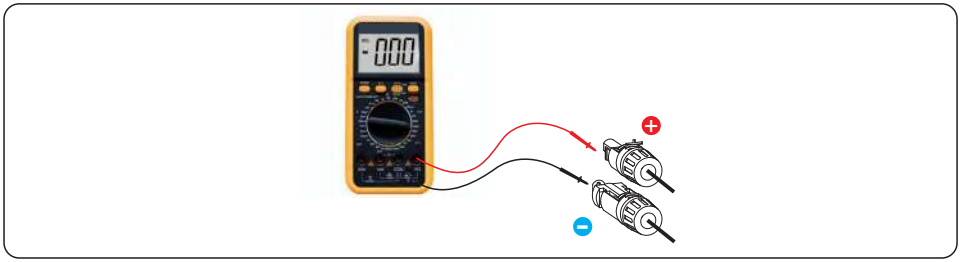
- Ensure all the devices are accessible for operation, maintenance and service.
- Check and confirm that the inverter is firmly installed.
- Space for ventilation is sufficient for one inverter or multiple inverters.
- Nothing is left on the top of the inverter or battery module.
- Inverter and accessories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

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

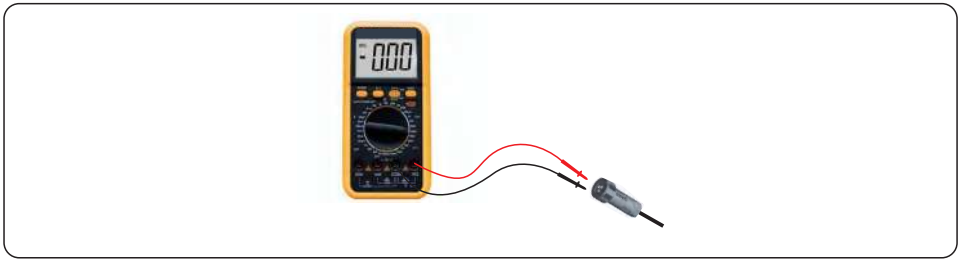
  1. You can visit **www.soliscloud.com** to download the latest version APP.
  2. You can search "**Soliscloud**" in Google Play or App Store.
  3. You can scan this QR code below to download "**Soliscloud**".

5.2 Commissioning Procedure

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



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

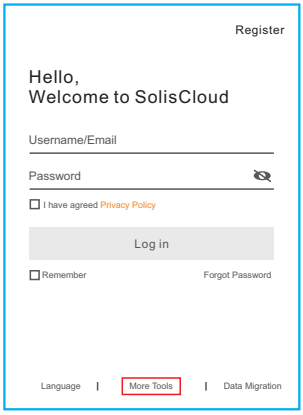


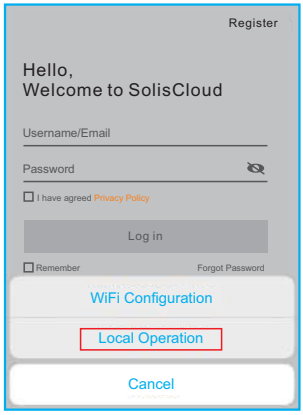
Step 3: Switch on the external AC breaker to power on the inverter control board. (Bluetooth signal available)

Step 4: **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”





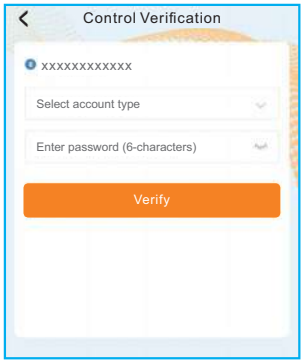


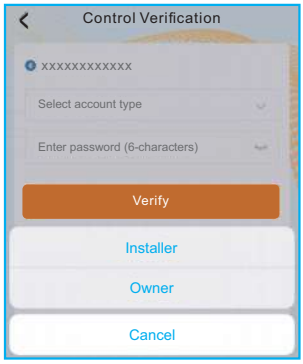
Step 5: Select the Bluetooth signal from the inverter. (Bluetooth Name: Inverter SN)

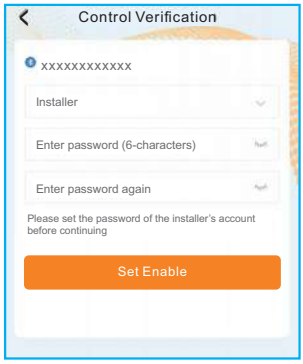


Step 6: **Login account.**

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)





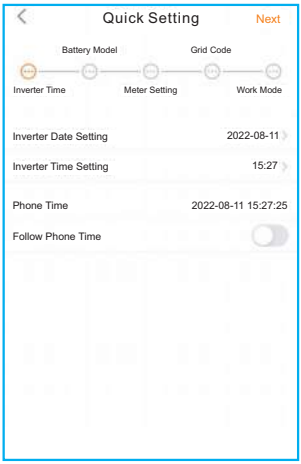


Step 7: After the log in for the first time, initial settings are required.

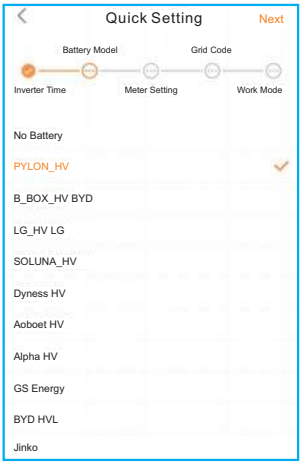
Step 7.1: **Set the inverter Date and Time.**
You can set to follow the time on your mobile phone.

Step 7.2: **Set the battery model.**
It must be based on the battery model that is actually connected to the inverter.
If there is no battery connected for the moment, please select “No Battery” to avoid alarms.
The default setting for battery over discharge SOC is 20%, force charge SOC is 10%.

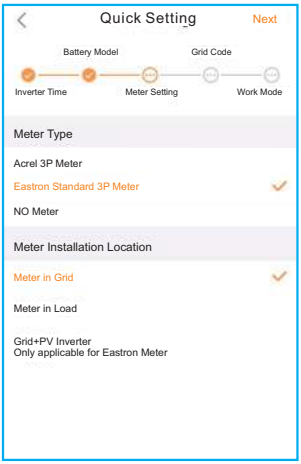
Step 7.3: **Set the meter setting.**
It must be based on the meter type that is actually connected to the inverter.
If there is no meter connected for the moment, please select “No Meter” to avoid alarms.
It is suggested to install the meter at the system grid connection point and select “Meter in Grid”.



Step 7.1



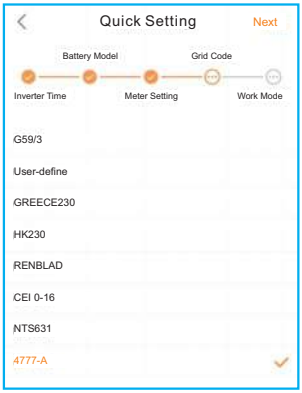
Step 7.2



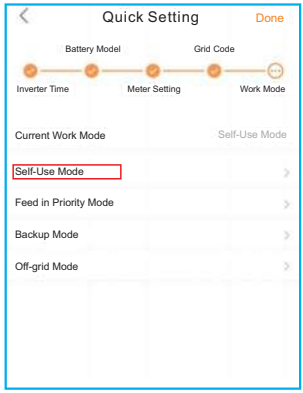
Step 7.3

Step 7.4: **Set the grid code setting.**
Please select the grid code based on the local grid network requirements.

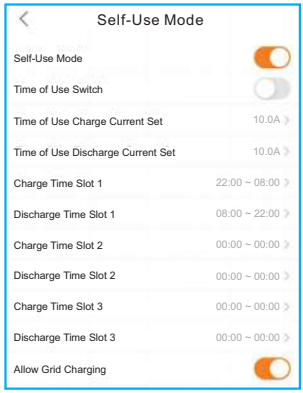
Step 7.5: **Set the work mode setting.**
Recommended setting is Self-Use Mode. This mode can maximize the use of PV power generation for household electricity, or store it in batteries and use it for household electricity. If need manually control the battery charging and discharging with respect to time, please use the Time of Use switch and the following set points. The “Allow Grid Charging” is recommended to be turned on (If turned off, the inverter will not force charge the battery and battery could potentially go to sleep).



