



User Manual

External Wi-Fi Data Logger for
Remote System Monitoring



Applicable Models:
S4-WIFI-ST

Important Notes & Warranty Information

- This device should only be installed by professional personnel who are qualified to operate Solis equipment.
- Product specifications are subject to change without notice. Every attempt has been made to make this document complete, accurate and up-to-date. Individuals reviewing this document and installers or service personnel are cautioned, however, that Solis reserves the right to make changes without notice and shall not be responsible for any damages, including indirect, incidental or consequential damages caused by reliance on the material presented including, but not limited to, omissions, typographical errors, arithmetical errors or listing errors in the material provided in this document.
- Solis accepts no liability for customers' failure to comply with the instructions for correct installation and will not be held responsible for upstream or downstream systems Solis equipment has supplied.
- The customer is fully liable for any modifications made to the system; therefore, any hardware or software modification, manipulation, or alteration not expressly approved by the manufacturer shall result in the immediate cancellation of the warranty.
- Solis will not be held liable for defects or malfunctions arising from:
 - Improper use of the equipment.
 - Deterioration resulting from transportation or particular environmental conditions.
 - Performing maintenance incorrectly or not at all.
 - Tampering or unsafe repairs.
 - Use or installation by unqualified persons.
- This manual is to be used for the S3-WIFI-ST data logger only. It should not be used for any other Solis device.
- For additional assistance with SolisCloud, please go to the Ginlong US website and download the SolisCloud user manual: www.ginlong.com/us

Warranty Information

This logger comes with a **two-year warranty** that begins once the logger first reports to SolisCloud. The warranty is included in the price of the logger. The warranty is not extendable but does cover all types of logger failures.

If the logger has any issues, please contact the Solis Support team directly by calling **+1(866)438-8408** or sending an email to usservice@solisinverters.com. Please give the technician the logger and inverter serial number, SolisCloud site ID, and a detailed description of the issue.

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
- (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:

- (1) reorient or relocate the receiving antenna
- (2) increase the separation between the equipment and the receiver
- (3) connect the equipment into an outlet on a circuit different from that to which the receiver is connected or
- (4) 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 20 centimeters (7.87 inches) between the radiator and your body.

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1. Introduction

1.1 Data logger description

The Solis Wi-Fi Data Logger is an external device which plugs directly into a port on the bottom of a Solis inverter. The logger relays information from the inverter to the Solis monitoring platform, called SolisCloud. This logger connects to a local 2.4GHz Wi-Fi network. **Please note, this logger does not support 5GHz networks.** Up to ten Solis inverters can be daisy-chained together with RS485 to communicate through one Wi-Fi logger. This logger works with any Solis inverter that has a USB COM port. Please refer to the list below for all compatible Solis US inverter models.



1.2 Compatible Solis US inverter models

- Solis S6-EH1P3.8K-H-US
- Solis S6-EH1P5K-H-US
- Solis S6-EH1P7.6K-H-US
- Solis S6-EH1P10K-H-US
- Solis S6-EH1P11.4K-H-US



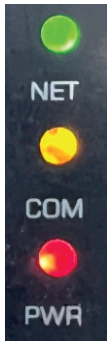
Only the Solis S6-EH1P(3.8-11.4)K-H-US hybrid inverter series is supported by the Solis S4-WIFI-ST-USB Wi-Fi data logger.

If you have a different model of Solis inverter, or the Solis EPM, you will need to use a different model of Solis data logger.

1. Introduction

1.3 LED indicator lights

The Solis S4-WIFI-ST data logger has three LED indicator lights. These lights depict the status of the logger. There are three lights: NET, COM, and PWR. The chart below explains what the lights mean when they are flashing, solid, or off. If the LED lights are all off when the inverter is getting proper voltages, please contact Solis Support.



Normal Operation:

Once the logger has been configured properly, all three of the LED indicator lights will go solid.

Every Five Minutes:

The logger will transmit a data package to SolisCloud. When this happens, the COM light will flash for a few seconds. This is normal behavior and should not cause any concern.

Fault Mode:

If any of the three lights go out then there is a problem. If the NET light flashes for longer than five minutes, it has lost connection to the local Wi-Fi network it was configured to. If the COM light flashes for longer than five minutes, it has lost connection to the inverter.

