



solis S2-PLC-CCO Central Controller Installation Guide

[Home](#) » [solis](#) » solis S2-PLC-CCO Central Controller Installation Guide 

Contents

- [1 solis S2-PLC-CCO Central Controller](#)
- [2 Product Information](#)
- [3 Product Usage Instructions](#)
- [4 Bluetooth Connection](#)
- [5 Introduction](#)
- [6 Documents / Resources](#)
 - [6.1 References](#)
- [7 Related Posts](#)



solis S2-PLC-CCO Central Controller



Product Information

Specifications:

- Product: Solis S2-PLC-CCO
- Usage: PLC (Power Line Communication)
- Features: No need for additional RS485 communication cables, reduces construction and maintenance costs, improves communication reliability and efficiency

Package List:

- PLC CCO x1
- Fasten screw (M4*10) x4
- Fasten screw (ST2.9*35) x4
- Mounting plate x2
- Terminal plug x1
- RS485 terminal x1
- 12V power adapter x1

Working Principle:

The Solis S2-PLC-CCO product is designed to facilitate Power Line Communication (PLC) in a grid-connected PV system. It enables communication between various components such as PV modules, inverters, dataloggers, and the transformer grid. This eliminates the need for additional RS485 communication cables, reducing costs and improving communication reliability and efficiency.

Indicators:

- Power (red light)
- Bluetooth (blue light)
- Network (green light)

- TX/RX (yellow light)

Main View:

The panel main view of the PLC CCO device displays status lights that indicate its operational state.

Product Usage Instructions**PLC CCO Installation**

- **Fixing the Mounting Plate and PLC Box**

Using ST2.9*35 screws, fix the mounting plate and PLC box together. Then, use the M4*10 screw to fix the mounting plate to the desired installation surface.

- **Screw Locking Torque**

The screw locking torque for the installation is 1.2Nm.

Mounting Dimensions

The mounting dimensions are as follows:

- Length: 273.72mm
- Width: 110mm
- Diameter: 8mm*6mm

PLC CCO Wiring

- **Insulation Stripping**

Strip off 30mm of insulation from the wiring.

- **Pin Insertion**

Using a slot type screwdriver, press the A, B, and C positions, and insert them into pins 1, 2, and 3 respectively.

- **Terminal Connection**

Connect the terminal wires to the corresponding terminals on the PLC CCO device.

- **RS485 Communication Cable Connection**

Connect the RS485 communication cable to either RS485 1 or RS485 2, depending on the connector type.

- **Ethernet Communication Cable Connection**

Connect the Ethernet communication cable to the LAN port. Note that only one interface can be chosen for RS485 1, RS485 2 and LAN.

Bluetooth Connection**Connecting to Solis Cloud Application**

After powering on the PLC CCO device, log in to the Solis cloud application and navigate to Me > More Tools > Local Operation > Connect With Bluetooth > Connected Device (P_ device SN). The default Bluetooth password is 123456.

Parameter Reading and Configuration

Main Page

After successfully logging in, you can access the operation page. The page displays the following information:

- PLC CCO device SN
- Firmware version of PLC CCO
- MAC address of PLC CCO
- Connect diagram between the...

Frequently Asked Questions

- Q: What is the purpose of the Solis S2-PLC-CCO product?
- A: The Solis S2-PLC-CCO product is used for Power Line Communication (PLC) in a grid-connected PV system. It eliminates the need for additional RS485 communication cables and improves communication reliability and efficiency.
- Q: What is included in the package?
- A: The package includes the following items: PLC CCO x1, fasten screws (M4*10) x4, fasten screws (ST2.9*35) x4, mounting plates x2, terminal plug x1, RS485 terminal x1, and a 12V power adapter x1.
- Q: How should I connect the PLC CCO to other components in the PV system?
- A: The PLC CCO should be connected to PV modules, inverters, dataloggers, and the transformer grid using the provided wiring connections and communication cables. Please refer to the user manual for detailed instructions.

