



Quick Installation Guide Version 1.0

S6-EH3P(30-50)K-H-ND
S6-EH3P(15-30)K-H-LV-ND



Ginlong Technologies Co., Ltd.

Note: Quick installation is for reference only.

Read the instructions carefully before installing and using the product.

For access to the manual please scan the QR code below or you can go the URL

<https://www.ginlong.com/global/service.html>

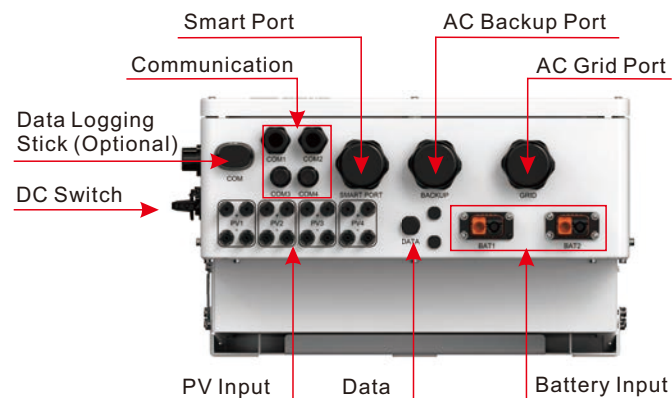
After entering the page, you can click " " icon to change to preferred language.



Manual Download

1 Bottom of the Inverter

Some models may have a different number of DC inputs, please refer to datasheet/nameplate/actual product.



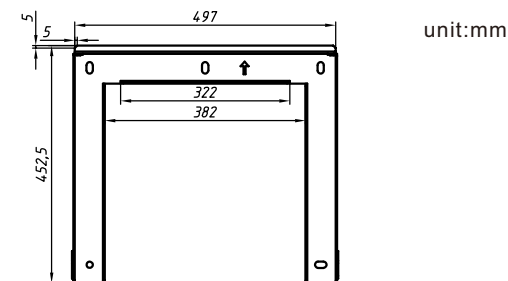
2 Installation Clearance

Minimum clearance is required.



3 Mounting Hole Size

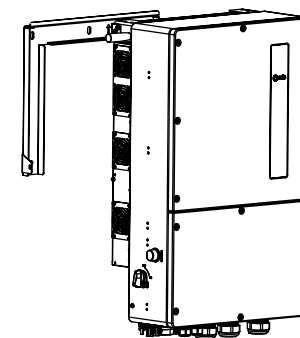
Drill holes for the mounting screws based on the hole diameter of the mounting bracket using a precision drill.



4 Mounting the Inverter

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.



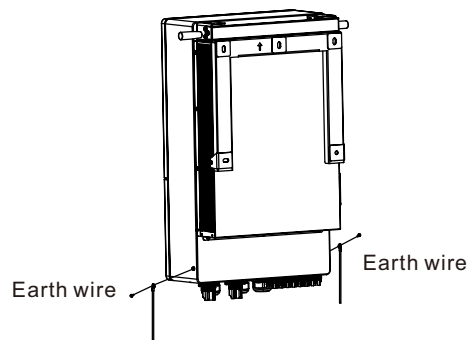
Install vertically (+/- 5°) or tilted backward (≤ 15°).

Don't mount inverter on the tilted forward wall.

Don't mount inverter on the horizontal.

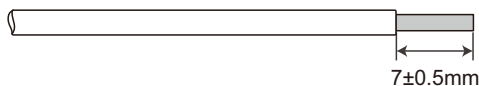
5 External Ground Connection

An external ground connection is provided at the right side of inverter. Prepare OT terminals: M5. 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 3.5N.m.



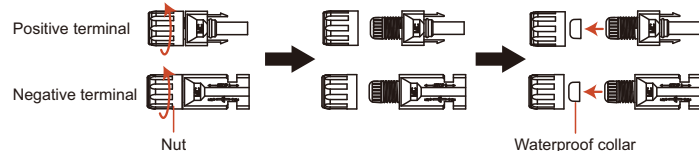
6 PV Input Terminal Assembly

1. Select a suitable DC cable and strip the wires out by $7\pm 0.5\text{mm}$. Please refer to the table below for specific specifications.

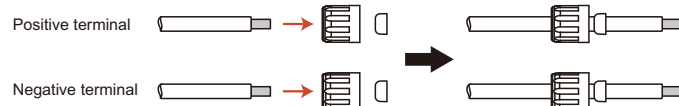


Cable type	Cross section (mm ²)	
	Range	Recommended value
Industry generic PV cable (model: PV1-F)	4.0~6.0 (12~10AWG)	4.0 (12AWG)

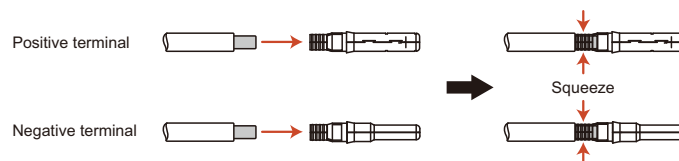
2. Take the DC terminal out of the accessory bag, turn the screw cap to disassemble it, and take out the waterproof rubber ring.



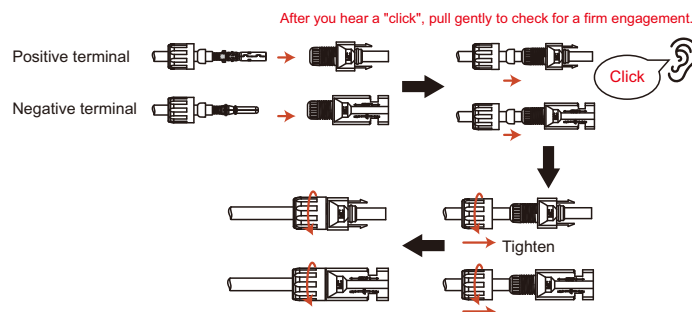
3. Pass the stripped DC cable through the nut and waterproof rubber ring.



