User Manual

External WiFi Data Logger for
Remote System Monitoring

Model Number: **S3-WIFI-ST**

Important Notes

● 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

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Contacting Solis Technical Support

Solis Support can be reached by calling **+1(866)438-8408** or by sending an email direclty 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.

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 WiFi Data Logger is an external device which plugs directly into to 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 WiFi network, it is incompatible with 5GHz networks. Up to ten Solis inverters can be daisy-chained together with RS485 to communicate through one WiFi logger. This logger works with any Solis inverter that has a 4-pin COM port, please reference the list below for all compatible Solis US inverter models.

Lock Ring

Antennae

Reset Button

LED Indicator Lights

4-pin Connector

Lock Ring
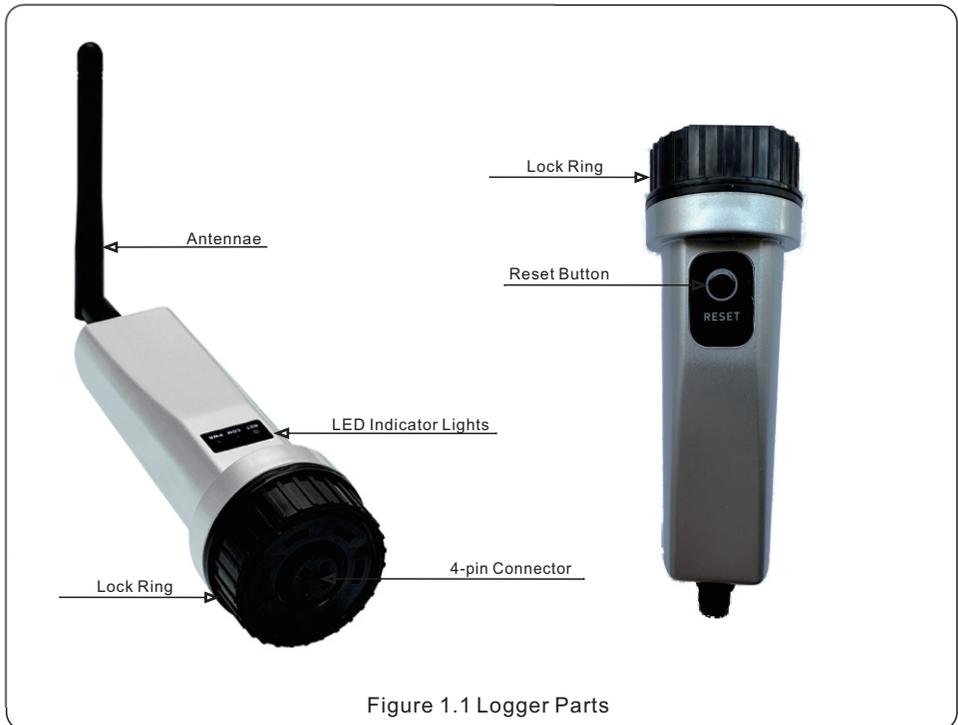
Figure 1.1 Logger Parts

1.2 Compatible Solis US Inverter Models

- Solis-1P(2.5-6)K2-4G-US
- Solis-1P(6-10)K-4G-US
- RHI-1P(5-10)K-HVES-5G-US
- Solis-(25-40)K-US
- Solis-(50-66)K-US
- Solis-(75-100)K-5G-US
- S5-GC(75-100)K-US
- Solis-(125-255)K-EHV-5G-US-PLUS

> **Note**
>
> The S6-EH1P(3.8-11.4)K-H-US hybrid inverter series does **not** support the Solis S3-WIFI-ST WiFi data logger.

1. Introduction

1.3 LED Indicator Lights

The Solis S3-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 LED indicator lights should be 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.

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 WiFI network	Flashing	Attempting to connect to the WiFi network
		Solid	Successfully connected to the WiFi network
		Off	Not connected to the WiFi 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 S3-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 WiFi network is 2.4 GHz, **the logger does not support 5 GHz**

5. Verify that WiFi network password is correct - check it by connecting with your phone

6. Check the signal strength of the WiFi 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 WiFi 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 WiFi range extender if the upload speed is under 11 Mbps.

2.2 Installation Steps

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

The data logger plugs into the 4-pin COM port on the bottom of the inverter wire box. This port is protected by a black cap that screws on. The first step is to unscrew the cap. Figure 2.1 shows the Solis-1P10K-4G-US inverter wire box as an example.