Introduction

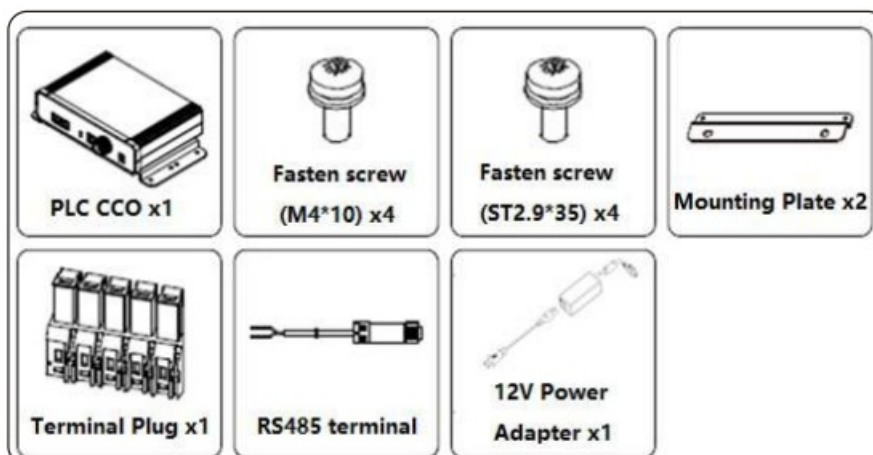
Product description

Solis product is used for PLC(power line communication), no need for more RS485 communication cables.Can not only reduce the cost of construction and maintenance,but improve communication reliability and efficiency.

Package list

When you receive the product, please ensure that all the parts listed below are included:

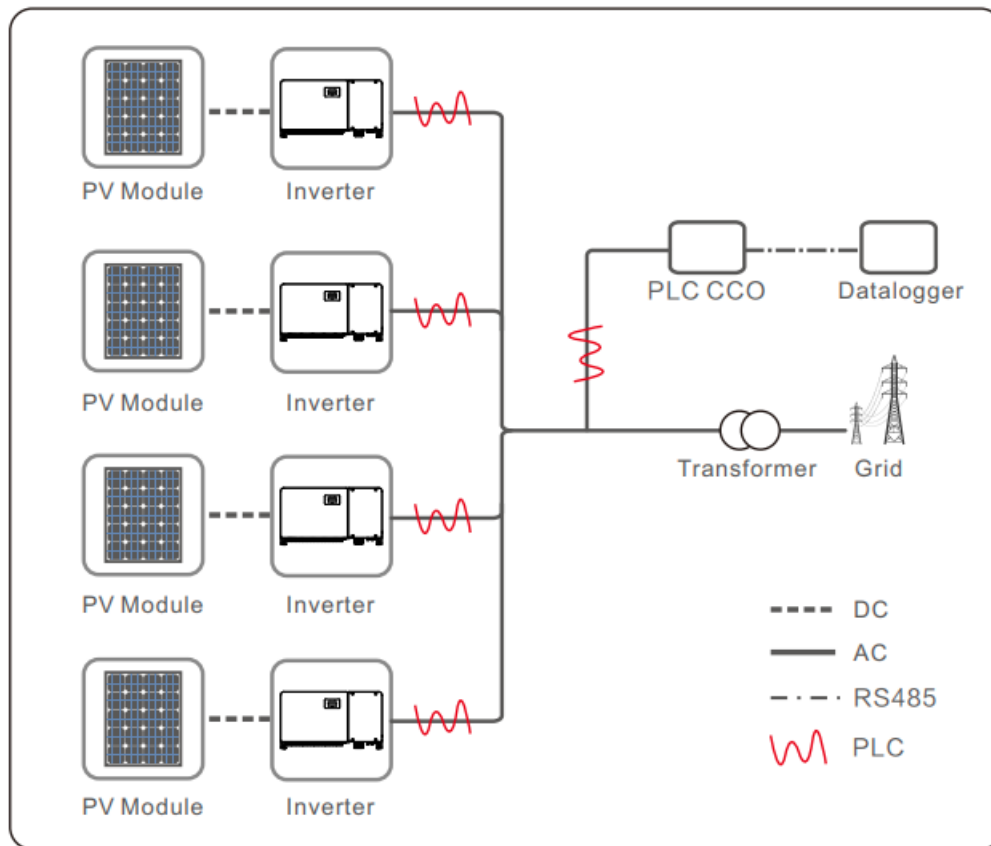
PLC CCO x1,fasten screw (M4*10)x4, fasten screw (ST2.9*35)x4,mounting plate x2, terminal plug x1,RS485 terminal x1,12V power adapter x1.



