FranklinWH Commissioning Guide

App Version 2.18.0

Meter Adapter Controller (SKU: MAC 1-R1V1-US)

aPower 2 (SKU: APR-12K15V1-US)

aPower S (SKU: APRS-10K15V1-US)

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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 FranklinWH 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 FranklinWH System is composed of aPower, Meter Adapter Controller (MAC 1) and other electrical components. This document applies only to the following products: aPower 2, MAC 1 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@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.

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Safety Statements

Please read this entire document to ensure the proper use of the FranklinWH 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.
- During commissioning, use insulated gloves or devices to perform operations and measurements to prevent electrical shock damage.

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 V2.18.0

For the latest information, please visit *https://www.franklinwh.com/support*.

IMPORTANT: Inspect the system before power-on

NOTE: **Please make sure you inspect the system before power-on by following the checklist below.**

Tools needed: multimeter, network cable tester.

aHub, MAC 1, MSA and Main Panel Inspections			
General			
1	Are there foreign objects in the aHub, MAC 1, MSA and main panel?	☐ Yes	☐ No
2	Are there bare wires near the installation site?	☐ Yes	☐ No
Main panel			
1	Is the grid breaker OFF?	☐ Yes	☐ No
2	Is the aPower breaker on main panel OFF?	☐ Yes	☐ No
3	Are fastening bolts connecting aPower cables with the main panel properly tightened?	☐ Yes	☐ No
4	Is the aHub breaker on main panel OFF?	☐ Yes	☐ No
5	Are fastening bolts connecting aHub cables with the panel properly tightened?	☐ Yes	☐ No
MSA			
1	Are the cables between the MSA and MAC 1 securely connected?	☐ Yes	☐ No

MAC 1					
1	Is the Controller 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? ①	☐ 1st aPower	☐ 2nd aPower	☐ 3rd aPower	☐ 4th aPower
aHub inspections					
1	Is the aHub reset button OFF pressed down)?	☐ Yes		☐ No	
2	Are the aHub cable fastening bolts tightened?	☐ Yes		☐ No	
3	Are all aHub branch breakers OFF?	☐ Yes		☐ No	
4	Where is the CAN matching terminal installed?①	☐ aHub		☐ Other	
Communications					
1	Confirm the MAC 1 is properly connected to the network	☐ Network Cable		☐ Wifi	☐ 4G
2	What is the communications method between MAC 1, aPower(s) and aHub?	☐ CAN		☐ RS485	

Measurements			
1	Check that the CAN cable is wired according to the 568B standard using a cable tester.②	☐ Yes	☐ No
2	Measure and check that there is no short connection on **grid input** lines L1, L2, and N.	☐ Yes	☐ No
3	Measure and check that there is no short connection on **load** output lines L1, L2, and N.	☐ Yes	☐ No
4	Measure and check that there is no short connection on **aPower AC** output lines L1, L2, and N.	☐ Yes	☐ No
5	Measure and check that there is no short connection on aHub branch circuits and main lines L1, L2, N.	☐ Yes	☐ No
6	Measure and check that there is continuity between N and PE inside the aHub due to the N-PE bond in the main panel.	☐ Yes	☐ No

Caution:

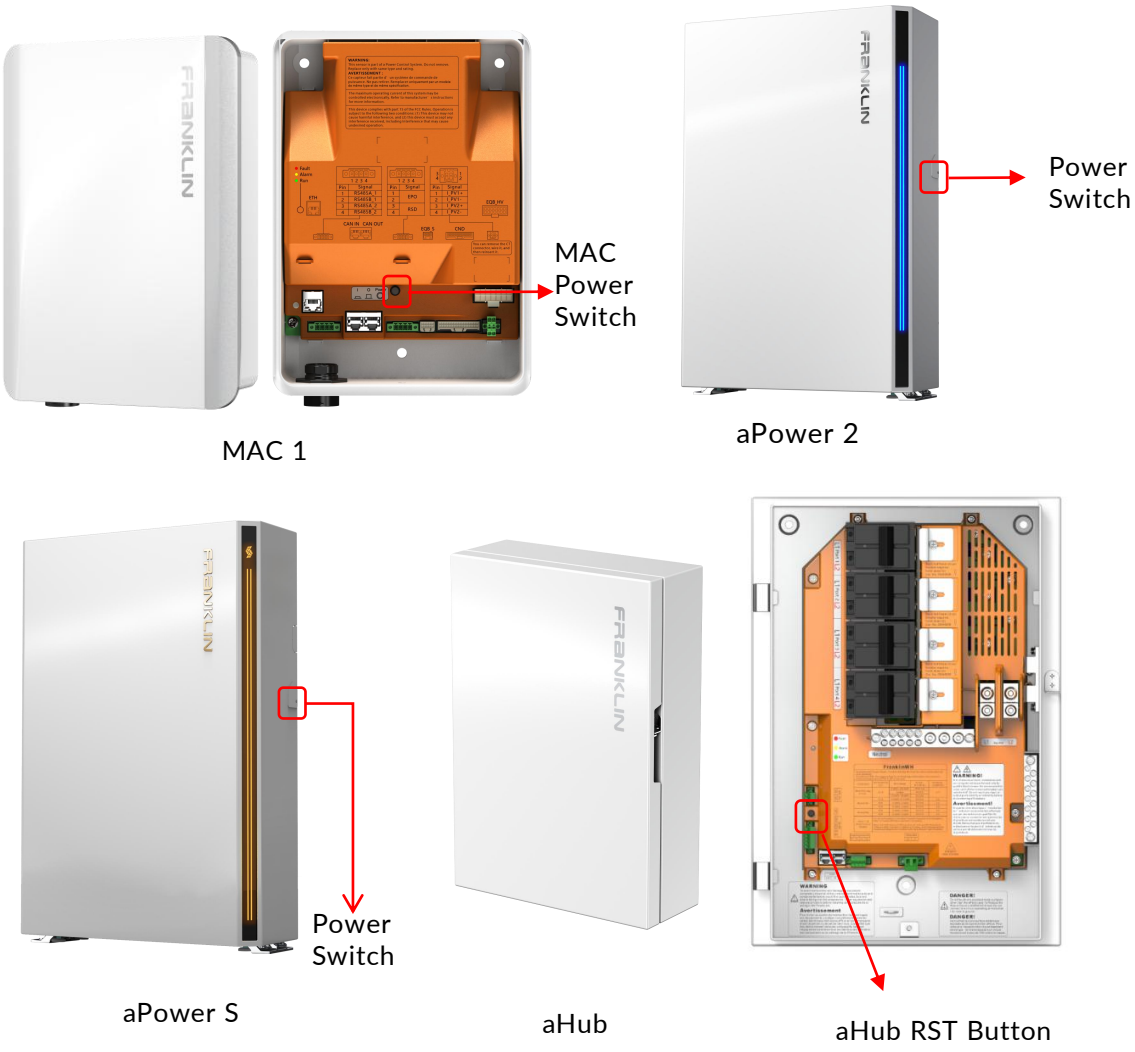
If any result above is marked "No" (excluding General items 1-2 and Measurements item 6), please correct the problem and re-check.

*① **Without aHub:** When multiple aPower devices are connected, all aPower units except the last one need to have their matching resistor jumpers removed.*

***With aHub:** When multiple CAN node units work in parallel, such as aPower and aHub units, it is necessary to remove excess CAN matching terminals from all units except for the one on the last unit in the network chain.*

② Incorrect cable sequence of the CAN may lead to system damage.

Turn on the aPower, MAC 1, and aHub



1. Turn on the grid breaker, aPower breaker and aHub breaker on the main panel.
2. Turn on the power switch of MAC 1.
3. 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 MAC 1 turns ON.
4. When configuring aHub, confirm that the RST Button is ON (in released state) and all branch circuit breakers are ON. If no aHub is configured, skip this step.

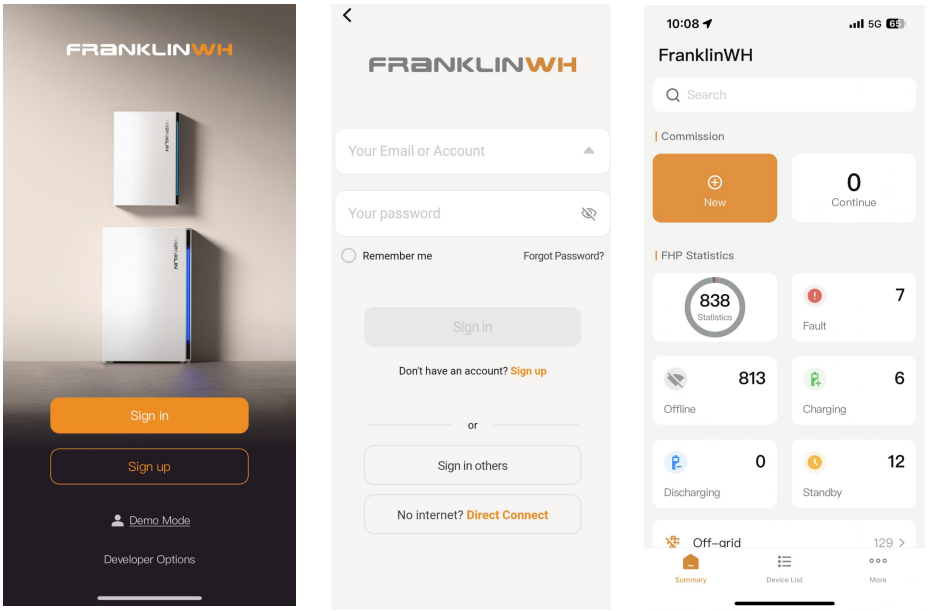
   NOTE: *During the commissioning, the app will receive device fault information due to abnormal system operation, which can be ignored.*

Commissioning

Basic Configuration

Step 1. Begin the commissioning.