Figure 1.2 LED indicator lights and normal logger behavior

LED Indicator	Description	LED Status	Meaning
Internet Connection ● NET	Connection status between the data logger and the local Wi-Fi network	Flashing	Attempting to connect to the Wi-Fi network
		Solid	Successfully connected to the Wi-Fi network
		Off	Not connected to the Wi-Fi network
Inverter Communication ● COM	Communication status between the logger and the inverter	Flashing	Attempting to communicate with the inverter
		Solid	Communicating with the inverter normally
		Off	Not communicating with the inverter
Logger Power ● PWR	Power from the inverter to the logger	Solid	Data logger is powered up normally
		Off	Data logger is not getting enough power

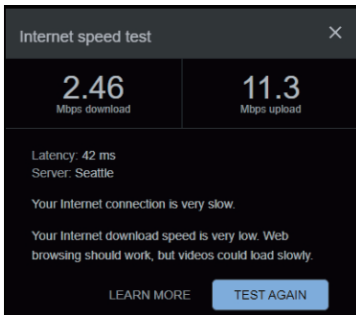
2. Installation

2.1 Pre-installation steps

Prior to installing the S4-WIFI-ST logger, the following steps must first be taken to ensure that the logger will function properly once it has been installed:

1. The Solis inverter is completely installed and commissioned
2. The inverter address is 1: Go to Settings, then to Address, verify the number is 1, if the number is not one, use the down button to change it to 1 and then press enter
3. Turn the inverter on with both AC and DC power
4. Ensure the Wi-Fi network is 2.4 GHz, **the logger does not support 5 GHz**
5. Verify that Wi-Fi network password is correct - check it by connecting with your phone
6. Check the signal strength of the Wi-Fi network you plan to connect the logger to by performing a network speed test.

See section 2.3 for instructions on how to connect multiple inverters to one logger



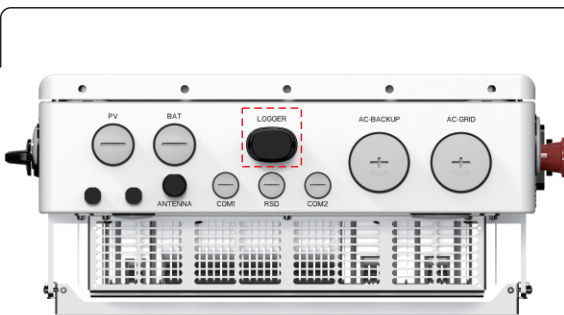
Note

The minimum Wi-Fi signal strength for the logger is -90 dBm (20% RSSI) which equates to approximately **11 Mbps upload speed**. Distance from the router to the logger should be no more than 300 feet with no obstructions. If there are obstructions, this distance is significantly less. **Please install a Wi-Fi range extender if the upload speed is under 11 Mbps.**

2.2 Logger installation steps

Step 1: Locate the COM port and remove the protective cap

The data logger plugs into the USB COM port on the bottom of the inverter. This port is protected by a black plastic cap. The first step is to remove the cap. Figure 2.1 shows the S6-EH1P11.4K-H-US inverter underside as an example. Other Solis inverters will have a 4-pin COM port, which cannot support this logger.



1. Pinch the two tabs on the sides of the black plastic cap
2. Pull down on the cap until it comes off. Store the cap for later.
3. If the logger is ever removed, replace the black plastic cap so that the port is not exposed to moisture.

Figure 2.1 USB COM Port

2. Installation

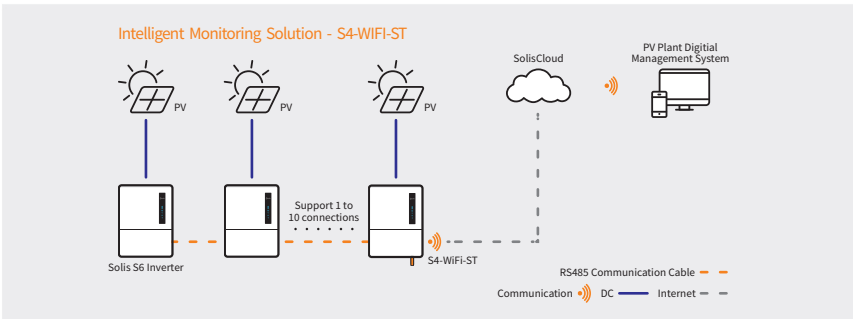
Step 2: Plug the logger into the COM port

A. Plug the logger into the COM port. Be sure the LED indicator lights are facing forward. The logger will only plug in if the joint matches. Make sure the logger is fully pushed in.



2.3 Connecting multiple inverters to a single logger

First, the inverters must be daisy-chained together with RS485. The logger can support a maximum of ten inverters. If there are more than ten inverters on the same system, then additional loggers must be installed. Please see the inverter manual for instructions on how to complete the daisy chaining.



Step 1: Daisy chain the inverters together with RS485 communication cable.

Step 2: Plug the data logger into the first inverter in the daisy chain.

Step 3: Adjust the address for each inverter.