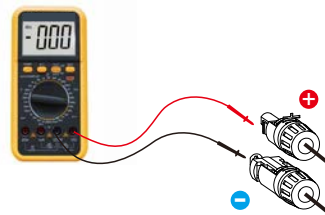
4. Connect the wire part of the DC cable to the metal DC terminal and crimp it with a special DC terminal crimping tool.



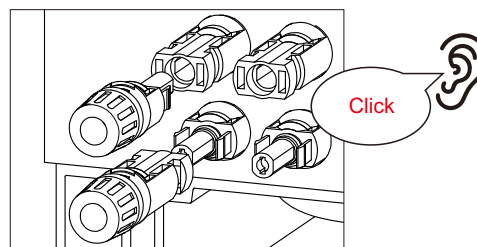
5. Insert the crimped DC cable into the DC terminal firmly, then insert the waterproof rubber ring into the DC terminal and tighten the nut.



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



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.



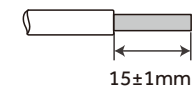
7 Battery Cable Installation



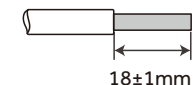
Before installing the battery cables, be sure that the battery is turned off. Use a multimeter to verify that the battery voltage is 0Vdc before proceeding. Consult the battery product manual for instructions on how to turn it off.

3.7.1 Installation Steps

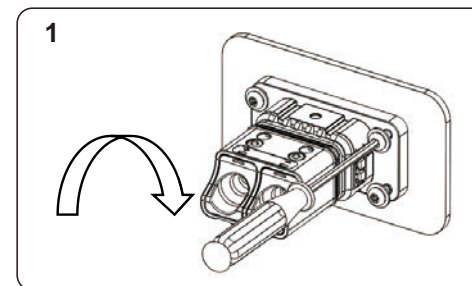
Dimension of stripping line inside machine



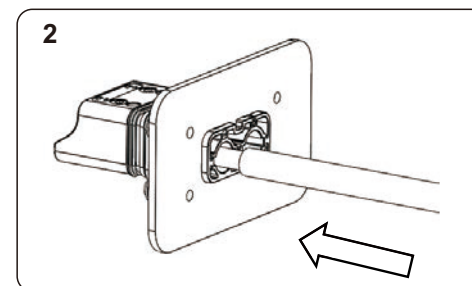
Dimension of stripping line outside machine



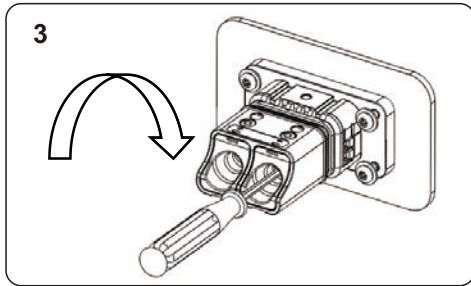
1. Press the locking platescrews with T20 Torx screwdriver with torque of $1.2 \pm 0.1\text{N} \cdot \text{M}$.



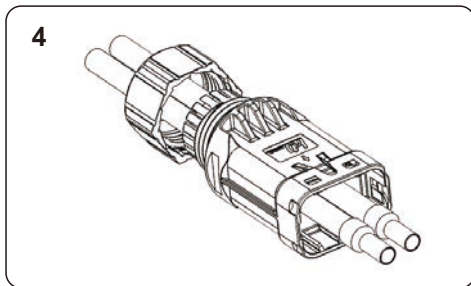
2. Insert the stripped wire into the corresponding wiring hole according to the wire sequence.



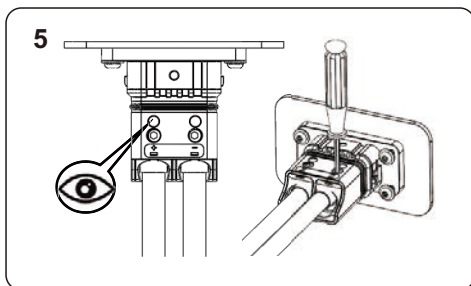
3. Press the wiring with T8 Torx screwdriver with torque of $1.2 \pm 0.1 \text{ N} \cdot \text{M}$.



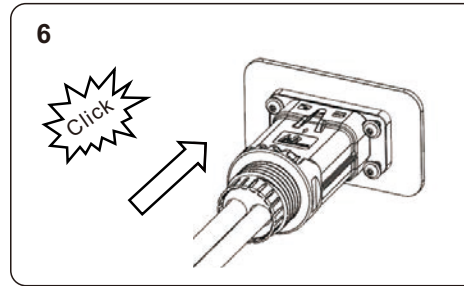
4. Thread the stripped wire into the lock nut and the main body in turn (the flexible wire needs to be riveted to the insulated terminal).



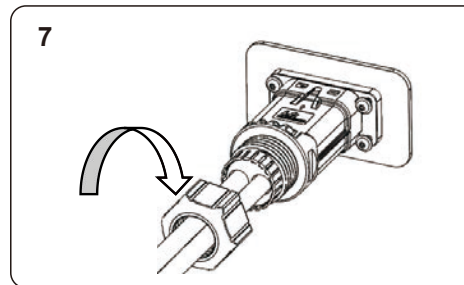
5. Insert the cable into the rubber core according to the line sequence, observe the perspective hole, the cable is in place, and the torque of the crimping screwdriver is $4 \pm 0.1 \text{ N} \cdot \text{M}$.



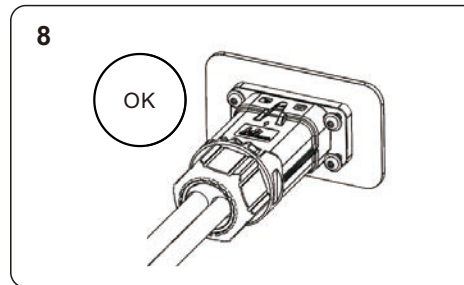
6. Insert the main body into the rubber core and hear the "click" sound.



