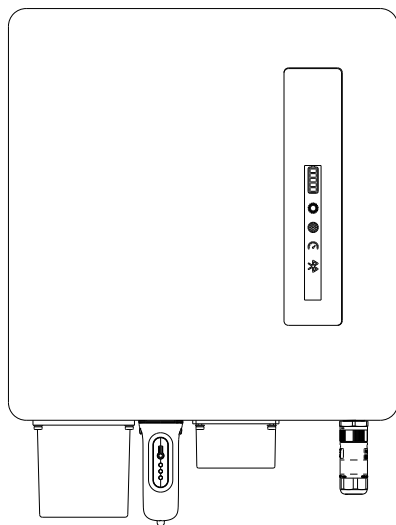




Quick Installation Guide Version 1.0

S6-EA1P(4.6-6)K-L



Ginlong Technologies Co., Ltd.

Note: Installation Manual Download

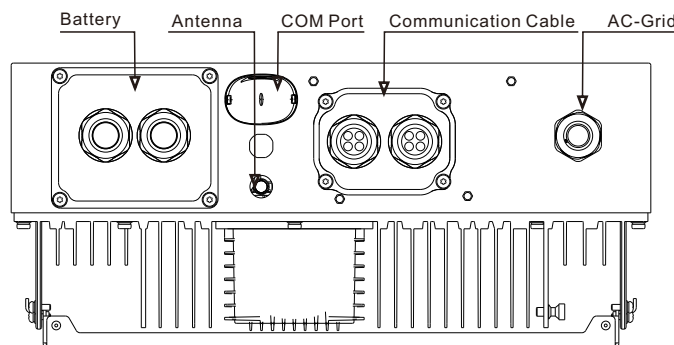
For access to the manual please scan the QR code below or you can go the URL <https://www.solisinverters.com/global/service.html>

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



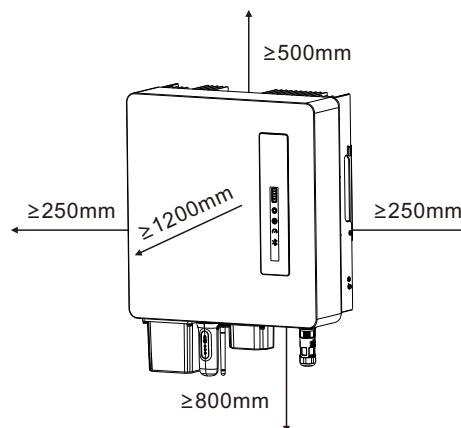
1 Bottom of the Inverter

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



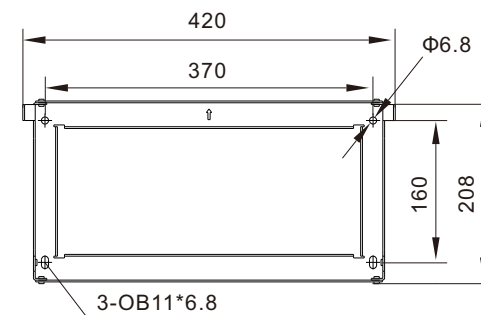
2 Installation Clearance

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.

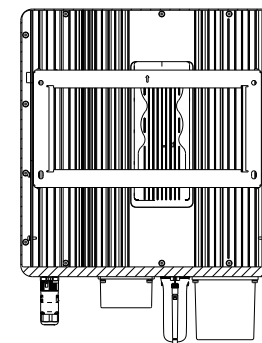


4 Mounting the Inverter

The 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.



5 Battery Cable Installation



WARNING:

Incorrect polarity of the battery cable may lead to permanent damage on the device.



WARNING:

To avoid DC arc, Solis recommends installing DC breaker between batteries and the AC coupled inverter.

DC breaker: 100A for (3-3.6)K, 160A for (4.6-6)K.

Ensure the correct polarity of batteries before connecting to the inverter.