Improper use may lead to the risk of electric shock or burn. During installation and maintenance, please strictly

follow the instructions in this manual. Please read this manual carefully before use and keep it safe for future reference

Working principle



Warning

1. Ensure that it is not electrically connected and energized before installation and wiring.
2. Before wiring, make sure that the switch connected to the PLC CCO AC power line is off.
3. Must be installed indoors with good ventilation to prevent system performance from being affected.
4. Do not install around strong electric interference devices.
5. Do not install around a heat source.
6. Before replacing or maintaining a cable, power off the system.
7. PLC communication is not more than 1000 meters on the overhead AC cable, and not more than 500 meters on the ground AC cable.
8. PLC devices of multiple manufacturers cannot be used in the same array. If you need to use them, please contact the technical personnel in advance.
9. The PLC CCO box is connected as close as possible to the AC side of the inverter to reduce the number of circuit breakers passed by the PLC.
10. RS485 1, RS485 2, and LAN interfaces cannot be used at the same time.
11. Communication can be normally used only after the Bluetooth configuration is complete and the indicator is off.

Note:

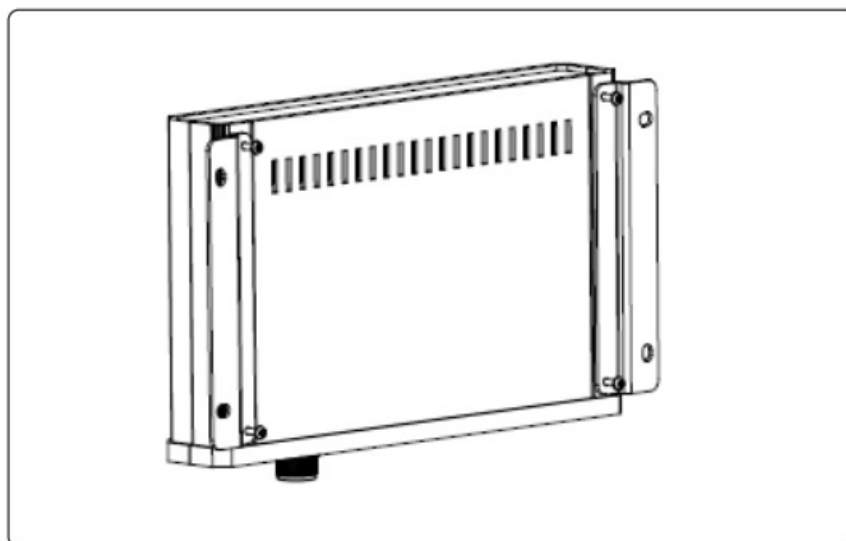
All operations on PLC CCO must be performed by professional electrical technicians. Operators should be fully familiar with the composition and working principle of the whole grid-connected PV system and relevant standards of the country/region where the project is located.

Indicator lights

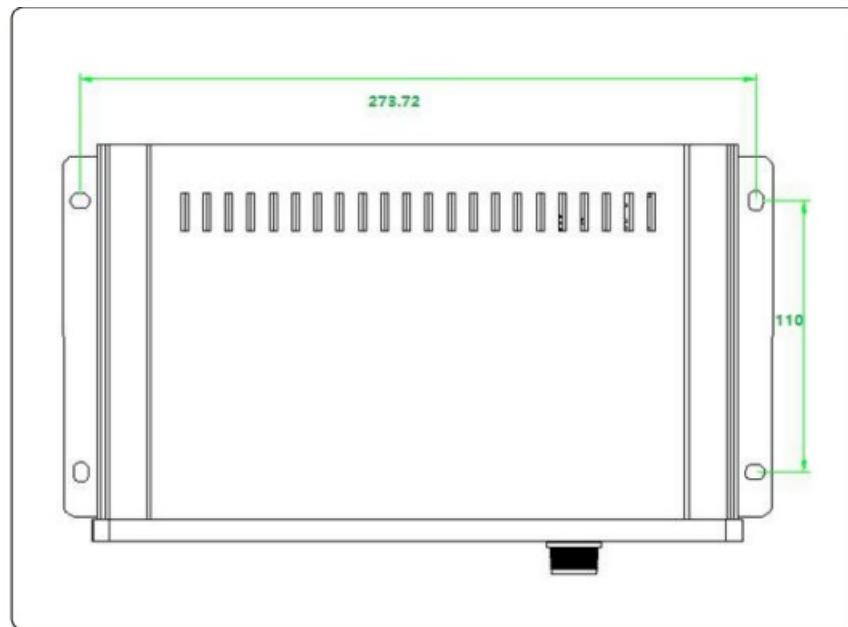
Indicators	Status
Power (red light)	Light on after power-on
	Light off when no power
Bluetooth (blue light)	Light off when disconnected
	Light flashes when connection authentication
	Light on after successfully authentication
Network (green light)	Light on when data in interaction
	Light off when no data
TX/RX (yellow light)	Light flash quickly when data in interaction
	Light flash slowly when timeout no reply
	Power-on and no data transmission or data transmission is complete : Light on

PLC CCO installation

1. Fix the mounting plate and PLC box with ST2.9*35 screws,then use the M4*10 screw to fix the mounting plate to the installation.
2. Screw locking torque is 1.2Nm.