Note: The first inverter in the chain, which is the one connected to the data logger, must be set to the address of 01. Each of the other inverters in the chain must have their address be set to a number other than 1. To do this, follow the steps:

- A. Go to the Settings menu of each inverter and then to the Address submenu.
- B. Use the up/down buttons to change the address number
- C. Press enter to save the new address of the inverter

For example:

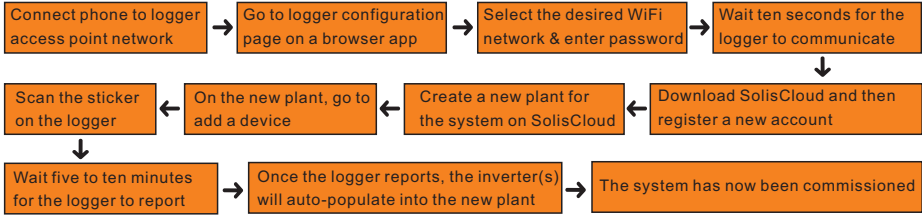
Inverter 2 = address of 2, Inverter 3 = address of 3... Inverter 10 = address of 10

Step 4: Commission the logger like normal. Each inverter in the daisy chain will populate into SolisCloud once the logger transmits the first data packet.

The logger will collect and transmit information from all of the inverters in the daisy chain to SolisCloud. Only the logger gets added to the new plant on SolisCloud. The inverters will automatically populate into the plant once the logger starts to report to SolisCloud.

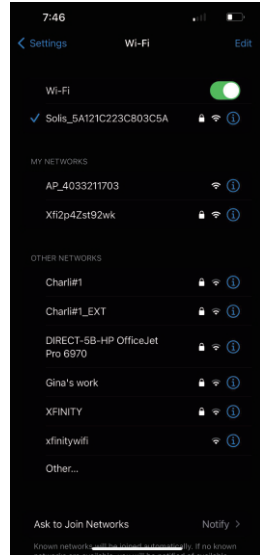
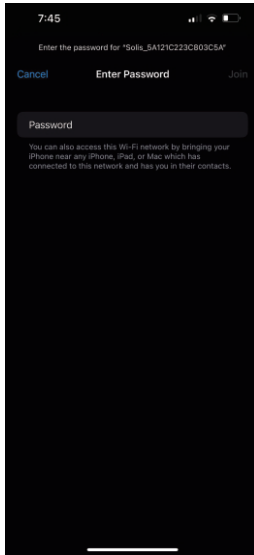
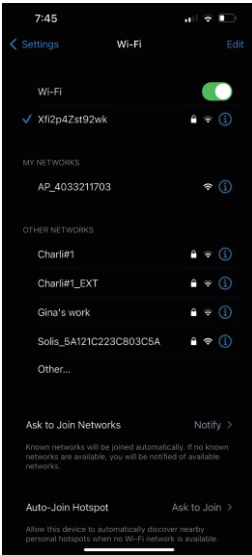
3. Configuration

Configuration and Commissioning Overview



Step 1: Connect your phone to the data logger’s access point network

Open your phone Wi-Fi settings and look for the Wi-Fi network that starts with “Solis_” followed by the data logger serial number. Tap that network to connect to it. Enter the password **123456789** and then tap Join. This is the logger access point (AP) network.



If you get a message stating that the password is incorrect or if the logger Wi-Fi network does not appear in the list of nearby networks, press and hold the Reset button on the back of the data logger for 15 seconds.

If the AP network still does not appear or if the password fails again, contact Solis Support.

Contacting Solis Technical Support

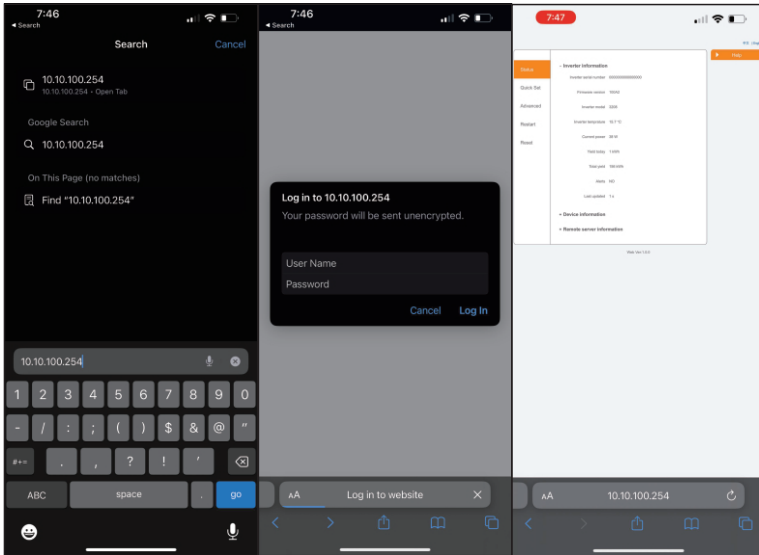
Solis Support can be reached by calling **+1(866)438-8408** or by sending an email directly to usservice@solisinverters.com. Please provide the support team with the data logger serial number, inverter serial number, and a detailed description of the issue that you are having. The support team will assist you in a timely manner.