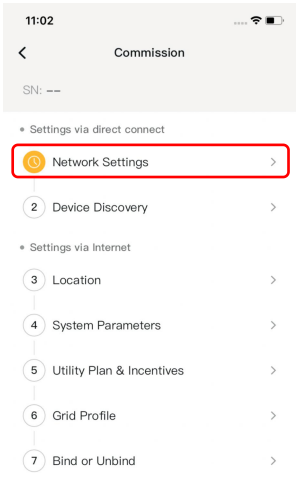
Log in to the FranklinWH App with the installer account. If continuing a previous commissioning, tap **Continue**. Otherwise, tap **New** to establish a new commissioning.



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

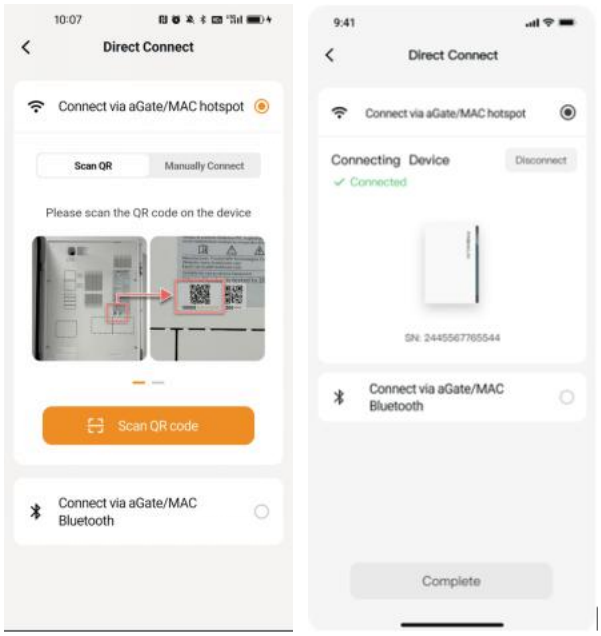
Step 2. Network Settings.

Tap **Network Settings** on the Commission page. There are two options for system direct connect: MAC 1 hotspot or Bluetooth.



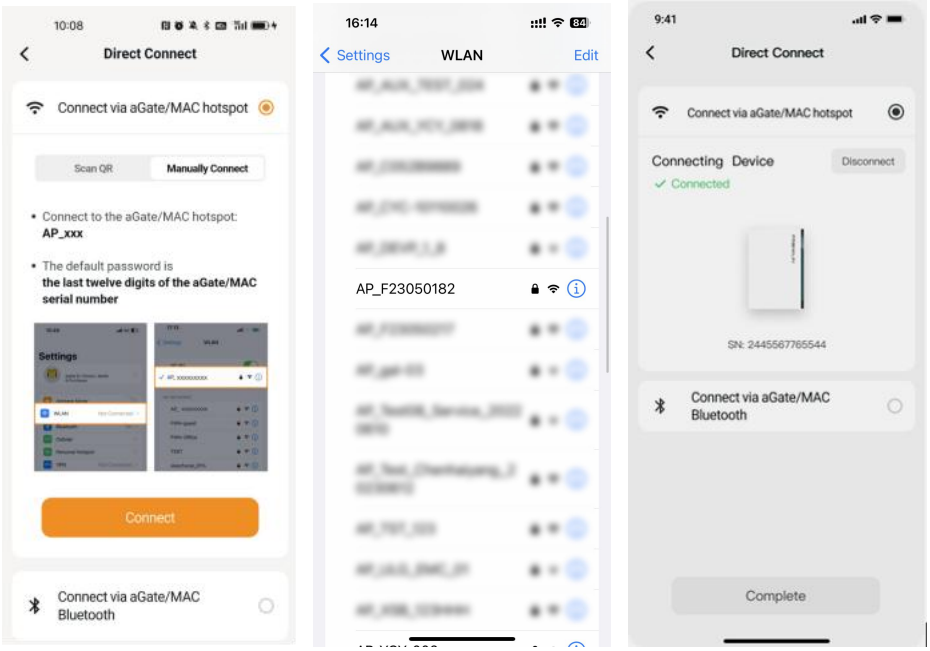
Option 1 Using QR Code

The default method is to scan the QR code to connect your app to the MAC 1 hotspot. Tap **Scan QR Code,** scan the QR code found on the MAC 1 device, and wait until your app is connected to the MAC 1 hotspot.

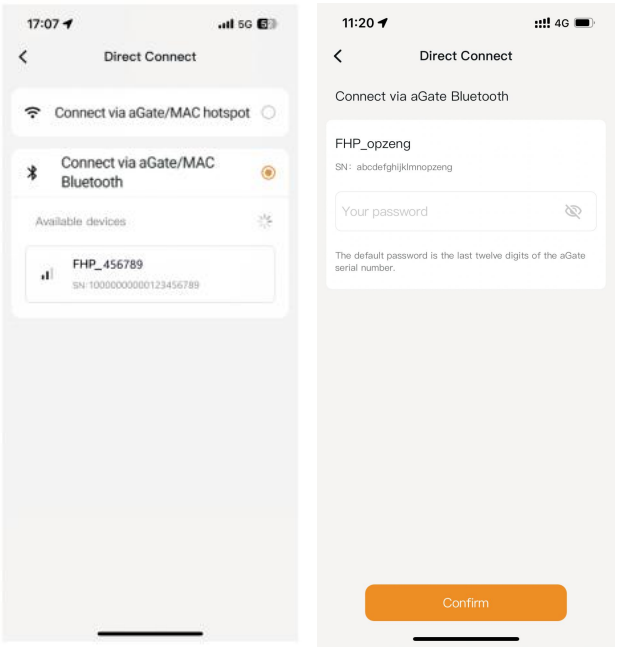


Option 2 Manual Connection

Tap **Manually Connect**. Tap **Connect** to go to the Wifi settings interface, select the MAC 1 hotspot, which is named with AP and the last nine digits of SN (e.g., AP_F23050182), and select Wifi.

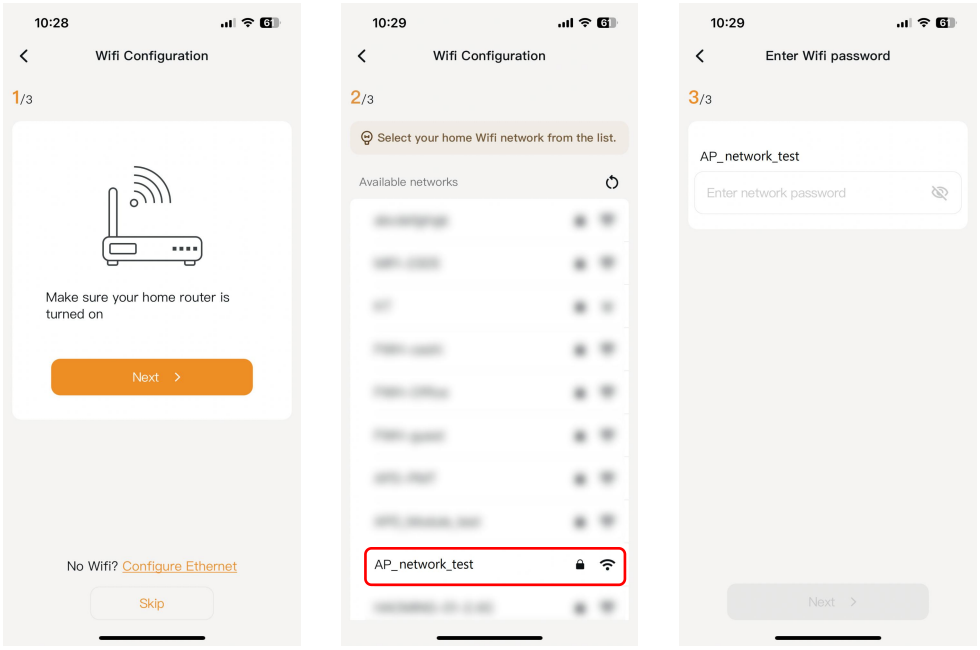


If the MAC 1 hotspot is not available, you may search near the MAC 1 for available Bluetooth. Select the MAC 1 Bluetooth connection named with the system and the last six digits of the MAC 1 SN (e.g., FHP_456789), then connect to the MAC 1 with Bluetooth pairing.

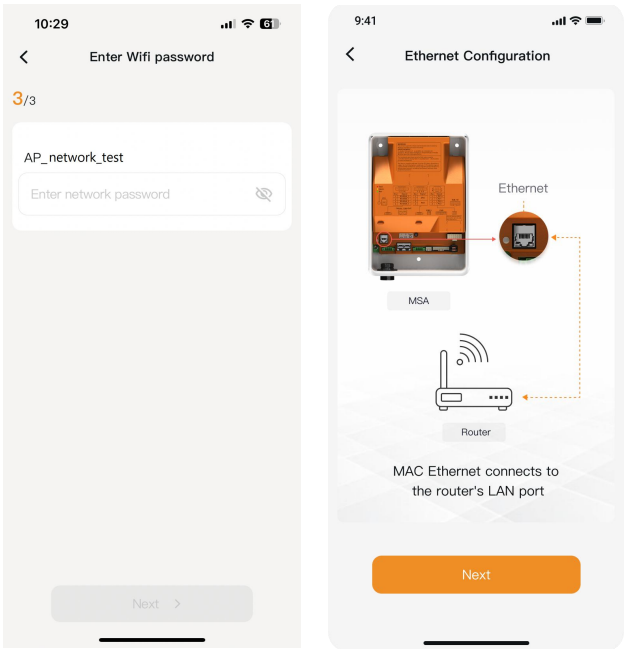


NOTE: *Users may remotely modify the password on the FranklinWH App and, if forgotten, retrieve the password via email.*