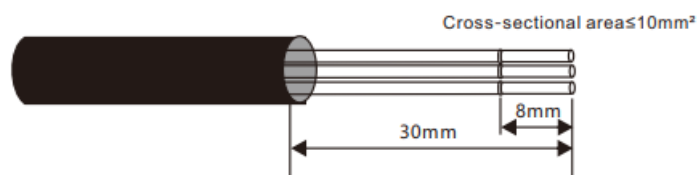


3. Mounting dimension length:273.72mm, width:110mm, diameter :8mm*6mm.

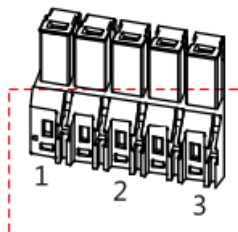


PLC CCO wiring

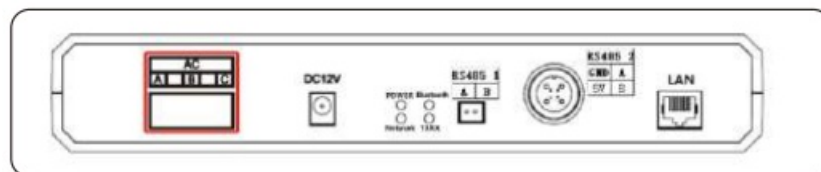
1. Strip off the insulation as shown below:



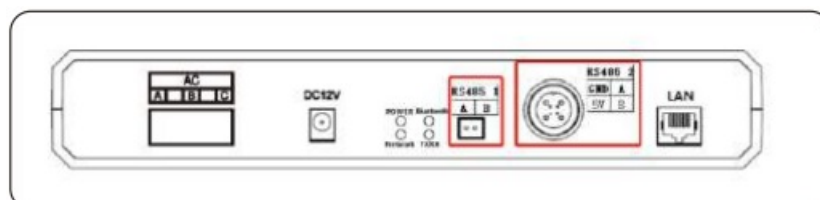
2. Use a slot-type screwdriver to press the position as below, then insert the A,B, C to the pin 1,2,3.



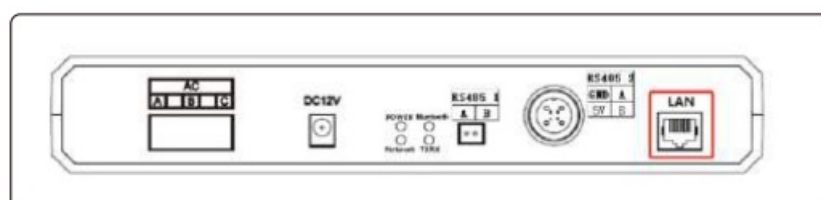
3. Connect the terminal to the PLC CCO as shown below:



4. Connect RS 485 communication cable to “RS 485 1”(2 pin RS 485 connector) or “RS 485 2”(4 pin connector)



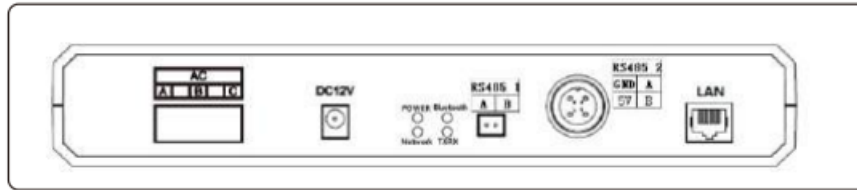
5. Connect the Ethernet communication cable to the LAN port.



Only choose one interface for RS4851 RS485 2 and LAN.