3. Configuration

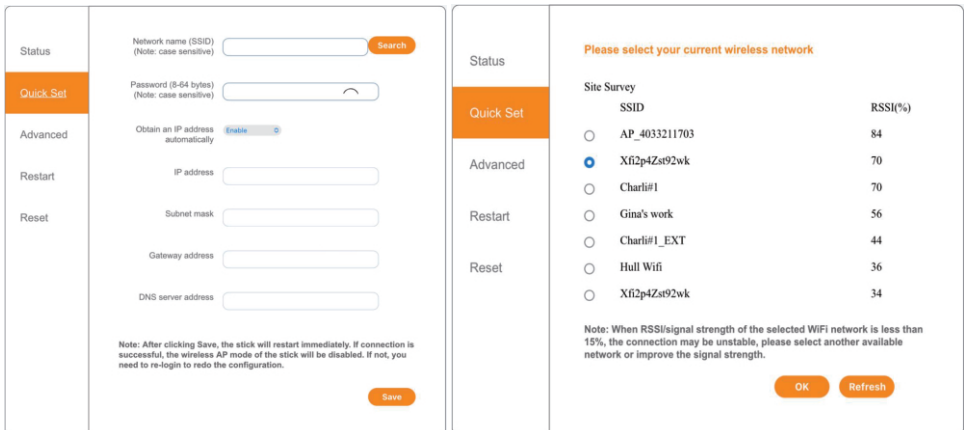
Step 2: Open a browser app and then go to the data logger configuration page

Open a browser app such as Safari, Google Chrome, Mozilla Firefox, etc., then enter **10.10.100.254** into the address bar and tap go. For the user name enter **admin** and for the password enter **123456789**, then tap Log In. You should now be at the configuration page on the Status tab. If you get a message stating that the login information is incorrect, please try holding the Reset button down for 15 seconds. Then go through the configuration steps once more. If the message occurs again, please contact Solis Technical Support.



Step 3: Connect the data logger to the WiFi network

Tap Quick Set on the left side of the page. Then tap the orange Search button to view the nearby Wi-Fi networks. Tap the circle to the left of the network that you want to connect the logger to. Finally, tap OK. If you do not see any nearby networks, tap Refresh.



3. Configuration

Enter the Wi-Fi network password. To view the password as you are entering it, tap on the semicircle that is in the password field. Once the password has been entered, tap Save. A message stating that the set up is finished will appear. If the logger is able to connect to the Wi-Fi network, your phone will automatically be disconnected from the logger access point network and the green light should go solid. If the green light continues to flash and the access point network is still available, re-enter the Wi-Fi password.

Wi-Fi configuration screen showing SSID (Xfi2p4Zst92wk), password field (masked), IP address, subnet mask, gateway address, and DNS server address. A 'Save' button is visible at the bottom right.

Configuration status screen showing 'Quick Set' selected. Status: Set up finished, the monitoring stick will now attempt to connect to the network. Note: It takes about 10s for the monitoring stick to connect to the network. If the green LED on the stick turns solid, it means the setup was successful. Advanced: If the green LED keeps flashing, and the AP is still available, please reconnect to the stick and redo the setup. Make sure you enter the correct Wi-Fi password. Restart. Reset: For more assistance and troubleshooting, please see the installation manual or Dealer Support website.

Step 3: Verify that the logger connected to the Wi-Fi network successfully

If the logger AP network disappears but the green light flashes for longer than ten seconds and then the AP network comes back, it is likely that you connected the logger to a 5 GHz and not 2.4 Ghz network. The logger only supports 2.4 GHz networks, so you will need to select a different Wi-Fi network to connect the logger to. If there are two nearby networks with the same name, try connecting to the other network.

If the logger AP network does not disappear and the green light flashes for longer than ten seconds, you likely entered the wrong password for the Wi-Fi network. Try connecting your phone to the same network to verify that the password is correct. Some passwords are long and complex, which increases the chances that the password was entered improperly. Sometimes the password for the Wi-Fi network is printed on the router specification label.

4. Commissioning

4.1 Download the SolisCloud application

SolisCloud is the monitoring platform for Solis inverters. SolisCloud can be accessed in two ways. There is a mobile application for smart devices such as phones and tablets. There is also a website which can be accessed through a browser on a computer or device. This guide is for the mobile app, but the commissioning process can also be done on the website if that is preferable .

Step 1: Download the SolisCloud application or go to the SolisCloud website

Search “SolisCloud” in the app store and download the app. If you search “Solis” many apps will appear, please see figure 4.1 for the correct app SolisCloud.