Other Solis inverters will have a similar green COM port on the bottom of the wire box.
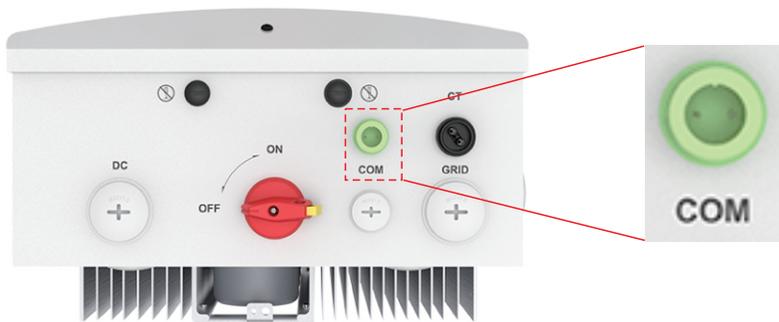
Figure 2.1 COM Port

2. Installation

Step 2: Attach the antenna and plug the logger into the COM port

**A**.Screw the antenna onto the logger. Then 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.
B.Twist the black lock ring at the top the logger clockwise until it feels snug against the bottom of the inverter. Be careful not to rotate the silver casing during this step.

match the joint

2.3 Connecting Multiple Inverters to One Data Logger

First, the inverters must first 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.
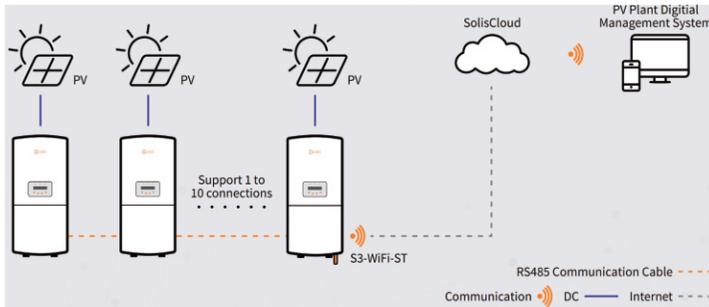
Step 1: Daisy chain the inverters together with RS485 communication cable.
Step 2: Plug the data logger into the first inverter in the daisy chain.
Step 3: Adjust the address for each inverter.
Note: The first inverter should be set to 01. Each of the other inverters in the chain must be set to a number 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

Connect phone to logger access point network → Go to logger configuration page on a browser app → Select the desired WiFi network & enter password → Wait ten seconds for the logger to communicate

Scan the sticker on the logger ← On the new plant, go to add a device ← Create a new plant for the system on SolisCloud ← Download SolisCloud and then register a new account

Wait five to ten minutes for the logger to report → Once the logger reports, the inverter(s) will auto-populate into the new plant → The system has now been commissioned

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

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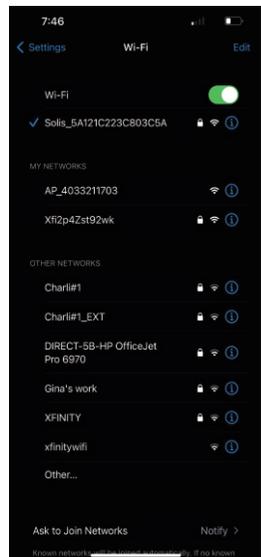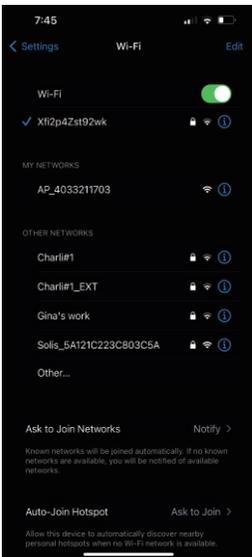
If you get a message stating that the password is incorrect or if the logger WiFi network does not appear in the list of nearby networks, press and hold the Reset button on the back of the data logger for 15 seconds.

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 direclty 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.

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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.
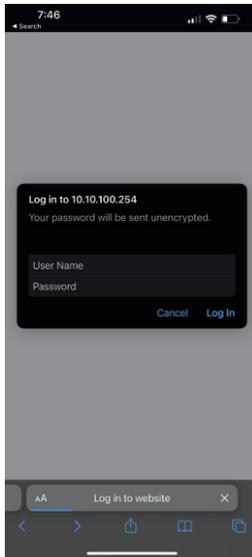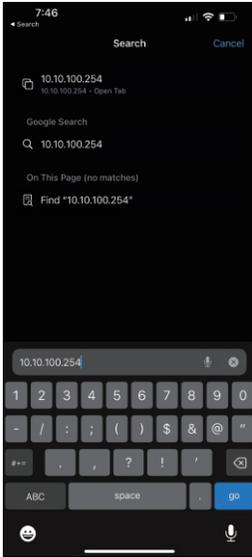
Step 3: Connect the data logger to the WiFi network