Description of wiring terminals and indicators

Panel main view

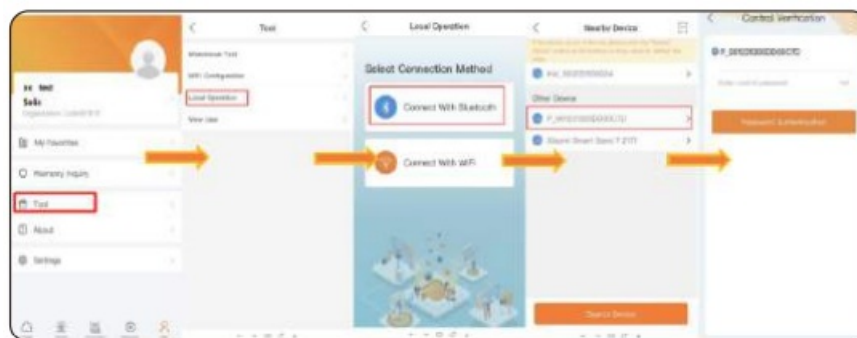


Number	Name	Function
1	AC wiring terminal	AC power cable connector, support 220V~920V
2	DC12V power terminal	PLC CCO power supply
3	RS485 1	RS485 2PIN CONNECTOR
4	RS485 2	RS485 4PIN CONNECTOR
5	LAN	Ethernet connector

Functional configuration

Bluetooth connection

After the PLC CCO device is powered on, log in to the Solis cloud application: Me > More Tools > Local Operation > Connect With Bluetooth > Connected Device (P_device SN). The default Bluetooth password is 123456.



Parameter reading and configuration

Main Page

After login successfully you can jump into the operation page,the information as shown below:

- PLC CCO device SN
- Firmware version of PLC CCO
- MAC address of PLC CCO
- Connect diagram between the inverter-PLC CCO -data logger

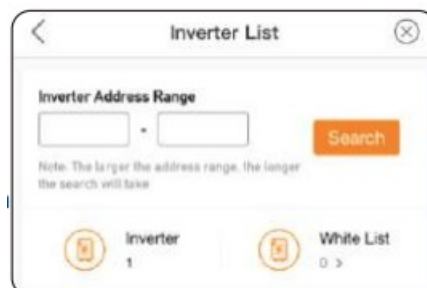
- status: Communication status is normal or abnormal
- Module type: PLC CCO module type mode
- Connection status: The connection status of PLC CCO and STA device
- Inverter: Number of inverters in the connection system. Click the number of inverters to go to the “Inverter List” page
- Connection setting: The connection setting for the inverter and PLC CCO, can set the whitelist etc
- Upper computer communication: The communication configure page between PLC CCO and PC
- More: Can change the PLC CCO Bluetooth password



Inverter list

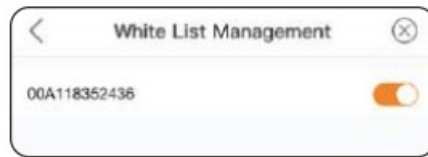
Displays the number of inverters, whitelist, and detailed information about inverters in connection system.

- Inverter address range You can manually set the address range search to avoid omissions during configuration
- Whitelist You can click to view the current whitelist configuration and manually delete the inverter whitelist
- Inverter details: Click to view the inverter details

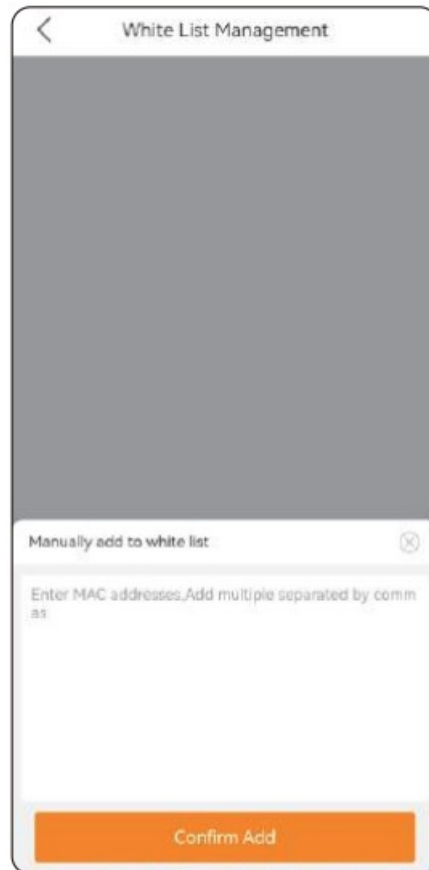


Whitelist management

Display the current whitelist list. After entering this page, read and display the MAC address of the whitelist device (The MAC address of the inverter's PLC unit STA). You can delete the device from the whitelist by clicking the switch next to the MAC address.



