FRANKLINWH

Franklin Home Power Commissioning Guide

App Version 1.9.5

Issued on: Apr 10, 2024

Please visit *www.franklinwh.com/au/support* for the latest FranklinWH documents.

Please read this document carefully to ensure the best reliability of the product and your warranty eligibility. For further information about the warranty, please refer to the ***FranklinWH Limited Warranty***.

This document is intended for use by professional installation and maintenance service providers only and no statements, information or recommendations in this document constitute any express or implied warranty.

Please read this document carefully before installing or using the Franklin Home Power system. Failure to follow any instructions or warnings in this document may result in damage to the equipment, personal electric shock, severe injury, or even death.

Product Information

The Franklin Home Power system is composed of aPower, aGate and other electrical components. This document applies only to the following products: aPower X, aGate X, aPbox, and the FranklinWH App.

FranklinWH Energy Storage Inc. (FranklinWH) reserves the right to make any improvements to the product, and the contents in this document shall be subject to updates without further notification.

All images and pictures provided in this manual are only for demonstration purposes and may differ in detail from the product, based on the product version.

Feedback

If you have any questions or comments, please send us an email at: *service-au@franklinwh.com*

Disposal of Scrapped Products

Scrapped products (including their internal chemicals and electrical materials) should not be disposed of with household wastes. Please refer to your local laws and regulations regarding disposal.

CONTENT

Safety Statements

Please read this entire document to ensure the proper use of the Franklin Home Power (FHP) system. The FranklinWH hardware are electrical devices. Please strictly follow the safety instructions in this manual during operation, failure to do so may result in equipment malfunction, electrical shock, serious injury or death, and may also void the warranty.

This document is intended only for FranklinWH personnel and certified installers.

DANGER

- Do not directly touch any exposed metal surfaces other than the aGate case.
- During commissioning, use insulated gloves or devices to perform operations and measurements to prevent electrical shock damage.

Commissioning Guidance

This manual describes the process for commissioning each aGate. If there are multiple aGate panels installed on a single home, the commissioning steps must be repeated for each aGate on site.

Before commissioning

Download the FranklinWH App

The FranklinWH App is required to configure the system parameters during the commissioning process.

To download the FranklinWH App, you can visit the App Store or Google Play:

App Store Google Play

*__Note:__ *Installation service providers and customers use the same FranklinWH App, but they access different functions based on the type of account.*

This manual only applies to the FranklinWH App v1.9.1

For the latest information, please visit www.franklinwh.com/au/support.

Inspect the system before power-on

Tools needed: multimeter, network cable tester.

aGate Inspections					
General					
1	Are there foreign objects in the aGate?	☐ Yes		☐ No	
2	Are there bare wires near the installation site?	☐ Yes		☐ No	
Grid					
1	Are the grid input power cable fastening bolts properly tightened?	☐ Yes		☐ No	
2	Are the grid output power cable fastening bolts properly tightened?	☐ Yes		☐ No	
3	Are the Neutral and Ground lines short connected at the bonding jumper bar?	☐ Yes		☐ No	
4	Is the grid breaker **OFF**?	☐ Yes		☐ No	
aPower					
1	Are the aPower input cable fastening bolts properly tightened?	☐ Yes		☐ No	
2	Is the aPower breaker **OFF**?	☐ Yes		☐ No	
Solar					
1	Are the solar input cable fastening bolts properly tightened?	☐ Yes		☐ No	
2	Is the solar breaker **OFF**?	☐ Yes		☐ No	
Smart Circuit (If present)					
1	Are the Smart Circuits cable fastening bolts properly tightened?	☐ Yes		☐ No	
2	Are the Smart Circuits breakers **OFF**?	☐ Yes		☐ No	
Generator (If present)					
1	Are the generator cable fastening bolts properly tightened?	☐ Yes		☐ No	
2	Is the generator breaker **OFF**?	☐ Yes		☐ No	
Communications					
1	Confirm the aGate is properly connected to the network①	☐ Network Cable		☐ Wifi	☐ 4G
		☐ Eth1 (Debug)	☐ Eth2	-	-

2	Is there communications between aGate and aPower?	☐ CAN port		-	
3	Are the wireless module and USB cables connected?	☐ Yes		☐ No	
aGate power switch					
1	Is the aGate power switch **OFF**?	☐ Yes		☐ No	
aPower inspections					
1	Are all aPower power switches **OFF**?	☐ Yes		☐ No	
2	Are all aPower output cables tightly fastened?	☐ Yes		☐ No	
3	Where is the CAN matching terminal installed?②	☐ aPower 1	☐ aPower 2	☐ aPower 3	Other _____
Measurements					
1	Check that the CAN cable is wired according to the 568B standard using a cable tester③.	☐ Yes		☐ No	
2	Measure and check that there is no short connection on **grid input** lines L and N.	☐ Yes		☐ No	
3	Measure and check that there is no short connection on **generator** input lines L and N.	☐ Yes		☐ No	
4	Measure and check that there is no short connection on **load** output lines L and N.	☐ Yes		☐ No	
5	Measure and check that there is no short connection on **aPower AC** output lines L and N.	☐ Yes		☐ No	

* ***Caution:***

If any of the above check results is "No," except for ① and ②, please solve the abnormal item and check again.

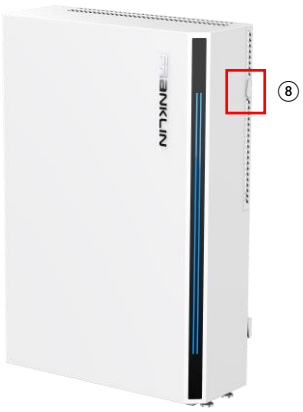
① *If using a network cable, it must be connected to the Eth2 port on the aGate.*

② *When multiple aPower units are working in parallel, it is necessary to remove the excess CAN matching terminals from all aPower units except for the one on the last aPower.*

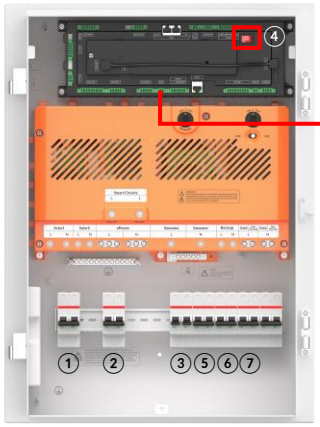
③ *Incorrect cable sequence of the CAN may lead to system damage.*

Cut off all AC power from the system

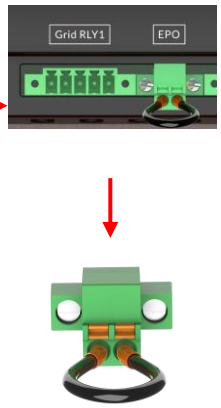
aGate



aPower



aGate Internal



EPO plug

① Solar breaker ② aPower breaker ③ Smart Circuits breakers ④ aGate power switch ⑤ Generator breaker ⑥ Backup breaker ⑦ Grid breaker ⑧ aPower switch

1. Ensure that the grid breaker, generator breaker (optional), solar breaker, Smart Circuits breakers (optional), backup breaker (optional), and aPower breaker on aGate are all in the **OFF** position.
2. Ensure that the aGate power switch is in the **ON** position. 
3. Ensure that the external EPO switch (if installed) is **OFF** or the EPO plug is disconnected.
4. Press the aPower button switch on the right side of each aPower to confirm that the switch is mechanically **ON**, and the power indicator on the aGate turns **ON**.

**NOTE:* *During the commissioning, the app will receive device fault information due to abnormal system operation, which can be ignored.*

Commissioning

NOTE

The images provided in this document are for demonstration purposes only. Depending on product version, details may appear slightly different.

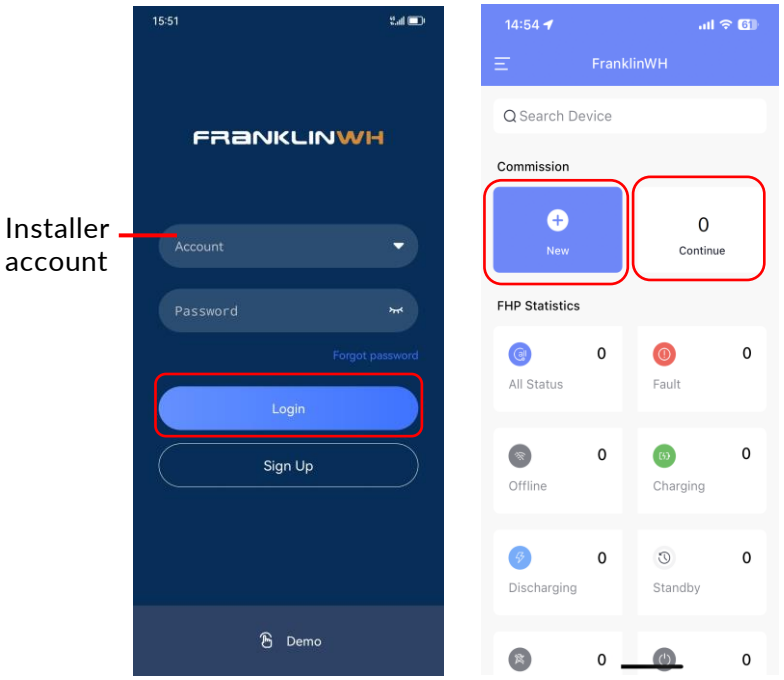
Basic Configuration

Step 1. Begin a commissioning.

Log in to the FranklinWH App on the installer account.

If a previous commissioning has not been finished yet, click **Continue**.

Otherwise, click **New** to establish a new commissioning.



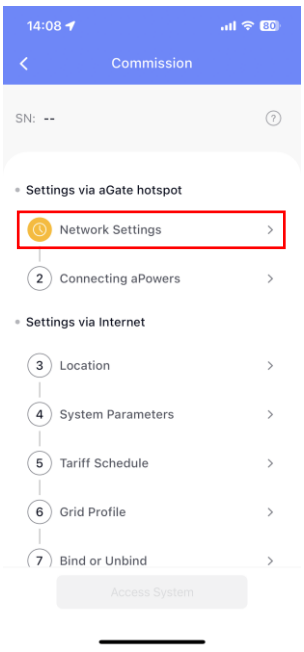
Note: If you wish to see a demonstration system rather than the actual parameter configuration, click **Demo, then select **Homeowner** or **Installer/ Service** to access the sample parameter configurations.*

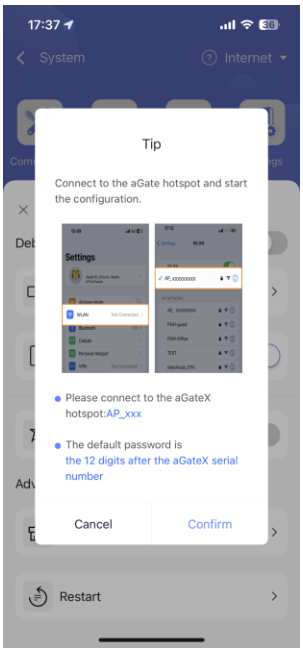
Step 2. Network Settings.

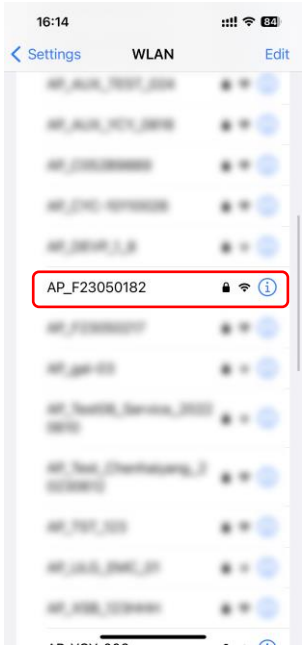
Click **Network Settings** on the Commission page.

A pop-up will prompt you to connect to the aGate hotspot. Click **Confirm** to jump to the phone Wifi setting interface, select the aGate hotspot network which is named “AP_last 9 digits of SN (e.g. AP_F22100001),” and connect the app to the aGate hotspot network.

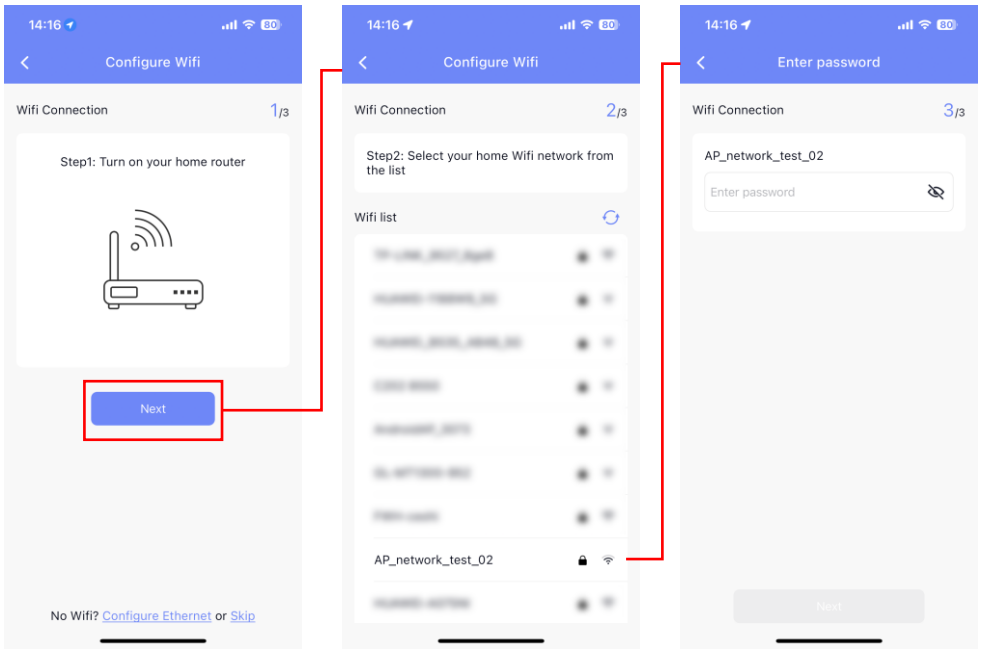
**NOTE:* *Users may modify the password remotely on the FranklinWH App and retrieve the password via email if forgotten.*



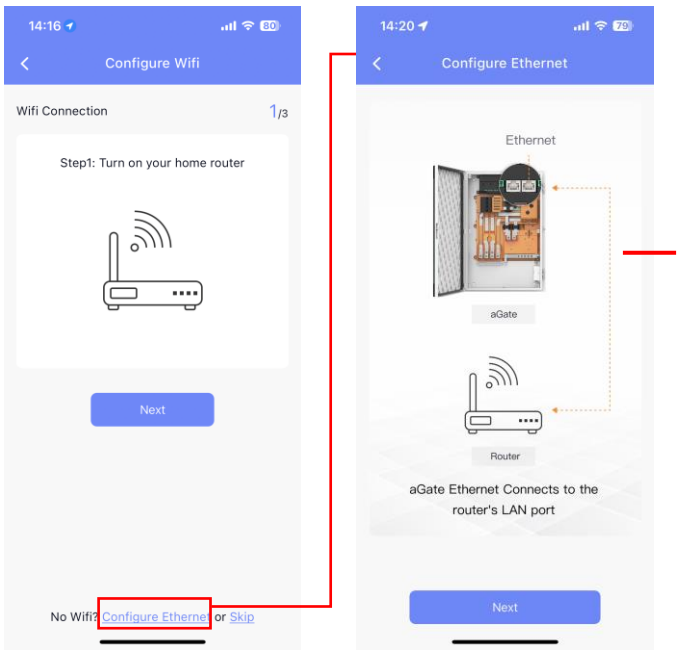




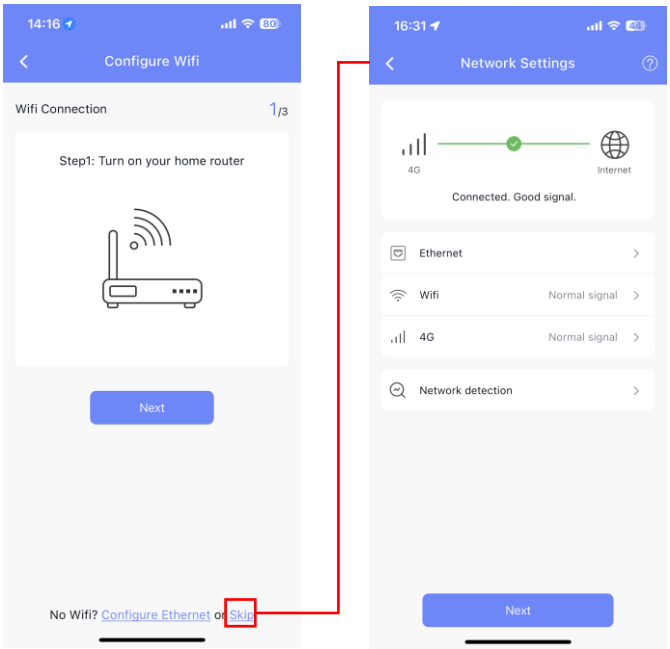
After connecting to aGate's hotspot, follow the instructions to proceed with setting up the home router's Wifi connection.