Step 7.4



Step 7.5(1)



Step 7.5(2)

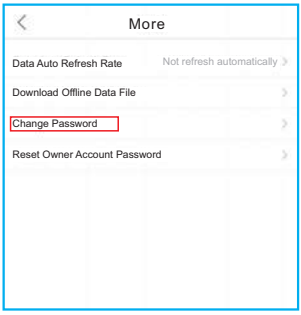
Step 8: **Setup complete.**

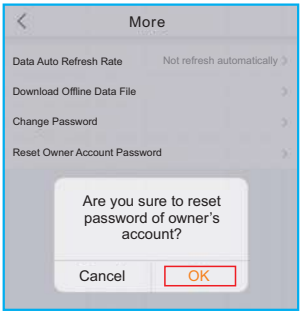
Now the initial settings on the inverter have been set and you can switch on the inverter DC switch and switch on battery breaker to start up the system. You can also explore in the APP to check the operating data, alarm message or other advanced settings.

Step 9: **Change Password.**

If the Owner forgot the password, please contact the installer. Installer log in and go to "Setting"->"More"->"Change Password" to reset the password for owner's account.

If Installer forgot the password, please contact Solis service team.





5.3 SolisCloud Quick Commission

5.3.1 Introduction

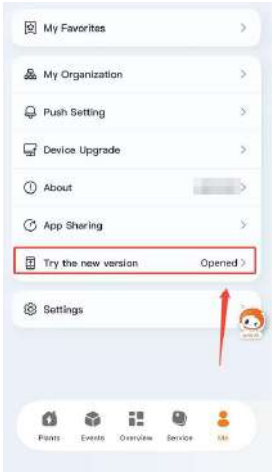
Quick Commission is a brand-new SolisCloud feature. It provides clear, step-by-step guidance to walk you through the entire setup—from logger networking and device configuration to plant creation—in just minutes, allowing you to quickly and smoothly begin your PV system monitoring journey.

5.3.2 Procedure

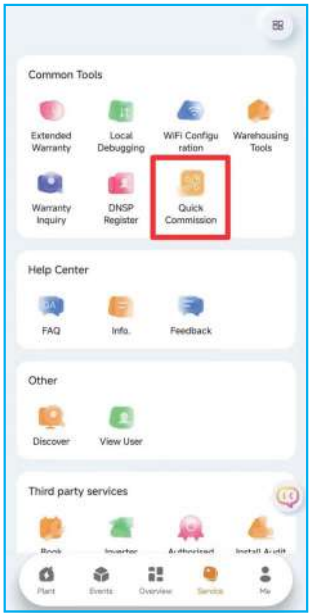
To download the app, scan the QR code or search for "SolisCloud" in your app store. Log in to SolisCloud with your username and password. If you don't have an account, click "Sign up" and follow the prompts to create one.

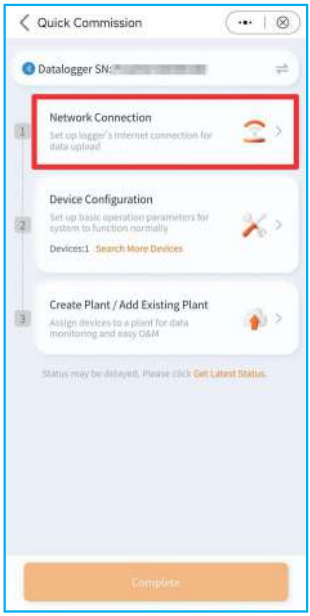
NOTE:

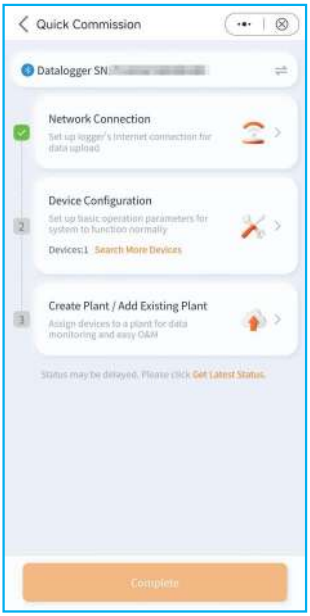
The version needs to be higher than V5.2.221 and ME-Try the new version is opened.



Accessing the Feature: Go to [Service] -> [Common Tools] -> [Quick Commission]. Scan the logger's QR code or select the logger from the Bluetooth list to enter the Quick Commission page.



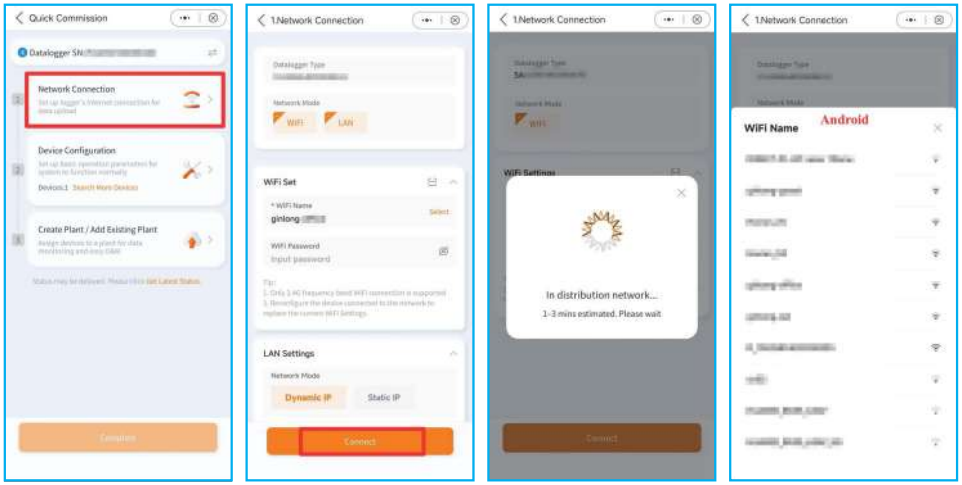




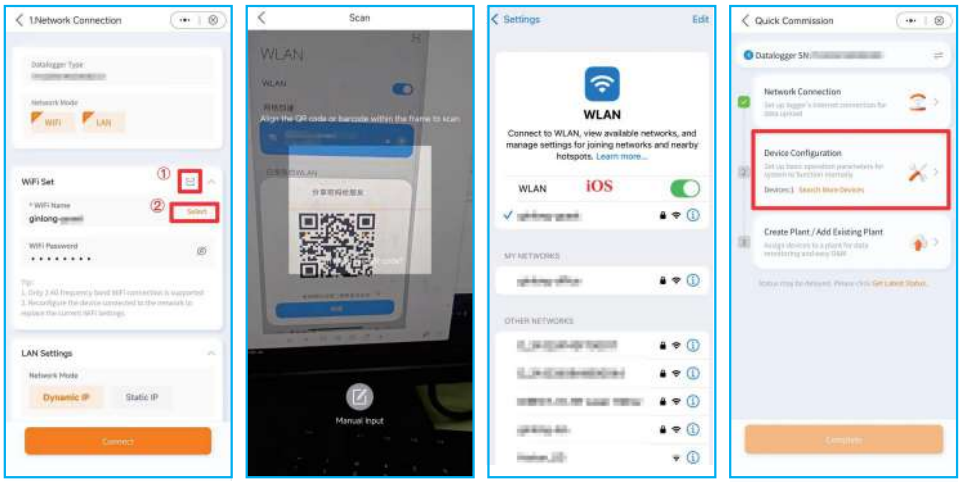
Step1 - Network Connection

Click [Network Connection]. The system will automatically identify the logger type and mode. Please make the corresponding settings according to the prompts.

After configuration, click [Connect] to complete the connection. The Network Connection step will be highlighted.