7. Tighten the nut with an open-ended wrench (torque $10.0 \pm 0.1 \text{ N} \cdot \text{m}$).

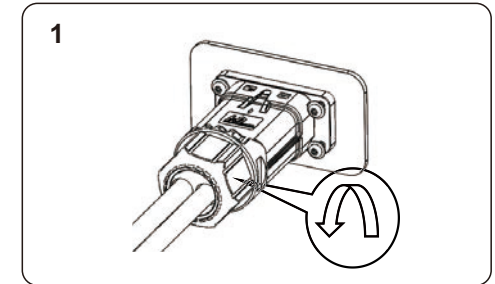


8. Complete the installation.

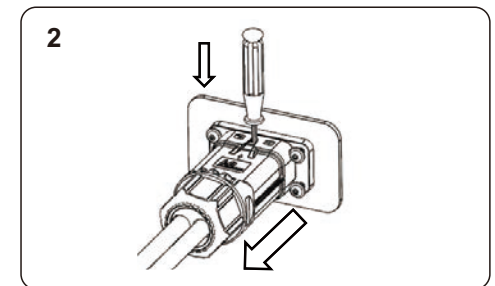


3.7.2 Disassembly Steps

1. Hold the body with one hand and turn the nut in the opposite direction with the other.



2. Use a screwdriver to align the unlocking position, press and hold the main body and pull back to complete the removal.



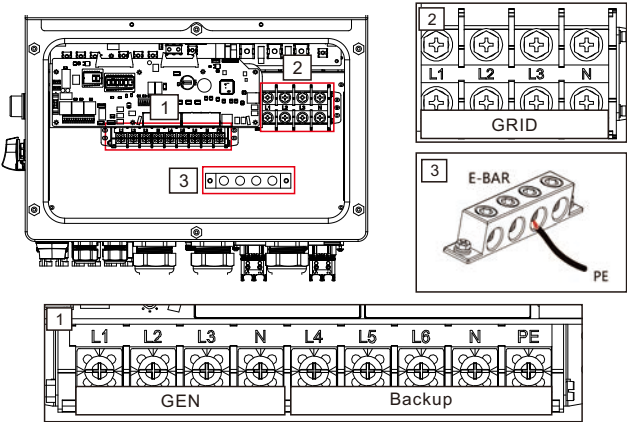
8 Assembling the AC Connector

DANGER:

Before installing the AC cables, be sure that the OCPDs (breakers) are turned off. Use a multimeter to verify that the AC voltages are 0Vac before proceeding.

1. Bring the AC cables for the backup loads panel (backup) and the main service panel (grid) into the inverter wire box. The backup loads panel should not be electrically connected to the main service panel.
2. Strip 13mm from the ends of each cable. Crimp the R-type connectors onto the ends.
3. Remove the terminal bolts, insert them into the connectors, then use a torque wrench to tighten the bolts down.
4. Please refer to the terminal labels to connect the AC wires to the correct terminals.

There are three sets of AC output terminals and the installation steps for both are the same.



Model	AC Gen/AC Backup/AC Grid
Wire Size	4/0 AWG
Torque	28.2N.m
Cable	107 mm2

9 Meter/CT Connection

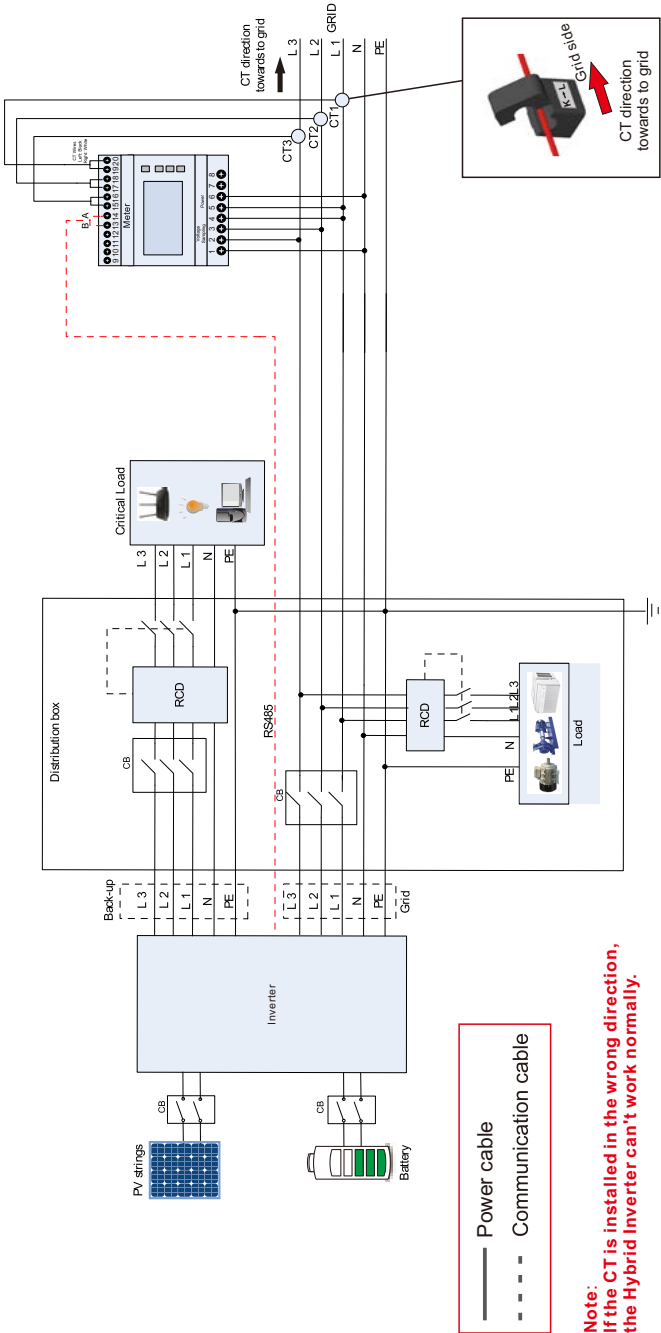
9.9.1 Meter Installation

CAUTION: Make sure the AC cable is totally isolated from AC power before connecting the smart meter or CT.

The Solis S6-EH3P(30-50)K-H-ND Series inverters are 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 V2 (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



9.9.2 CT Installation

The CT provided in the product box is compulsory for hybrid system installation. It can be used to detect the grid current direction and provide the system operating condition to hybrid inverter.