If there is no home Wifi connection, you can tap **Configure Ethernet** to connect to the Internet through the router's LAN port.



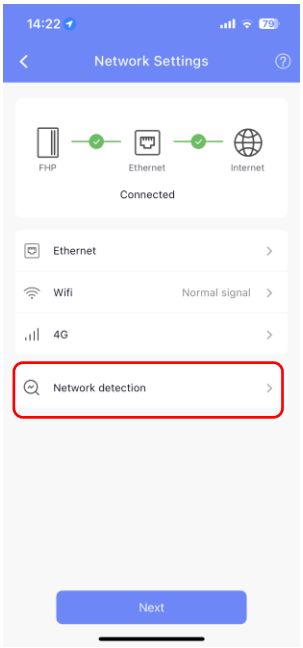
Or tap **Skip** on the Configure Wifi page (4G is connected by default).



**NOTE:* *A Wifi or Ethernet connection is preferred to the 4G cellular network, as 4G is easily affected by the carrier services and weather conditions. Currently, only 2.4Ghz Wifi connections are supported between the aGate and the router.*

Because of cellular network coverage issues, sometimes the phone will drop the connection with the aGate after the Wifi connection has been successfully established. The mobile app will prompt to reconnect. Please follow the instructions and reconnect your mobile phone to the aGate.

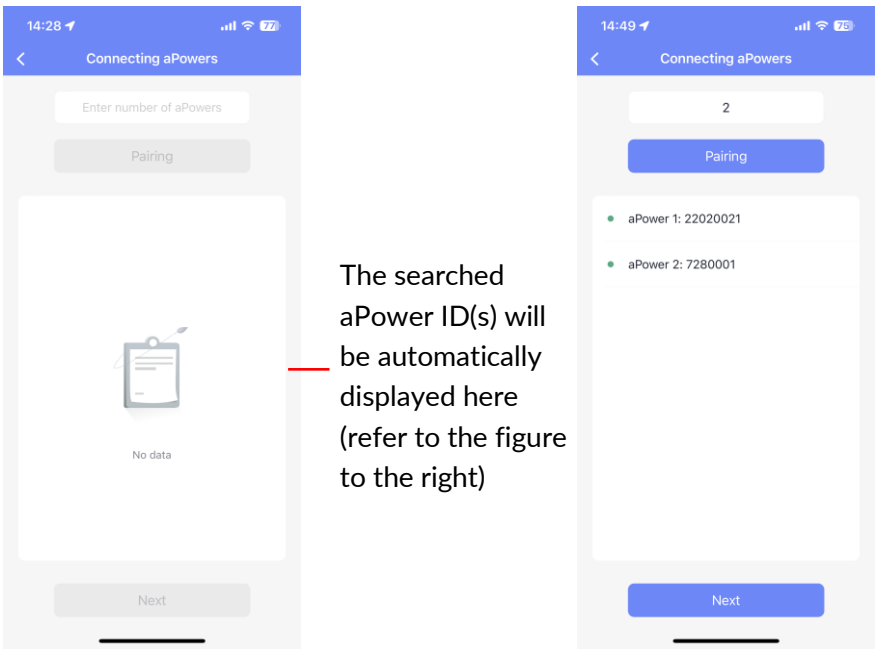
After network configuration, you can click **Network detection** to check the network connection and view recommended solutions.



Step 3. Connecting aPowers.

In the **Connecting aPower** page, enter the number of aPower units, then click **Pairing** bar to start searching.

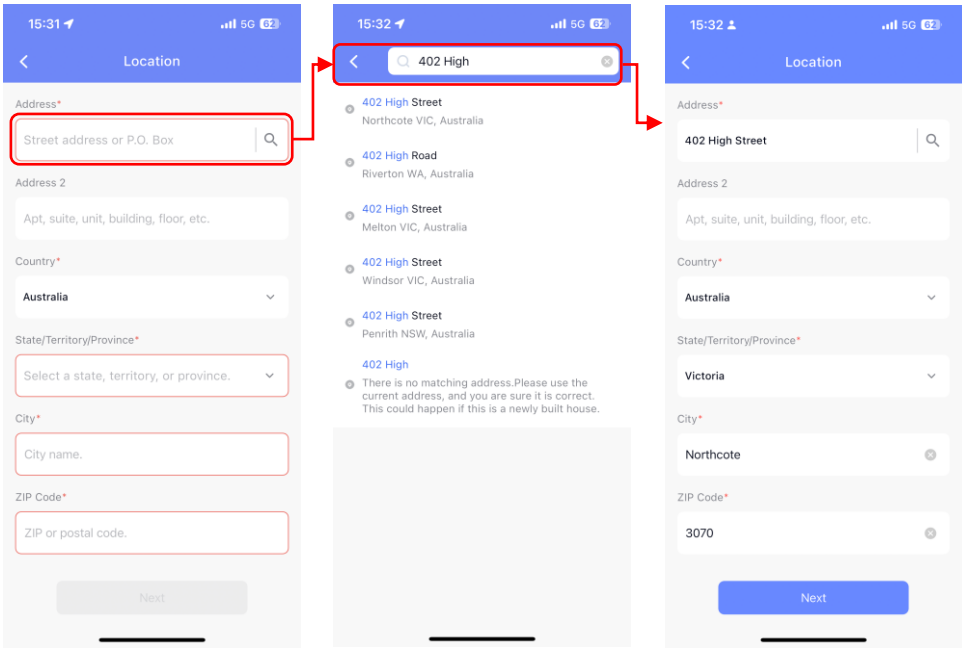
When the aPower batteries have been accurately identified, click **Next** to save the configuration.



When the setting is done, tap **Next**. A popup will prompt you to connect to the internet, click **Confirm** to jump to the Wifi selection interface, then switch the app from the aGate hotspot to the internet, and continue the configuration.

Step 4. Location.

In the **Location** settings page, click the **Address** bar (left image) and the search form (middle image) appears. Input the address and the search will attempt to matching the address. If the correct address displays, click on it to fill in the fields (right image). If there is no match, click on **There is no matching address...** at the bottom of the address list, then enter the correct address information in the appropriate fields.

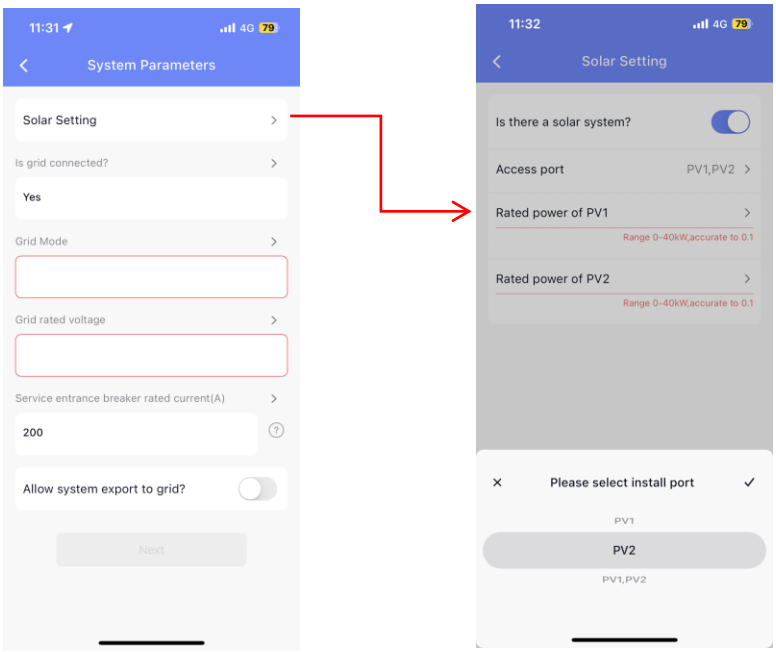


Step 5. System parameters.

In the **System Parameters** setting page, click **Solar Settings** to configure the solar system based on the local situation.

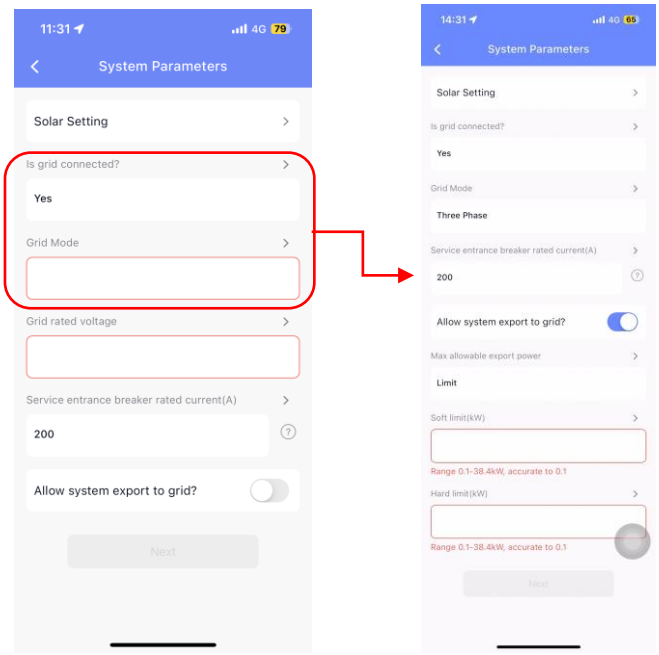
Solar Settings

Enable this If a solar system is present. Select the **Access port** mode and set the **Rated power of PV** base on the site conditions.



Configure the system's grid-related parameters

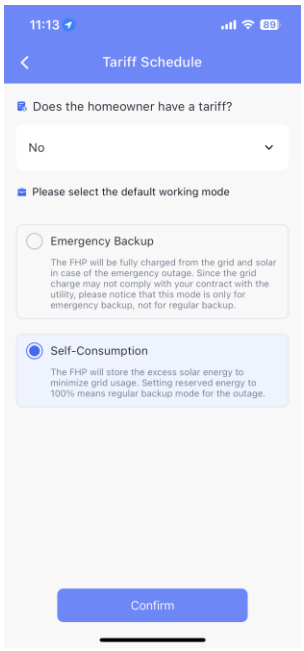
In the System Parameters page, select the system's grid connection status from the option box. If the system is connected to the grid, choose **Yes**, then configure **Grid Mode**, **Grid rated voltage** and **Service entrance breaker rated current**. Enable this if the system is allowed to export power to the grid, then set whether to limit **Max allowable export power**, **Soft limit** and **Hard limit** values based on the utility requirements and site conditions.



*__Note:__ *When there are 4 or more aPower units in parallel in the system, the aPower charging/discharging setting item will appear.*

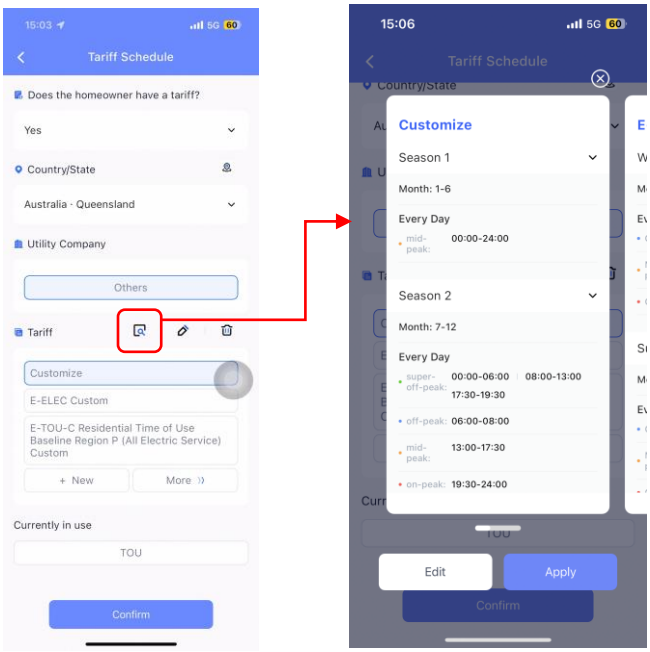
Step 6. Tariff Schedule.

1) If there is no tariff available, Emergency Backup or Self-Consumption can be chosen as the default working mode.

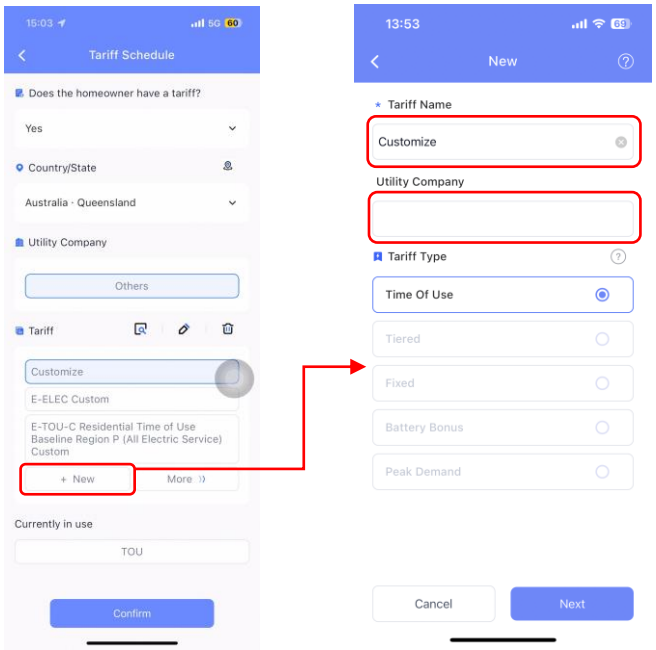


*__Note:__ *The Self-Consumption option will only appear in the mode selector if you have PV connected to the aGate.*

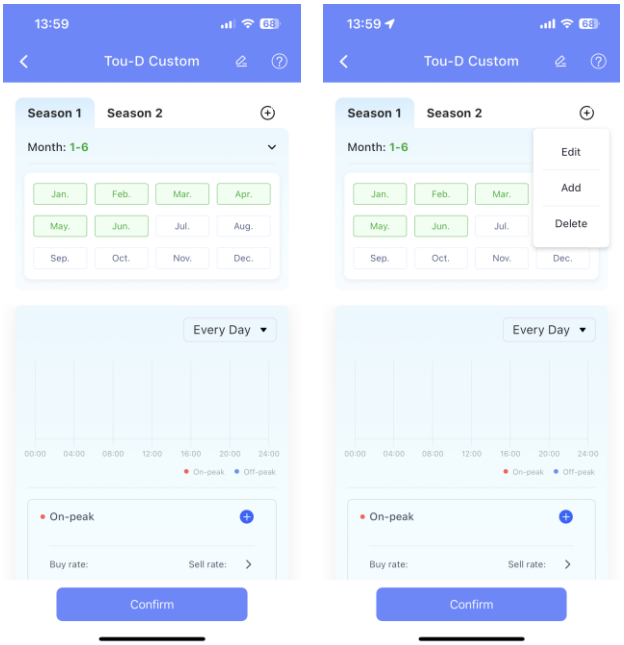
2) If there is a tariff available, select the Utility Company and a tariff type, then click the magnifier icon to view the detailed information as needed, click **Edit** to modify the template or just click **Apply** to use the default settings.