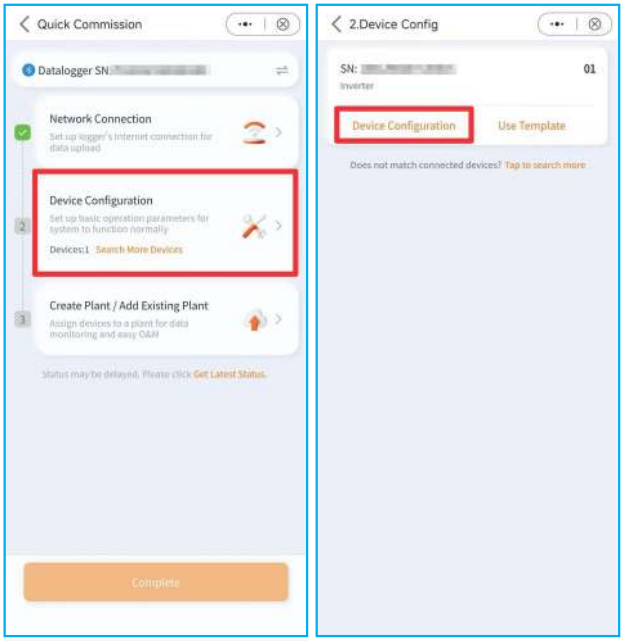


NOTE: When setting up WiFi, you can scan a WiFi QR code shared by others, or click [select] to choose a WiFi network(on Android, this opens a drop-down list; on iOS, it redirects to system settings).



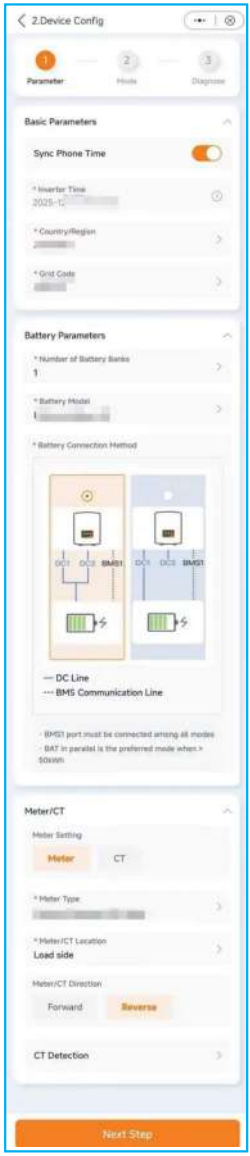
Step2 - Device Configuration

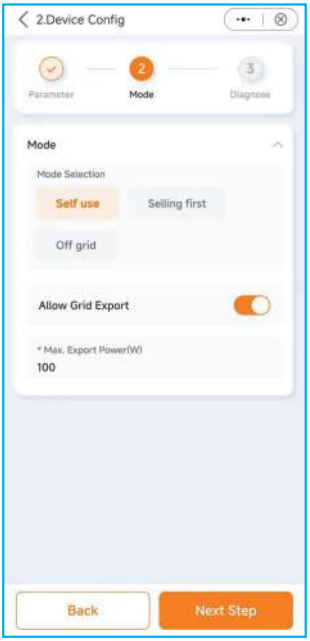
Click [Device Configuration]. All inverter devices connected to the current logger will be displayed.

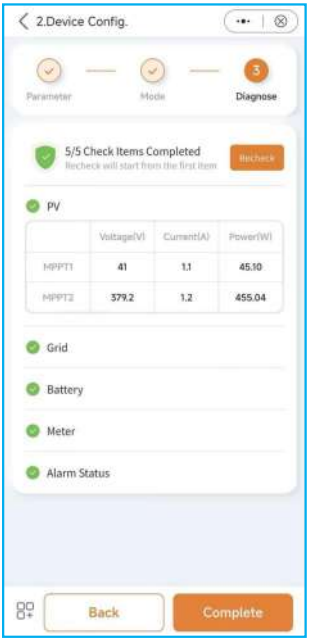


Proceed in order: Set Parameters -> Set Energy Storage Mode -> Diagnosis.

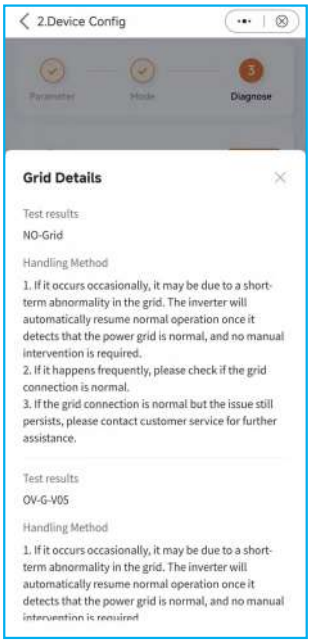
Note: Configurable parameters vary by device model. Please follow the options available on your specific interface.



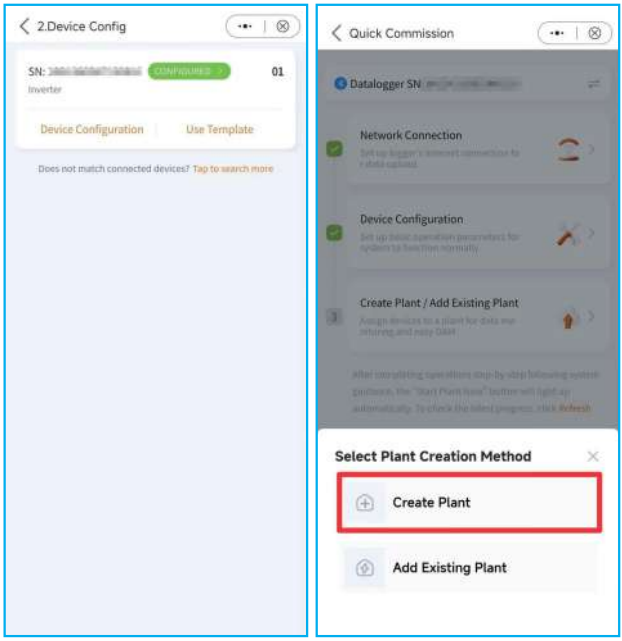




Diagnosis includes 5 diagnostic items: PV, Grid, Battery, Meter, Alarm Status. If an issue is found in any item, you can click to view detailed information and suggested solutions.



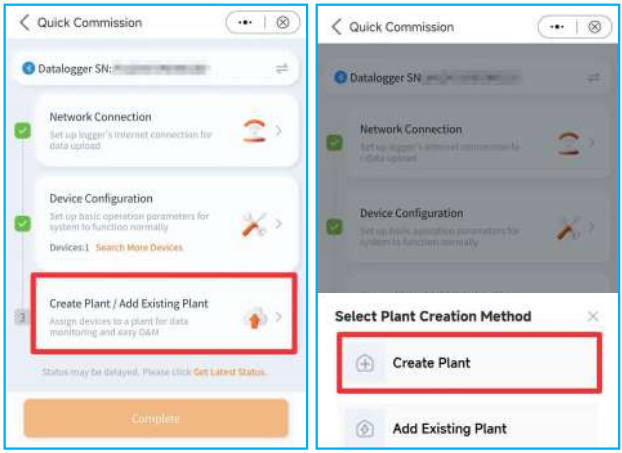
After configuration is complete, the device will be marked as [CONFIGURED], and the Device Configuration step will be highlighted. You can click [CONFIGURED] to jump directly to the local device details page.