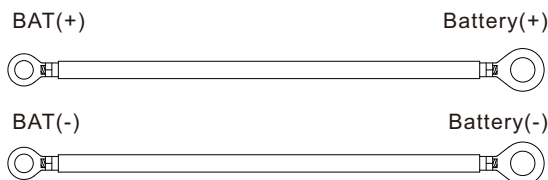
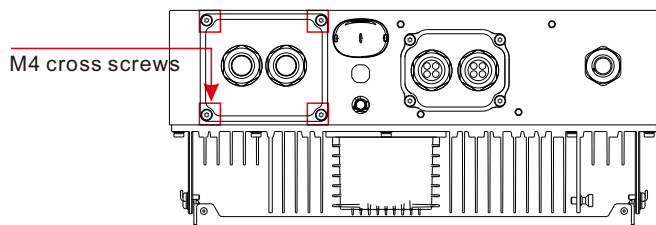
Step 1. Please unlock the 4*M4 screws on the battery port protection cover as shown in the below figure.

Step 2. Insert the battery power cables (in package) into the water-proof swivel nut on the cover (Break the plastic film on it).

Step 3. Fasten the battery power cables onto the BAT+ and BAT- terminals on the inverter. Please make sure the labels on cable and inverter match up.

Step 4. Lock the 4*M4 screws and fix the cover onto the inverter.

Step 5. Connect the other side of the battery power cables to the battery.



6 AC Cable Installation

For all AC connections, 2.5- 6mm² cable is required to be used. Please make sure the resistance of cable is lower than 1 ohm. If the wire is longer than 20m, it's recommended to use 6mm² cable.

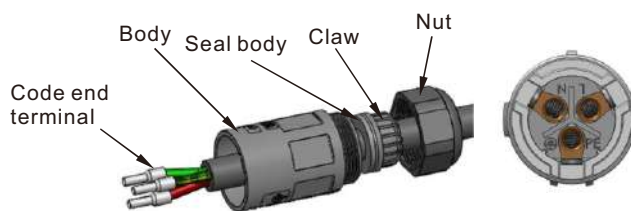


NOTE:

There are "L", "N", "PE" symbols marked inside the connector, the Line wire of grid must be connected to "L" terminal, the Neutral wire of grid must be connected to "N" terminal and Earth wire must be connected to "PE".

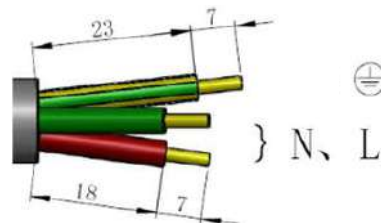
Cable type	Cross section (mm ²)	
	Range	Recommended value
Industry generic grid cable	2.5~6.0	6.0

Each Solis S6 Single Phase Inverter is supplied with an AC grid terminal connector.



The steps to assemble the AC grid terminal connectors are listed as follows:

1. Disassemble the AC connector. Strip the AC wires about 7mm.



2. Fix the wires into the correct position. Torque 0.8N.m
Please try to pull out the wire to make sure the it's well connected.

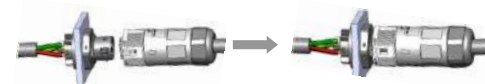


3. Insert seal and clamp finger into body, then tighten the nut, torque 2.5+/-0.5N.m.



d) Mating plug and socket:

Push the locker onto the socket housing completely, then rotate the locker according to the direction instructed by the marks on the locker. (Warning: hold the body)



7 Ground Cable Installation

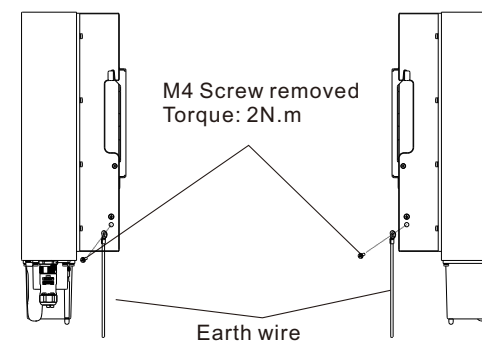
An external ground connection is provided at the right side of inverter.

Prepare OT terminals: M4.