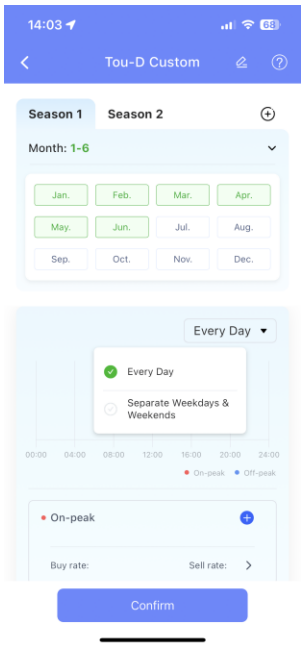
3) Or Click **+New** to customize a tariff type. Rename the schedule and the Utility company (optionally) in the box as needed, then tap **Next**.



4) Tap the season name and select the designated months. Tap the plus sign in the upper right corner to edit, add, or delete a season.

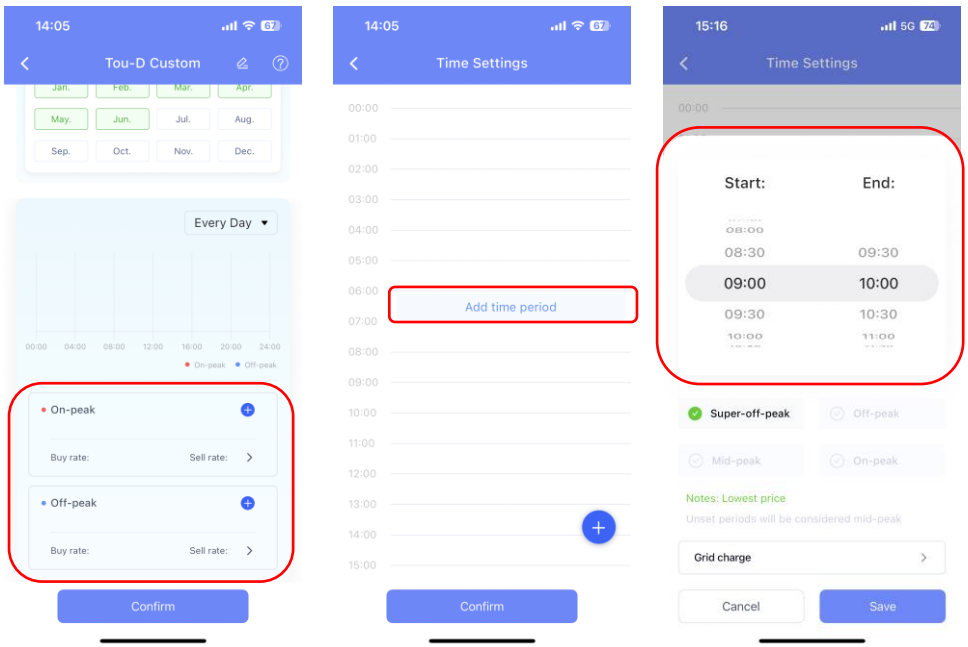


5) Select **Every Day** or **Separate Weekdays & Weekends** from the Week selector.



6) Tap the **On-peak**/**Off-peak** plus sign to set the On-peak, Off-peak, Mid-peak, and Super-off-peak time periods. An "Add time period" pop-up will prompt when tapping the time row, tap the prompt window, or tap the plus sign to configure time periods.

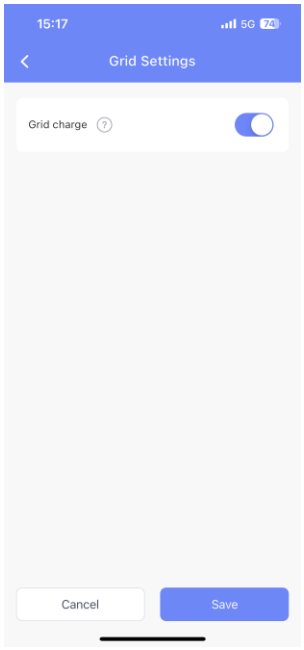
Scroll down to select start time and end time, then set the peak time and off-peak time periods.



When time settings are complete, tap **Grid charge** to enter the settings page if needed.

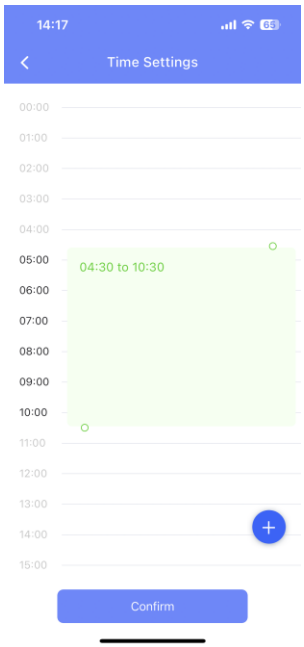
7) If it's allowed to charge the battery from the grid, this slider may be enabled.

If the Grid charge feature is disabled, the aPower batteries will never charge from the grid.

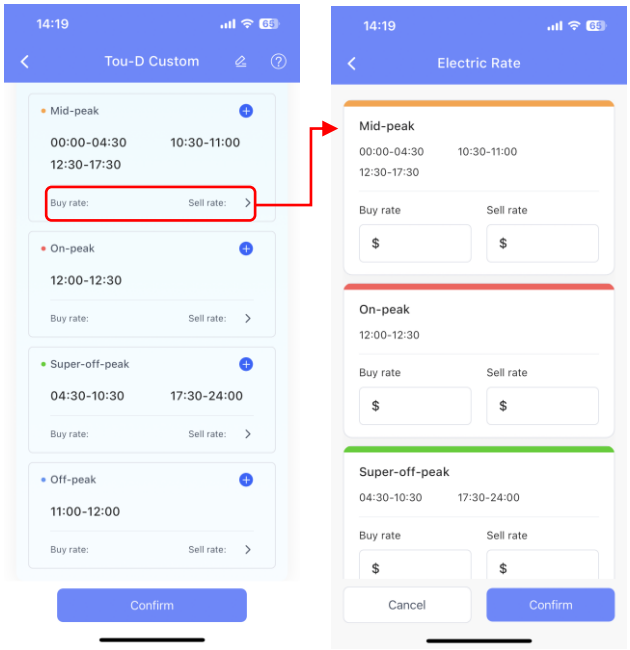


8) You can re-configure the settings by tapping the added time period. Long press the added time period to activate gesture control. Long-press drag the added time period or drag the dot to change the time boundaries.

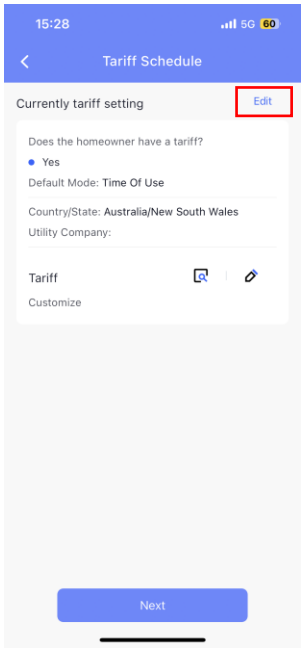
Tap **Confirm** to save the configuration after the time period is set. The unselected time periods will be set to Mid-peak by default.



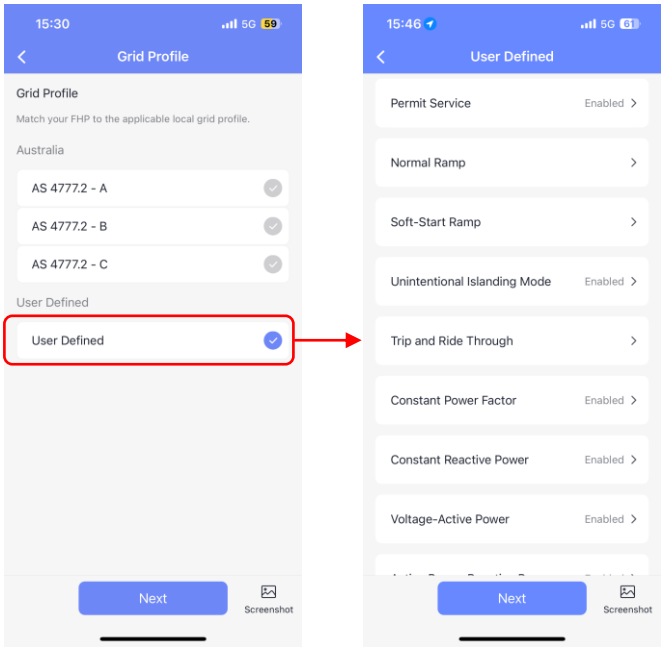
9) Enter the electricity prices for each period, tap **Confirm** to complete the settings.



10) After the Tariff schedule setting is completed, return to the settings page. If you want to reset the Tariff schedule, click **Edit** to modify the template.

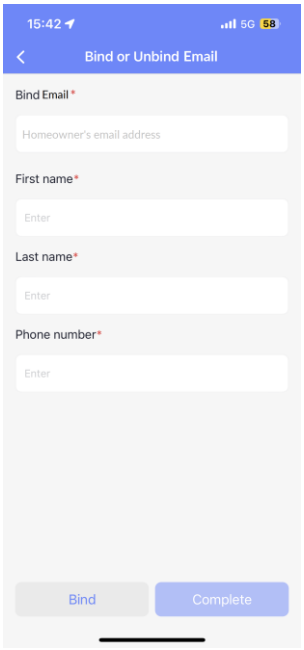


Step 7. Select an applicable local grid profile. If the local grid profile is not available, tap **User Defined** to set the parameters.



Step 8. Bind the customer account to the aGate.

Enter the new customer email, first name, last name and phone number. Then click **Bind** and **Confirm.**



NOTE

If the customer needs to change the bound account, click **Commission** > **Bind or Unbind** > **Unbind** > **Confirm**, then rebind.

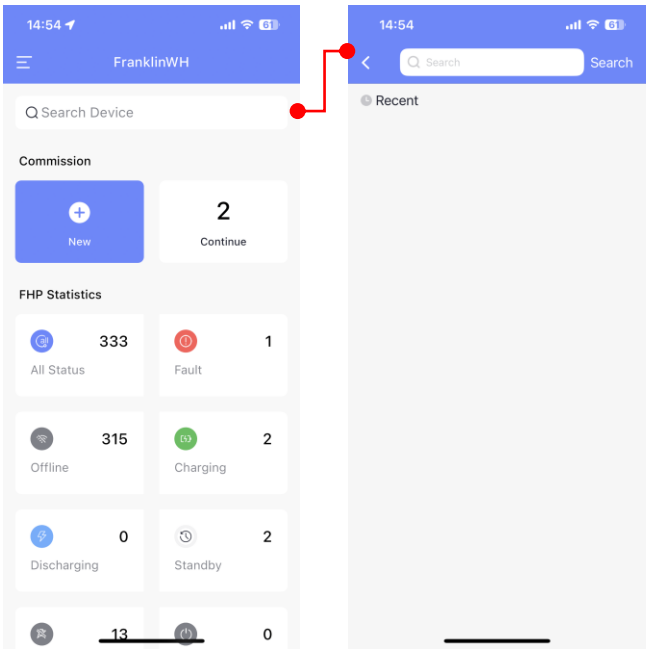
Optional Components Configuration

The FHP system has three optional components: the Smart Circuits Module and Generator Module, additions to the aGate, and the aPbox, a separate box to control PV and other electrical power inputs.

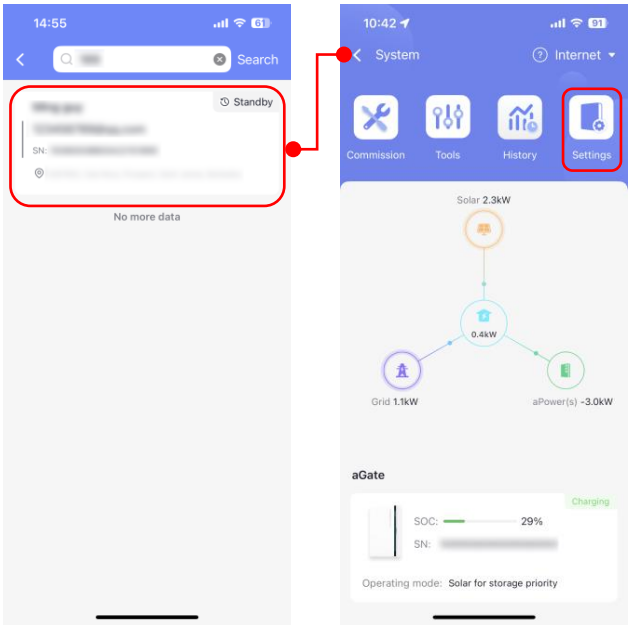
Bind the installed components

Step 1. Sign in to the FranklinWH App on the installer account.

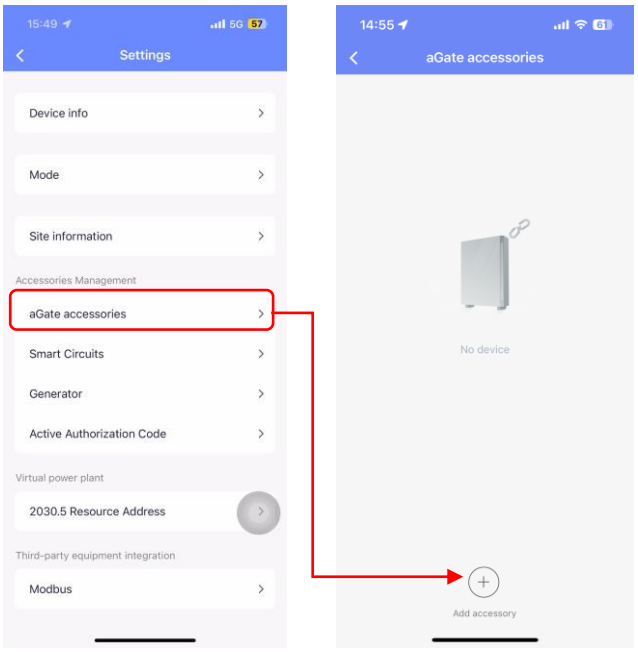
Step 2. Search for the serial number of the aGate for which the Smart Circuits Module, for example, is to be installed in the Search Device box.