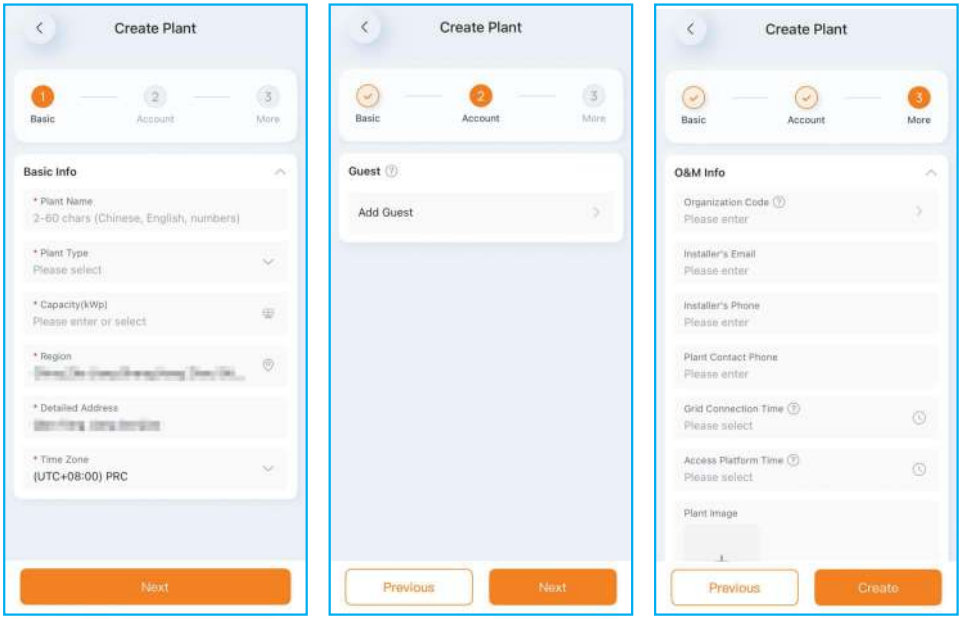


Step3 - Create Plant/Add Existing Plant

Create Plant

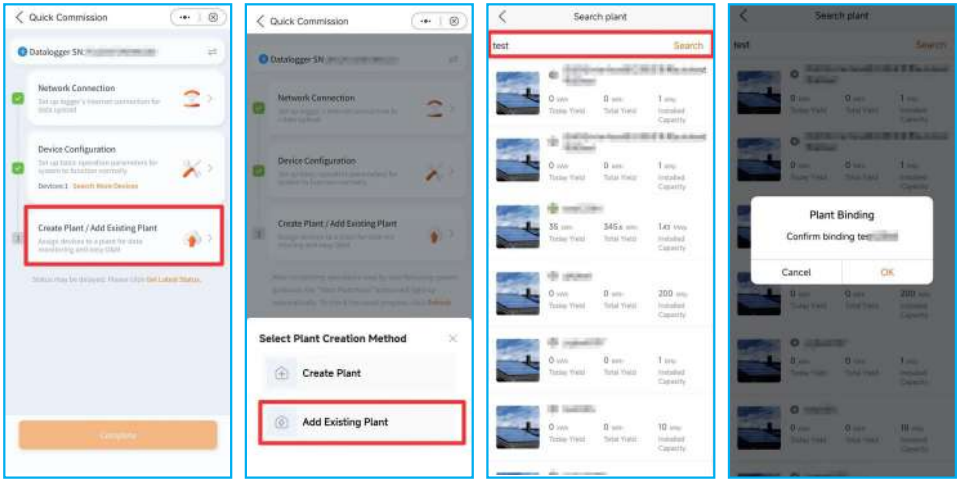
If you want to bind the devices to a new plant, click [Create Plant]. Follow the instructions to fill in the relevant information and complete the plant creation.



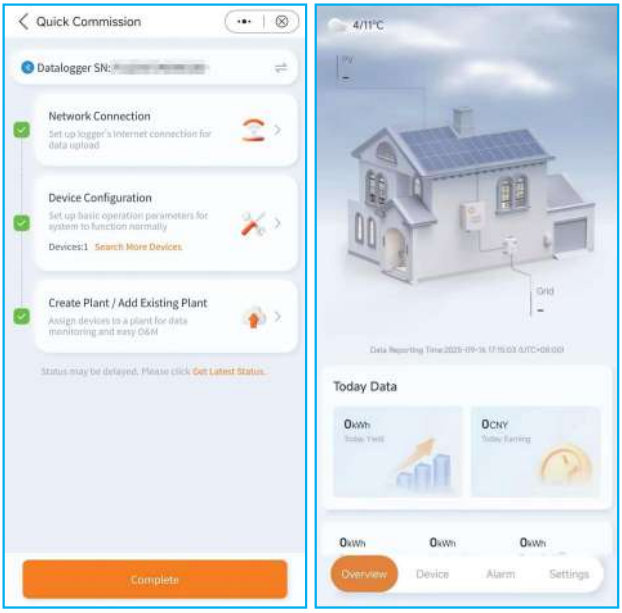


Add Existing Plant

If you want to bind the devices to an existing plant, click [Add Existing Plant]. You can search and view all plants under your account. Select a plant and click [OK].



After completing the above steps, the Create Plant/Add Existing Plant step will be highlighted. Click [Complete] to enter the plant page and complete the commissioning.



5.4 Shutdown procedure

Step 1. Turn off the AC breaker at the grid connection point.
Step 2. Turn off the DC switch of the inverter.
Step 3. Turn off the battery breaker.
Step 4. Waiting for the device powered off and the system shutdown is completed.

5.5 Work mode

Self-Use Mode stores the excess PV power into the battery. If the battery is charged, or there is no battery, the excess PV power will be exported(sold)back to the utility company. If the system is set to not export any power, then the inverter will curtail the PV power(derate the inverter output power). Due to the sampling accuracy and response delay, in the case of zero export, a small amount of export may be generated.

Feed in Priority Mode will ensure that the system exports any excess PV power after the home loads are supplied. If the export power quota has been met, then the remaining PV power will be stored in the battery. This mode should not be used if export power is going to be set to zero.

Off-Grid Mode is only to be used by systems that are not electrically connected to the grid at all. This mode is like Self-Use Mode, but the PV power will be curtailed if the battery is charged and the home load demand is lower than the amount of available PV power.

Peakshaving mode is possible to set the maximum power (Pmax) that the system obtains from the main grid. The power of the main grid charges batteries and supplies power to the load, which is within Pmax. When the load power exceeds the set maximum power (Pmax), the insufficient part is provided by the battery . At the same time, you can set the Peak SOC and charge the battery to this SOC as far as possible under the premise of satisfying Pmeter. The power of grid can be controlled to reduce the cost of electricity.

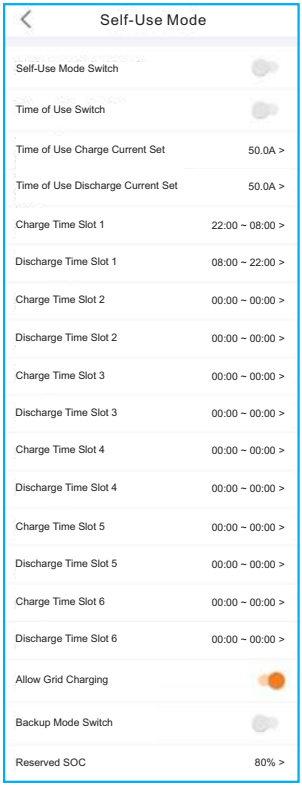
Time of Use Switch is for customizing when the battery is allowed to charge and discharge power and at what rate, established by a current(amperage)setting.If this slider switch is turned on, the inverter will only use this schedule to determine when to charge and discharge the battery. If Allow Grid Charging is turned on, the inverter will use grid power to charge the battery only under two circumstances:(1) the battery drains to the Force Charge SOC. (2)Time of Use is enabled and there is not enough available PV power during the charge window to meet the current rate that is established.
Time of Use is for manual control of the battery charging/discharging.If Time of Use is turned off, charging/discharging is automatically regulated by the inverter.

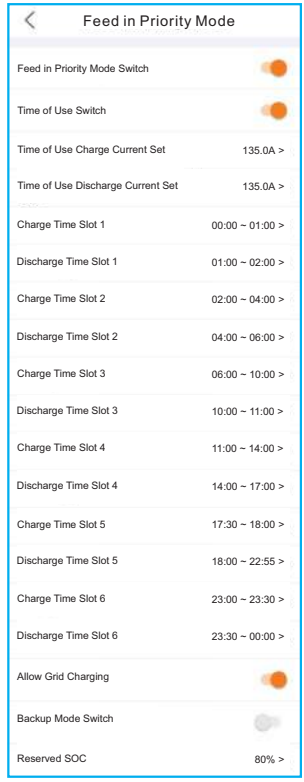


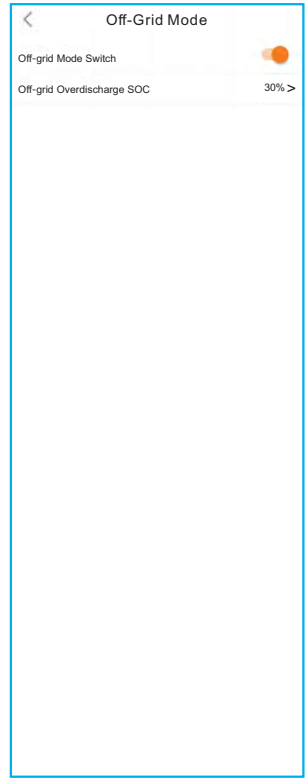
NOTE:
Solis's export power control function is based on the sampling results from the smart meter or smart CT. Due to the sampling interval limitation, when the system's load consumption has sudden changes, small amount of export overshooting is expected. For strict zero injection applications, it is suggested to install external backflow trip device as additional protection for injection.