Use proper tooling to crimp the lug to the terminal.

Connect the OT terminal with ground cable 8 AWG to the right side of inverter.

The torque is 2N.m.



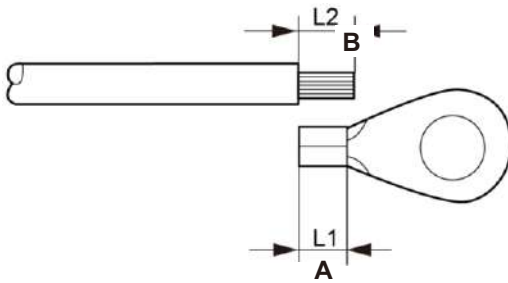
To connect the grounding terminal on the heat sink, please follow the steps below:

1. It is recommended to use copper wire for the chassis ground. Either solid conductor or stranded wire is acceptable. Refer to local code standard for wire sizing.
2. Attach OT terminal: M4.



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

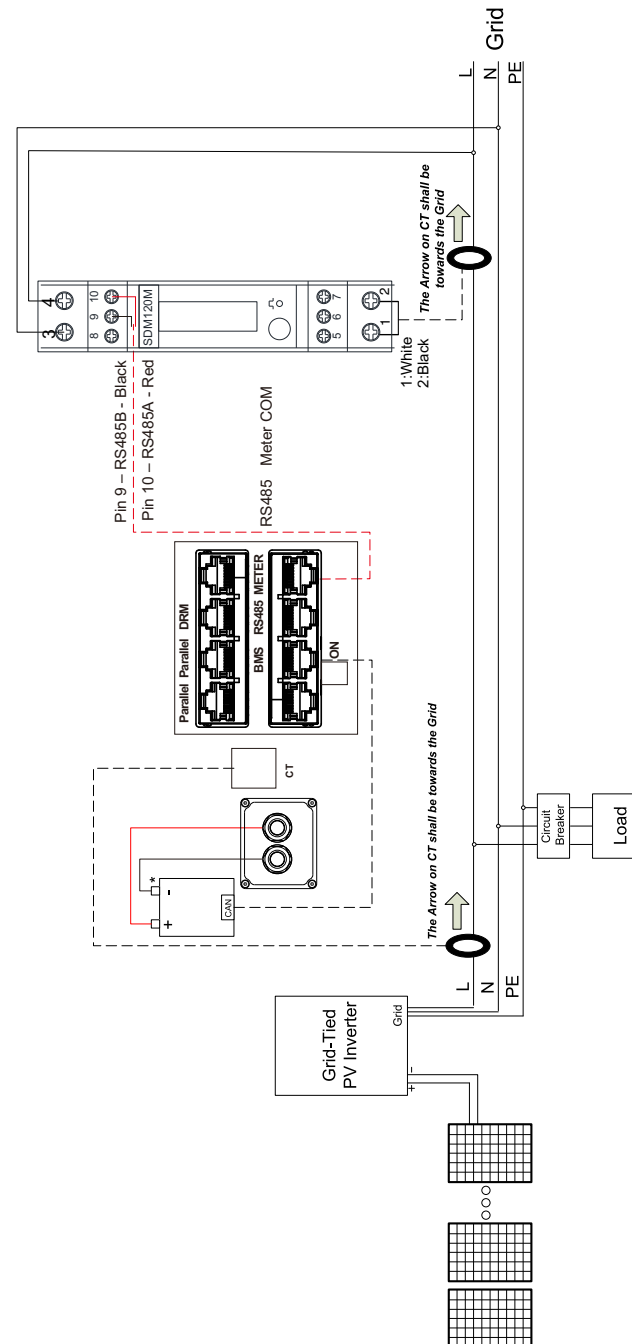
3. Strip the ground cable insulation to a suitable length.
4. Crimp a ring connector onto the cable and then connect it to the chassis ground terminal.