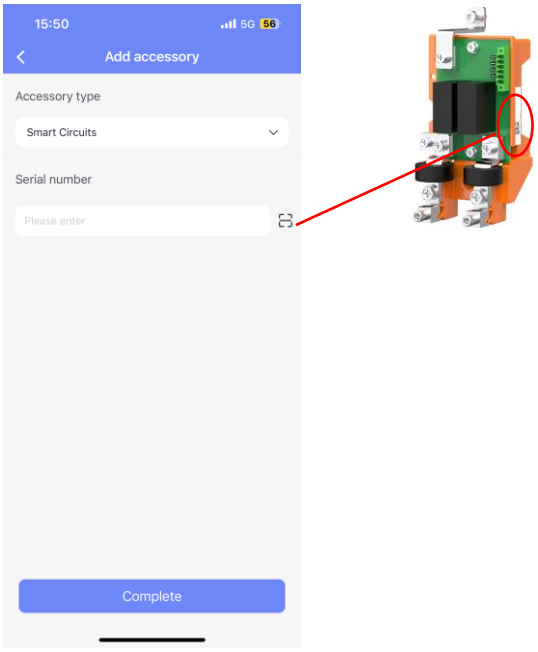
Step 3. Click on the search result to access the system, and select **Settings**.



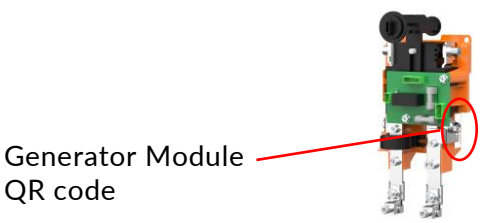
Step 4. On **Settings**, select **aGate accessories**, then click the plus sign in the circle, at the bottom of the page, to enter the **Add Accessory** page.



Step 5. Select **Smart Circuits** in the drop-down box, scan the equipment QR code, or manually input the SN. Click **Complete**.

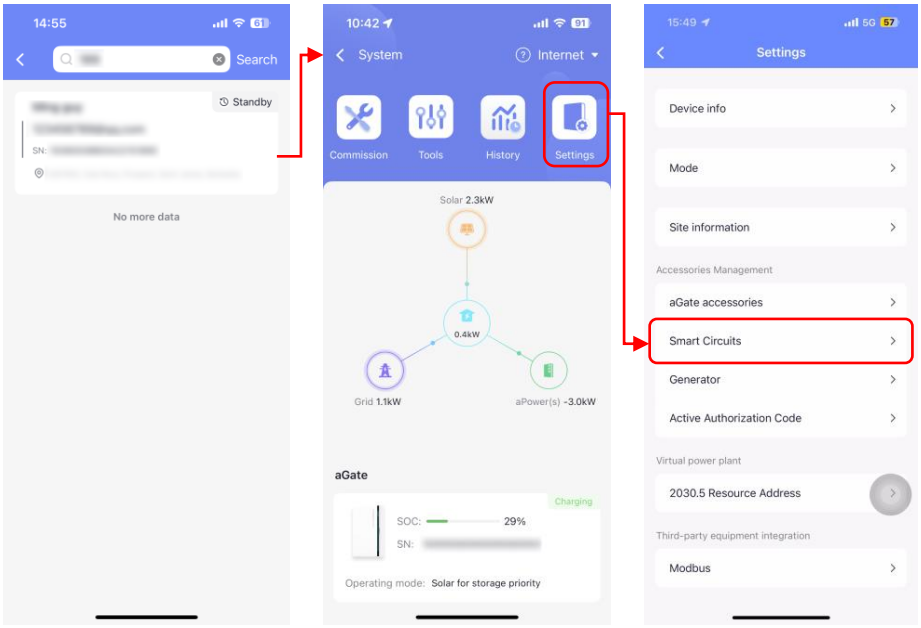


Step 6. Repeat the previous steps to bind the generator module. The QR code locations for the Generator Module is shown below.



Set the Smart Circuits Module Parameters

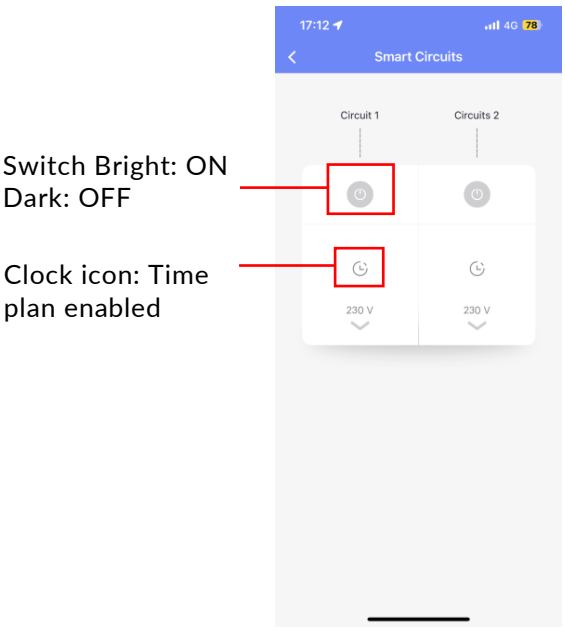
Step 1. In the device list page, click on the info box to enter the **System** page. Click on **Settings** in the top menu. Click **Smart Circuits**.



Step 2. If the switch is highlighted, it indicates that the corresponding circuit is operating. If the switch is dark, it indicates that the circuit is disabled. Click the button for the corresponding load module to enable or disable a circuit, then click to set the dedicated power plan for that circuit.

NOTE

- Smart Circuit 1 & Smart Circuit 2 can be used as a single, 2 pole circuit.
- Circuits must remain in agreement with the physical electrical wiring.



Switch Bright: ON
Dark: OFF

Clock icon: Time plan enabled

Step 3. Click on the circuit box to customize a power supply plan for each specific circuit.

Each circuit is may be named with up to 20 characters.

SOC Threshold

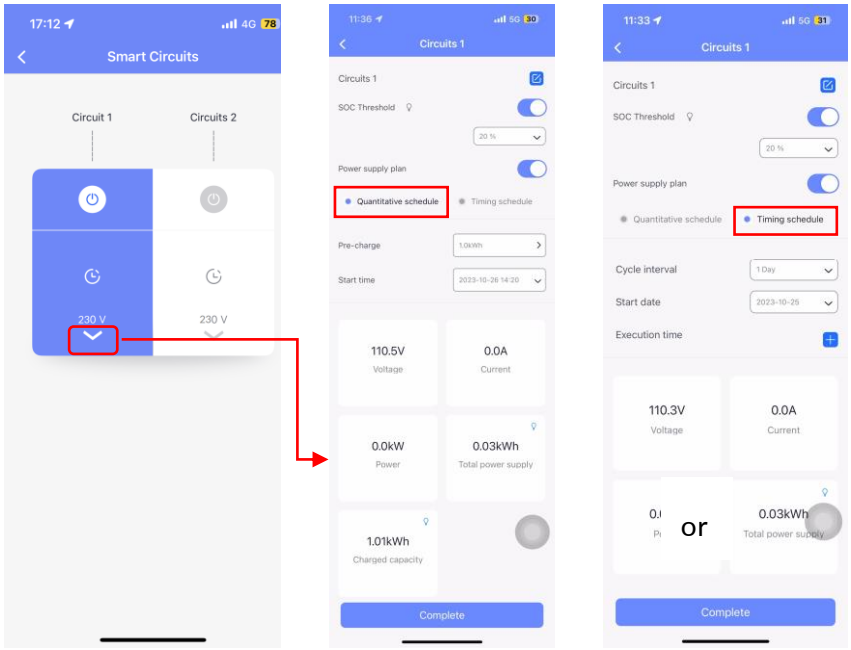
When the aPower battery capacity drops to the set SOC Threshold, the Smart Circuit will be automatically disconnected to reduce power consumption.

Quantitative schedule

Only Circuit 1 supports quantitative schedule settings. Users can set the pre-charge amount and start time to be used for charging an electric car.

Timing schedule

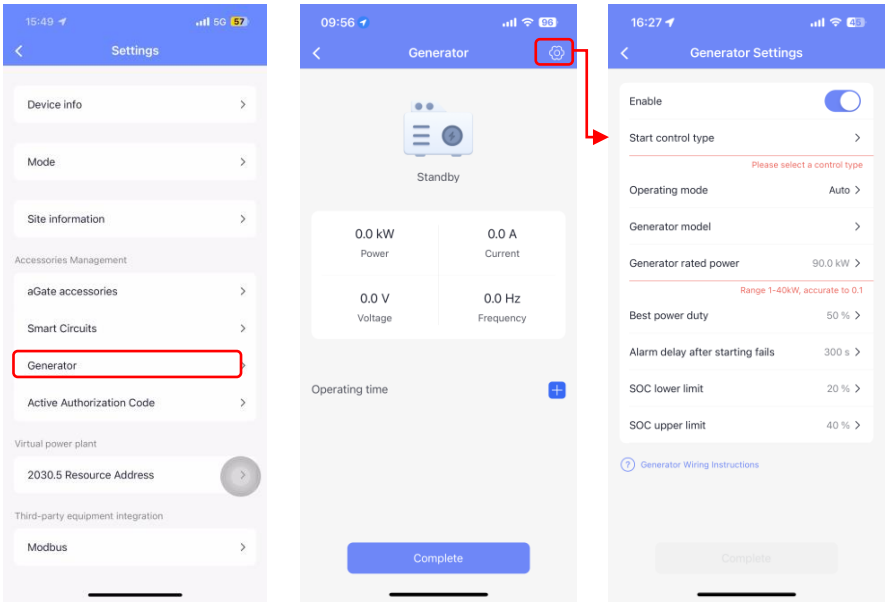
Users can set the cycle period, the start date, and the start time, so that the FHP works intelligently to meet the user's power consumption requirements.



Step 4. Click on **Complete**. Repeat the above steps to configure all Smart Circuits.

Set the generator parameters

Step 1. In the **Settings** page, click **Generator**. Click the Settings gear in the upper right corner.

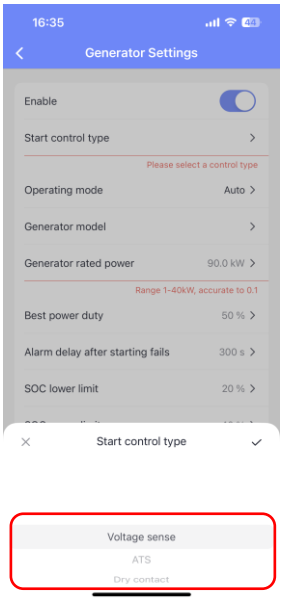


NOTE

The generator connection settings in **Start control type** should not be changed without authentication and must keep in agreement with the actual electrical connections and wiring of the Franklin Home Power system.

Enable: The customer can enable/disable the generator. Enable the generator after it has been physically installed or disable the generator after it has been physically disconnected.

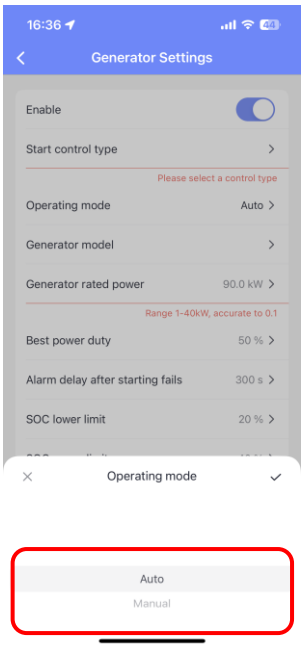
Start control type: Select the generator type.



Operating mode:

Auto: The generator will run in accordance with the set time periods or the SOC lower and upper limit values.

Manual: Customers may manually start or shut down the generator.



Generator rated power: Refer to the value on the generator name plate.

Best power duty: Set the best duty efficiency point of the generator (70% by default). Please refer to the generator manual or consult the generator supplier for the optimal setting.

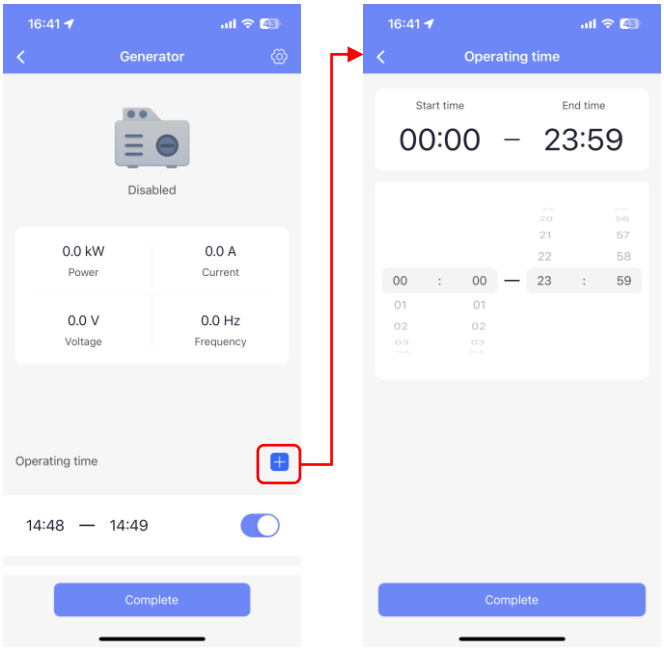
Alarm delay after starting fails: Set the delay period for the generator to be started. If generator startup failed, the system will push a message to the customer.

SOC lower limit: In off-grid mode with the operating mode set to Auto, the generator will be started when SOC of batteries connected to the same aGate fall to or below the SOC low limit.

SOC upper limit: When the mode is set to Auto, the generator will be automatically shut down when the batteries connected to the same aGate reach the SOC upper limit.

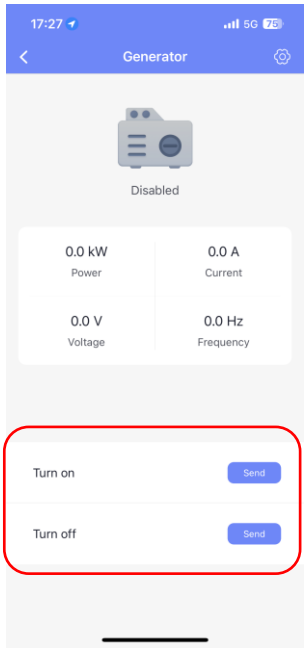
Click **Complete**.

Step 2. Set the time periods during which the generator will automatically run. Click on the plus icon (as shown) to enter the Operating time settings page. The system allows up to 3 non-overlapping periods (00:00-23:59 allowed for each) with an interval of at least 1 minute.



Click **Complete**.

Step 3. On the **Generator** screen, choose to start or shut down the generator in accordance with user needs in Manual mode.