NOTE:

The set current value is the maximum current for charging/discharging the battery. However, the actual charging and discharging current may not reach this value due to the influence of other factors, such as the maximum charging/discharging power limitation of the inverter, the battery BMS limitation, etc.







5.6 Parallel Settings

Set up a parallel system according to the following steps:

A. Set the parallel mode as “Parallel”.

B. Set the Primary inverter address ID to 1, the other Secondary to 2~6.

(Note: the address ID cannot be set to 0, and the physical address of the Primary must be 1)

C. Choose “Primary” or “Secondary” for each inverter.

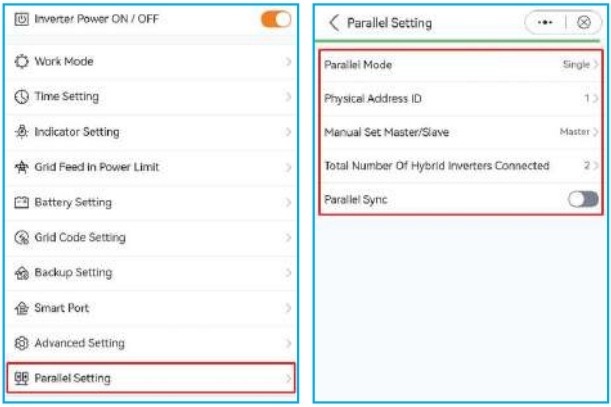
D. Choose the number of inverters in parallel, the range is 2~6.

E. Enable “Parallel Sync” , parameters of the main inverter will be synchronized to the Secondary.

F. DIP Switch:

Option 1: Both the first and the last inverter(INV1 & INV3) have 1 of the DIP switch enabled. (Either Pin1 & Pin2)

Option 2: One of the first and the last inverter (INV1 or INV3) has 2 DIP switches enabled. (Both Pin1 or Pin2)



5.7 Dual meters setting

Hybrid inverter Setting--Advanced Setting--Meter Setting--Meter Installation Location (Grid +PV Inverter)





Meter setting
Meter setting password: 1000.
Meter1(grid)
Address: 001.
Meter2(PV inverter)
Address: 002.

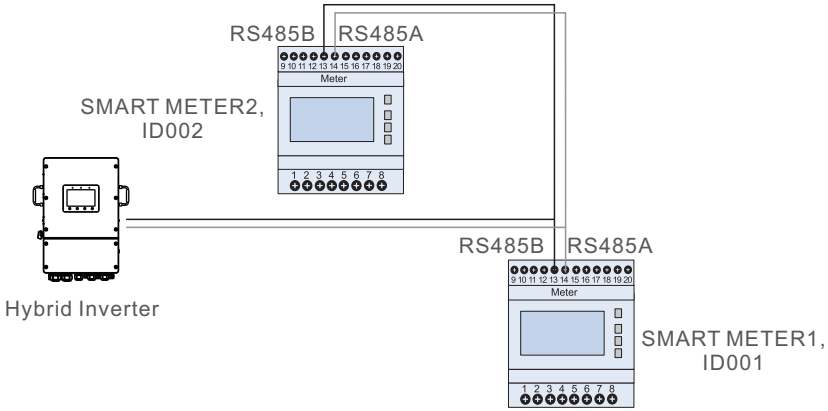


Figure 5.1 Typical on-grid AC-coupled diagram(on-grid)

Solis S6 Series inverter does not require any regular maintenance. However, cleaning the heatsink will help inverter dissipating heat and increase the lifetime of inverter. The dirt on the inverter can be cleaned with a soft brush.



CAUTION:
Do not touch the surface when the inverter is operating. Some parts may be hot and cause burns. Turn OFF the inverter and let it cool down before you do any maintenance or cleaning of inverter.

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



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

Message Name	Information Description	Troubleshooting Suggestion
Off	Control device to shutdown	1. Turn on the device in the ON/OFF Setting.
LmtByEPM	The device's output is under controlled	1. Confirm whether the inverter is connected to an external EPM/meter to prevent reverse current. 2. Confirm whether the inverter is controlled by an external third-party device. 3. Confirm whether the power setting of the inverter power control is limited. 4. Verify settings in section 6.6.7 and check your meter readings.
LmtByDRM	DRM Function ON	1. No need to deal with it.
LmtByTemp	Over temperature power limited	1. No need to deal with it, the device is in normal operation.
LmtByFreq	Frequency power limited	
LmtByVg	The device is in the Volt-Watt mode	1. Due to the requirements of local safety regulations, when the grid voltage is high, the Volt-watt working mode is triggered, which generally does not need to be dealt with. 2. Inverter factory test errors causing this mode to open, if you need to close, you can close this mode in LCD, set the process: Main menu → Advanced Settings → Password 0010 → STD mode settings → Working Mode → Working mode: NULL → Save and exit.
LmtByVar	The device is in the Volt-Var mode of operation	1. Due to the requirements of local safety regulations, when the grid voltage is high, the Volt-watt working mode is triggered, which generally does not need to be dealt with. 2. Inverter factory test errors causing this mode to open, if you need to close, you can close this mode in LCD, set the process: Main menu → Advanced Settings → Password 0010 → STD mode settings → Working Mode → Working mode: NULL → Save and exit.
LmtByUnFr	Under frequency limit	1. No need to deal with it.
Standby	Bypass run	
StandbySynoch	Off grid status to On grid status	
GridToLoad	Grid to load	

Message Name	Information Description	Troubleshooting Suggestion
Surge Alarm	On-site grid surge	1. Grid side fault, restart the device. If it is still not eliminated, please contact the manufacturer's customer service.
OV-G-V01	Grid voltage exceeds the upper voltage range	1. Confirm whether the power grid is abnormal. 2. Confirm that the AC cable is properly connected. 3. Restart the system and check if the fault persists.
UN-G-V01	Grid voltage exceeds the lower voltage range	
OV-G-F01	Grid frequency exceeds the upper frequency range	
UN-G-F01	Grid frequency exceeds the lower frequency range	
G-PHASE	Unbalanced grid voltage	
G-F-GLU	Grid voltage frequency fluctuation	
NO-Grid	No grid	
OV-G-V02	Grid transient overvoltage	
OV-G-V03	Grid transient overvoltage	1. Restart the system, confirm if that the fault continues.
IGFOL-F	Grid current tracking failure	1. Confirm whether the power grid is abnormal. 2. Confirm that the AC cable is properly connected. 3. Restart the system and check if the fault persists.
OV-G-V05	Grid voltage RMS instantaneous overvoltage fault	
OV-G-V04	Grid voltage exceeds the upper voltage range	
UN-G-V02	Grid voltage exceeds the lower voltage range	
OV-G-F02	Grid frequency exceeds the upper frequency range	
UN-G-F02	Grid frequency exceeds the lower frequency range	
NO-Battery	Battery is not connected	1. Check on information page 1 – Verify the battery voltage is within standards. 2. Measure battery voltage at plug.
OV-Vbackup	Inverting overvoltage	1. Check whether the backup port wiring is normal 2. Restart the system, confirm that the fault continues.
Over-Load	Load overload fault	1. Backup load power is too large, or some inductive load startup power is too large, need to remove some backup load, or remove the inductive load on the backup.