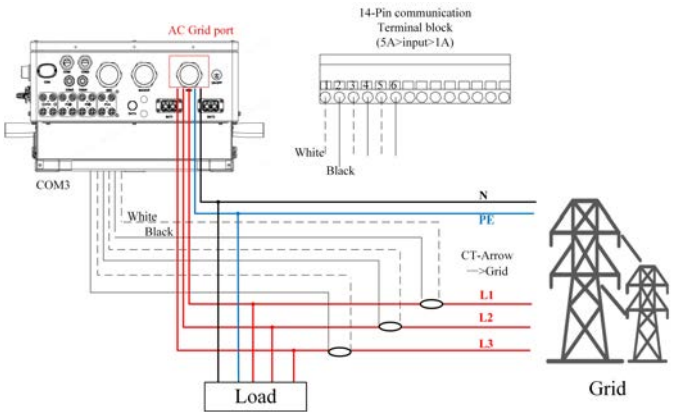
CT Model: ESCT-T50-300A/5A

CT Cable: Size – 2.3mm2, Length - 3m

Please install the CT on the hot line at the system grid connection point and the arrow on the CT needs to point to the grid direction.

Lead the CT wires through the COM3 port at the bottom of the inverter and connect the CT wires to the 14pin communication terminal block.

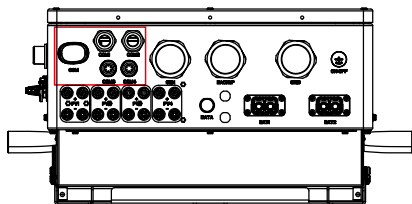
CT Wire	14 PIN Communication Terminal Block
White	Pin 1 (From Left to Right)
Black	Pin 2 (From Left to Right)
White	Pin 3 (From Left to Right)
Black	Pin 4 (From Left to Right)
White	Pin 5 (From Left to Right)
Black	Pin 6 (From Left to Right)



Note: If the CT is installed in the wrong direction, the Hybrid Inverter can't work normally.

10 Communication Cable Installation

10.1 Communication Ports



Port	Port Type	Description
COM	USB	Used for Solis data logger connection
COM1	4 hole watertight cable gland	Used for RJ45 connection inside wiring box
COM2	4 hole watertight cable gland	Used for RJ45 connection inside wiring box
COM3	6 hole watertight cable gland	Used for 14 PIN terminal block connection inside wiring box
COM4	6 hole watertight cable gland	Used for 14 PIN terminal block connection inside wiring box

Wiring steps for COM1-COM4:

Step 1. 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 2. Lead the cable into the holes in the cable gland.

COM1-COM2 Hole Diameter: 6mm,

COM3-COM4 Hole Diameter: 2mm

Step 3. Connect the cable to the corresponding terminals inside the wiring box.

Step 4. Reassemble the cable gland and ensure there is no bending or stretching of the cables inside the wiring box.

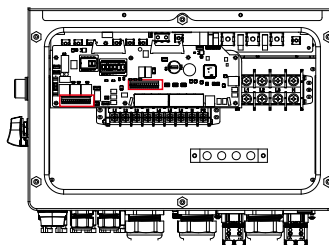


NOTE:
The 4-hole fastening rings inside the cable gland for COM1 and COM2 are with openings on the side.

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



10.2 Communication Terminals



Terminal	Type	Description
BMS	RJ45	Used for CAN communication between inverter and Lithium battery BMS.
Meter	RJ45	(Optional)Used for RS485 communication between inverter and the smart meter
DRM	RJ45	(Optional) To realize Demand Response or Logic Interface function, this function may be required in UK and Australia
EMS	RJ45	Used for CAN communication between inverter and 3rd party external device or controller.
P-A	RJ45	(Optional) Parallel operation communication port
P-B	RJ45	(Optional) Parallel operation communication port
DIP Switch (2-1)	-	If the parallel machine is connected to the first and last consoles of the parallel connection, you need to put the DIP switch on the ARM board to ON, and the middle machine is all OFF.
HM	Terminal Block	Pin 1 & Pin 6 (From Left to Right) Used for CT wire connection
G-V	Terminal Block	Pin 7 & Pin 8 (From Left to Right) Used for Generator start-stop signal
G-S	Terminal Block	Pin 9 & Pin 10 (From Left to Right) Reserved
AT380V	Terminal Block	Pin 13(L) & Pin 14(N) (From Left to Right) 380V ATS Signal

10.3 BMS Terminal Connection

10.3.1 With Lithium Battery

CAN communication is supported between inverter and compatible battery models. Please lead the CAN cable through the COM1 or COM2 port of the inverter and connect to the BMS terminal with RJ45 connector.

If you want connect one battery with bigger capacity and charged by DC1 port AND DC2 port at same time, you should connect the CAN cable to BMS 1 terminal inside the inverter. Commonly, connecting one battery with DC1 port AND DC2 means you should connect DC 1 and DC2 in parallel and then connect one battery.

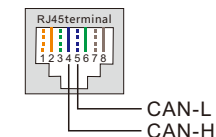


NOTE:
Before connecting CAN cable with the battery, please check whether the communication pin sequence of the inverter and the battery match; If it does not match, you need to cut off the RJ45 connector at one end of the CAN cable and adjust the pin sequence according to the pin definitions of both inverter and battery.

Pin definition of the inverter BMS Port is following EIA/TIA 568B.

CAN-H on Pin 4: Blue

CAN-L on Pin 5: Blue/White

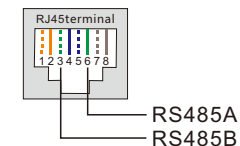


NOTE:
Before connecting RS485 cable with the battery, please check whether the communication pin sequence of the inverter and the battery match; If it does not match, you need to cut off the RJ45 connector at one end of the RS485 cable and adjust the pin sequence according to the pin definitions of both inverter and battery.

Pin definition of the inverter BMS Port is following EIA/TIA 568B.