Tap Quick Set on the left side of the page. Then tap the orange Search button to view the nearby WiFi 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.
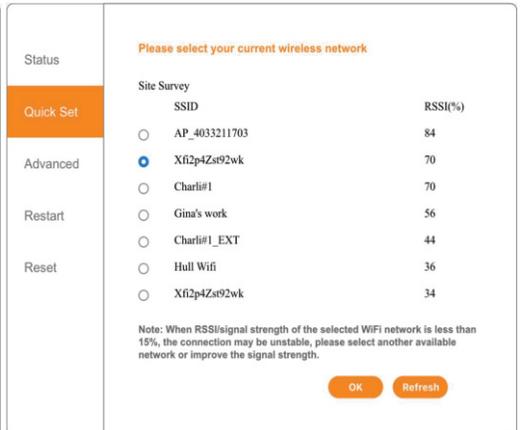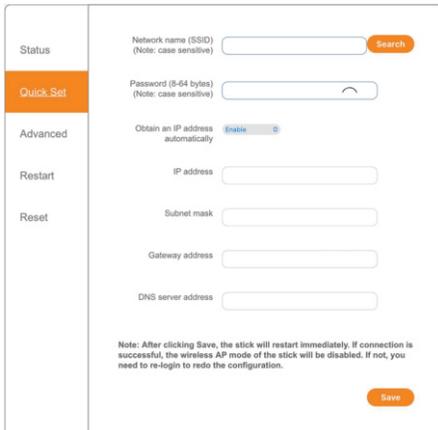
3. Configuration

Enter the WiFi 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 WiFi 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 WiFi password.

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

> ### ⚠ Hint
>
> 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 WiFi 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 WiFi network is printed on the router specification label.

4. Commissioning

4.1 Download SolisCloud and Register an Account

SolisCloud is the monitoring platform for Solis inverters. SolisCloud is a mobile-app that can be accessed with a smart-phone and also a website that can be accessed through a web browser. 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

Step 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. Enter in the organization information, be sure to set the time zone correctly
4. Tap Send and then enter the verification code or complete the puzzle verification
5. Go to your email and retrieve the code that was sent there
6. Return to the app and enter the code into the "Input Verification Code" field
7. Tap Register at the bottom to complete the registration process - you can now log in
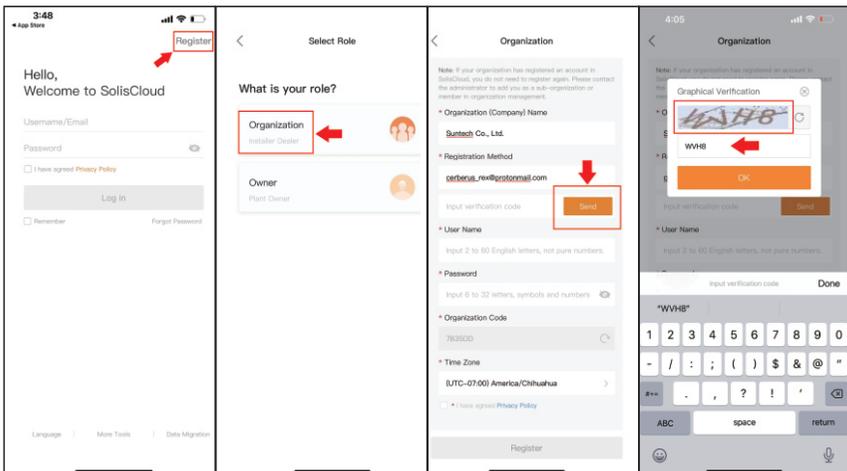
4. Commissioning

4.2 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.
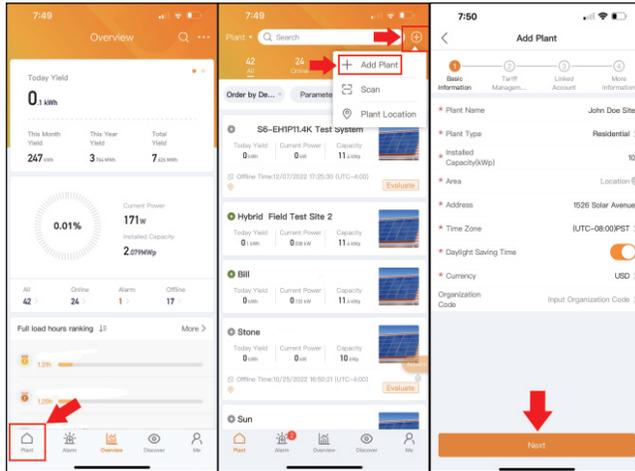

1. Tap Plant in the bottom left corner
2. Tap the + symbol in the top right corner
3. Tap Add Plant
4. Enter in the plant info
5. Set the location
6. Set the time zone
7. Fill in the Organization Code if your company already has a SolisCloud account
8. Tap Next at the bottom once you have finished

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.