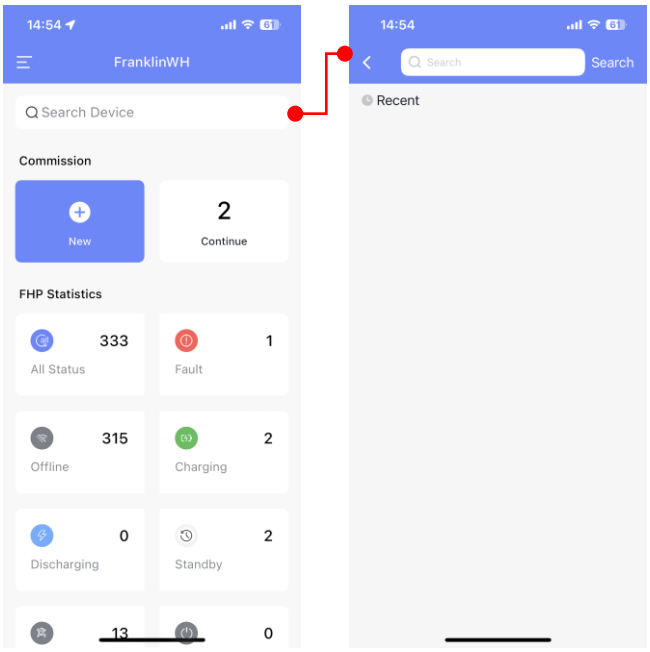


Part replacement

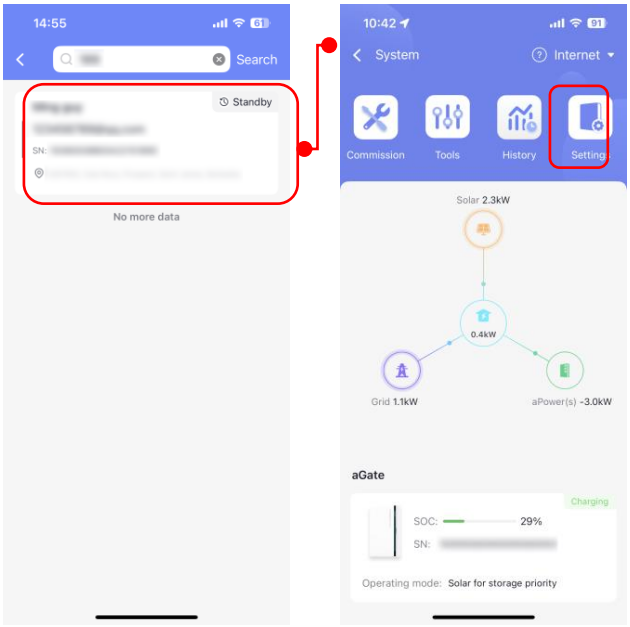
If a part needs to be replaced, perform the physical replacement then follow the instructions below to use the register it in the app. Note that each aPower X and aPbox is associated with a specific aGate X. Steps 1-3 are to identify the correct aGate X. Only after that does the specific part replacement registration begin.

Step 1. Sign in to the FranklinWH App with the installer account.

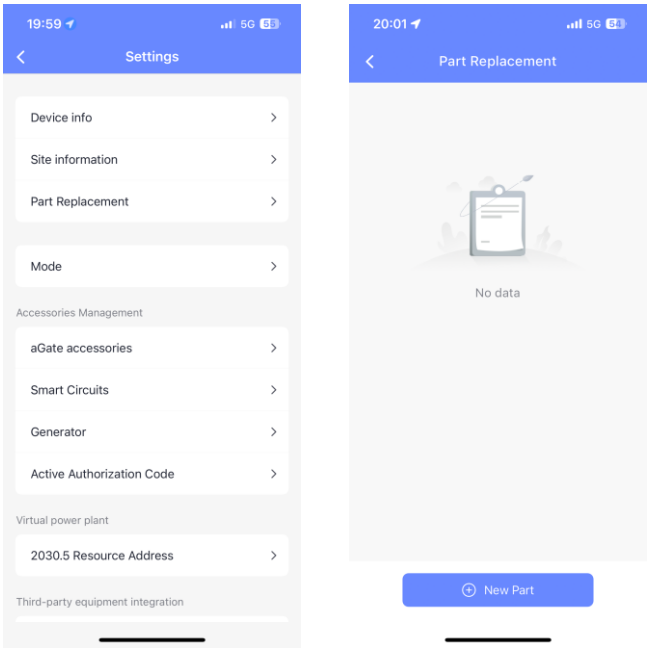
Step 2. Search, in the Search Device box, for the serial number of the aGate in which the part, has been replaced.



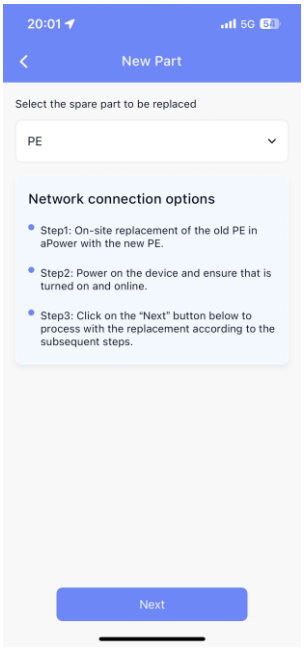
Step 3. Click on the correct aGate, and select **Settings**.



Step 4. On **Settings**, select **Part Replacement**, then tap **New Part**, at the bottom of the page.

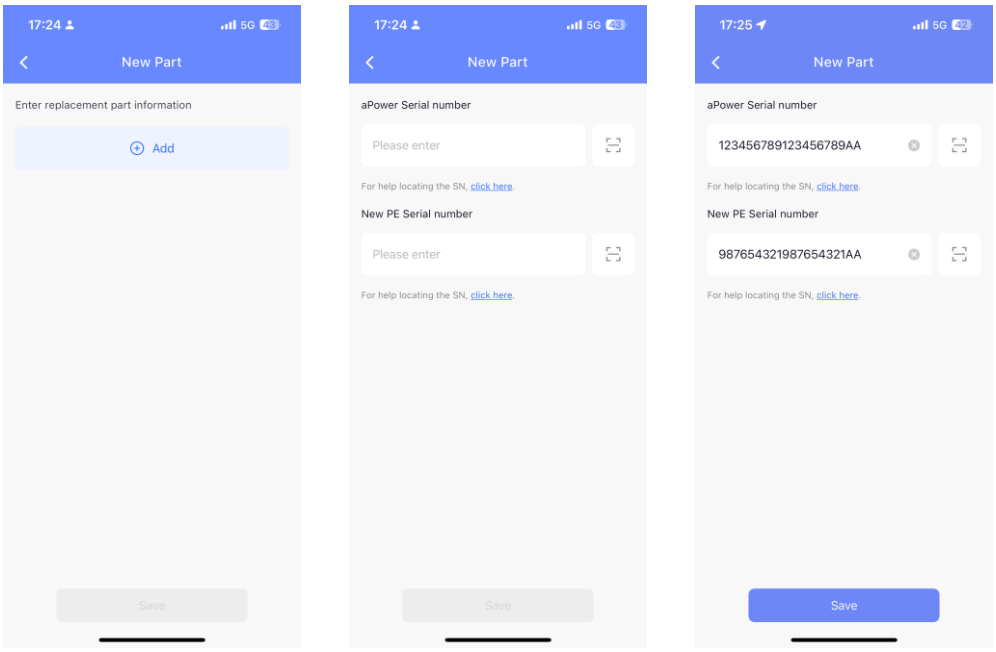


Step 5. This version defaults to PE for the to be replaced. Click **Next** to enter replacement part information.



If the aGate system version is not supported, you will be prompted to upgrade. Only after upgrading the version can you proceed.

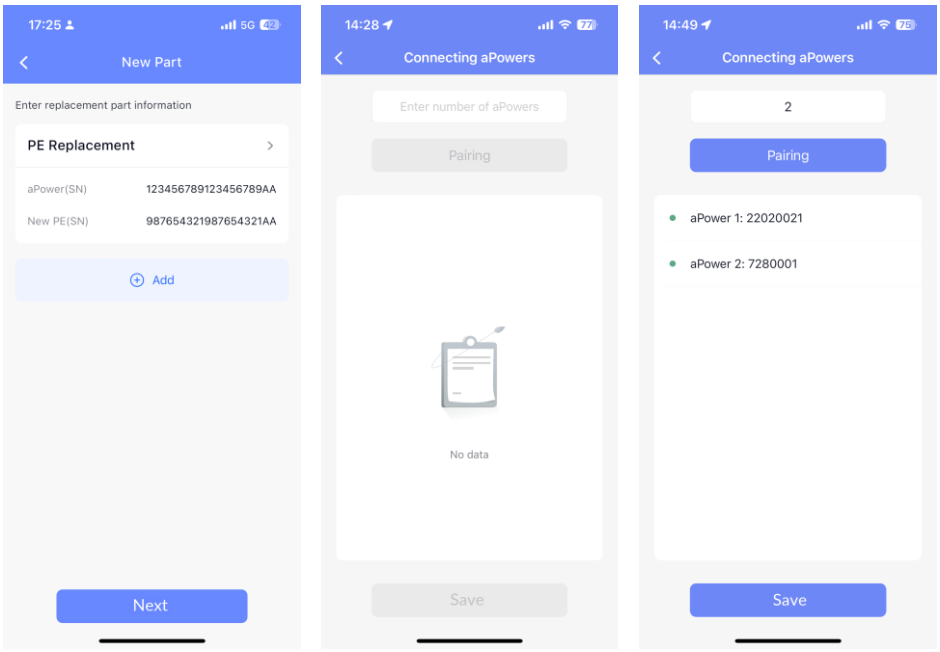
Step 6. Click **Add**, scan the aPower and part QR code, or manually input the aPower and part SN. After adding the information, tap **Save**.



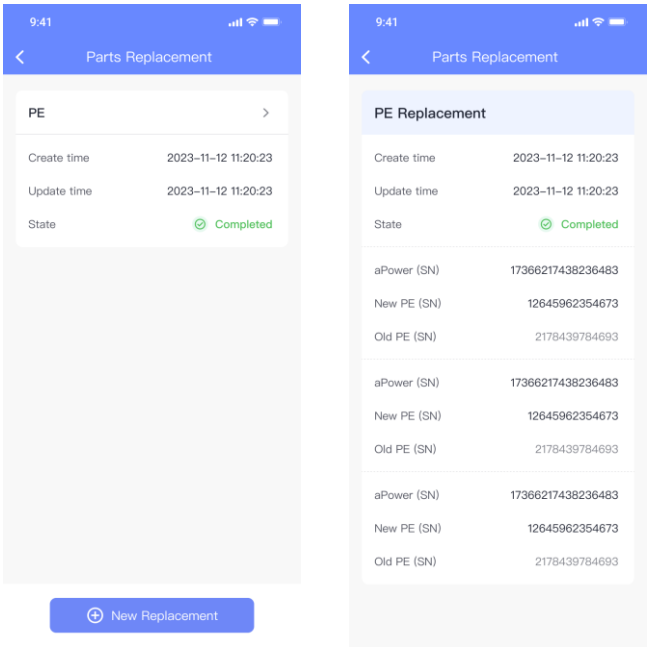
Step 7. After the information is added, click **Next** to enter the **Connecting aPowers** page.

In the **Connecting aPower** page, enter the number of aPower units, then click **Pairing** search.

When the aPower batteries have been accurately identified, tap **Save**.



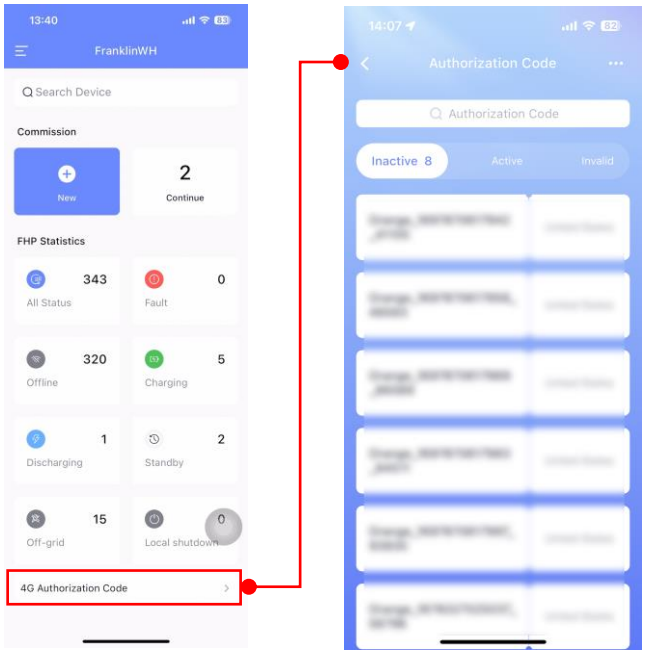
Step 8. On the Parts Replacement page, you can view the details of the replaced parts.



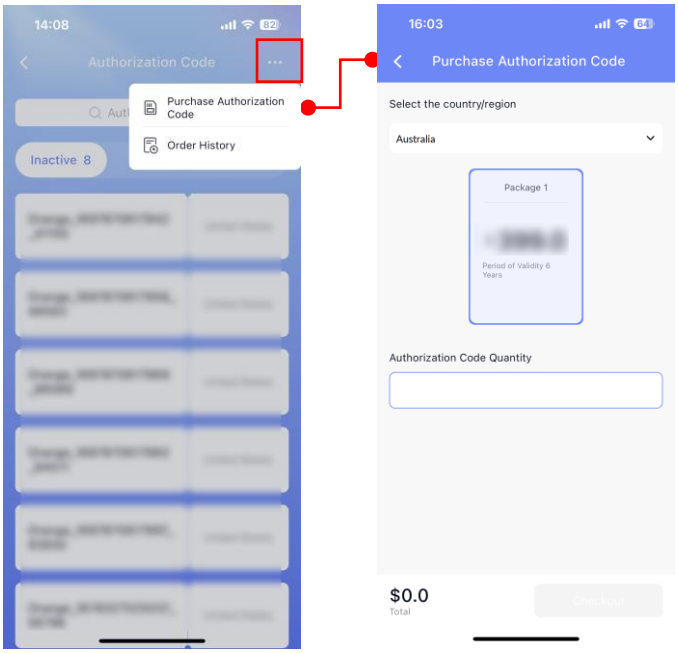
Authorization Code Management

Customers may choose to buy 4G data plans according to their own needs. After the customer has purchased the device and the 4G card, the installer can help the customer activate the 4G network by purchasing a data plan.

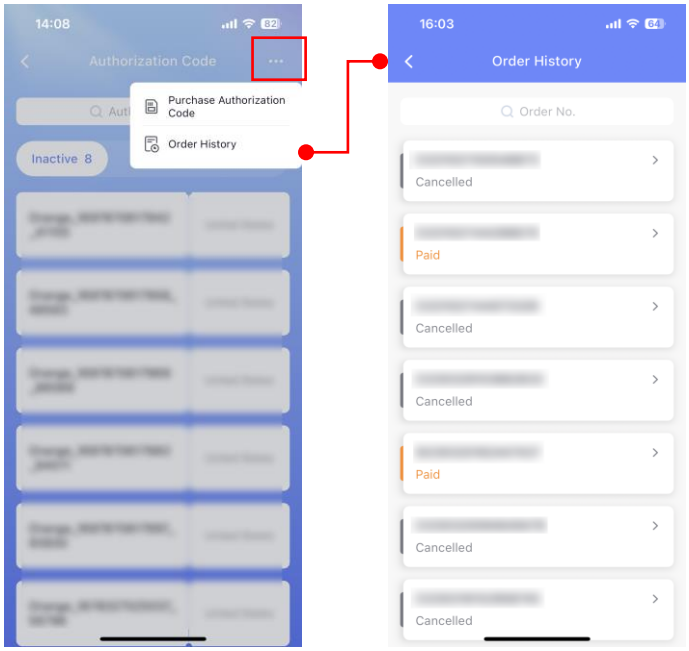
Step 1. Click **4G Authorization Code** to enter the authorization code page, you can view authorization code status (Inactive, Active, Invalid).