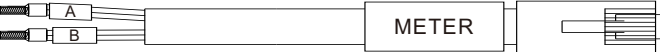
RS485A on Pin 6: Green

RS485B on Pin 3: Green/White



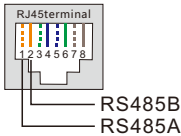
10.4 Meter Terminal Connection (Optional)

If a smart meter is preferred to be installed other than the provided CT, please contact Solis sales rep to order the smart meter and corresponding meter CT.
Please lead the Meter RS485 cable through the COM1 or COM2 port of the inverter and connect to the Meter terminal with RJ45 connector.



NOTE:

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



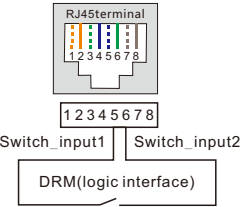
NOTE:

Compatible Smart Meter Pin Definition.
SDM120CTM (With CT) – Pin 9 is RS485B & Pin 10 is RS485A

10.5 DRM Port Connection (Optional)
10.5.1 For Remote Shutdown Function

Solis inverters support remote shutdown function to remotely control the inverter to power on and off through logic signals.
The DRM port is provided with an RJ45 terminal and its Pin5 and Pin6 can be used for remote shutdown function.

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



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

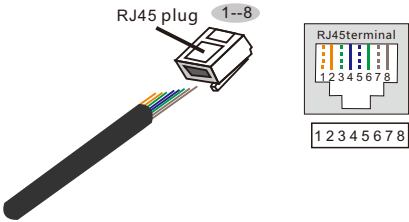
10.5.2 For DRED Control Function (For AU and NZ Only)

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
1	DRM 1/5
2	DRM 2/6
3	DRM 3/7
4	DRM 4/8
5	RefGen
6	Com/DRM0
7	V+
8	V-

NOTE:

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



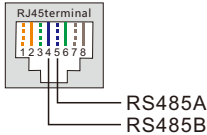
Correspondence between the cables and the stitches of plug
Pin 1: white and orange ; Pin 2: orange
Pin 3: white and green; Pin 4: blue
Pin 5: white and blue; Pin 6: green
Pin 7: white and brown; Pin 8: brown

10.6 RS485 Terminal 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



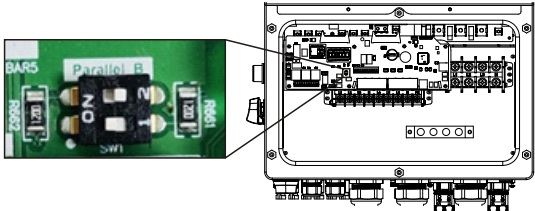
10.7 Parallel Terminal Connection (Optional)

Up to 6 units of the inverter can be connected in parallel.
Please connect the paralleled inverters by using P-A and P-B terminals.
Standard CAT5 with shielding layers internet cable can be used.



NOTE:

If the parallel machine is connected to the first and last consoles of the parallel connection, you need to put the DIP switch on the ARM board to ON, and the middle machine is all OFF.



10.8 14-pin Communication Terminal Block

Terminal Block Connection Steps:

Step 1. Lead the wires through the hole in COM3 port
(Hole Diameter: 2 mm)

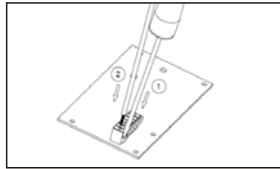
Step 2. Strip the wires for 9mm length

Step 3. Use slot type screwdriver to press the block on the top

Step 4. Insert the exposed copper part of the cable into the terminal.

Step 5. Remove the screwdriver and the terminal will clamp down on the exposed copper part.

Step 6. Give the cable a gentle tug to ensure that it is firmly secured.

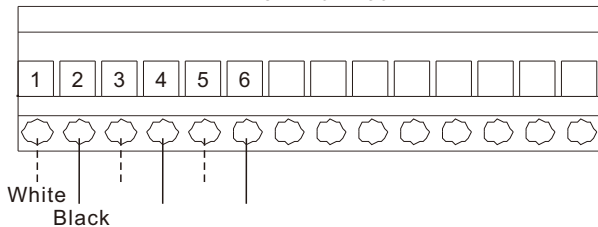


10.8.1 HM Terminal Connection (CT Terminal Connection)

CT connection is necessary to realize the correct control logic of the hybrid inverter, unless the smart meter is used as stated in section 10.4 and section 9.9.2.

The CT provided in the inverter package has BLACK(S2) and WHITE(S1) wires. The BLACK wire needs to connect to the Pin 2, Pin 4, Pin 6 of the terminal block and the WHITE wire needs to connect to the Pin 1, Pin 3, Pin 5 of the terminal block as in the following diagram.

14-Pin Communication Terminal Block



NOTE:

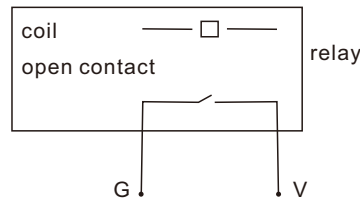
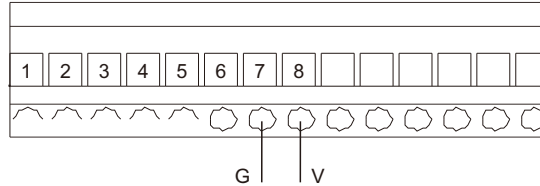
5A>Input>1A

10.8.2 G-V Terminal Connection

The G-V terminal is a voltage-free dry contact signal for connecting with generator's NO relay to start up the generator when necessary. When generator operation is not needed, Pin 7 and Pin 8 is in open circuit.

When generator operation is needed, Pin 7 and Pin 8 is in short circuit.

14-Pin Communication Terminal Block



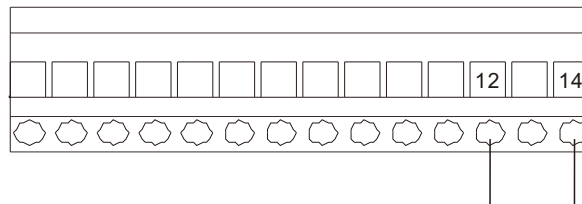
NOTE:

50mA>Input>10mA

9.8.3 ATS380V Terminal Connection

The ATS380V terminal will output 220V AC voltage when inverter is connected to the grid and when inverter is connected to the generator, it will output 0V.