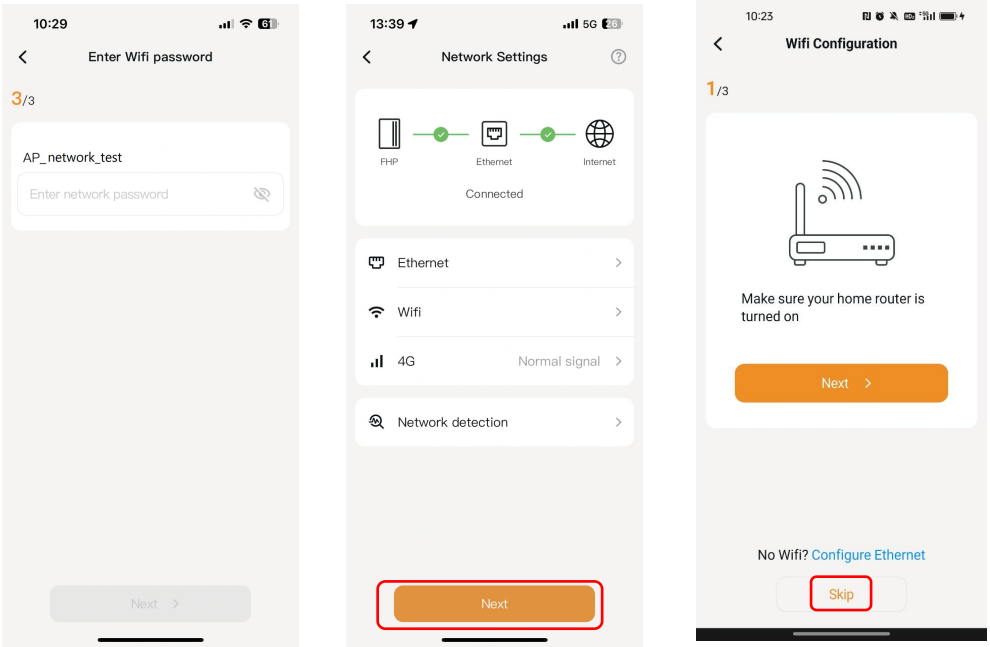
After finishing the system direct connect, follow the instructions to proceed with connecting to the home router's Wifi.



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



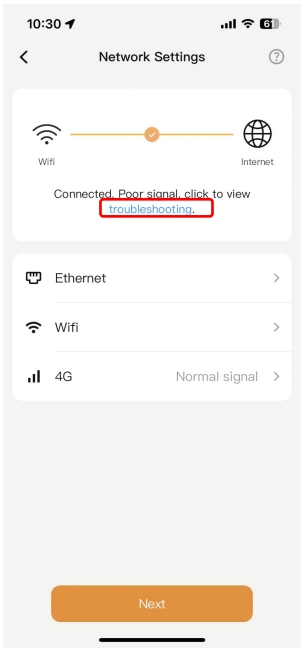
Or tap **Skip** on the **Wifi Configuration** page (4G is connected by default).



NOTE: *A Wifi or Ethernet connection is preferred as 4G is easily affected by the carrier services and weather conditions.*

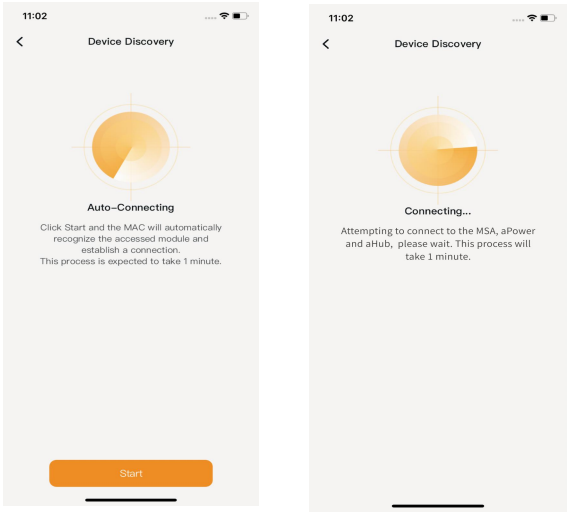
Sometimes the phone will drop the connection with the MAC 1 after the Wifi connection has been successfully established. The mobile app will prompt to reconnect. Please follow the instructions and reconnect your mobile phone to the MAC 1.

After network configuration, you can tap on **troubleshooting** to view recommended solutions.



Step 3. Device Discovery

On the **Device Discovery** screen, tap **Start** and wait until the MAC 1 automatically recognizes the accessed module to establish a connection.



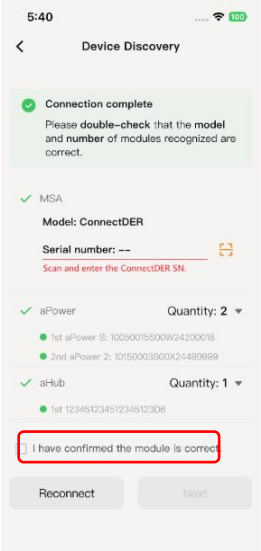
The app will display the SN and quantity of modules which are successfully recognized.

The app will automatically detect whether the MSA is properly connected to the MAC 1 and display the MSA model. Once identification is complete, the MSA model cannot be modified. If the identification result for MSA model is empty, the installer must follow the on-screen tips to check the wiring and repeat the identification process until successful. After the MSA model is identified, enter or scan the QR code to input the serial number of the MSA.

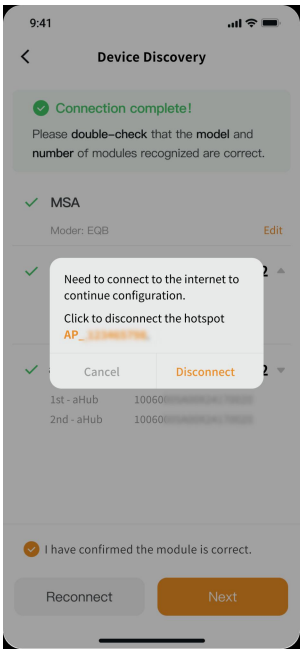
Check the SN and quantities for aPower and aHub (if present) are correct.

Then select "I have confirmed the module is correct" and tap **Next** to save the result.

NOTE: Scanning the QR code to enter the serial number is required if the MSA model discovered is ConnectDER.

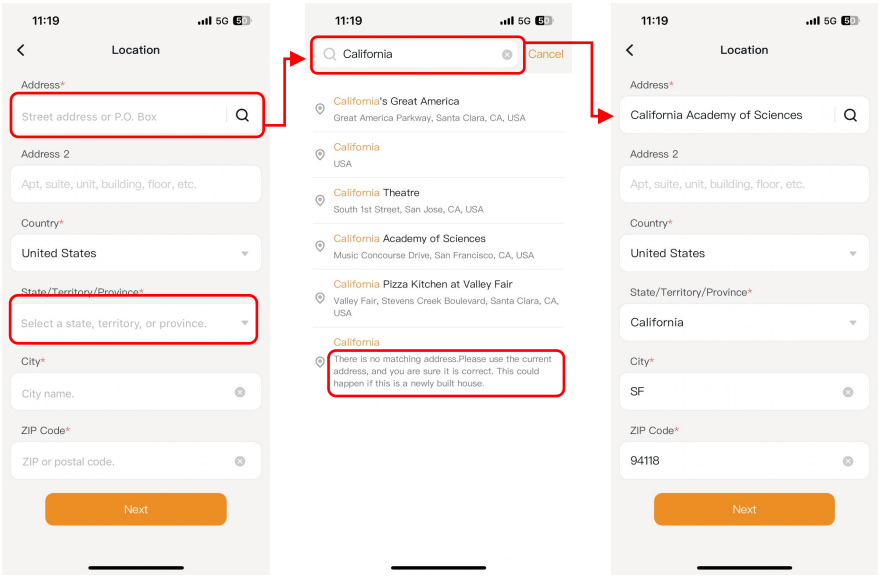


A prompt will remind you to connect to the internet. Tap **Disconnect** to disconnect the MAC 1 hotspot, switch the app to the internet, then continue the configuration.



Step 4. Location.

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

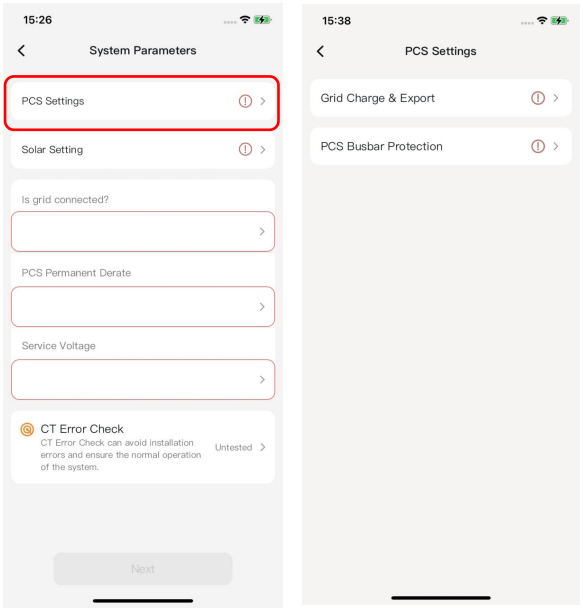


Note: *This step will automatically update the firmware to the latest version during commissioning.*

Step 5. System parameters.

On the **System Parameters** setting page, tap **Solar Settings** to enter solar system information based on the local configuration.

On the **System Parameters** screen, tap **PCS Settings**, then sequentially configure **Grid Charge & Export** and **PCS Busbar Protection**.



Grid Charge & Export

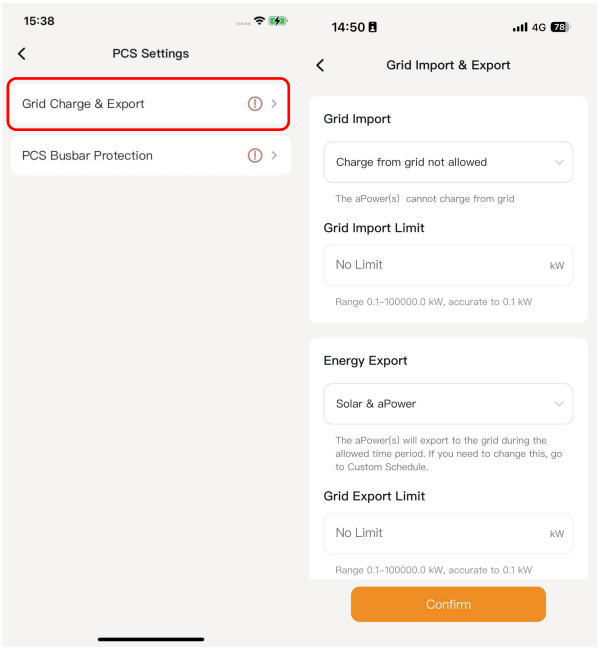
Grid Import: This feature is set to **Charge from grid not allowed** by defaultwhich means the aPower(s) will only charge from solar Select **Charge from grid allowed** when aPower is allowed to charge from the grid. **Grid Import Limit:** Set the maximum power to be imported from the grid.