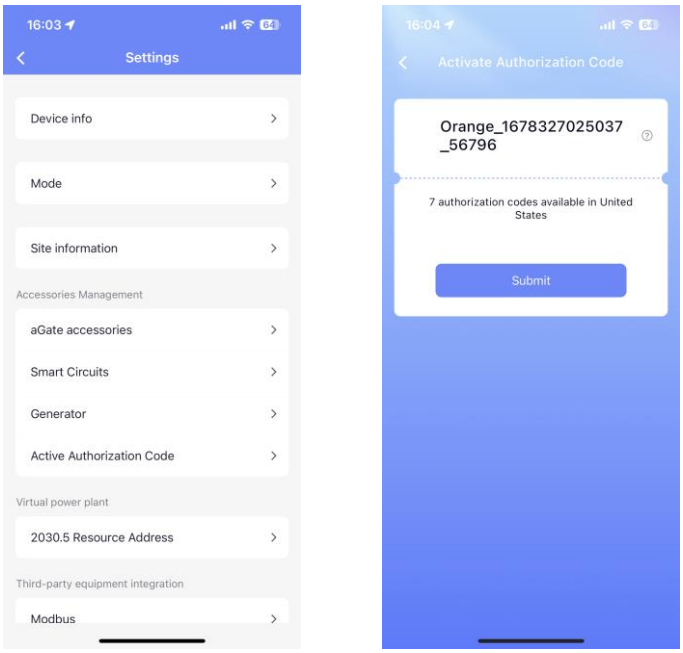
Step 2. Click **Purchase Authorization Code**, purchase authorization code packages by region.



Click **Order History**, view the purchased authorization code packages.

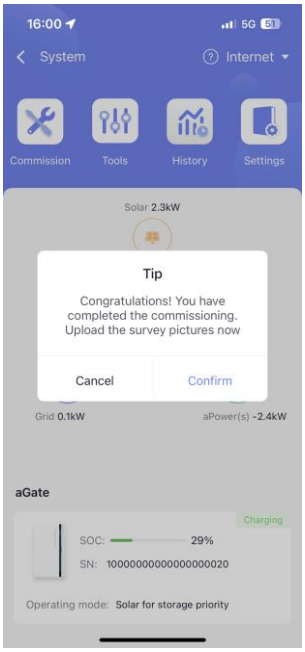


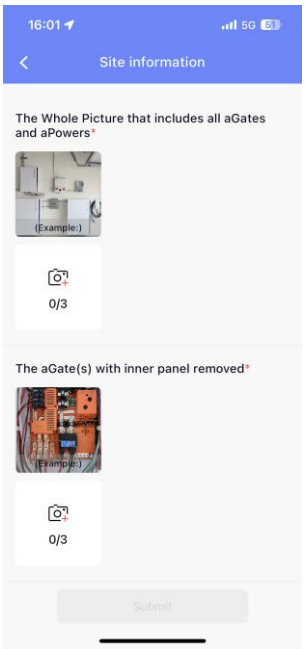
Step 3. On the **Settings** page, tap **Active Authorization Code**, enter the **Activate Authorization Code** page. Installer can activate the authorization code here.



After commissioning

Upload site pictures when the commissioning has been completed.





Follow the instructions below to ensure the system is completely de-energized.

Step 1. Ensure that the aGate grid breaker, generator breaker (optional), solar breaker, Smart Circuits breakers (optional), and aPower breaker are all in the **OFF** position.

Step 2. Turn off the aGate power switch.

Step 3. Press the switch on the right side of all aPowers to confirm that they are turned **OFF** (switch is flush with the case).

Step 4. Turn the EPO switch (if installed) back to the **ON** position or reconnect the EPO plug, and wait for one minute before continuing.

Functional Validation

Checklist

Startup Steps and Measurements.

Tools	Multimeter				
Before startup	Account	1	Has the user signed into the mobile app?	☐ Yes	☐ No
	Networking	1	Is the family network working properly?	☐ Yes	☐ No
		2	Is the 4G LTE package selected?	☐ Yes	☐ No
	Switches	1	Is the power switch on the side of each aPower **OFF**?	☐ Yes	☐ No
		2	Is the grid breaker on the aGate **OFF**?	☐ Yes	☐ No
		3	Is the generator breaker (if installed) on the aGate **OFF**?	☐ Yes	☐ No
		4	Are the Smart Circuits breakers (if installed) on the aGate **OFF**?	☐ Yes	☐ No
		5	Is the solar breaker on the aGate **OFF**?	☐ Yes	☐ No
		6	Is the aGate power switch **OFF**?	☐ Yes	☐ No
		7	Is the aPower breaker on the aGate **OFF**?	☐ Yes	☐ No
		8	Are all other switches (eg: Combiner Box breakers) between the aGate and aPowers **OFF**?	☐ Yes	☐ No
	Indicating LED	1	Are LED strips on all the aPower units **OFF**?	☐ Yes	☐ No
		2	Is the aGate power indicator **OFF**?	☐ Yes	☐ No

<table>
<tr><td rowspan="9">Startup</td><td rowspan="9">Off-grid startup</td><td colspan="4">Step: Turn on the aGate power switch

Turn on the aPower breaker on the aGate

Turn on all other switches between the aGate and the aPower unit(s)

Turn on the aPower switches on the side of each aPower

NOTE: If there are multiple aPower batteries in a FHP system, their aPower switches need to be turned on in sequence. Check whether the FranklinWH App reports any alarm for each activation.</td></tr>
<tr><td>1</td><td>Does the aPower LED flash and then stay solid after the aPower switch is turned on?</td><td>☐ Yes</td><td>☐ No</td></tr>
<tr><td>2</td><td>Does the aGate power indicator on the aGate turn on after the aPower batteries are switched is ON?</td><td>☐ Yes</td><td>☐ No</td></tr>
<tr><td>3</td><td>Is the aGate hotspot found by the mobile phone?</td><td>☐ Yes</td><td>☐ No</td></tr>
<tr><td>4</td><td>Is the voltage of non-backup/backup load port L to N 230 V±2 V in the aGate?</td><td>☐ Yes</td><td>☐ No</td></tr>
<tr><td colspan="4">Step: Turn on the breakers between family loads and aGate</td></tr>
<tr><td>7</td><td>Do family loads (such as light bulbs) work properly?</td><td>☐ Yes</td><td>☐ No</td></tr>
<tr><td>8</td><td>Is the mode on the FranklinWH App set as off-grid, battery backup?</td><td>☐ Yes</td><td>☐ No</td></tr>
</table>

	On-grid	1	Is the L to N input voltage at the grid breaker on the aGate 230 V±10 V?	☐ Yes	☐ No
		Step: Turn on the grid breaker on aGate			
		1	Does the mode shown on the FranklinWH App agree with the mode set during installation?	☐ Yes	☐ No
		2	Are the Grid, Home, and FHP icons lit in the app?	☐ Yes	☐ No
	Solar only without grid power	**Step: Turn off the grid breaker on the aGate** **Turn on the Solar breaker on the aGate**			
		1	Is the output voltage at the solar breaker 230 VAC?	☐ Yes	☐ No

**** Caution:***

If the above check result is "No," except for Networking 2 (4G), please solve the abnormal item and check again.

① *The total power of family loads should not be greater than the total power of aPower units, with the absence of grid power and solar production.*

② *If there is any large electrical load, such as air conditioners or electric motors, when the system is working in the off-grid mode, please turn off such loads first and restart them after the FHP system has successfully started.*

③ *After the system has been activated, please turn off the power switch on the side of aPower and wait for 10 seconds before turning it back on.*

Validation

On-grid/Off-grid Switching

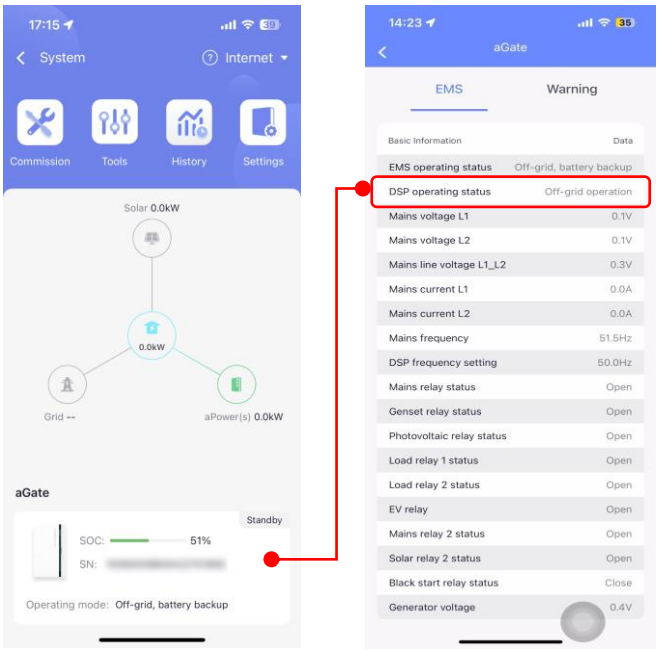
Switching from Off-grid to On-grid

Step 1. Turn off the grid breaker and solar breaker on the aGate.

Step 2. Sign in to the FranklinWH App on the installer account.

Step 3. Search for the aGate serial number for which the on-grid/off-grid switching is to be verified in the Search Device box, and then click into.

Step 4. Check whether the system is running in **Off-grid operation**. If it shows that the FHP system is working in **Off-grid operation**, then the system is working properly. Otherwise, it means the system is malfunctioning and has not been normally started (If there is an abnormality, please confirm whether the installation process is completed, and whether the grid breaker is successfully turned off).

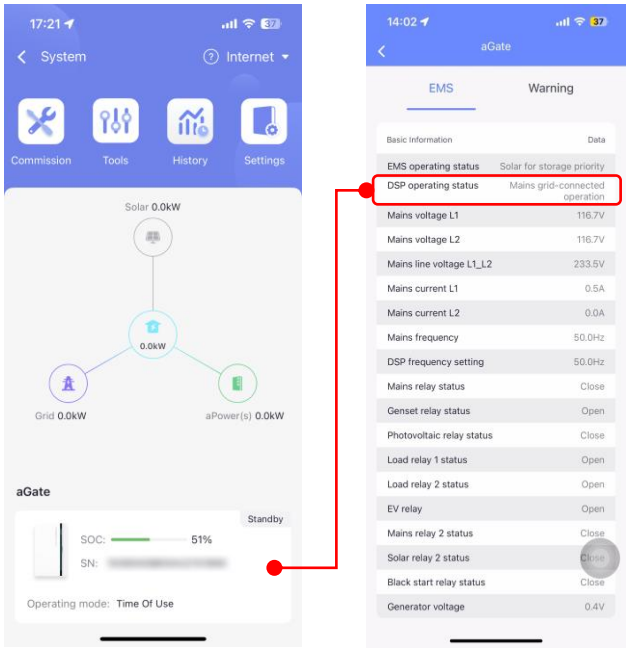


Step 5. Proceed with the following operations after the FHP is working properly in off-grid mode:

1) Measure with a multimeter and check whether the voltage between L and N on the Backup load terminal is 230 VAC.

2) If the output voltage is at a normal level, turn on the grid breaker and FHP will switch to on-grid operation in 5 minutes. On the app, the grid icon will turn on with an energy-flow animation. Household loads will not experience any interruption during the switch.

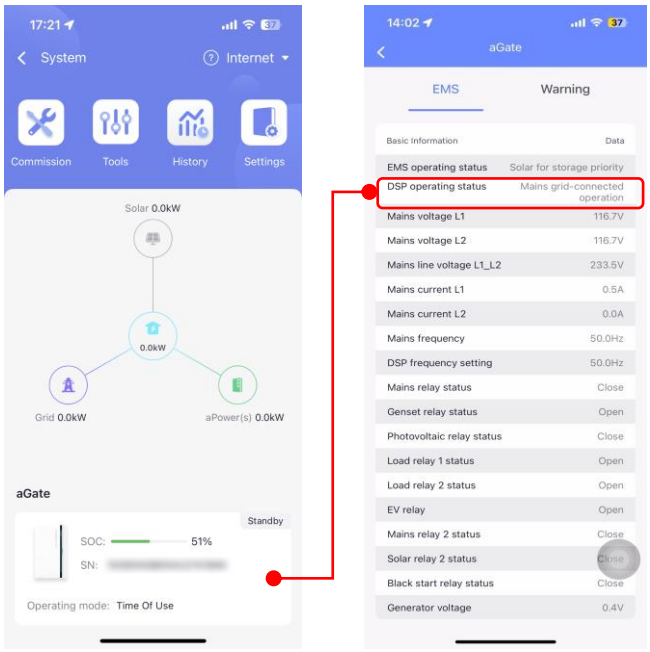
3) Check the EMS information, to determine if DSP operating status is **Mains grid-connected operation**.



Switching from On-grid to Off-grid

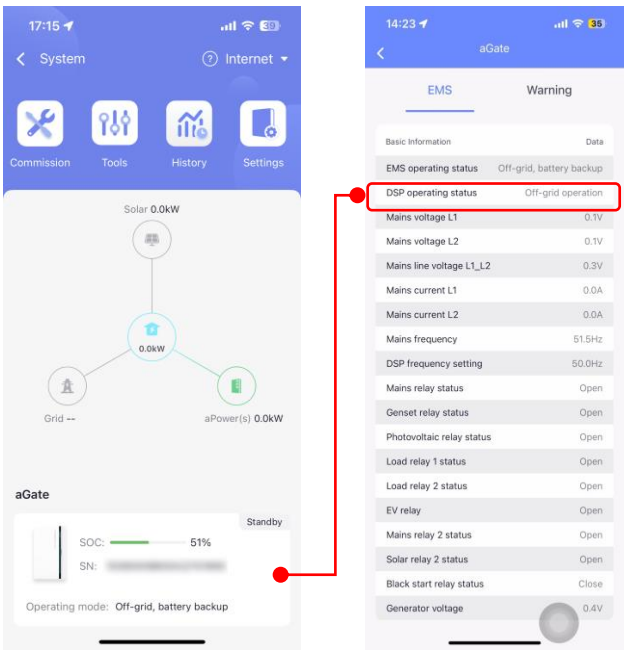
Step 1. After the FHP starts off-grid, turn on the grid breaker and FHP will switch to on-grid operation in 5 minutes.

Step 2. The grid icon on the energy flow chart will turn on, and FHP mode will become the default mode as set in the grid package. Check the EMS bar on the app to see if the DSP operating status is **Mains grid-connected operation**. (If there is an abnormality, please confirm whether the installation process is completed, and whether the grid breaker is successfully turned on.)

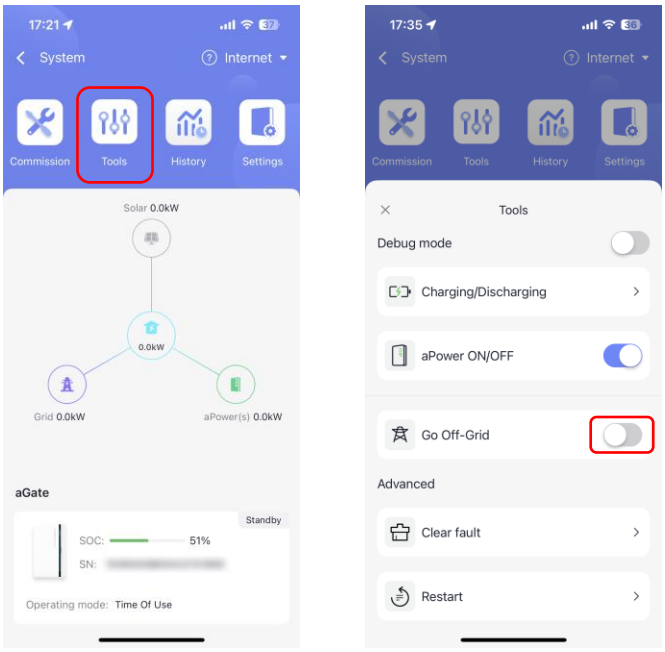


Step 3. After the FHP is connected to the grid, turn off the grid breaker to switch the FHP to off-grid operation. Household loads will not experience any interruption during the switch.