Message Name	Information Description	Troubleshooting Suggestion
BatName-FAIL	Wrong battery brand selection	1. Confirm whether the battery model selection is consistent with the actual one.
CAN Fail	CAN Fail	1. Can failure is a failure of communication between inverter and battery. Check cable conditions. Check to ensure you have it plugged in on the CAN port of the battery and inverter. Check that you are using the right cable. Some batteries require a special battery from the battery manufacturer.
OV-Vbatt	Battery overvoltage detected	1. Verify battery voltage is within standards. Measure battery voltage at inverter connection point. Contact your battery manufacturer for further service.
UN-Vbatt	Battery undervoltage detected	1. Restart the system and check if the fault persists. If it is still not eliminated, please contact the manufacturer's customer service.
Fan Alarm	Fan alarm	1. Check if the internal fan is working correctly or jammed.
OV-DC01 (1020 DATA:0001)	DC 1 input overvoltage	1. Check if the PV voltage is abnormal 2. Restart the system, confirm that the fault continues
OV-DC02 (1020 DATA:0002)	DC 2 input overvoltage	
OV-BUS (1021 DATA:0000)	DC bus overvoltage	1. Restart the system, confirm that the fault continues.
UN-BUS01 (1023 DATA:0001)	DC bus undervoltage	
UNB-BUS (1022 DATA:0000)	DC bus unbalanced voltage	
UN-BUS02 (1023 DATA:0002)	Abnormal detection of DC bus voltage	
DC-INTF. (1027 DATA:0000)	DC hardware overcurrent (1, 2, 3, 4)	1. Check if the DC wires are connected correctly without loose connection.
OV-G-I (1018 DATA:0000)	A phase RMS value overcurrent	1. Confirm that the grid is abnormal. 2. Confirm that the AC cable connection is not abnormal. 3. Restart the system, confirm that the fault continues.
OV-DCA-I (1025 DATA:0000)	DC 1 average overcurrent	1. Restart the system, confirm that the fault continues.
OV-DCB-I (1026 DATA:0000)	DC 2 average overcurrent	
GRID-INTF. (1030 DATA:0000)	AC hardware overcurrent (abc phase)	

Message Name	Information Description	Troubleshooting Suggestion
DCInj-FAULT (1037 DATA:0000)	The current DC component exceeds the limit	1. Confirm that the grid is abnormal. 2. Confirm that the AC cable connection is not abnormal. 3. Restart the system, confirm that the fault continues.
IGBT-OV-I (1048 DATA:0000)	IGBT overcurrent	1. Restart the system, confirm that the fault continues.
OV-TEM (1032 DATA:0000)	Module over temperature	1. Check whether the surrounding environment of the inverter has poor heat dissipation. 2. Confirm whether the product installation meets the requirements.
RelayChk-FAIL (1035 DATA:0000)	Relay failure	1. Restart the system, confirm that the fault continues.
UN-TEM (103A DATA:0000)	Low temperature protection	1. Check the working environment temperature of the inverter. 2. Restart the system to confirm if the fault continues.
PV ISO-PRO01 (1033 DATA:0001)	PV negative ground fault	1. Check whether the PV strings have insulation problems. 2. Check whether the PV cable is damaged.
PV ISO-PRO02 (1033 DATA:0002)	PV positive ground fault	
12Power-FAULT (1038 DATA:0000)	12V undervoltage failure	1. Check current leakage to ground. Verify your grounding. Verify all wires are in good condition and not leaking current to ground.
ILeak-PRO01 (1034 DATA:0001)	Leakage current failure 01 (30mA)	
ILeak-PRO02 (1034 DATA:0002)	Leakage current failure 02 (60mA)	
ILeak-PRO03 (1034 DATA:0003)	Leakage current failure 03 (150mA)	
ILeak-PRO04 (1034 DATA:0004)	Leakage current failure 04	
ILeak_Check (1039 DATA:0000)	Leakage current sensor failure	
GRID-INTF02 (1046 DATA:0000)	Power grid disturbance 02	1. Confirm whether the grid is seriously distorted. 2. Check whether the AC cable is connected reliably.
OV-Vbatt-H/ OV-BUS-H (1051 DATA:0000)	Battery overvoltage hardware failure / VBUS	1. Check if the battery circuit breaker is tripping. 2. Check if the battery is damaged.

Message Name	Information Description	Troubleshooting Suggestion
OV-ILLC (1052 DATA:0000)	LLC hardware overcurrent	1. Check whether the backup load is overloaded. 2. Restart the system, confirm that the fault continues.
INI-FAULT (1031 DATA:0000)	AD zero drift overlink	1. Restart the system, confirm that the fault continues.
DSP-B-FAULT (1036 DATA:0000)	The Primary-Secondary DSP communication is abnormal	
AFCI-Check (1040 DATA:0000)	AFCI self-test failure	
ARC- FAULT (1041 DATA:0000)	AFCI failure	1. Verify connections are tight within your PV system. Arc fault settings can be changed in advanced settings if further adjustment is necessary.

Table 7.1 Fault message and description

NOTE:
If the inverter displays any alarm message as listed in Table 7.1; please turn off the inverter and wait for 5 minutes before restarting it .
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 the problem together with necessary information, pictures, attachment.
5. The PV array configuration (e.g. number of panels, capacity of panels, number of strings, etc.);
6. Your contact details.

Technical Data	S6-EH3P5K2-H	S6-EH3P6K2-H
Input DC (PV side)		
Recommended max. PV power	8000W	9600W
Max. input voltage	1000V	
Rated voltage	600V	
Start-up voltage	160V	
MPPT voltage range	200-850V	
Full load MPPT voltage range	250-850V	
Max. input current	16A/16A	
Max. short circuit current	24A/24A	
MPPT number/Max input strings number	2/2	
Max input power per MPPT	8000W	9000W
Battery		
Battery Type	Li-ion	
Battery Voltage range	120 - 600Vdc*	
Maximum charging Power	5kW	6kW
Maximum Charge/discharge current	25A	
Communication	CAN/RS485	
Output AC(Grid-side)		
Rated output power	5kW	6kW
Max. apparent output power	5kVA	6kVA
Rated grid voltage	3/N/PE, 380V/400V	
The grid voltage range	320-460V	
Rating grid frequency	50 Hz/60 Hz	
AC grid frequency range	45-55 Hz/ 55-65Hz	
Rating grid output current	7.6A/7.2A	9.1A/8.7A
Max. output current	7.6A/7.2A	9.1A/8.7A
Power factor	> 0.99 (0.8 leading to 0.8 lagging)	
THDi	< 3%	

120-600Vdc *Supports max. battery voltage to 700 Vdc

Technical Data	S6-EH3P5K2-H	S6-EH3P6K2-H
Input AC(Grid-side)		
Input voltage range	304-437V / 320-460V	
Max. input current	11.4A/10.9A	13.6A/13.0A
Rated grid frequency	50 Hz/60 Hz	
Frequency range	45-55 Hz / 55-65 Hz	
Output AC(Back-up)		
Rated output power	5kW	6kW
Max. apparent output power	1.6 times of rated power, 60 s	
Back-up switch time	< 10ms	
Rated output voltage	3/N/PE, 380V/400V	
Rated frequency	50 Hz/60 Hz	
Rated output current	7.6A/7.2A	9.1A/8.7A
THDv(@linear load)	<3%	
Efficiency		
PV Max. efficiency	96.50%	97.00%
EU efficiency	96.77%	97.10%
BAT charged by PV Max. efficiency	98.37%	98.45%
BAT charged/discharged to AC Max. efficiency	97.32%	97.34%
Protection		
Anti-islanding protection	Yes	
Integrated AFCI 2.0	Optional	
Insulation Resistor detection	Yes	
Residual current monitoring unit	Yes	
Output over current protection	Yes	
Output short protection	Yes	
Output over voltage protection	Yes	
DC switch	Yes	
DC reverse polarity protection	Yes	
PV overvoltage protection	Yes	
Battery reverse protection	Yes	

Technical Data	S6-EH3P5K2-H	S6-EH3P6K2-H
General data		
Max. power per phase (grid & back up)	50% rated power	
Dimensions(W/H/D)	563*412*209mm	
Weight	27.5kg	
Topology	Transformerless	
Self consumption (Night)	<25 W	
Operation temperature range	-25℃ ~ +60℃	
Relative humidity	0-100%	
Ingress protection	IP66	
Noise emission	<46.9 dB(A)	
Cooling concept	Natural convection	
Max.operation altitude	4000m	
Grid connection standard	G98 or G99, VDE-AR-N 4105 / VDE V 0124, EN 50549-1, VDE 0126 / UTE C 15/VFR:2019, RD 1699/RD 244 / UNE 206006 / UNE 206007-1, CEI 0-21, C10/11, NRS 097-2-1, TOR, EIFS 2018.2, IEC 62116, IEC 61727, IEC 60068, IEC 61683, EN 50530, MEA, PEA	
Safty/EMC standard	IEC 62109-1/-2 ,EN 61000-6-1/-3	
Features		
PV connection	MC4 connector	
Battery connnection	Quick Connection plug	
AC connection	Quick Connection plug	
Display	LED indicator & Bluetooth+APP	
Communication	CAN, RS485, Optional:Wi-Fi, Cellular, LAN	
Warranty	5 years (extend to 20 years)	