Energy Export: In Time of Use mode, your system will send solar and stored battery energy to the grid during on-peak periods.

If select...	Then...
Only Solar	The aPower(s) cannot export to grid
Solar + aPower	The aPower(s) will export to the grid during the allowed export time period.
No Export	No energy can be exported to the grid.

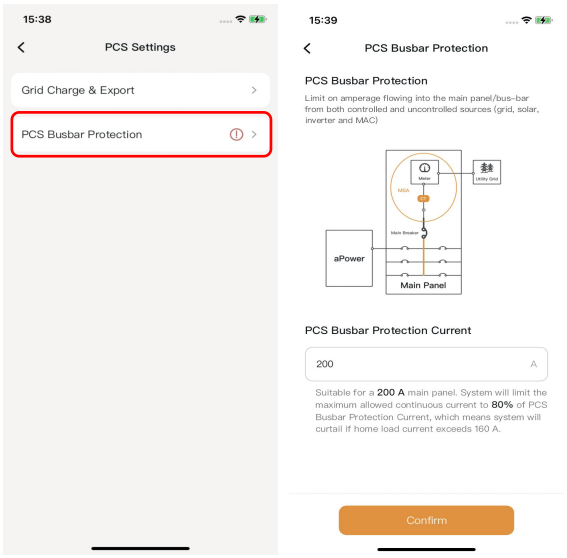
Grid Export Limit: set the **Max power** exported to the grid.

NOTE: *If* ***No export*** *is already selected from* ***Energy Export****, then there's no need to set up grid export limit.*


15:38
PCS Settings
Grid Charge & Export
PCS Busbar Protection
14:50
4G
Grid Import & Export
Grid Import
Charge from grid not allowed
The aPower(s) cannot charge from grid
Grid Import Limit
No Limit
kW
Range 0.1–100000.0 kW, accurate to 0.1 kW
Energy Export
Solar & aPower
The aPower(s) will export to the grid during the allowed time period. If you need to change this, go to Custom Schedule.
Grid Export Limit
No Limit
kW
Range 0.1–100000.0 kW, accurate to 0.1 kW
Confirm

PCS Busbar Protection

Tap **PCS settings -> PCS Busbar Protection** to set the limit current for the main panel, which means you can set a threshold on amperage flowing into the main panel/bus-bar from all controlled and uncontrolled sources (Grid, Solar, Inverter, and aPower).

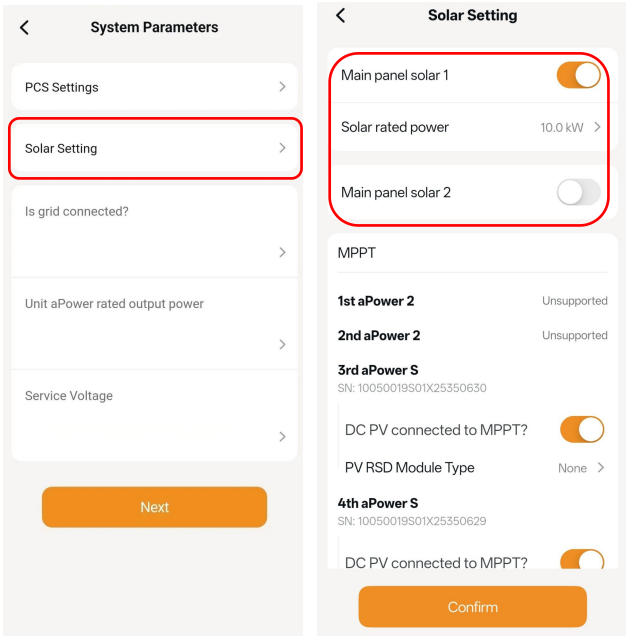


Solar Settings

Tap **Solar Settings** to enter solar system information based on the local configuration.

Main panel solar 1/2: Enable it if solar panel is connected to the main panel.

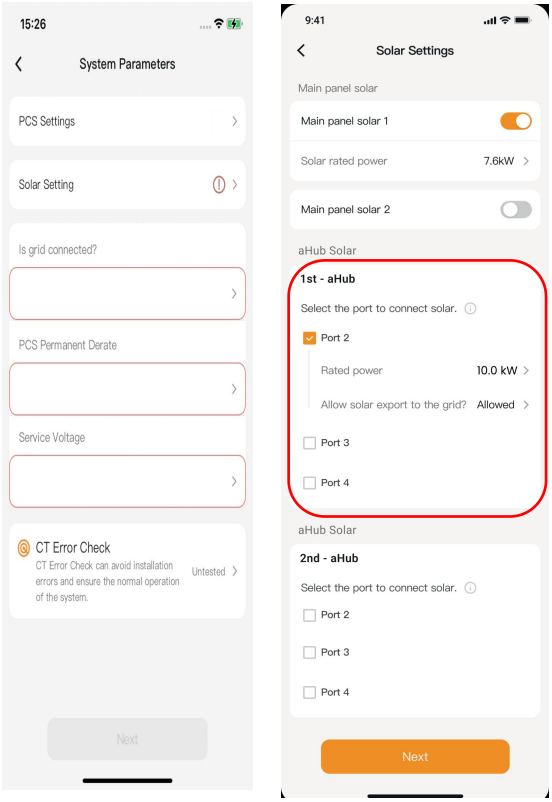
Solar rated power: Set values of the installed system including the rated power of each solar accessory.



NOTE: *If a generator or V2L needs to be installed on aHub, do not connect solar panel to main panel, which means the* Main Panel Solar 1/2 *should be disabled in the App. Connect the solar panel to aHub directly.*

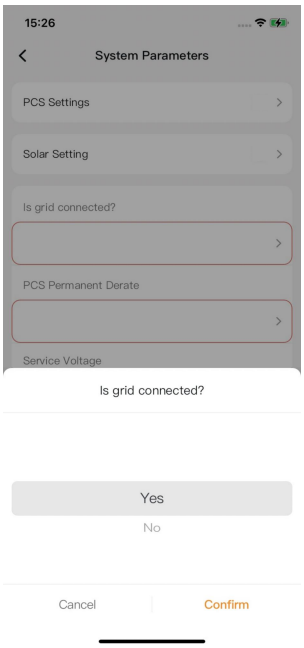
aHub solar

All installed aHub will be listed here. Based on your local installation, tick the aHub port that is connected to solar panel, and set the rated power and whether solar export to grid is allowed. You don't need to tick ports which are not connected to solar panel.



Configure the system's grid-related parameters

On 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**.



MPPT (for aPower S only)

All connected aPower devices will be listed here. Only the aPower S model can be configured for PV connection. If you have other aPower models, this configuration will not be supported.

DC PV connected to MPPT: Identify the aPower S unit(s) connected to DC PV using the aPower S serial number(s). Enable this setting if DC PV is connected.

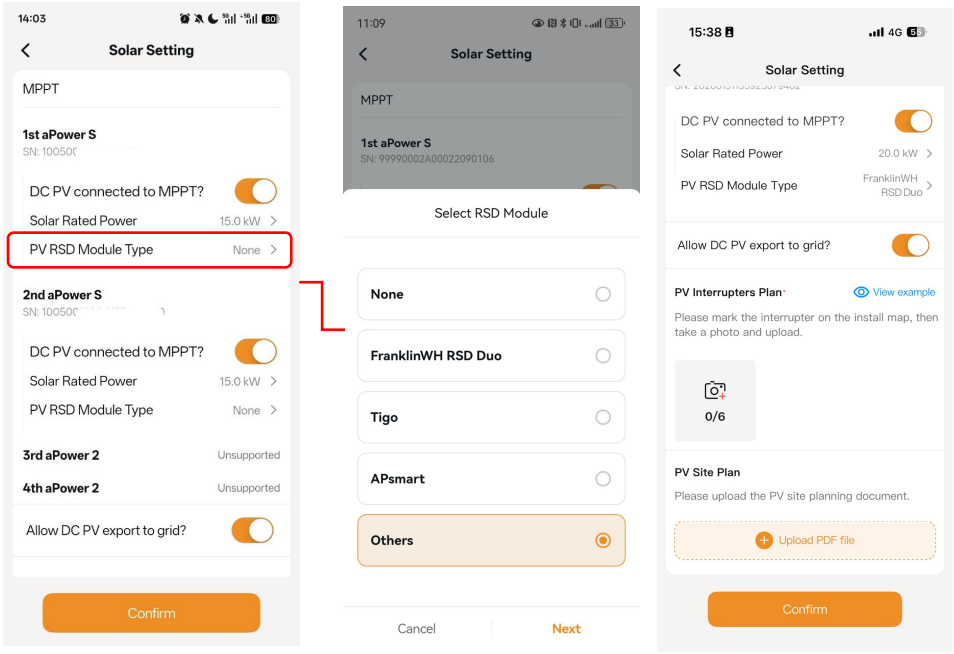
Solar Rated Power: Set the **Solar Rated Power** value for the DC PV connected to the MPPT, including the rated power of each solar accessory.

PV RSD Module Type: Indicates if the PV RSD Module is connected. This device enables rapid shutdown of solar panels (NEC 690.12) for firefighter safety. Select the appropriate model if connected.

Allow DC PV export to the grid: Enable this if the DC PV is allowed to be exported.