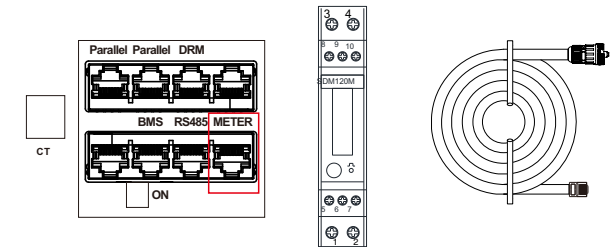
5. The external grounding conductor is recommended to be connected to 4mm² and above.

8 Meter/CT Installation

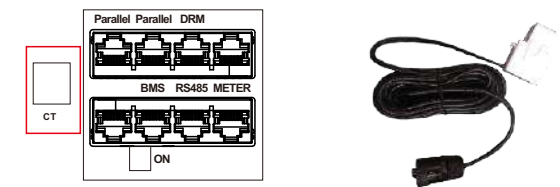
S6-EA1P(3-6)K-L inverter requires a smart meter to measure the power flow at the grid connection point to achieve the self-use control algorithm. The smart meter and the communication cable are provided as a standard accessory in the package. Please refer to below system diagram to connect the smart meter at the grid connection point. Meanwhile, a smart CT sensor is provided in order to measure the generation of grid-tied PV inverter.



Smart Meter for grid power flow measurement (External CT provided within the meter package).

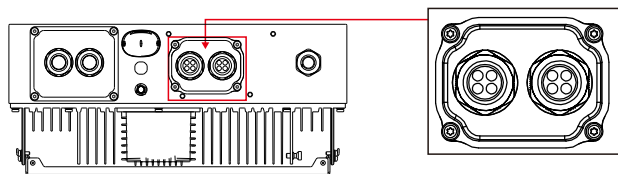


Smart CT sensor for PV generation measurement.



9 Communication Cable Installation

9.1 Protective Cover for Communication Ports



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.

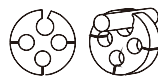
Step 6. Fasten the 4 screws on the cover (Torque: 1.7N.m-2 N.m)

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

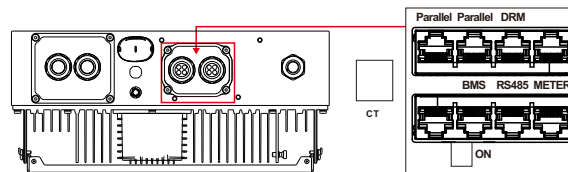
NOTE:

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.



9.2 Communication Port Definition



Port	Function
Parallel	(Optional) Parallel operation communication ports (Reserved).
DRM	(Optional)To realize Demand Response or Logic interface function, this function may be required in UK and Australia.
BMS	Used for CAN communication between inverter and Lithium battery BMS.
RS485	(Optional) Used for Modbus RTU communication with 3rd party external device or controller.
Meter	Used for RS485 communication between inverter and the smart meter. It is necessary to realize the normal hybrid control logics.

9.3 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.



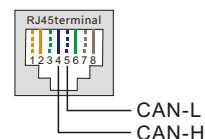
NOTE:

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 CAN Port is following EIA/TIA 568B.

CAN-H on Pin 4: Blue

CAN-L on Pin 5: Blue/White



9.4 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.

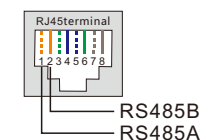


NOTE:

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.

Eastron SDM630 – Pin B is RS485B & Pin A is RS485A.

9.5 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.

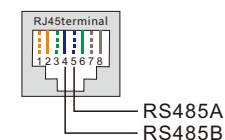
To acquire latest protocol document, please contact Solis local service team or Solis sales.

NOTE:

Pin definition of the RS485 Port is following EIA/TIA 568B.

RS485A on Pin 5: Blue/White

RS485B on Pin 4: Blue



10 Commissioning

10.1 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.



10.2 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.



Measure AC voltage and frequency

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.

10.3 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 battery breaker.

Step 3: Use a multimeter to verify that the battery and AC voltages are 0V.