14-Pin Communication Terminal Block



NOTE:

50mA>Input>10mA

11 Commissioning

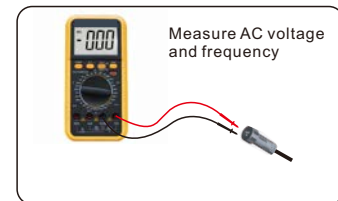
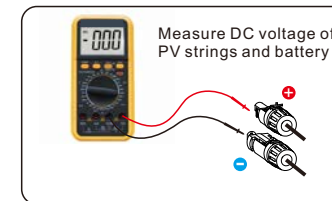
11.1 Pre-Commissioning

- Make sure that no high voltage conductors are energized.
- Check all conduit and cable connection points ensure they are tight.
- Verify that all system components have adequate space for ventilation.
- Follow each cable to ensure that they are all terminated in the proper places.
- Ensure that all warning signs and labels are affixed on the system equipment.
- Verify that the inverter is secured to the wall and is not loose or wobbly.
- Prepare a multimeter that can do both AC and DC amps.
- Have an Android or Apple mobile phone with Bluetooth capability.
- Install the Soliscloud APP on the mobile phone and register a new account.
- There are three ways to download and install the latest APP.
 1. You can visit www.soliscloud.com.
 2. You can search "Soliscloud" in Google Play or APP Store.
 3. You can scan this QR code to download Soliscloud.



11.2 Power ON

Step 1: With the DC switch off, energize the PV strings and then measure DC voltage of the PV strings to verify that the voltage and polarity are correct. Turn on the battery and check the battery voltage and polarity as well.



Step 2: Turn on the OCPD for the system and then measure the AC voltages line to line and line to neutral. The backup side of the system will be off until commissioning is complete. Turn the OCPD back off for now.

Step 3: Turn the DC switch on and then the OCPD (AC breaker) for the system. This inverter can be powered on by PV only, battery only and Grid only. When the inverter is powered on, the five indicators will be lighted at once.

11.3 Power OFF

Step 1: Turn off the AC breaker or AC disconnect switch to disable AC power to the inverter.

Step 2: Turn off the DC switch of the inverter.

Step 3: Turn off the battery breaker.

Step 4: Use a multimeter to verify that the battery and AC voltages are 0V.

11.4 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”

Register

Hello,
Welcome to SolisCloud

Username/Email

Password

☐ I have agreed Privacy Policy

Log in

☐ Remember

Forgot Password

Language |

More Tools

 | Data Migration

Register

Hello,
Welcome to SolisCloud

Username/Email

Password

☐ I have agreed Privacy Policy

Log in

☐ Remember

Forgot Password

WiFi Configuration

Local Operation

Cancel

Local Operation

Select Connection Method

Connect With Bluetooth

Connect With WiFi

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

Nearby Device

If the device is not in the list, please click the “Search Device” button at the bottom or drop-down to refresh the page

Other Device

xxxxxxxxxxxx

>

vivo TWS 2

>

Search Device

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)

Control Verification

xxxxxxxxxxxx

Select account type

Enter password (6-characters)

Verify

Control Verification

xxxxxxxxxxxx

Select account type

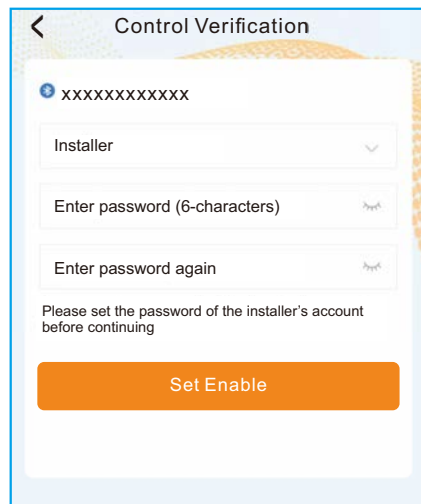
Enter password (6-characters)

Verify

Installer

Owner

Cancel



Control Verification

XXXXXXXXXXXX

Installer

Enter password (6-characters)

Enter password again

Please set the password of the installer's account before continuing

Set Enable

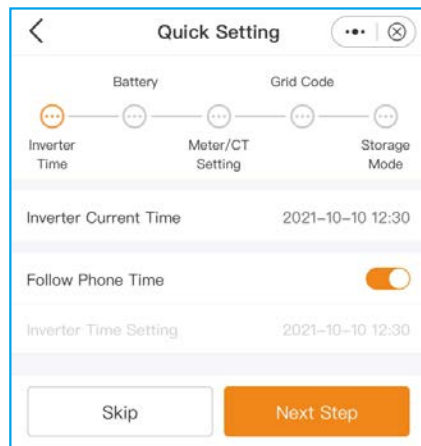
11.5 APP Quick Setting

If this is the first time the inverter has been commissioned, you will need to first go through the Quick Settings. Once this has been done, these settings can be changed later.

Inverter Time -> Meter Setting -> Grid Code -> Storage mode -> Battery Model

(1) Inverter time:

Set inverter time and date, tap the slider next to "Follow Phone Time", then tap "Next step" at the bottom right corner.



Quick Setting

Battery Grid Code

Inverter Time Meter/CT Setting Storage Mode

Inverter Current Time 2021-10-10 12:30

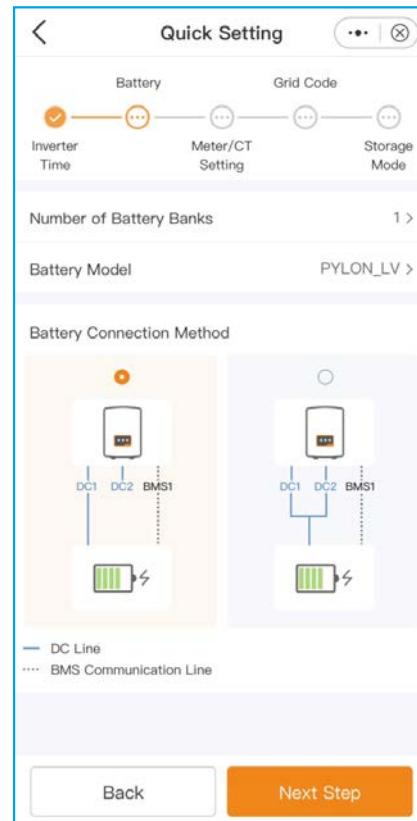
Follow Phone Time ☒

Inverter Time Setting 2021-10-10 12:30

Skip Next Step

(2) Battery:

- Select number of battery banks : 1-2 ;
- Select battery model: if the connected battery brand is not on the list, please select "General_LiBat_HV"
- Select battery connection method.