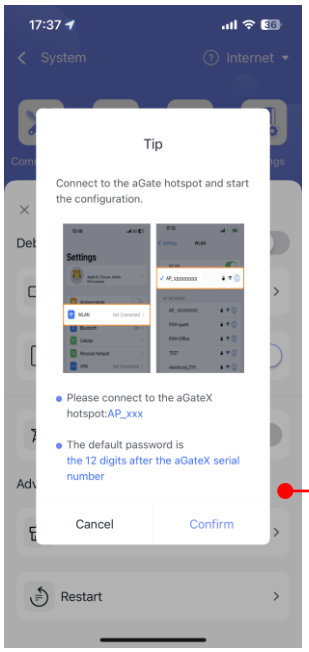
Step 4. In the app, the grid icon on the energy flow chart will turn off. DSP operating status should be **Off-grid operation**.



Step 5. Turn on the grid breaker and the FHP will switch to on-grid operations within 5 minutes. After the FHP is connected to the grid, click **Tools** and enable the **Go Off-Grid** button.



Step 6. Connect the app to the aGate hotspot.



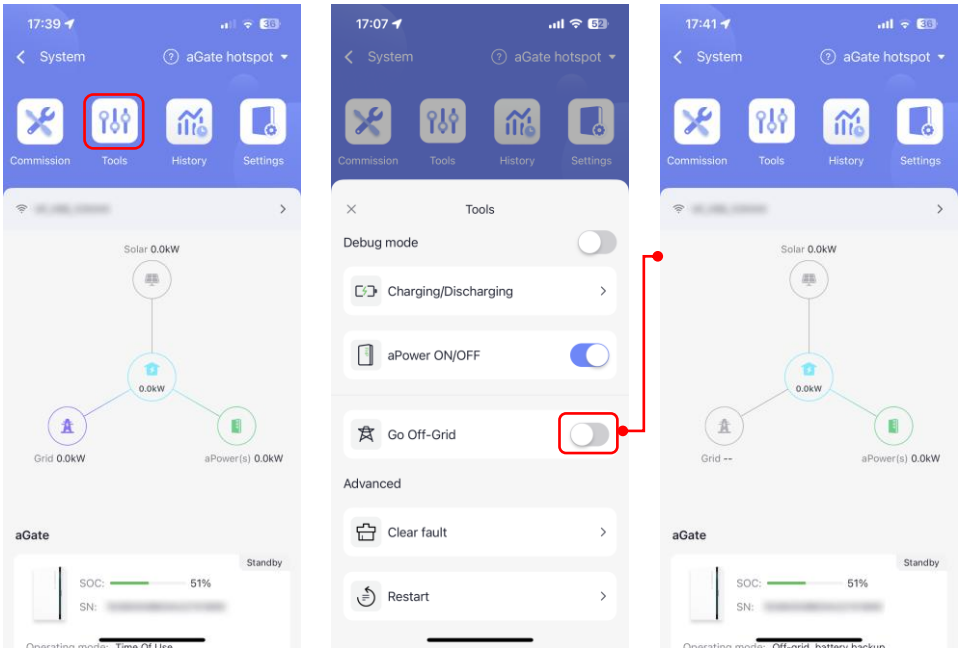
The Wifi selection box will pop up. Click **Confirm** to jump to the Wifi selection interface. The aGate Wifi SSID naming is AP_last 9 digits of SN (e.g. AP_F22100001).

Users may modify the Wifi password remotely on the mobile app and retrieve the password via email if forgotten.

Step 7. Click **Tools** and enable the **Go Off-Grid** to confirm and to turn off the grid relay and switch the FHP to off-grid operations. Household loads will not experience any interruption during the switch.

WARNING

Despite the grid being **OFF** in the FranklinWH App, the status does not mean the relay has been physically disconnected. It is important to test the circuit status to avoid serious injury during the commissioning process.

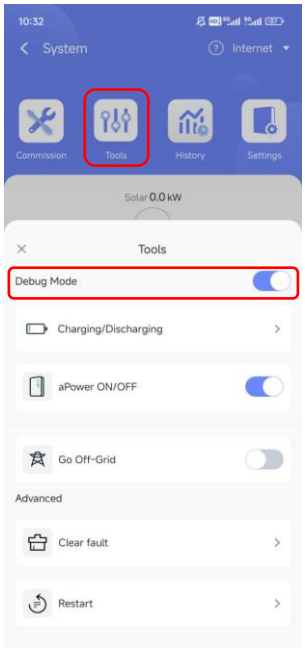


Tools

Debug mode

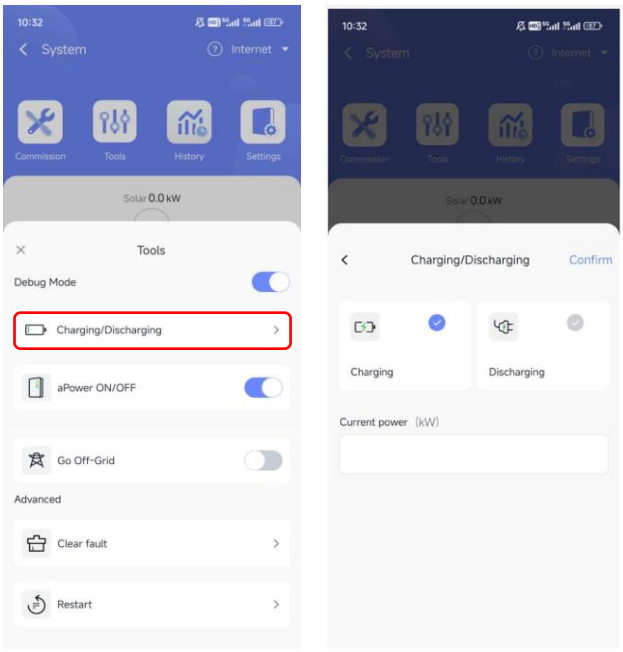
Step 1. Click on **Tools** in the menu.

Step 2. Enable Debug Mode to set **Charging/Discharging** and turn **aPower ON/OFF**.



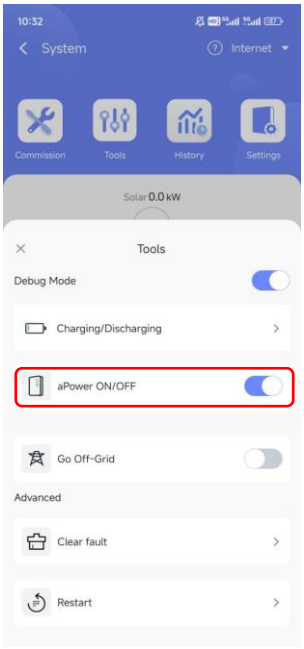
Charging/Discharging

Go into **Charging/Discharging** mode, this mode is to check if there are any abnormal situations in the process of **Charging/Discharging**.



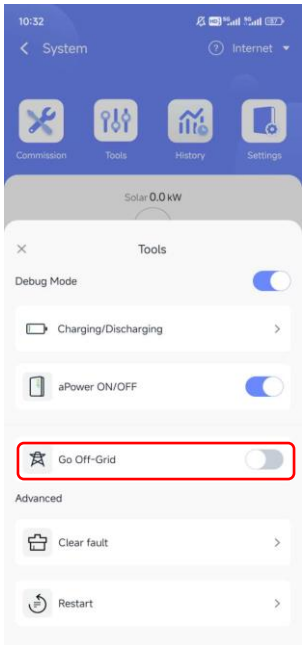
aPower ON/OFF

Use aPower ON/OFF button to check if it can turn aPower on/off.



Go Off-Grid

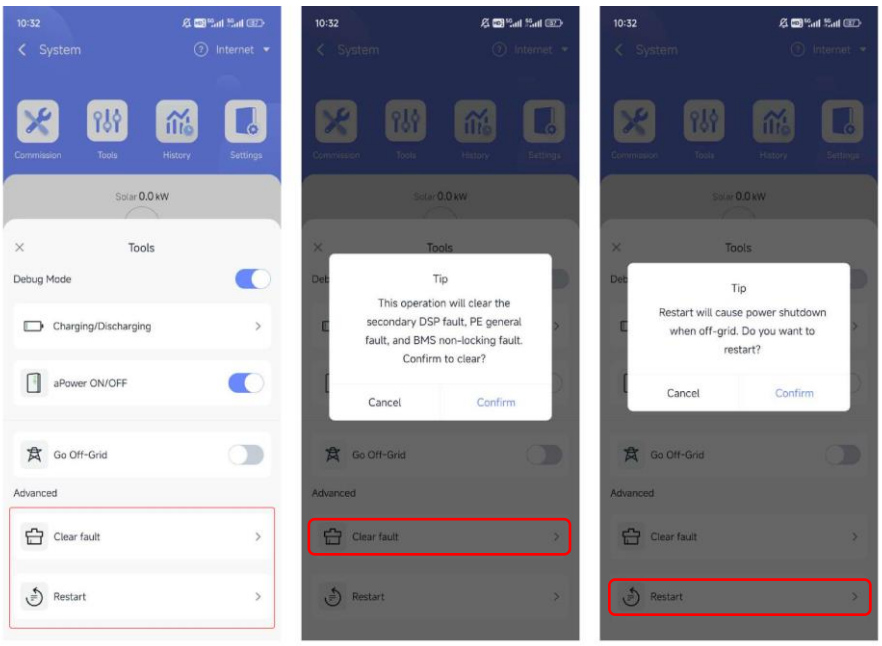
Enable the **Go Off-Grid** to confirm and to turn off the grid relay and switch the FHP to off-grid operations. If you want to know more information, please refer to Turn on the grid breaker and the FHP will switch to on-grid operations within 5 minutes. After the FHP is connected to the grid, click **Tools** and enable the **Go Off-Grid** button..



Clear Fault and Restart

Clear Fault: This operation will clear the secondary DSP fault, PE general fault, and BMS non-locking fault.

Restart: This operation will restart the whole system but may cause a power shut down when off-grid.



Verify the Display

Step 1. FHP Conditions: Off-grid with load

Step 2. Sign in to the FranklinWH App on the installer account.

Step 3. Search for the aGate serial number for which the display is to be verified in the **Search Device** box, and then click.

Step 4. Access the energy flow chart.

Step 5. Check the following:

1	Is the load power displayed?	☐ Yes	☐ No
2	Is the energy flow chart working properly?	☐ Yes	☐ No
3	Does the SOC (percentage) of each aPower shown on the chart agree with the LED strip levels?	☐ Yes	☐ No
4	Does the working mode shown on the app agree with the grid package set in the installation process?	☐ Yes	☐ No
5	Is every aPower showing online in the app?	☐ Yes	☐ No
6	Does the number of aPower units shown agree with the number addressed automatically in the installation process?	☐ Yes	☐ No

Solar Functions

Off-grid Solar Functions

Step 1. Sign in to the FranklinWH App on the installer account.

Step 2. Search for the aGate serial number for which the solar functions are to be verified in the Search Device box, and then click into.

Step 3. After the FHP starts off-grid, the app should show **off-grid**, **battery backup mode**.

Step 4. Turn on the solar breaker and use a multimeter to measure if there is 230 VAC at the solar input terminals. If 230 VAC voltage is measured at both ends of the input breaker of the solar system, it means that the solar relay has been normally turned on, and it is only necessary to wait for the solar system to output power. If the 230 VAC voltage is not measured, it means that the solar relay is not operating normally.

- When the FHP is working normally in off-grid mode, turn on the solar breaker. Before the solar system is successfully started, the Solar icon on the energy flow diagram on the app will be gray with 0.0 KW, as shown below.

- When the FHP is working normally in off-grid mode and the solar relay has been turned on, if there is still sunshine the solar system will start in 5 minutes. Please check whether the Solar icon on the energy flow diagram on your mobile app has turned on and shows the solar system power information, as shown below.

NOTE

When photovoltaic power generation exceeds consumption, battery capacity and what can be sold back to the grid, the solar system will be disconnected. This is normal.

On-grid Solar Functions

Step 1. Turn on the grid breaker, connect to the grid.

Step 2. When the FHP is working normally in on-grid mode, turn on the solar breaker and use a multimeter to measure if there is 230 VAC at the solar input terminals. If 230 VAC voltage is measured at both ends of the input breaker of solar system, it means that the solar relay has been normally turned on, and it is only necessary to wait for the solar system to output power. If the 230 VAC voltage is not measured, it means that the solar relay is not operating normally.

- With the FHP working normally in on-grid mode, turn on the solar breaker. Before the solar system is successfully started, the Solar icon on the energy flow diagram on the app (Shown in the installer account) will be gray with 0.0 KW, as shown below.

- When the FHP is working normally in on-grid mode and the solar relay has been turned on, if there is still sunshine the solar system will start in 5 minutes. Please check whether the Solar icon on the energy flow chart on your mobile app has turned on and shows the output power.

NOTE

When the selected package does not allow feedback to the grid, the photovoltaic power will be disconnected when the when there is over-generation power is too heavy, which is normal.

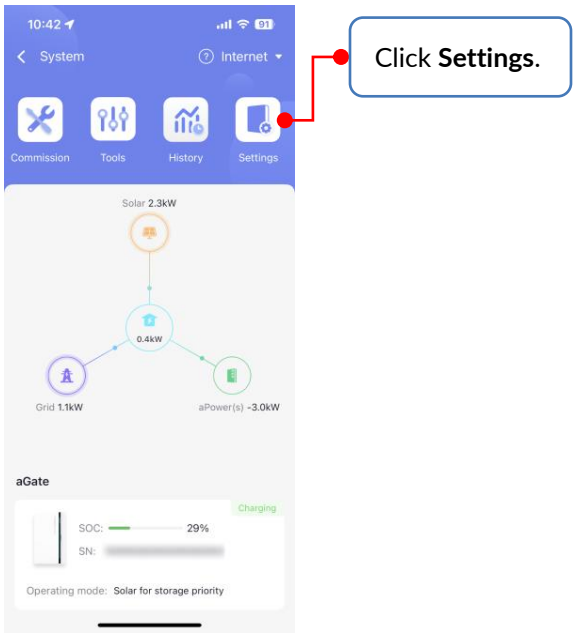
Smart Circuits Control Relay

After the Smart Circuits Module has been installed in the aGate and added to the FHP system in the FranklinWH App, commissioning will be needed to be performed to test and confirm that the Smart Circuits Module is working properly. The commissioning process is as follows:

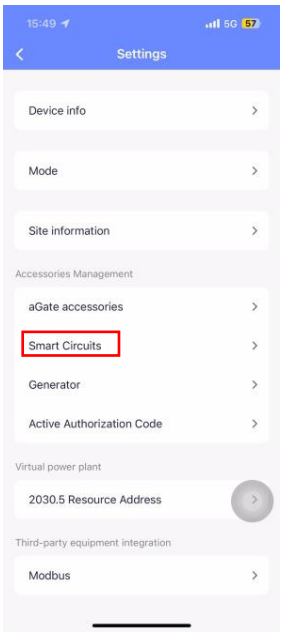
Step 3. Sign in to the FranklinWH App on the installer account.

Step 4. Search for the aGate serial number for which the Smart Circuits Module is to be commissioned in the **Search Device** box, and then click.

Step 5. Click on **Settings** in the menu.



Step 6. Click on **Smart Circuits**.