10.4 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"

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

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

XXXXXXXXXX

Select account type

Enter password (6-characters)

Verify

<

Control Verification

XXXXXXXXXX

Select account type

Enter password (6-characters)

Verify

Installer

Owner

Cancel

<

Control Verification

XXXXXXXXXX

Installer

Enter password (6-characters)

Enter password again

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

Set Enable

10.5 Initial set up

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 -> Battery Model -> Meter Setting -> Grid Code -> Work mode

A. Inverter Time: Set the Inverter Time and Date. It may be easier to tap the slider next to "Follow Phone Time". Then tap Next in the top right corner. This will set the inverter to match your phone.

<

Quick Setting

Next

Battery Model

Grid Code

Inverter Time

Meter Type

Working Mode

Inverter Date Setting2023-04-11>

Inverter Time Setting15:27>

Phone Time2023-04-11 15:27:25

Follow Phone Time

B. Battery Model: Now select the battery model connected to the inverter. This choice must be based on the battery model that is actually connected to the inverter. If there is no battery connected for the moment, select "No Battery" to avoid potential alarms codes.

<

Quick Setting

Next

Battery Model

Grid Code

Inverter Time

Meter Type

Working Mode

Battery Type

Lithium Battery✓

Lead-acid Battery

48V Lithium Battery(Without COMM)

51.2V Lithium Battery(Without COMM)

No Battery

Battery Model

Lithium battery LV

PYLON_LV✓

B_BOX_LV BYD

Dyness LV

PureDrive-LV

C. Meter Setting: Set both the Meter Type and the Meter Location. It is suggested to install the meter at the system grid connection point and select "Meter in Grid". If there is no meter connected for the moment, please select "No Meter" to avoid alarms.

<

Quick Setting

Next

Battery Model

Grid Code

Inverter Time

Meter Type

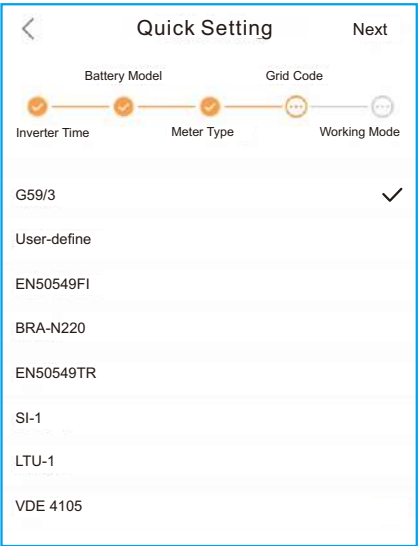
Working Mode

Meter/CT Setting

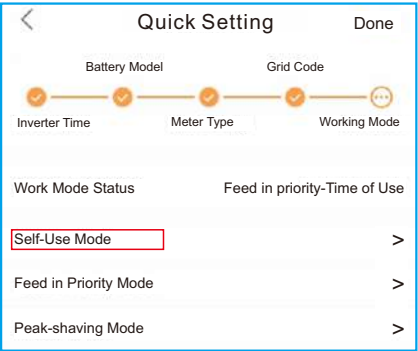
Meter >

Meter Setting>

D. Grid Code: Please select the grid code based on the local grid network requirements.



E. Work Mode: This is the energy storage operating mode. ALL modes first priority is to use the available PV power to support the home loads. The different modes determine what the second priority, or use of the excess PV power, will be. Select the desired mode, then tap the slider switch to turn the mode on. The switch will appear orange if it is enabled.



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).

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.

Peak-shaving Mode limits the power of grid and the battery discharging. With this working mode, the inverter will discharge the battery only when the power consumption from the grid will be over a certain value, set by the user. The discharge of the battery will be stop any time the power absorption from grid will be lower than the value set.

Battery Reserve can be opened in the Self-Use or Feed in Priority Mode. What this mode does is ensure that the battery does not drain past the Reserve SOC(state-of-charge) percentage. The battery will cycle between 100% and the Reserve SOC, so if grid power is lost, the battery will have the Reserve SOC at the very least to carry the home through the outage. And"Grid Charge Power Limit" can be set to limit the power of the grid to charge the battery when Battery Reserve.

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.