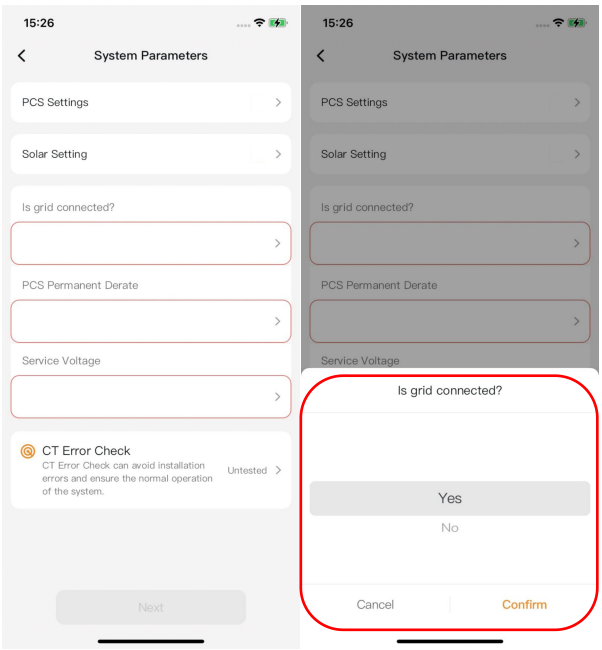
PV Interrupters Plan: When the PV RSD Module type is selected as **FranklinWH RSD**, the installer must upload images clearly marking the interrupter locations.

PV Site Plan: If necessary, the PV site planning document may be uploaded for backup archiving.



Configure the system's grid-related parameters

On 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**.

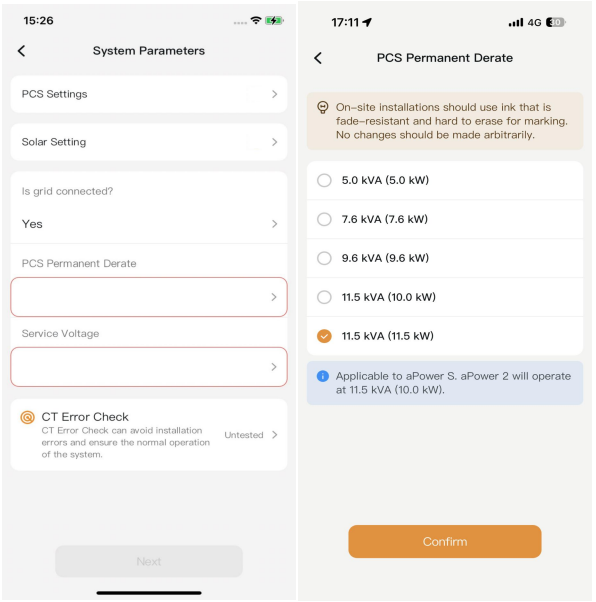


Setting the PCS Permanent Derate Value

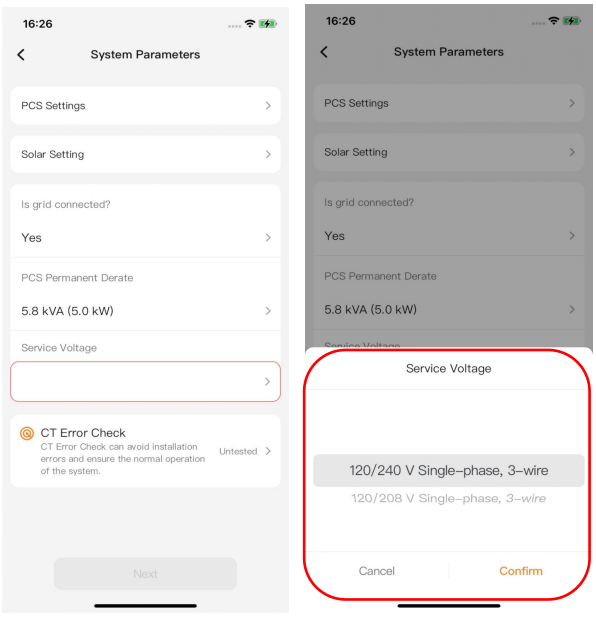
Sets the rated power of all aPowers connected to the specific MAC 1.

Note:

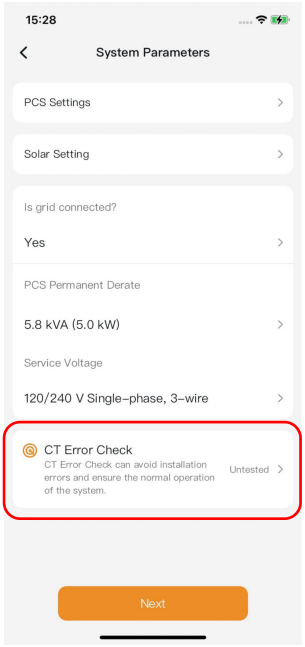
- *In both on-grid and off-grid modes, all aPowers output is set to the PCS permanent derate value configured during system commissioning. The PCS derate feature applies to both charging and discharging rates.*
- *When mixing aPower 2 and aPower S, if 11.5 kVA (11.5 kW) is selected, aPower S will operate at its rated output of 11.5 kW. aPower 2 will continue to operate at its rated output of 10 kW.*



Then configure **Service Voltage.**



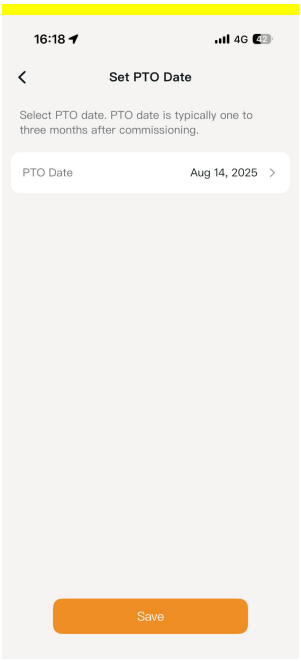
After finishing all the setup on this screen, tap **CT Error Check** on the **System Parameters** screen as shown.



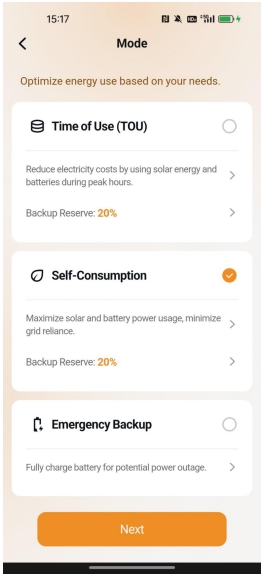
Step 6. Utility Plan & Incentives.

PTO

Select **Permission to Operate (PTO) date**. PTO date is typically one to three months after commissioning.



On the **Mode** page, select the system operating mode, such as Emergency Backup, Self-Consumption, or Time of Use, to optimize energy usage according to your needs.

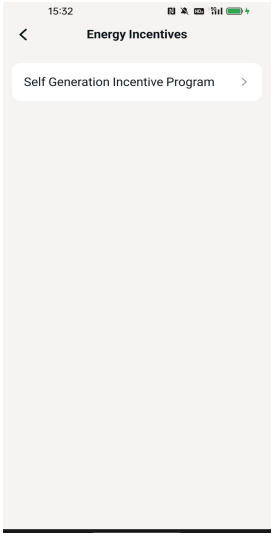


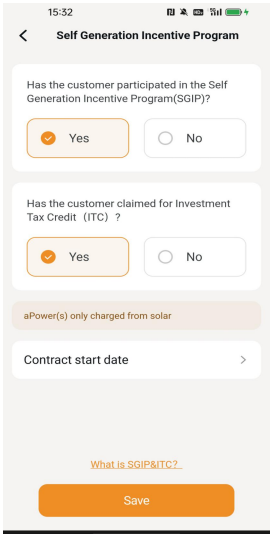
Tap **Next**.

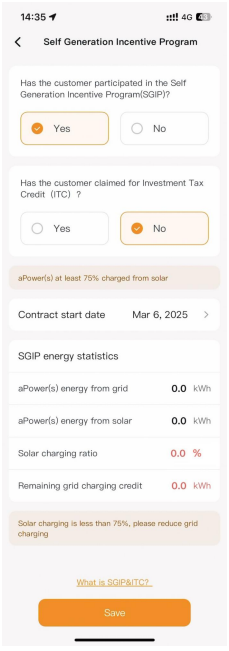
Note: *The Self-Consumption option will only appear in the mode interface if you have PV connected to the main panel.*

Energy Incentives

Self-Generation Incentive Program: These fields will appear when the MAC 1 is in California. Tap the **Self Generation Incentive Program** bar. Select **Yes** if participating in SGIP, ITC, or both. If participating in both SGIP and ITC, the battery will charge only from solar. Then, set the **Contract start date**.







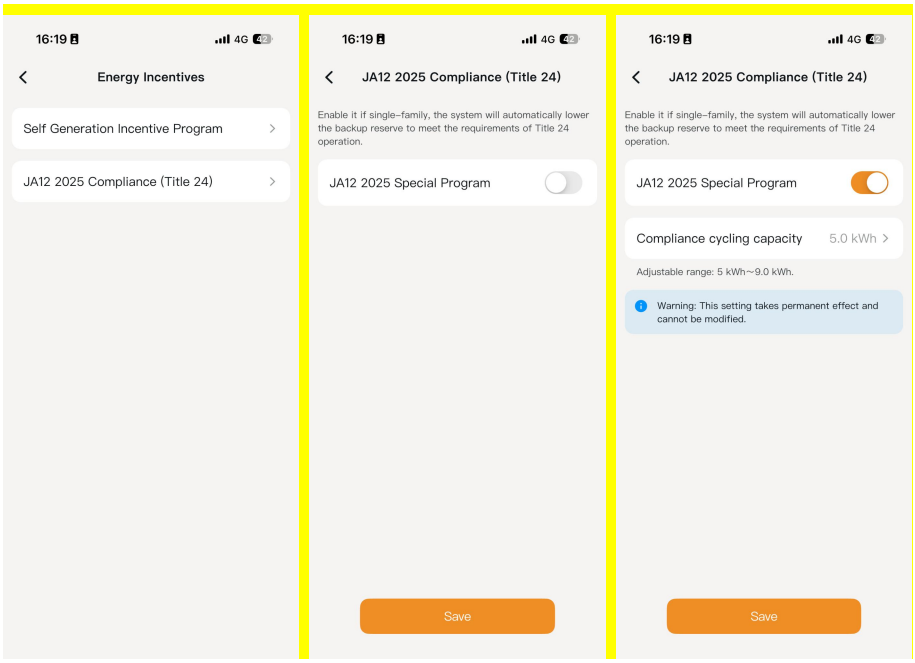
JA12 2025 Compliance (Title 24): When commissioning a FranklinWH System for a single-family installation in California, configure the JA12 2025 Compliance Program.