Website: www.soliscloud.com/#/homepage

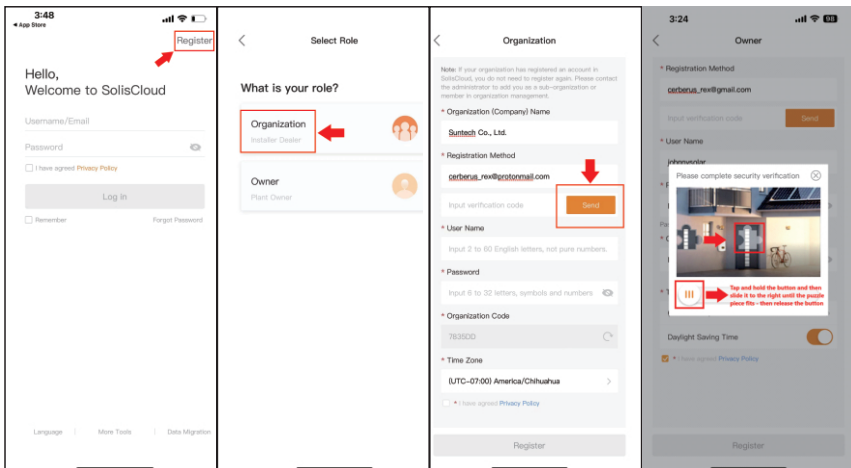


Figure 4.1 Solis Apps found in the App Store

4.2 Register a new account with SolisCloud

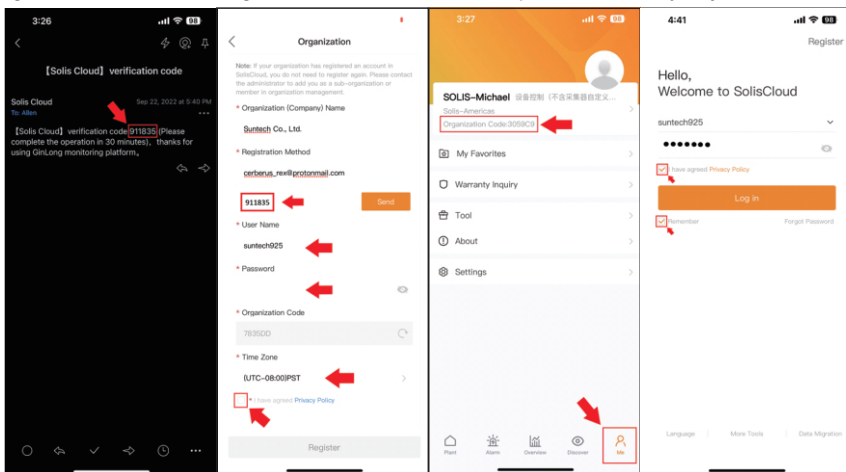
Skip this step if you already have a SolisCloud account. If you do not yet have an account, follow these steps to create one:

1. Tap Register in the top right corner
2. Select Organization if you are an installer, select Owner if you are a homeowner
3. Fill in the Organization Name and email address you want to use
4. Tap Send and then complete the puzzle verification by tapping and holding the button and then sliding it to the right. The puzzle piece should be made to fit exactly in the empty space. Release the button to complete the puzzle.
5. Go to your email inbox and look for an email from Solis - check your SPAM folder



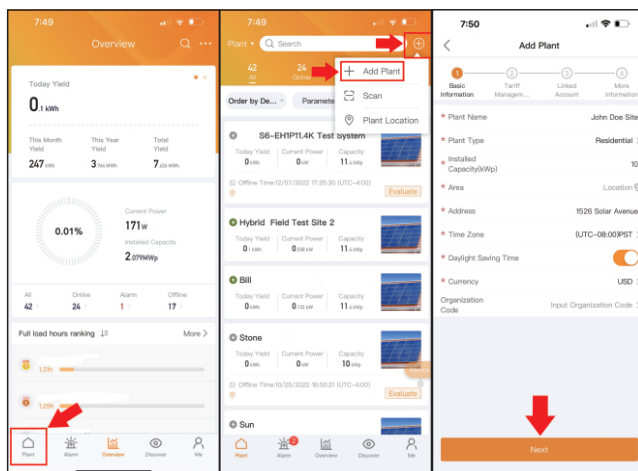
4. Commissioning

- 6. The email from Solis contains the verification code. Enter this code into the Verification Code field on the app. Then fill in the User Name, Password, Organization Code, and select the correct Time Zone. Make sure to check the little box at the bottom of the page after reading the privacy policy. Tap Register when all required fields are filled out.
- 7. If you are making a sub account under an existing organization account, have someone in the organization go to Me and then get the organization code from the top of page.
- 8. Log in to SolisCloud using the email/user name and password that you just created.



4.3 Create a new plant for the system

Once you are logged in you will need to create a new plant for your system. After that, you will be able to add the data logger to the plant. The inverter will automatically populate into the plant as soon as the logger reports to SolisCloud.