Quick Setting

Battery Grid Code

Inverter Time Meter/CT Setting Storage Mode

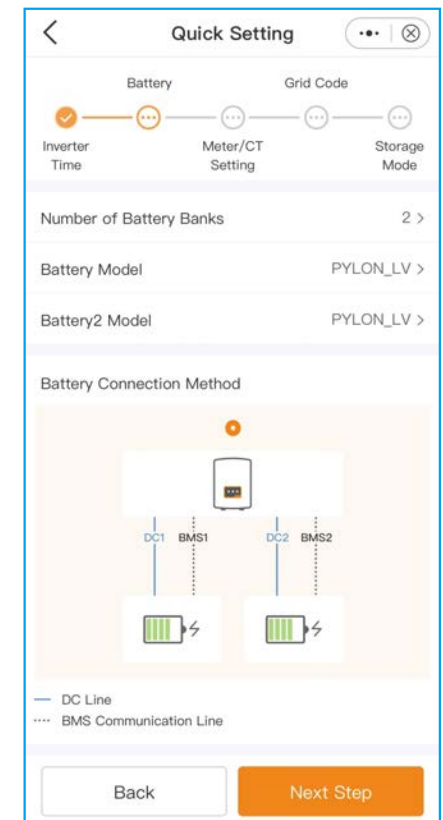
Number of Battery Banks 1 >

Battery Model PYLON_LV >

Battery Connection Method

DC Line BMS Communication Line

Back Next Step



Quick Setting

Battery Grid Code

Inverter Time Meter/CT Setting Storage Mode

Number of Battery Banks 2 >

Battery Model PYLON_LV >

Battery2 Model PYLON_LV >

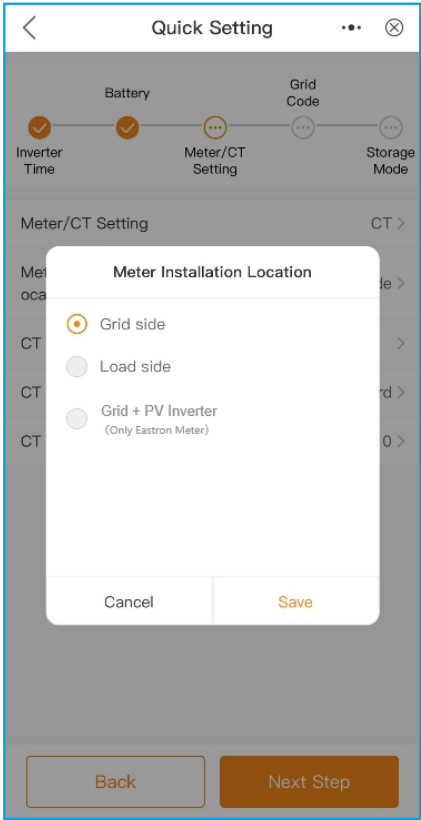
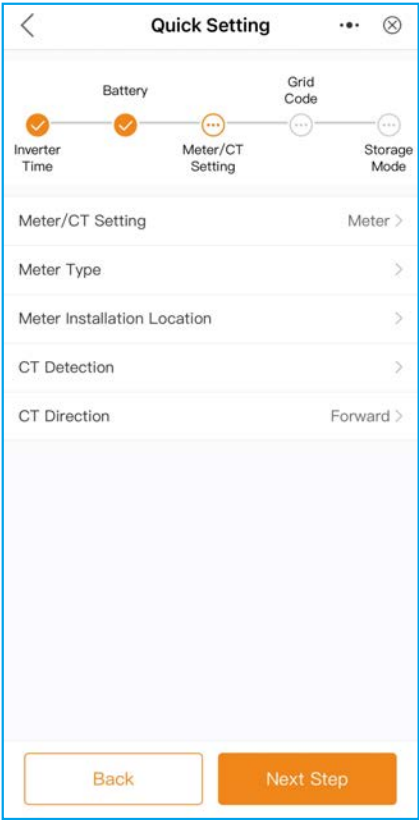
Battery Connection Method

DC Line BMS Communication Line

Back Next Step

(3)CT/Meter setting:

- Select CT or Meter.
- Set Meter type (Solis provide Eastron 3 phase meter, it is self-identifiable).
- Set Meter installation location: Grid side / Load side / Grid+PV inverter.
- Set CT ratio: default 60 (Solis provide ESCT-T50-300A/5A CT), if the user install their own CT, then need to set the CT ratio manually. If the system connected to Meter, then CT ratio need to be set on Meter.
- CT direction: When CT installed correctly, select “Forward”. When CT installed direction wrong, the sampling current of CT will be reversed when calculating the power, select “Reversal” to correct it.



(4)Grid code:

Select grid code that meet the local regulations.

Three level of Over-voltage / under-voltage / Over-frequency / under-frequency are default based on grid code, there is no need to set the parameters in manual.