If CCO cannot retrieve the relevant information of the inverter, it is necessary to manually input the MAC address of the internal power carrier STA module of the inverter. When inputting multiple devices simultaneously, the middle should be separated by commas in English input mode.



Inverter setting

Show the current STA communication parameters that can be set for the inverter's PLC.

1. Inverter SN
2. Inverter communication address inverter device address
3. STA firmware TBD
4. STA MAC address inverter
5. STA MAC address STA communication parameter setting
6. Whether to add the current inverter to the CCO whitelist

STA communication

parameter settings Please set the relevant parameters of this interface in non compatible mode, while maintaining consistency with the inverter.

Note:

If the modification is unsuccessful or communication cannot be established after successful modification, the inverter does not support this function. Please configure this interface as the default value, baud rate: 9600; Data bit: 8; Stop bit: 1 bit; Check digit: No check. Simultaneously, the inverter needs to be kept consistent

Connection system setting

CCO communication parameter setting

The communication parameter configuration of the PLC CCO internal power carrier module and processor needs to wait for 1 minute after modifying this parameter.

- Anti-crosstalk function whitelist
- Network frequency
- Whitelist management



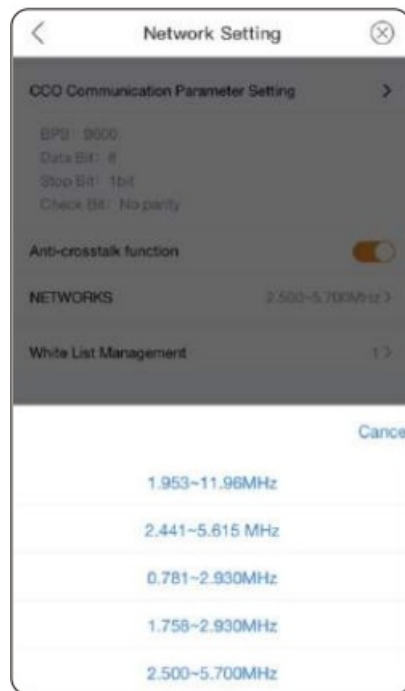
Anti-crosstalk function

Set to the on state (orange), only devices on the whitelist are allowed to communicate with PLC CCO. If set to the off state (gray), all sub devices requesting network access are allowed to communicate with PLC CCO through STA network access. Note: This function needs to be enabled after configuring the whitelist, otherwise CCO cannot automatically search for devices that are not networked.



Network frequency

- 1.953~11.96MHz
- 2.441~5.615MHz
- 0.781~2.930MHz
- 1.758~2.930MHz
- 2.500~5.700MHz default



The switching time is about 5 minutes each time. Changes are not recommended.

Whitelist management

Show the inverter whitelist of the current CCO, which can be manually deleted.



Upper computer communication

Communication device for PLC CCO and upper computer (data-logger) default use Modbus-RTU communication.

Note: Modbus-RTU and Modbus-TCP can not be used at the same time.


Modbus-RTU communication

Modbus-RTU communication enables the setting, after enabling the function, PLC CCO and upper computer use the RS485 cable. Meanwhile, the Modbus-TCP communication enables the device will close automatically.



- Modbus-RTU communication parameter setting
 1. Baud rate:9600(default) 19200 57600 115200
 2. Data bits:5 6 7 8(default)
 3. Stop bit:1bit(default) 1.5bits 2bits
- Modbus-TCP communication parameter setting
 - Please configure the device address, default gateway, subnet mask, and DNS according to the actual situation on site.

- Local port port number of Modbus-TCP default to be 502



Host communication	
IP Address	192.168.0.123
Default gateway	0.0.0.0
Subnet mask	255.255.255.0
Preferred DNS	0.0.0.0
Standby DNS	0.0.0.0
Local Port	502

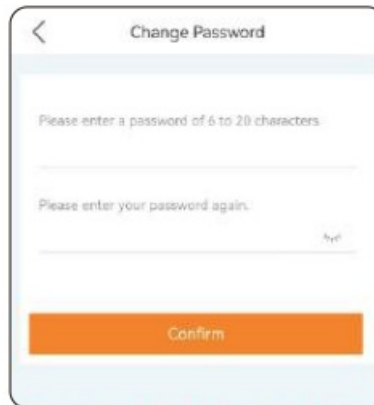
- more

CCO Bluetooth login password modification and firmware upgrade function



more	
Change Password	>
Firmware upgrade	>

- Change Password



Change Password

Please enter a password of 6 to 20 characters.