4.3 Add the Data 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. .


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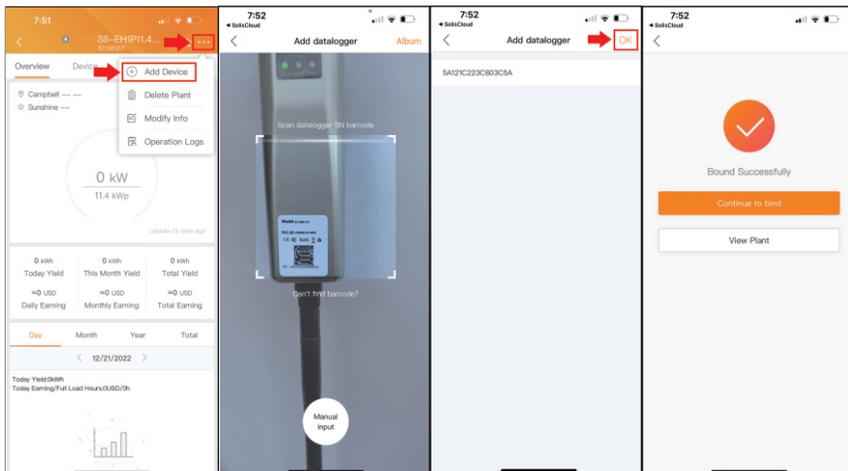
5. Decommissioning

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

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.
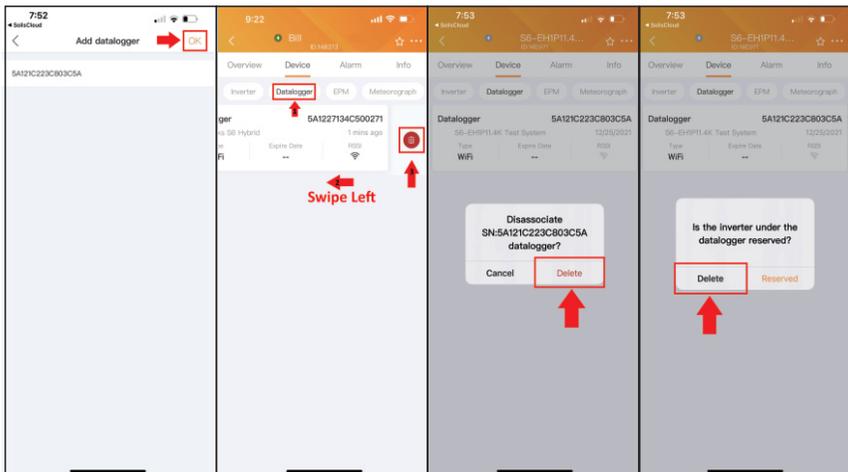
Step 2: Remove the logger from the inverter

Once the logger has been disassociated, you can physically remove it from the inverter. Do this by twisting the black lock ring counter-clockwise until it is loose. Then gently pull down on the logger until it comes out of 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.

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 longer to ensure the internal components of the logger are not exposed to moisture.

What to do if there is a new WiFi network or WiFi 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 WiFi network.

6. Technical Specifications

Models	S3-WiFi-ST
Supported device type	Solis inverter (all models except S6-EH1P(3.8-11.4)K-H-US)
Number of connected inverters	¡Ü10
Data collection intervals	5 minutes
Status indicator	LED × 3
Communication interface	4 Pin
Wireless communication	802.11b/g/n (2.4G—2.483G)
Configuration method	Mobile App/Website

Electrical

Operating voltage	DC 5V(+/-5%)
Operating power consumption	¡Ü5 W

Environment

Operating temperature	-22°F to 149°F (-30 ~ +65°C)
Operating humidity	5%-95%, relative humidity, no condensation
Storage temperature	-40°F to 158°F (-40 ~ +70°C)
Storage humidity	< 40%
Operating altitude	¡Ü4000 m
Protection degree	NEMA 4X

Mechanical

Dimensions (L x W x H)	5 x 2 x 1.3 in (128 x 50 x 34 mm)
Installation method	Plug-in to external port
Weight	0.18 lb (80 g)

Others

Certification	CE, FCC

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.