Grid Port

Grid Code **EN50549NL**

HV1 253.0V -- 1.20s HV1_T

HV2 253.0V -- 1.20s HV2_T

HV3 6553.5V -- -0.01s HV3_T

LV1 184.0V -- 1.20s LV1_T

LV2 184.0V -- 1.20s LV2_T

LV3 57.5V

HF1 51.00Hz -- 1.20s HF1_T

HF2 51.00Hz -- 1.20s HF2_T

LF1 48.00Hz -- 1.20s LF1_T

LF2 48.00Hz -- 1.20s LF2_T

Startup-VH 253.0V >

Startup-VL 195.5V >

Recover-VH 253.0V >

Recover-VL 195.5V >

Select Country/Region

General

User-define

Other

A

Aruba

Australia

Austria

B

Barbados

Belgium

Brazil

(5)Storage mode:

ALL modes first priority is to use the available PV power to support loads. The different modes determine what the second priority, or use of the excess PV power, will be. Self-use / Selling first / Off-grid are exclusive, the user could select only one mode.

Quick Setting

Battery Grid Code

Inverter Time Meter/CT Setting Storage Mode

Storage Mode

☒ Self use

☐ Selling first

☐ off grid

Allow export ☒

Max export power 100W >

Back Complete

Self-use:

PV power flow priority sequence: loads > battery > grid.

In this mode, the system stores excess PV power into the battery after the loads are supplied. If the battery is charged full, or there is no battery, the excess PV power will be exported(sold)back to the grid.

If the system is set to not export any power, then the inverter will curtail the PV power (derate the inverter output power).

Selling first:

PV power flow priority sequence: loads > grid > battery.

In this mode, the system exports any excess PV power after the loads are supplied. If the export power quota has been met, then the remaining PV power will be stored in the battery.

Notice: This mode should not be used if export power set to zero.

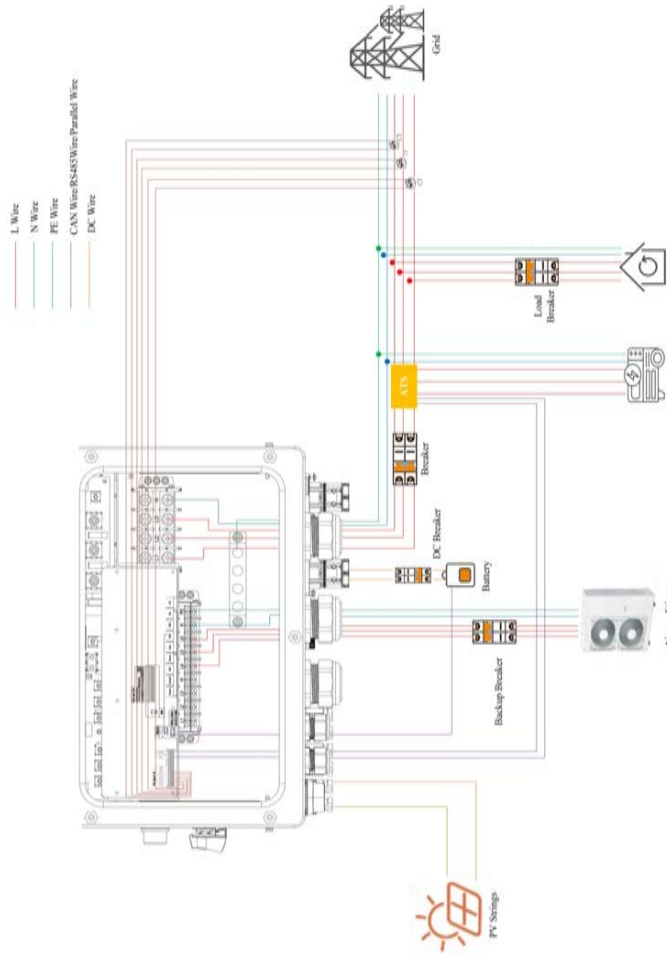
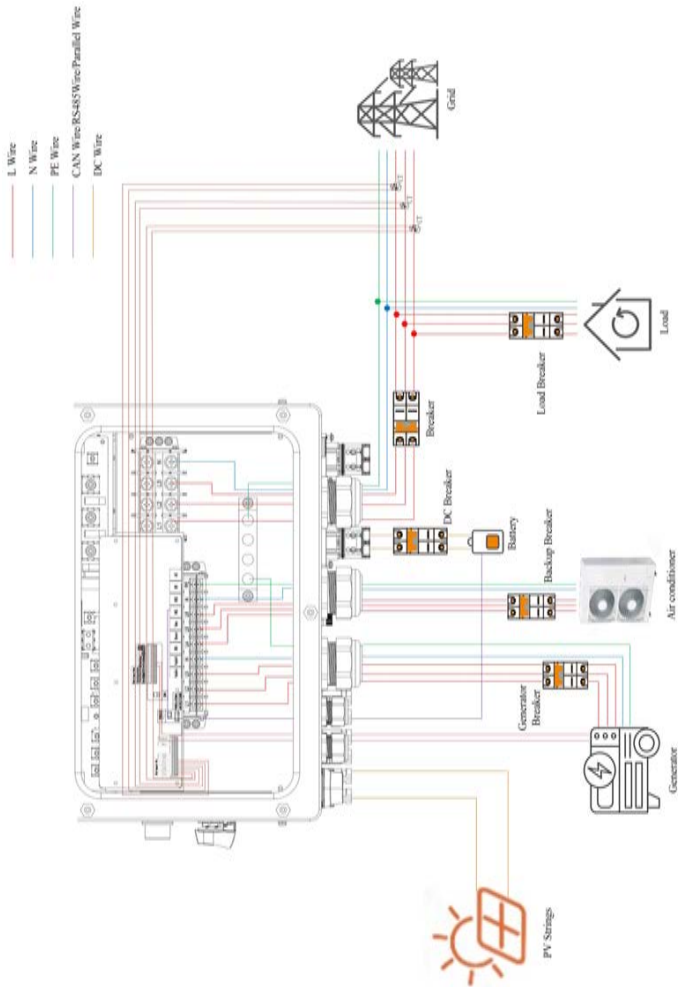
Off grid:

PV power flow priority sequence: loads > battery.

This mode only used when the system 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 PV power output is > battery power + load power.

Once quick setting finished, tap "Complete", the APP enter the homepage.

12 Diesel Generator Wiring



13 Completion

You have finished the initial installation.

You may use the Soliscloud APP to link the datalogger to your local router. Please refer to the datalogger installation manual for the detailed configuration.

14 Contact us

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