Technical Data	S6-EH3P8K2-H	S6-EH3P10K2-H
Input DC (PV side)		
Recommended max. PV power	12800W	16000W
Max. input voltage	1000V	
Rated voltage	600V	
Start-up voltage	160V	
MPPT voltage range	200-850V	
Full load MPPT voltage range	300-850V	350-850V
Max. input current	16A/16A	
Max. short circuit current	24A/24A	
MPPT number/Max input strings number	2/2	
Max input power per MPPT	9000W	9000W
Battery		
Battery Type	Li-ion	
Battery Voltage range	120 - 600Vdc*	
Maximum charging Power	8kW	10kW
Maximum Charge/discharge current	50A	
Communication	CAN/RS485	
Output AC(Grid-side)		
Rated output power	8kW	10kW
Max. apparent output power	8kVA	10kVA
Rated grid voltage	3/N/PE, 380V/400V	
The grid voltage range	320-460V	
Rating grid frequency	50 Hz/60 Hz	
AC grid frequency range	45-55 Hz/ 55-65Hz	
Rating grid output current	12.2A/11.5A	15.2A/14.4A
Max. output current	12.2A/11.5A	15.2A/14.4A
Power factor	> 0.99 (0.8 leading to 0.8 lagging)	
THDi	< 3%	

120-600Vdc *Supports max. battery voltage to 700 Vdc

Technical Data	S6-EH3P8K2-H	S6-EH3P10K2-H
Input AC(Grid-side)		
Input voltage range	304-437V / 320-460V	
Max. input current	18.2A/17.4A	22.8A/21.7A
Rated grid frequency	50 Hz/60 Hz	
Frequency range	45-55 Hz / 55-65 Hz	
Output AC(Back-up)		
Rated output power	8kW	10kW
Max. apparent output power	1.6 times of rated power, 60 s	
Back-up switch time	< 10ms	
Rated output voltage	3/N/PE, 380V/400V	
Rated frequency	50 Hz/60 Hz	
Rated output current	12.2A/11.5A	15.2A/14.4A
THDv(@linear load)	<3%	
Efficiency		
PV Max. efficiency	97.50%	97.90%
EU efficiency	97.41%	97.51%
BAT charged by PV Max. efficiency	98.22%	98.31%
BAT charged/discharged to AC Max. efficiency	97.50%	97.50%
Protection		
Anti-islanding protection	Yes	
Integrated AFCI 2.0	Optional	
Insulation Resistor detection	Yes	
Residual current monitoring unit	Yes	
Output over current protection	Yes	
Output short protection	Yes	
Output over voltage protection	Yes	
DC switch	Yes	
DC reverse polarity protection	Yes	
PV overvoltage protection	Yes	
Battery reverse protection	Yes	

Technical Data	S6-EH3P8K2-H	S6-EH3P10K2-H
General data		
Max. power per phase (grid & back up)	50% rated power	
Dimensions(W/H/D)	563*412*209mm	
Weight	31.6kg	
Topology	Transformerless	
Self consumption (Night)	<25 W	
Operation temperature range	-25℃ ~ +60℃	
Relative humidity	0-100%	
Ingress protection	IP66	
Noise emission	<46.9 dB(A)	
Cooling concept	Natural convection	
Max.operation altitude	4000m	
Grid connection standard	G98 or G99, VDE-AR-N 4105 / VDE V 0124, EN 50549-1, VDE 0126 / UTE C 15/VFR:2019, RD 1699/RD 244 / UNE 206006 / UNE 206007-1, CEI 0-21, C10/11, NRS 097-2-1, TOR, EIFS 2018.2, IEC 62116, IEC 61727, IEC 60068, IEC 61683, EN 50530, MEA, PEA	
Safty/EMC standard	IEC 62109-1/-2 ,EN 61000-6-1/-3	
Features		
PV connection	MC4 connector	
Battery connnection	Quick Connection plug	
AC connection	Quick Connection plug	
Display	LED indicator & Bluetooth+APP	
Communication	CAN, RS485, Optional:Wi-Fi, Cellular, LAN	
Warranty	5 years (extend to 20 years)	

Technical Data	S6-EH3P5K-H-EU	S6-EH3P6K-H-EU
Input DC (PV side)		
Recommended max. PV power	8000W	9600W
Max. input voltage	1000V	
Rated voltage	600V	
Start-up voltage	160V	
MPPT voltage range	200-850V	
Full load MPPT voltage range	200-850V	
Max. input current	16A/16A/16A	
Max. short circuit current	24A/24A/24A	
MPPT number/Max input strings number	3/3	
Max input power per MPPT	8000W	9000W
Battery		
Battery Type	Li-ion	
Battery Voltage range	120 - 600Vdc*	
Maximum charging Power	5kW	6kW
Maximum Charge/discharge current	25A	
Communication	CAN/RS485	
Output AC(Grid-side)		
Rated output power	5kW	6kW
Max. apparent output power	5kVA	6kVA
Rated grid voltage	3/N/PE, 380V/400V	
The grid voltage range	320-460V	
Rating grid frequency	50 Hz/60 Hz	
AC grid frequency range	45-55 Hz/ 55-65Hz	
Rating grid output current	7.6A/7.2A	9.1A/8.7A
Max. output current	7.6A/7.2A	9.1A/8.7A
Power factor	> 0.99 (0.8 leading to 0.8 lagging)	
THDi	< 3%	

120-600Vdc *Supports max. battery voltage to 700 Vdc

Technical Data	S6-EH3P5K-H-EU	S6-EH3P6K-H-EU
Input AC(Grid-side)		
Input voltage range	304-437V / 320-460V	
Max. input current	11.4A	13.8A
Rated grid frequency	50 Hz/60 Hz	
Frequency range	45-55 Hz / 55-65 Hz	
Output AC(Back-up)		
Rated output power	5kW	6kW
Max. apparent output power	1.6 times of rated power, 60 s	
Back-up switch time	< 10ms	
Rated output voltage	3/N/PE, 380V/400V	
Rated frequency	50 Hz/60 Hz	
Rated output current	7.6A/7.2A	9.1A/8.7A
THDv(@linear load)	<3%	
Efficiency		
PV Max. efficiency	96.50%	97.00%
EU efficiency	96.77%	97.10%
BAT charged by PV Max. efficiency	98.37%	98.45%
BAT charged/discharged to AC Max. efficiency	97.32%	97.34%
Protection		
Anti-islanding protection	Yes	
Integrated AFCI 2.0	Optional	
Insulation Resistor detection	Yes	
Residual current monitoring unit	Yes	
Output over current protection	Yes	
Output short protection	Yes	
Output over voltage protection	Yes	
DC switch	Yes	
DC reverse polarity protection	Yes	
PV overvoltage protection	Yes	
Battery reverse protection	Yes	

Technical Data	S6-EH3P5K-H-EU	S6-EH3P6K-H-EU
General data		
Max. power per phase (grid & back up)	50% rated power	
Dimensions(W/H/D)	563*412*209mm	
Weight	29kg	
Topology	Transformerless	
Self consumption (Night)	<25 W	
Operation temperature range	-25℃ ~ +60℃	
Relative humidity	0-100%	
Ingress protection	IP66	
Noise emission	<46.9 dB(A)	
Cooling concept	Natural convection	
Max.operation altitude	4000m	
Grid connection standard	G98 or G99, VDE-AR-N 4105 / VDE V 0124, EN 50549-1, VDE 0126 / UTE C 15/VFR:2019, RD 1699/RD 244 / UNE 206006 / UNE 206007-1, CEI 0-21, C10/11, NRS 097-2-1, TOR, EIFS 2018.2, IEC 62116, IEC 61727, IEC 60068, IEC 61683, EN 50530, MEA, PEA	
Safty/EMC standard	IEC 62109-1/-2 ,EN 61000-6-1/-3	
Features		
PV connection	MC4 connector	
Battery connnection	Quick Connection plug	
AC connection	Quick Connection plug	
Display	LED indicator & Bluetooth+APP	
Communication	CAN, RS485, Optional:Wi-Fi, Cellular, LAN	
Warranty	5 years (extend to 20 years)	