Please enter your password again.

Confirm

- firmware upgrade
 - Manual upgrade
 - Check for updates



Firmware upgrade

SN: 901234301A500C72

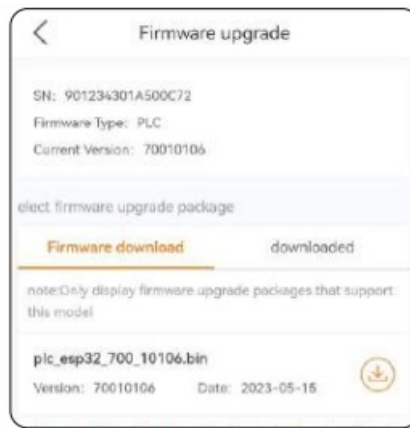
PLC

Current Version: 70010106

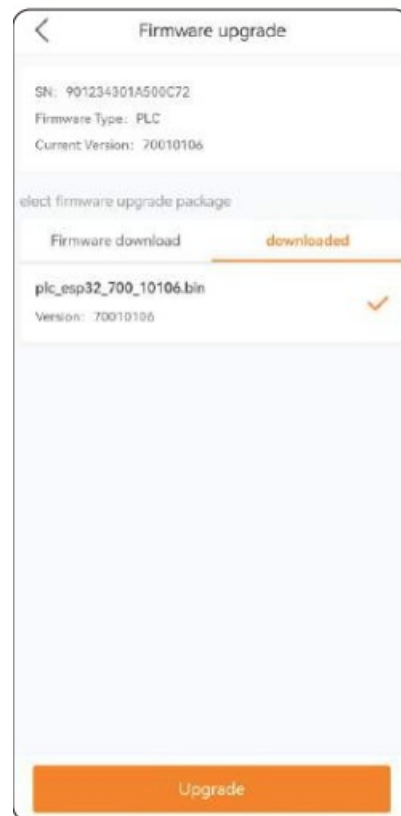
Manual upgrade Check the update

Upgrade Record >

- You can select the firmware version to upgrade in the “Firmware Download” section.



- After downloading the firmware package, please click “downloaded” to select the upgrade package you want to upgrade, and click “Upgrade” to start the upgrade (do not switch the upgrade interface during the upgrade process). After the upgrade is successful, other operations can be performed.



PLC CCO field application

1. To ensure stable communication between PLC CCO and inverter, all items should configure the whitelist of PLC CCO and STA according to the preceding information, and enable the anti-crosstalk function of PLC CCO.
2. The communication between the PLC CCO and the upper computer (data logger) shall be selected according to the actual situation on site and the description in 7.2.4.
3. After all the above parameters are configured, please power off and restart the device to ensure that the parameters are modified and executed

Product parameter

Model	S2-PLC-CCO
Communication	
Supported device type	Solis inverter
Supported device quantity	≤80
Status display	LED×4
Band range	2MHz-12MHz
Communication port	4pin/TCP/RS485
Debugging interface	Bluetooth
Baud rate	9600/19200/115200
Electrical specification	
Input voltage(Power adapter)	100V AC~240V AC,50Hz/60Hz
Input line voltage range (AC port)	220-920V
Consumption	< 5W
Environment parameter	
Operating temperature	-40°C~+80°C
Operating humidity	5%-95% relative humidity, non-condensing
Storage temperature	-45°C~+90°C
Storage humidity	-45°C~+90°C
Operating altitude	≤4000 m
IP grade	IP 20
Physical parameter	
External dimension (length*width*height)	255*165*45 mm
Installation method	Mounting plates and guide rail installation
Weight	750g
Application scenarios	
Application scenarios	Double winding transformer and double split transformer
Others	
Certification	CE, FCC, UL

Appendix

FCC Certification

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. this device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

FCC WARNING:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

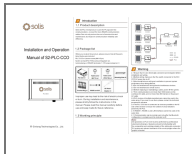
NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator & your body.

Documents / Resources



[solis S2-PLC-CCO Central Controller](#) [pdf] Installation Guide
S2-PLC-CCO Central Controller, S2-PLC-CCO, Central Controller, Controller

References

- [User Manual](#)