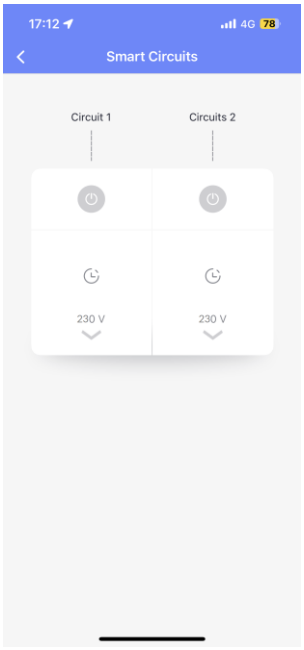


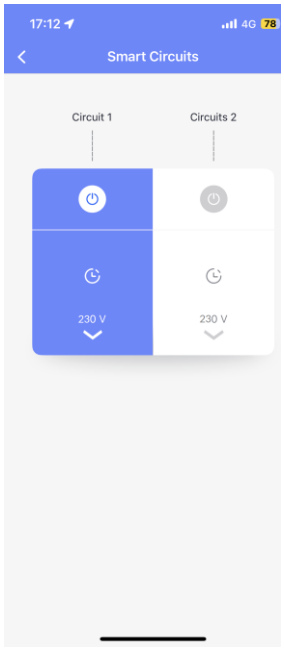
Step 7. Measure the voltage between both Circuit 1 and Circuit 2's individual output terminals and neutral.

Turn on the Smart Circuits breakers and use a multimeter to measure voltages between the Circuit 1 and Circuit 2 output terminals and neutral. If they are 0 volts, the FHP is working normally.

Step 8. Measure the voltage between the Circuit 1 output terminal and neutral.

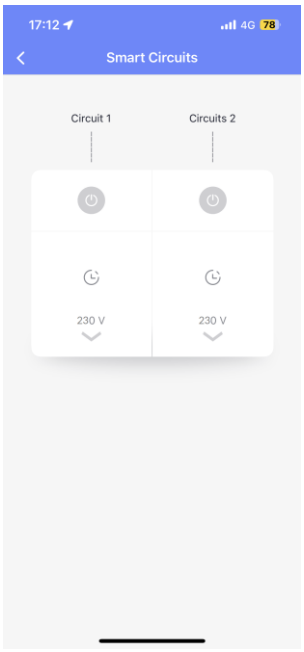
The Circuit 1 switch button should be in a gray (**OFF**) state, by default. Turn on the Circuit 1 switch on your mobile app and use a multimeter to measure the voltage between Circuit 1 and neutral. If the voltage is 230 VAC, it means that the Smart Circuit relay has been successfully turned on. Otherwise, it means that the Smart Circuit relay is in the open position or working abnormally.

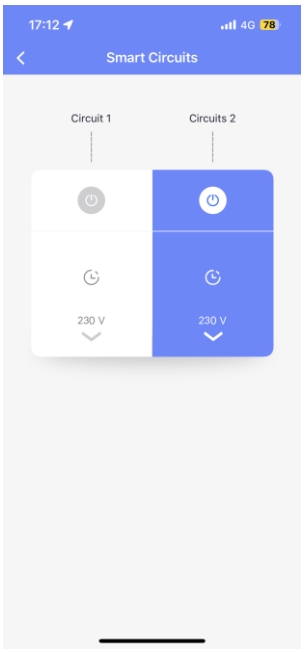




Step 9. Measure the voltage between Circuit 2 and neutral.

The Circuit 2 switch should be in the gray (**OFF**) state, by default. Turn on the Circuit 2 in the app and use a multimeter to measure the voltage between Circuit 2 and neutral. If the voltage is 230 VAC, it means that the Smart Circuit relay has been successfully turned on. Otherwise, the Smart Circuit relay is in the open position or working abnormally.



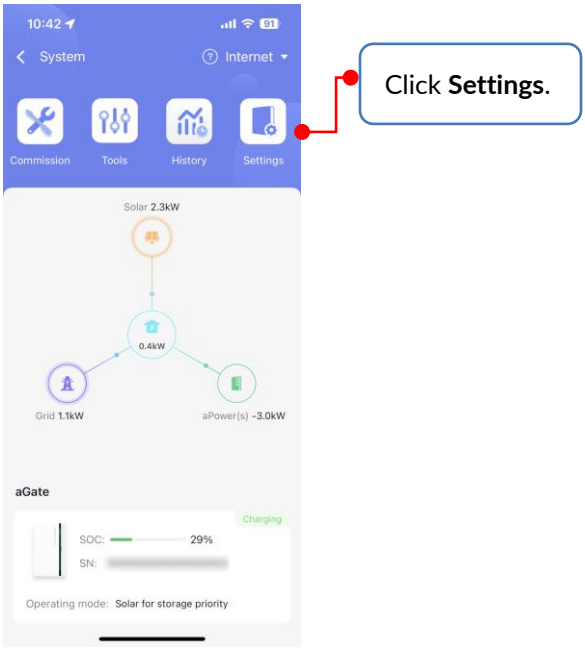


Generator Module

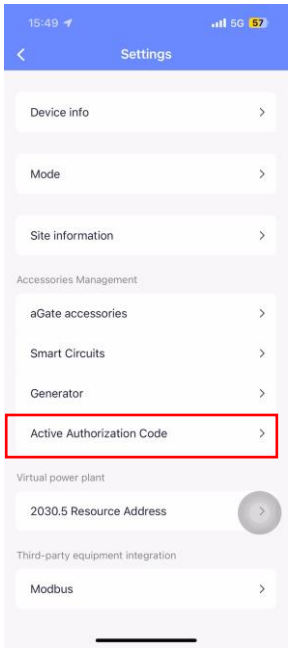
Step 1. Sign in to the FranklinWH App on the installer account.

Step 2. Search for the aGate serial number for which the Generator Module is to be commissioned in the **Search Device** box, and then click.

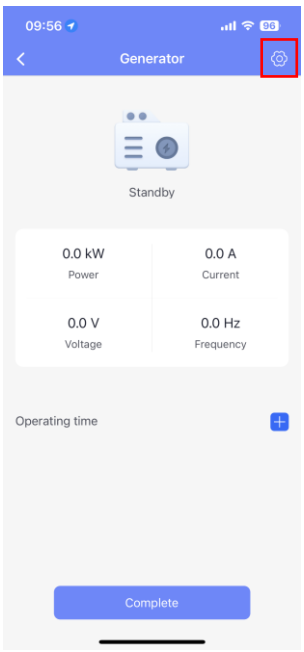
Step 3. Click on **Settings** in the menu.



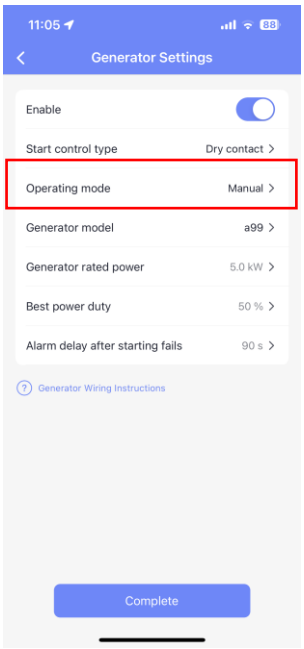
Step 4. Click to select the **Generator**.



Step 5. At the **Generator** interface, click on the Settings icon (the gear) in the upper right corner.

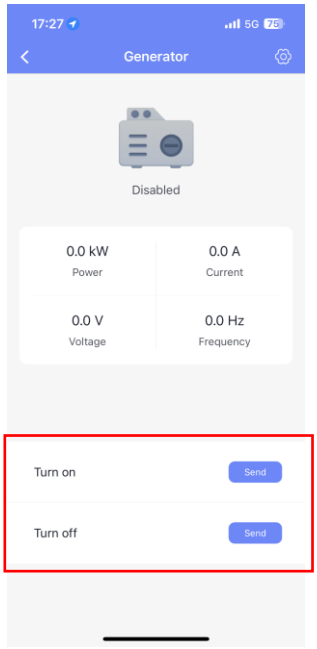


Step 6. Set the **Operating mode** to **Manual**.



Step 7. Click on **Complete** to return to the **Generator** interface.

Step 8. Start up and shut down the generator manually, checking whether the generator is started and stopped as appropriate. If the generator is started and shuts down normally following the instructions, it means that the Generator Module is working properly.



Step 9. The installation and commissioning process is finished. After commissioning, customers may choose the desired **Operation mode**. Please refer to ***FranklinWH App User Manual*** for more information.

Final Inspection

Step 1. Sign in to the FranklinWH App on the homeowner account.

Step 2. Check whether the devices are working properly.

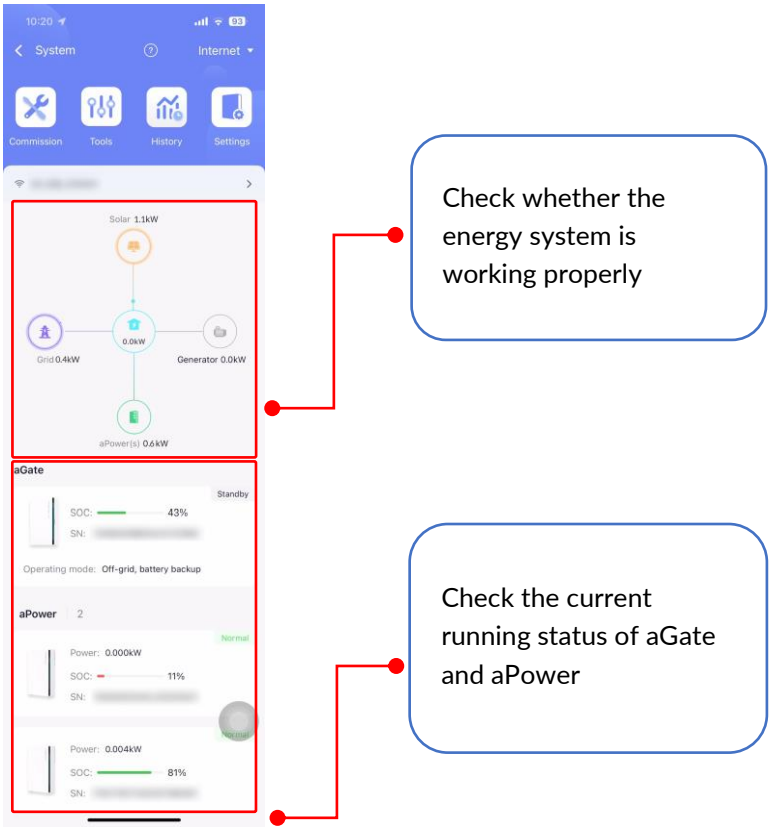
Home: Family loads are connected. The Home icon turns on when there is any equipment online.

Solar: If a solar system is connected and running properly, the Solar icon will turn on and the connection will show an energy-flow animation.

Grid: If the system is on-grid and the grid is working properly, the grid icon will turn on and the connection will show an energy-flow animation.

Generator: If a generator is connected and running properly, the Generator icon will turn on and the connection will show an energy-flow animation.

Franklin Home Power: When the system is offline, all icons will turn gray. When the system is online, all icons will turn on and the connection will show an energy-flow animation when the system supplies power.

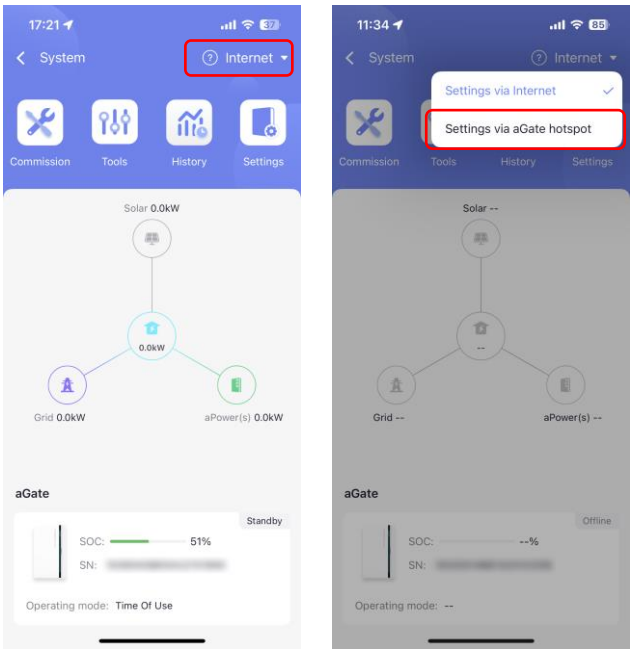


Step 3. The system commissioning is completed. For detailed user guide, please refer to ***Franklin Home Power User Manual*** and ***FranklinWH App User Manual***.

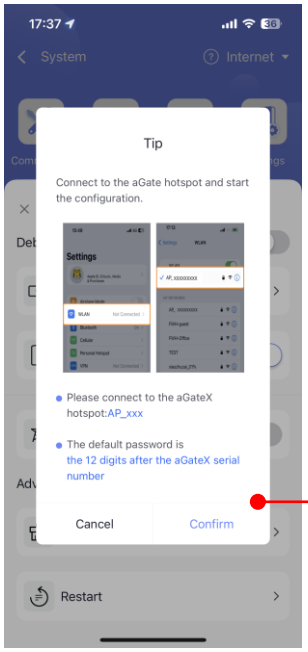
Appendix: Internet/aGate Hotspot Switching

- Switching FranklinWH App connectivity from the Internet to the aGate hotspot.

  Step 1. Select **Settings via aGate hotspot**.



  Step 2. Connect the app to the aGate hotspot.

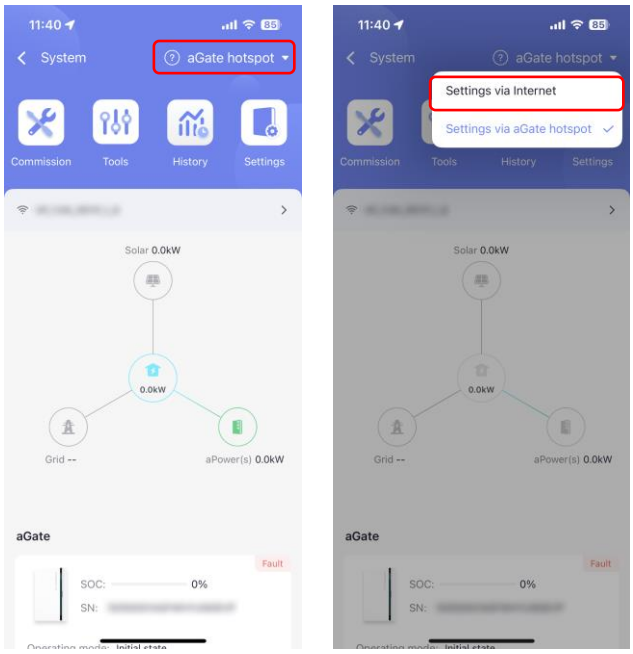


The Wifi selection box will pop up. Click **Confirm** to jump to the Wifi selection interface. The aGate Wifi SSID naming is AP_last 9 digits of SN (e.g. AP_F22100001).

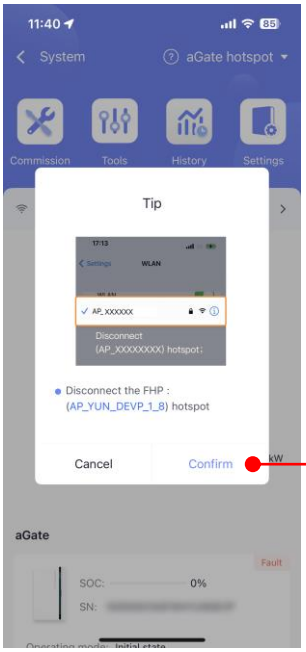
Users may modify the Wifi password remotely on the mobile app and retrieve the password via email if forgotten.

- Switching from the aGate hotspot to Internet

  Step 1. Select **Settings via Internet**.



  Step 2. Connect to the internet.



The tip selection box will pop up. Click **Confirm** to jump to the Wifi selection interface, then disconnect the aGate hotspot and connect to the Ethernet.