Technical Data	S6-EH3P8K-H-EU	S6-EH3P10K-H-EU
Input DC (PV side)		
Recommended max. PV power	12800W	16000W
Max. input voltage	1000V	
Rated voltage	600V	
Start-up voltage	160V	
MPPT voltage range	200-850V	
Full load MPPT voltage range	200-850V	250-850V
Max. input current	16A/16A/16A/16A	
Max. short circuit current	24A/24A/24A/24A	
MPPT number/Max input strings number	4/4	
Max input power per MPPT	9000W	9000W
Battery		
Battery Type	Li-ion	
Battery Voltage range	120 - 600Vdc*	
Maximum charging Power	8kW	10kW
Maximum Charge/discharge current	50A	
Communication	CAN/RS485	
Output AC(Grid-side)		
Rated output power	8kW	10kW
Max. apparent output power	8kVA	10kVA
Rated grid voltage	3/N/PE, 380V/400V	
The grid voltage range	320-460V	
Rating grid frequency	50 Hz/60 Hz	
AC grid frequency range	45-55 Hz/ 55-65Hz	
Rating grid output current	12.2A/11.5A	15.2A/14.4A
Max. output current	12.2A/11.5A	15.2A/14.4A
Power factor	> 0.99 (0.8 leading to 0.8 lagging)	
THDi	< 3%	

120-600Vdc *Supports max. battery voltage to 700 Vdc

Technical Data	S6-EH3P8K-H-EU	S6-EH3P10K-H-EU
Input AC(Grid-side)		
Input voltage range	304-437V / 320-460V	
Max. input current	18.2A	22.8A
Rated grid frequency	50 Hz/60 Hz	
Frequency range	45-55 Hz / 55-65 Hz	
Output AC(Back-up)		
Rated output power	8kW	10kW
Max. apparent output power	1.6 times of rated power, 60 s	
Back-up switch time	< 10ms	
Rated output voltage	3/N/PE, 380V/400V	
Rated frequency	50 Hz/60 Hz	
Rated output current	12.2A/11.5A	15.2A/14.4A
THDv(@linear load)	<3%	
Efficiency		
PV Max. efficiency	97.50%	97.90%
EU efficiency	97.41%	97.51%
BAT charged by PV Max. efficiency	98.22%	98.31%
BAT charged/discharged to AC Max. efficiency	97.50%	97.50%
Protection		
Anti-islanding protection	Yes	
Integrated AFCI 2.0	Optional	
Insulation Resistor detection	Yes	
Residual current monitoring unit	Yes	
Output over current protection	Yes	
Output short protection	Yes	
Output over voltage protection	Yes	
DC switch	Yes	
DC reverse polarity protection	Yes	
PV overvoltage protection	Yes	
Battery reverse protection	Yes	

Technical Data	S6-EH3P8K-H-EU	S6-EH3P10K-H-EU
General data		
Max. power per phase (grid & back up)	50% rated power	
Dimensions(W/H/D)	563*412*209mm	
Weight	34.7kg	
Topology	Transformerless	
Self consumption (Night)	<25 W	
Operation temperature range	-25℃ ~ +60℃	
Relative humidity	0-100%	
Ingress protection	IP66	
Noise emission	<46.9 dB(A)	
Cooling concept	Natural convection	
Max.operation altitude	4000m	
Grid connection standard	G98 or G99, VDE-AR-N 4105 / VDE V 0124, EN 50549-1, VDE 0126 / UTE C 15/VFR:2019, RD 1699/RD 244 / UNE 206006 / UNE 206007-1, CEI 0-21, C10/11, NRS 097-2-1, TOR, EIFS 2018.2, IEC 62116, IEC 61727, IEC 60068, IEC 61683, EN 50530, MEA, PEA	
Safty/EMC standard	IEC 62109-1/-2 ,EN 61000-6-1/-3	
Features		
PV connection	MC4 connector	
Battery connnection	Quick Connection plug	
AC connection	Quick Connection plug	
Display	LED indicator & Bluetooth+APP	
Communication	CAN, RS485, Optional:Wi-Fi, Cellular, LAN	
Warranty	5 years (extend to 20 years)	

Technical Data	S6-EH3P12K-H-EU(21A)
Input DC (PV side)	
Recommended max. PV power	19200W
Max. input voltage	1000V
Rated voltage	600V
Start-up voltage	160V
MPPT voltage range	200-850V
Full load MPPT voltage range	250-850V
Max. input current	21A/21A/21A/21A
Max. short circuit current	31.5A/31.5A/31.5A/31.5A
MPPT number/Max input strings number	4/4
Max input power per MPPT	9000W
Battery	
Battery Type	Li-ion
Battery Voltage range	120 - 700Vdc
Maximum charging Power	12kW
Maximum Charge/discharge current	50A
Communication	CAN/RS485
Output AC(Grid-side)	
Rated output power	12kW
Max. apparent output power	12kVA
Rated grid voltage	3/N/PE, 380V/400V
The grid voltage range	320-460V
Rating grid frequency	50 Hz/60 Hz
AC grid frequency range	45-55 Hz/ 55-65Hz
Rating grid output current	18.2A/17.3A
Max. output current	18.2A/17.3A
Power factor	> 0.99 (0.8 leading to 0.8 lagging)
THDi	< 3%

Technical Data	S6-EH3P12K-H-EU(21A)
Input AC(Grid-side)	
Input voltage range	304-437V / 320-460V
Max. input current	27.3A/26.0A
Rated grid frequency	50 Hz/60 Hz
Frequency range	45-55 Hz / 55-65 Hz
Output AC(Back-up)	
Rated output power	12kW
Max. apparent output power	1.6 times of rated power, 60 s
Back-up switch time	< 10ms
Rated output voltage	3/N/PE, 380V/400V
Rated frequency	50 Hz/60 Hz
Rated output current	18.2A/17.3A
THDv(@linear load)	<3%
Efficiency	
PV Max. efficiency	97.90%
EU efficiency	97.51%
BAT charged by PV Max. efficiency	98.31%
BAT charged/discharged to AC Max. efficiency	97.50%
Protection	
Anti-islanding protection	Yes
Integrated AFCI 2.0	Optional
Insulation Resistor detection	Yes
Residual current monitoring unit	Yes
Output over current protection	Yes
Output short protection	Yes
Output over voltage protection	Yes
DC switch	Yes
DC reverse polarity protection	Yes
PV overvoltage protection	Yes
Battery reverse protection	Yes

Technical Data	S6-EH3P12K-H-EU(21A)
General data	
Max. power per phase (grid & back up)	50% rated power
Dimensions(W/H/D)	563*412*209mm
Weight	34.5kg
Topology	Transformerless
Self consumption (Night)	<25 W
Operation temperature range	-25℃ ~ +60℃
Relative humidity	0-100%
Ingress protection	IP66
Noise emission	<46.9 dB(A)
Cooling concept	Natural convection
Max.operation altitude	4000m
Grid connection standard	G98 or G99, VDE-AR-N 4105 / VDE V 0124, EN 50549-1, VDE 0126 / UTE C 15/VFR:2019, RD 1699/RD 244 / UNE 206006 / UNE 206007-1, CEI 0-21, C10/11, NRS 097-2-1, TOR, EIFS 2018.2, IEC 62116, IEC 61727, IEC 60068, IEC 61683, EN 50530, MEA, PEA
Safty/EMC standard	IEC 62109-1/-2 ,EN 61000-6-1/-3
Features	
PV connection	MC4 connector
Battery connnection	Quick Connection plug
AC connection	Quick Connection plug
Display	LED indicator & Bluetooth+APP
Communication	CAN, RS485, Optional:Wi-Fi, Cellular, LAN
Warranty	5 years (extend to 20 years)

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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.