Tap the **JA12 2025 Compliance (Title 24)** bar. Enable the **JA12 2025 Special Program**, and then configure the compliance cycling capacity.

Note: *Default compliance cycling capacity: 5 kW. Adjustable range: 5 kWh ~ System capacity * 60%.*

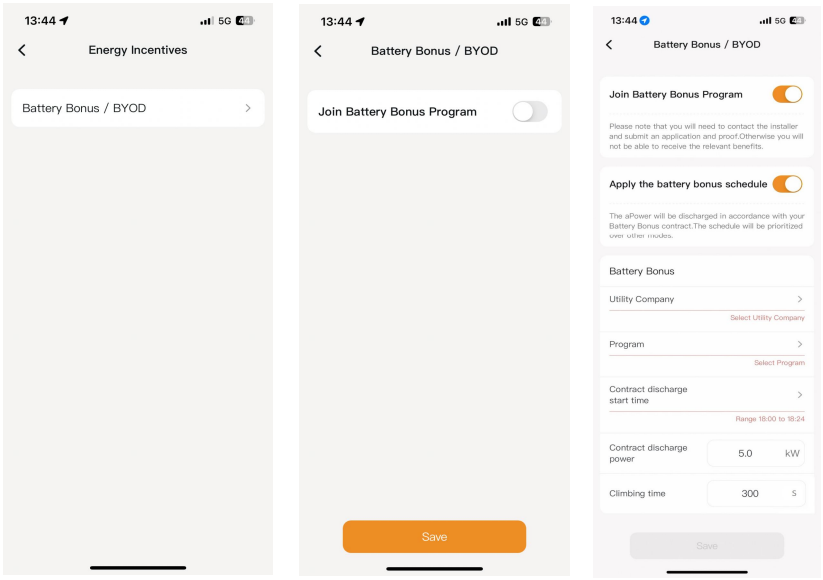
Tap **Save** to save the configuration. A pop-up will prompt you for final confirmation. Once the JA12 2025 setting is confirmed, it cannot be changed.

NOTE: *Manually enabling Emergency Backup mode remains subject to JA12 requirements, including the 72-hour reset rule. Automatic Emergency Backup triggered by severe weather or Public Safety Power Shutoff (PSPS) events is exempt from the 72-hour JA12 limitation.*



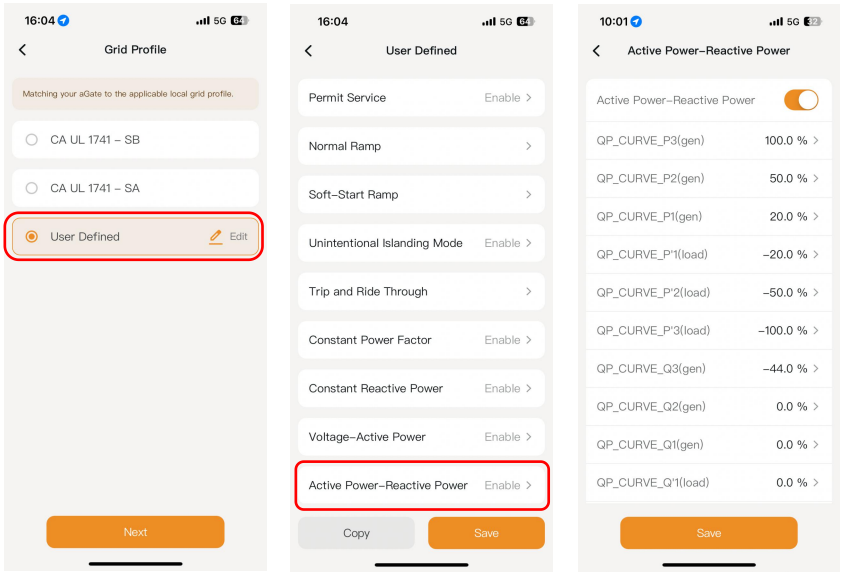
Battery Bonus/BYOD: The fields will appear when the MAC 1 location is in Hawaii. Tap the **Battery Bonus/BYOD** bar. If the customer is participating in Battery Bonus, slide to enable this setting. Then, set **Utility Company**, **Program**, **Contract discharge start time**, **Contract discharge power,** and **Climbing time** based on the battery bonus contract.

Note: *Enable the* ***Apply the battery bonus schedule****, and the aPower batteries will discharge according to the battery bonus contract. This schedule will take precedence over other modes.*



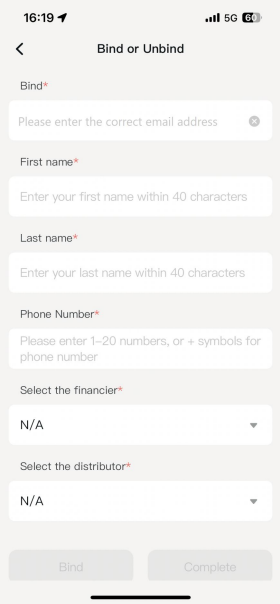
Step 7. Grid Profile.

Select an applicable local grid profile. If the local grid profile is not available, tap **Edit** in the **User Defined** bar to set the parameters. On the **User Defined** page, you can set parameters for active or reactive power. By default, active power is enabled.



Step 8. Bind or Unbind.

Enter the new customer email, first name, last name and phone number. Select the financer of this project and the distributor from which the FranklinWH System was purchased. Then tap **Bind** and **Complete**.



NOTE

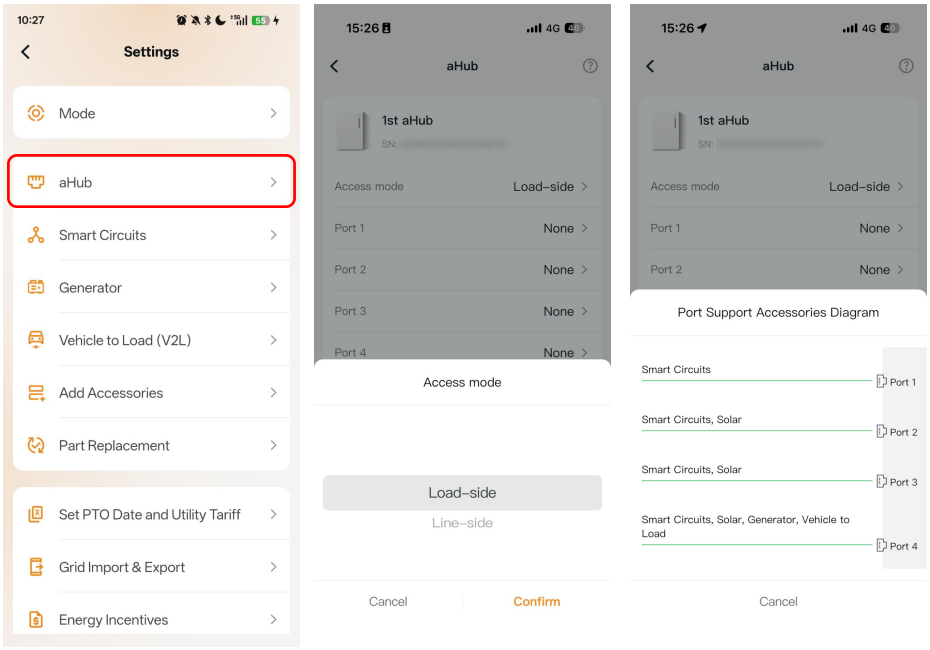
- If there is not a contractual requirement to select financer and distributor, then select **N/A** in each field.
- If the customer needs to change the bound account, tap **Commission** > **Bind or Unbind** > **Unbind** > **Complete**, then rebind.

aHub Port Settings

If an aHub is installed, tap **aHub** on the Settings screen to configure parameters.

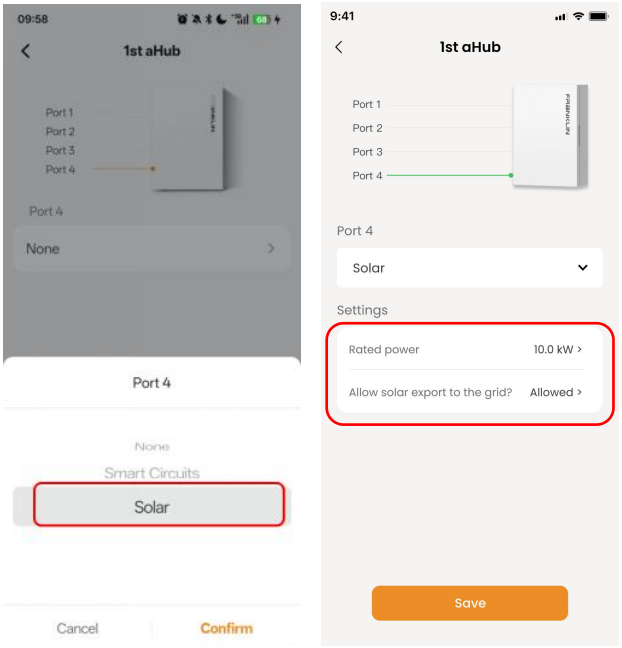
If aHub Solar parameters were previously configured during commissioning, those settings will be displayed here automatically. Please review and confirm the configuration and make any necessary corrections if you notice anything wrong. If you notice any issues, you can make corrections as needed.

Tap on the upper right corner to view the instructions for accessories that can be connected to each port.