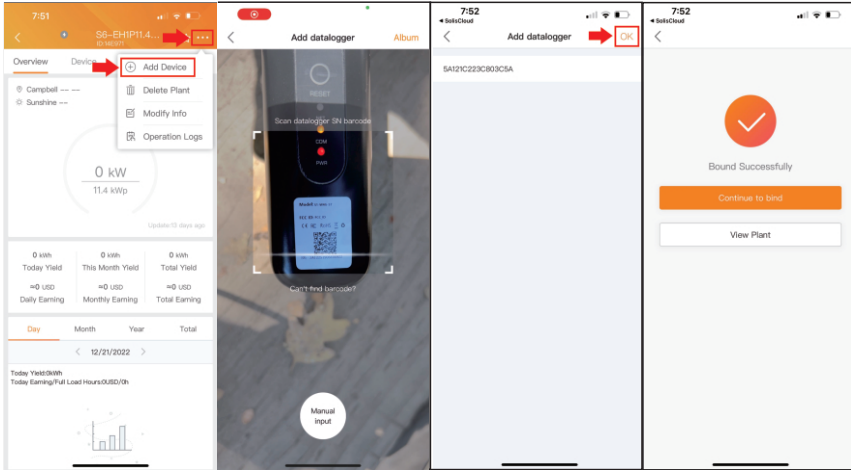
- 1. Tap Plant in the bottom left corner
- 2. Tap the + symbol in the top right corner
- 3. Tap Add Plant
- 4. Enter in the plant info
- 5. Set the location
- 6. Set the time zone
- 7. Fill in the Organization Code if the site belongs to another SolisCloud user
- 8. Tap Next at the bottom once you have finished

For Tariff Management, enter in the average rate at which the utility charges for power. Linked Accounts allows you to add guests to the plant so they can view it. This is when you would add in the homeowner's email address.

4. Commissioning

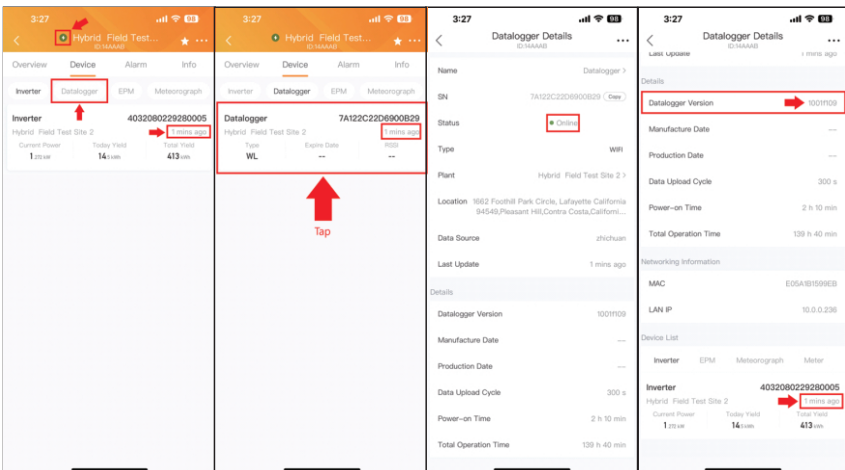
4.4 Add the logger to the plant

At the new plant main page, tap the three dots in the top right corner. Then tap Add Device to bring up the scanner. You can either scan the bar code on the logger or tap Manual Input to manually enter the logger serial number. Placing a hand behind the logger makes the scanning process easier. Once the serial number has been entered, tap OK in the top right corner. You will given the message “Bound Successfully”, tap View Plant to go back to the plant main page. **The inverter(s) will auto-populate into the plant after a few minutes.**



4.5 Verify that the system is communicating

1. Give the system about five minutes to first report to SolisCloud
2. Tap Device and then Datalogger - the inverter and logger should both say “xx mins ago” under the serial numbers, showing the last time the device reported to SolisCloud
3. Tap the Datalogger to see the logger details - look for the Status, it should be “Online” with a green dot.
4. Scroll down to view the logger software version and at the very bottom it will show the status of the inverter communication.
5. Go back to Overview to see the system generation values - this updates every 5 minutes



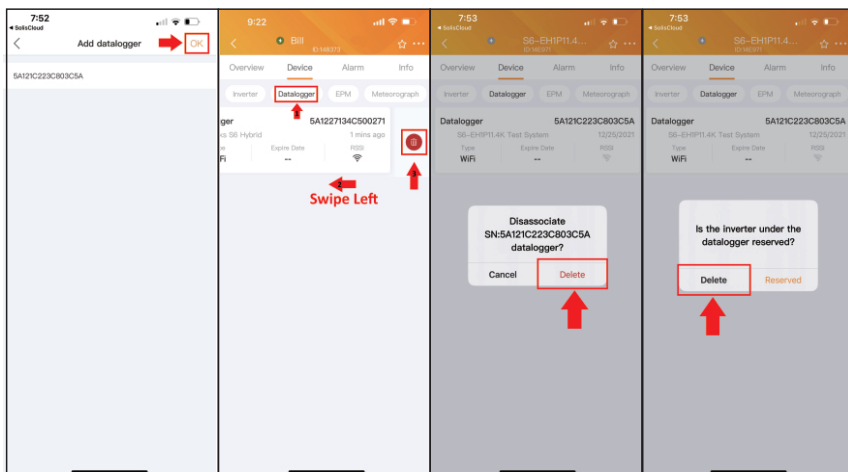
5. Decommissioning

Decommissioning of the logger must be done if one of the following situations occur:

1. The logger is being replaced under RMA or being swapped for another reason
2. The inverter is being replaced or upgraded
3. The logger is being relocated to another inverter
4. The logger is being removed altogether

Step 1: Remove the logger from the plant on SolisCloud

First, the logger must be disassociated from the plant on SolisCloud. From the plant main screen, tap Device, then tap Datalogger. Swipe left on the logger that you wish to unpair from the system. A small trash can icon will appear on the right side of the screen, tap this. When the message “Disassociate SN:XXXXXXXXX datalogger” appears, tap Delete. Finally, tap Delete again and not Reserved, this will remove the logger from the plant.



Step 2: Remove the logger from the inverter

Once the logger has been disassociated, you can physically remove it from the inverter. Do this by pinching the two lock tabs in and then pulling down on the logger until it comes out of the COM port. Replace the black plastic cover cap over the COM port.

Step 3: Store or ship the logger

Now that the logger has been removed, it can now be installed on another inverter or shipped back to Solis in case of an RMA.

To pair the logger with a different inverter, please follow the same steps that have been outlined in this manual. If the logger will not be immediately reinstalled or shipped, please store the logger in a moisture-proof environment. It is recommended to keep a desiccant packet stored with the logger to ensure the internal components of the logger are not exposed to moisture.

What to do if there is a new Wi-Fi network or Wi-Fi password

You will need to reconfigure the data logger. First press and hold the Reset button located on the back of the data logger for 15 seconds. Doing this will reset the logger and enable the logger access point.

Use your phone to connect to the logger access point network and then go to the browser configuration page by entering the address 10.10.100.254. See page 6 for the complete instructions on how to configure the data logger to the Wi-Fi network.

6. Frequently Asked Questions

Q1: Which Solis inverters and products does this logger work with?

A1: This logger only works with the S6-EH1P(3.8-11.4)K-H-US hybrid inverter series. It also will not work with any other Solis inverter unless it also has a USB COM port instead of a 4-pin COM port.

Q2: What is the warranty for this logger? Who do I contact to start a warranty claim?

A2: The logger comes with a 2-year warranty. Please contact Solis Support at +1(866)438-8408.

Q3: How do I access the data from the logger and inverter? Will I need to create an account?

A3: To see the system data, you will need to use the Solis monitoring portal, SolisCloud. This can be done with the mobile application or the website. An account will need to be created to use the portal.

Q4: Do loggers come with inverters or are they purchased separately? Are loggers required?

A4: Loggers must be purchased separately and they are not required but they are highly recommended.

Q5: Is there a fee for using SolisCloud? Do I need a Solis logger in order to use SolisCloud?

A5: SolisCloud is a free service that is included in the cost of the Solis logger. There are no fees or charges for using SolisCloud.

Q6: What do I do if my Wi-Fi password changes or if I switch network providers?

A6: Someone will need to reconfigure the logger to enter the new Wi-Fi password or select the new Wi-Fi network once it is available. This must be performed locally and cannot be done remotely.

Q7: What do I do if my Wi-Fi password changes or if I switch network providers?

A7: Someone will need to reconfigure the logger to enter the new Wi-Fi password or select the new Wi-Fi network once it is available. This must be performed locally and cannot be done remotely.

Q8: If my Wi-Fi network goes down does the logger or the inverter store data to upload once the Wi-Fi network is back up?

A8: The inverter stores data but the information is not automatically uploaded. If you notice a gap of missing data, please contact Solis Support at +1(866)438-8408 to request a data backfill. If your network provider is unreliable, we suggest installing an S1-W4G-ST logger instead since it will automatically switch over to cellular whenever the Wi-Fi fails.

Q9: What is the maximum distance that the logger can be away from the Wi-Fi router?

A9: It is not about the distance so much as the network strength at the logger's installation location. With no obstructions, the distance is about 300 feet. However, any obstacle (especially concrete or metal walls) will reduce that distance significantly. Please see page 3 on checking the network strength. If the strength is not great enough, a range extender or booster will be required. You can alternatively install an S2-WL-ST (LAN) logger or an S1-W4G-ST (cellular/Wi-Fi) logger.

Q10: Can the logger work with all types of Wi-Fi networks and Wi-Fi range extenders?

A10: The logger works with 2.4 Ghz networks but not 5 Ghz networks. Many modern Wi-Fi networks generate two Wi-Fi networks, one that is 2.4 Ghz and one that is 5 Ghz. Therefore, it is important to pay close attention during the configuration process. The logger works with all types of Wi-Fi range extenders and boosters.

Q11: Is it one logger per inverter or how many inverters can this logger support?

A11: The logger can support a maximum of ten inverters. This is done by first daisy-chaining the inverters together with RS 485 and setting the addresses. When the logger gets added to the plant on SolisCloud, it will automatically populate all of the inverters in the daisy-chain

Q12: If my inverter is replaced, can I use the same logger? What happens to the production data?