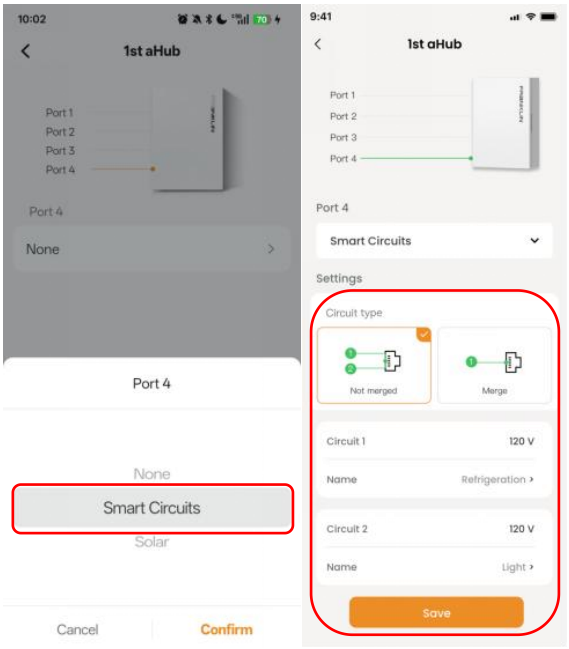
aHub: Solar

Configure solar port: set rated power and select whether solar to export is allowed.

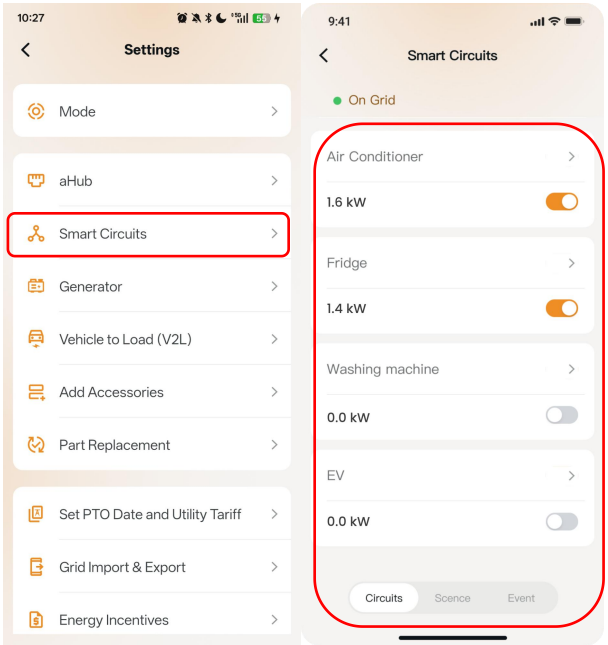


aHub - Smart Circuits

Configure smart circuit port: Select the **Circuits type** and set the name of circuits for easier management.

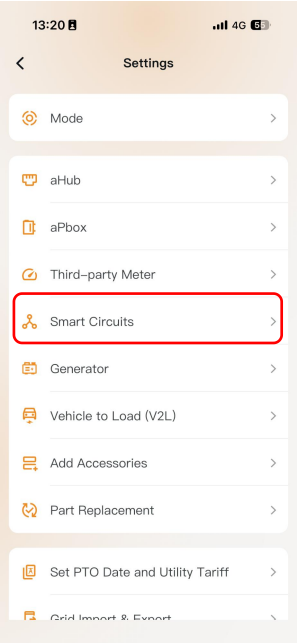


After completing the setup, tap on **Smart Circuits** on the **Settings** screen to perform ON/OFF debugging for all circuits.

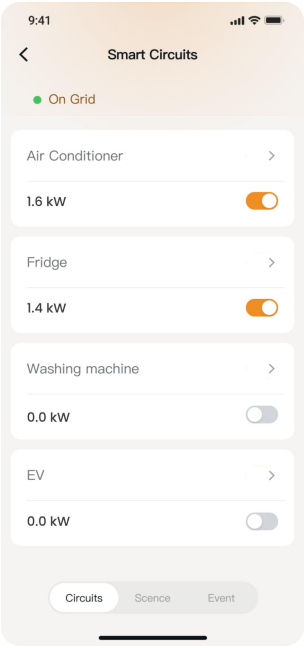


To set the Smart Circuits Module parameters:

Step 1. Tap **Settings->Smart Circuits**.

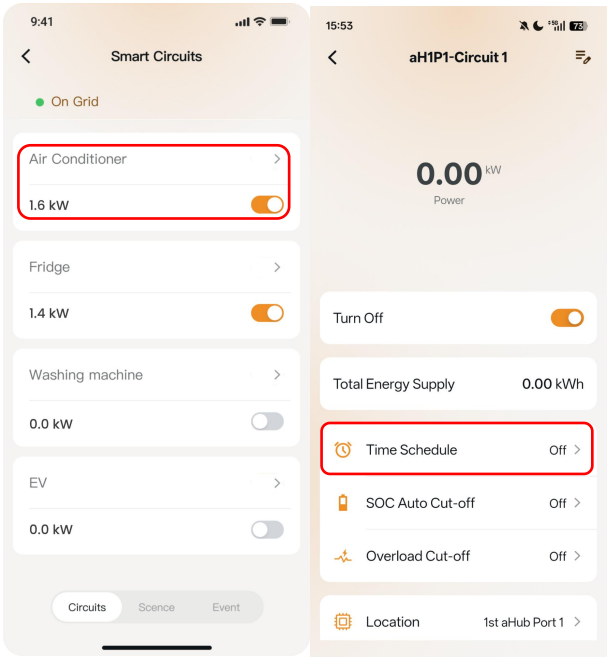


Step 2. The bar at the bottom of the **Smart Circuits** screen contains three icons: **Circuits**, **Scene**, and **Events**. Tap the icon for the component you want to view to access its details.

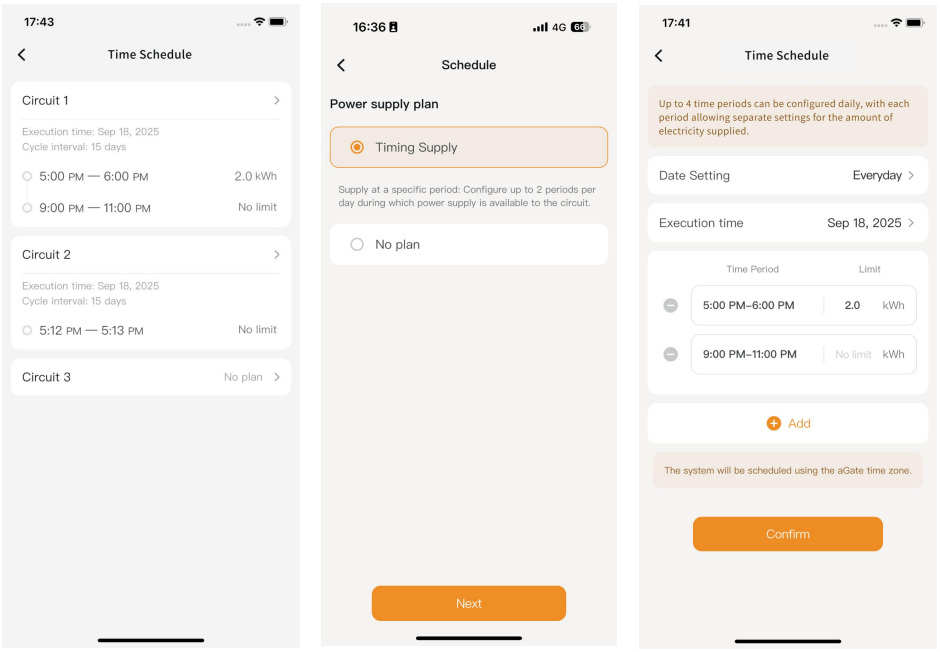


Step 3. Customize settings for the circuits.

- **Turn on/off:** Tap the slider to manually turn the circuit on or off.
- **Time Schedule:** Customize the time period or electricity consumption to automatically turn the circuit on or off.

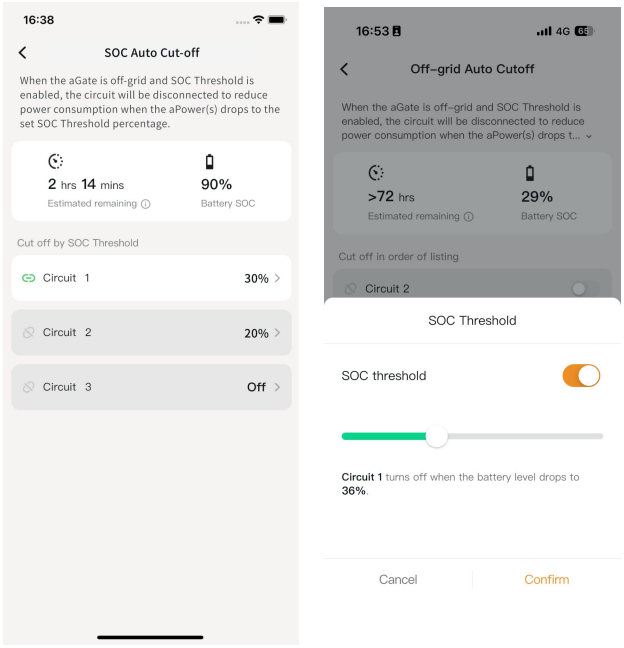


You can set the cycle interval and execution time, allowing the system to work intelligently and meet the customer's power consumption requirements.

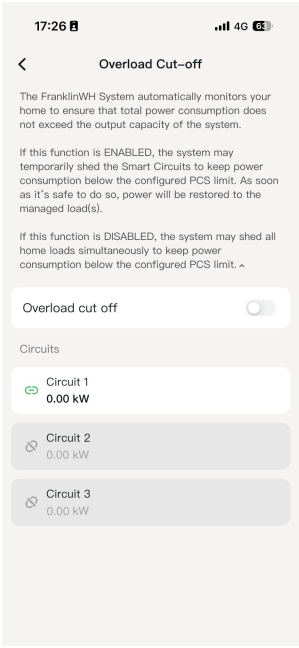


- **SOC Auto Cut-off (only off-grid):** Extend backup hours by automatically disconnecting circuits in sequence based on battery SOC during a grid outage.