A12: If the inverter is replaced, you can use the same logger. You will need to remove the old inverter from the plant on SolisCloud. The production data will remain part of the plant history and is not lost. Once you connect the logger to the new inverter, the new serial number will show up in SolisCloud.

Q13: Am I able to move the logger from one inverter to another inverter?

A13: Yes, you can do that. On SolisCloud you will have to disassociate the logger from the plant and inverter before removing it. Then you can plug it into a different inverter and scan it into another plant.

Q14: Where are the SolisCloud servers located?

A14: SolisCloud uses Amazon Web Services (AWS) and the server is located in Europe.

7. Technical Specifications

Models

S4-WIFI-ST

Communication

Supported devices	Solis S6-EHIP(3.8-11.4)K-H-US inverter models
Number of connected inverters ⁽¹⁾	≤ 10
Data collection intervals	5 minutes
Status indicator	LED lights × 3
Communication interface	USB
Wireless communication ⁽²⁾	2.4 Ghz
Configuration method	Mobile Application & Website

Electrical

Operating voltage	5Vdc (+/-5%)
Operating power consumption	≤ 5 W

Environment

Operating temperature	-22°F to 149°F (-30 ~ +65°C)
Operating humidity	5%-95%, Relative humidity, non-condensing
Storage temperature	-40°F to 158°F (-40 ~ +70°C)
Storage humidity	< 40%
Operating altitude	≤ 13,123 ft (4,000 m)
Protection degree	NEMA 4X

Mechanical

Dimensions (L x W x H)	5 x 2 x 1.3 inches (128 x 50 x 34 mm)
Installation method	Plugged in externally
Weight	0.19 lb (86.2 g)

Others

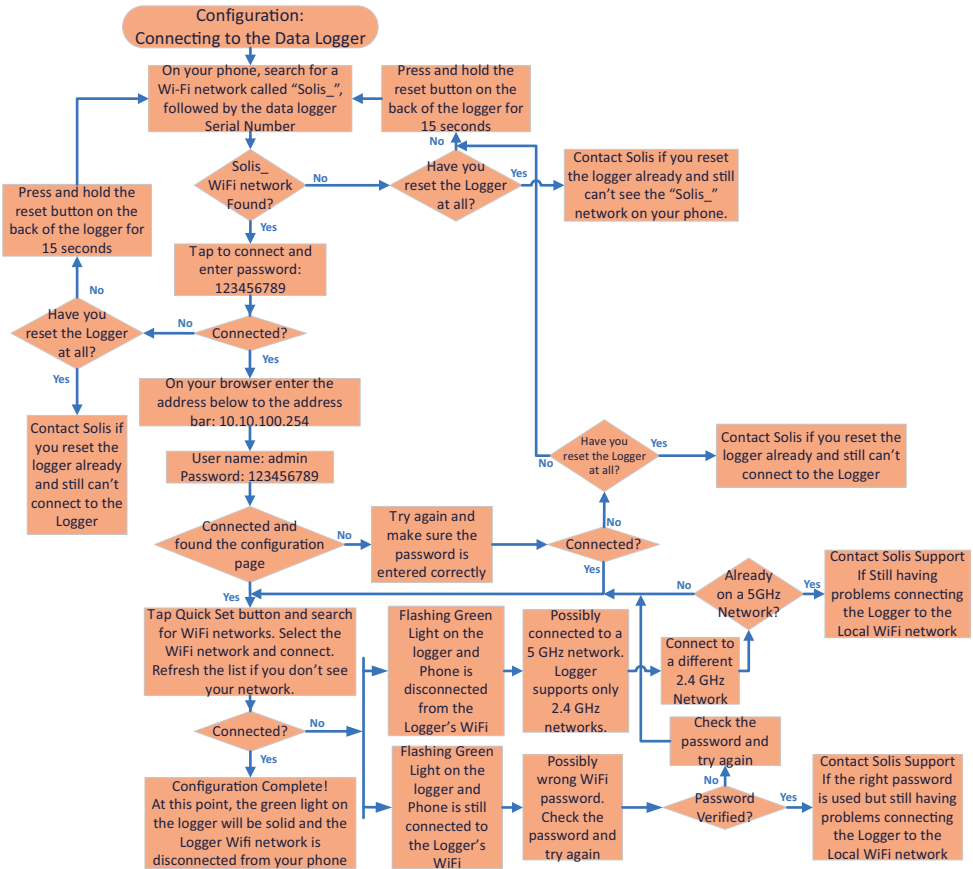
Certification	CE, FCC
Warranty	2 years

(1) First connect the inverters with Rs485.

(2) 5GHz Wi-Fi networks are not supported.

8. Appendix

8.1 Commissioning Process Flow Chart



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If you encounter any problems with the logger, please take note of the logger serial number and then contact us using the phone number or email listed above.