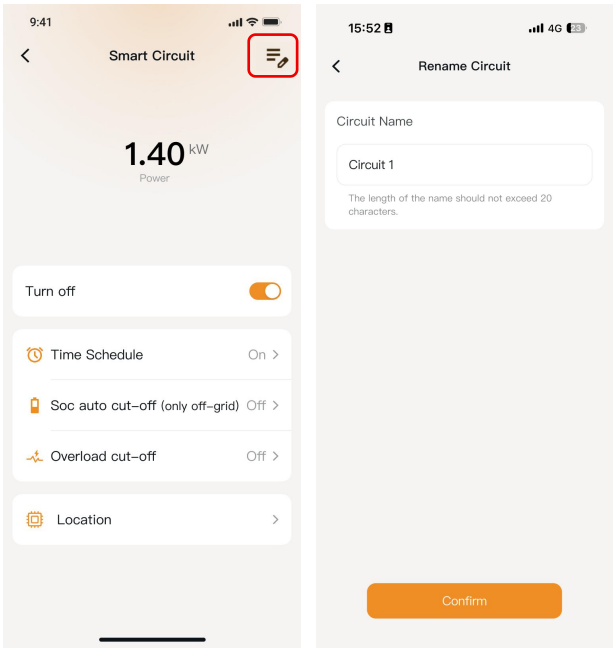
  When the aPower battery capacity drops to the set SOC Threshold, each Smart Circuit will be automatically disconnected to reduce power consumption.



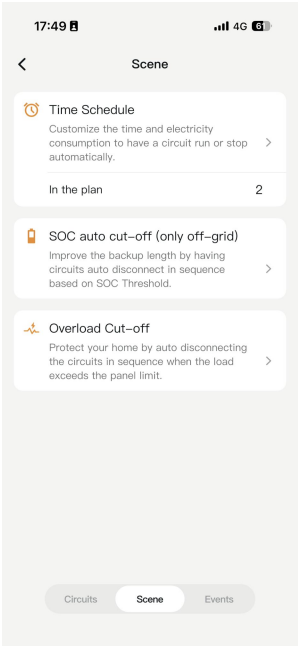
- **Overload Cut-off:** If the load exceeds the main panel's capacity, the system will automatically disconnect circuits to prevent overload damage.



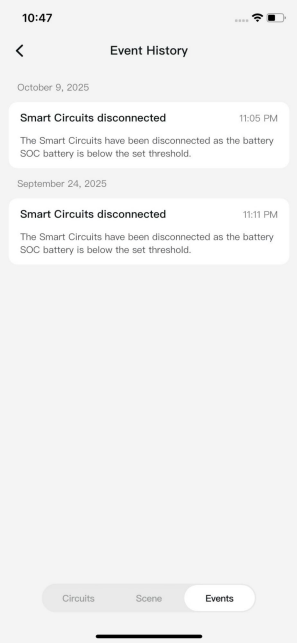
- **Name:** Tap the **Edit** button on the top right, then tap **Name** to rename the circuit. Each circuit name may be up to 20 characters.



Step 4. Tap the **Scene** tab to view the full list of available scenes. You can also set the Time Schedule, SOC Auto Cut-off (only off-grid), and Overload Cut-off scenes for the circuit.



Step 5. Tap the **Event** tab to view the circuit disconnected event logs.

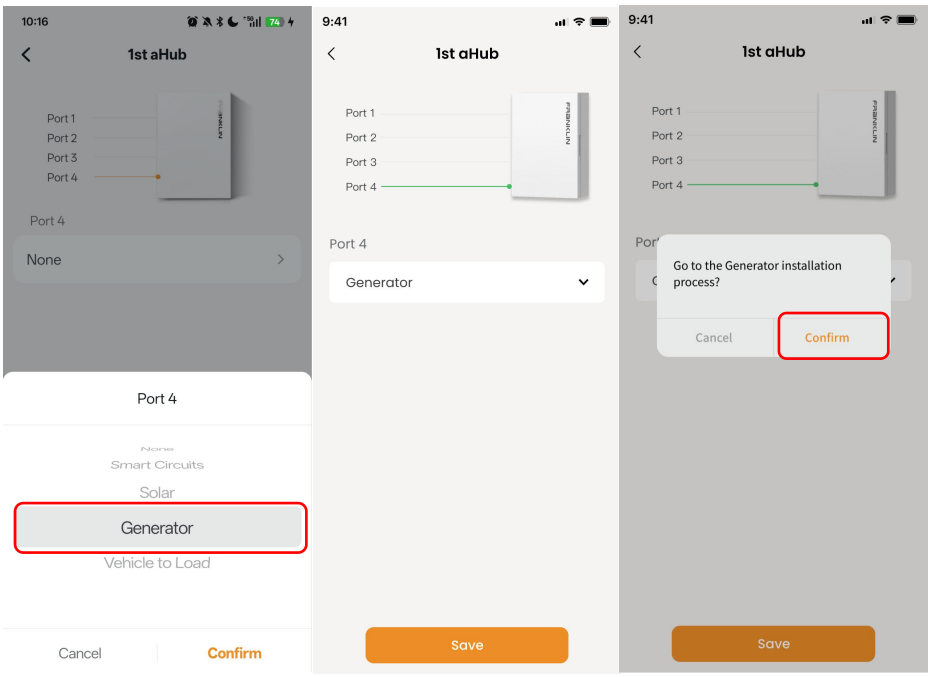


aHub: Generator

Configure generator port: Select **Generator** for port of aHub, and a prompt will pop up. Tap **Confirm** to redirect to the generator installation process where you can set up the generator-related parameters.

NOTE

- If you tap **Cancel** on the pop-up prompt, the app will return to the aHub port settings screen. You can tap **Generator** on the settings screen to set up generator-related parameters later.
- When using RS485 communication port, aHub does not support connecting to generator or V2L.



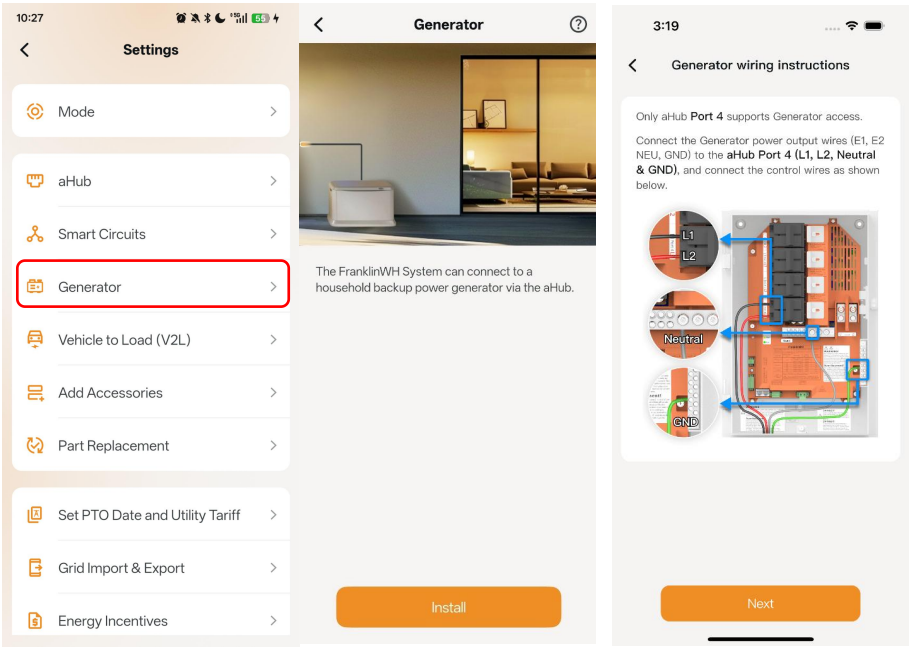
Tap on **Confirm** to perform installation process for the generator.

To install a generator:

Step 1. Tap **Settings->Generator**.

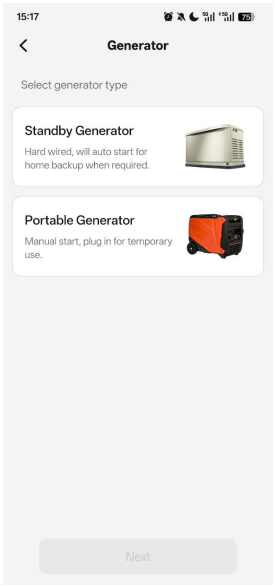
Step 2. After reading the Generator feature description, tap **Install**.

Step 3. Check the generator CT, relay, and L1/L2 voltage sampling connections as per wiring instructions.



Tap **Next**.

Step 4. Select generator type.



Step 5. Set up and check the generator-related parameters.

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 FranklinWH System.

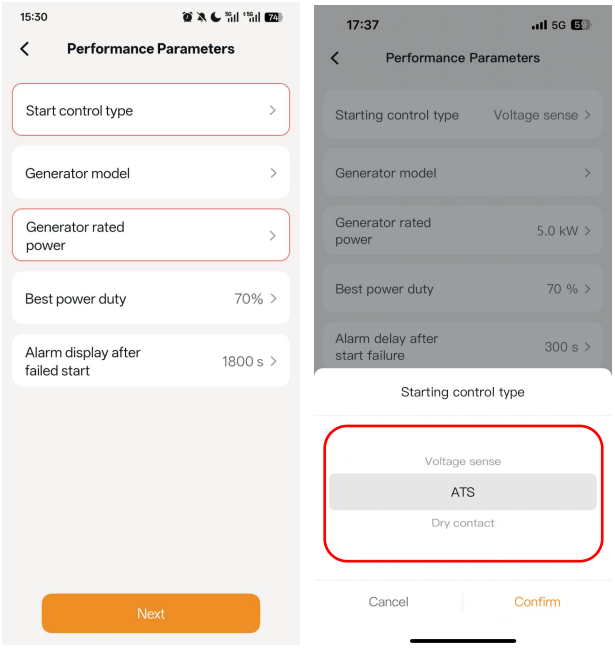
Start control type: Select the generator start type **(Only available for standby generator)**.

Generator model: Please refer to the model number on the generator nameplate.

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 start failure: Set the delay period for the generator to be started. If generator startup fails, the system will push a message to the customer.



Tap **Next**.

Step 6. Set the generator's operating mode.

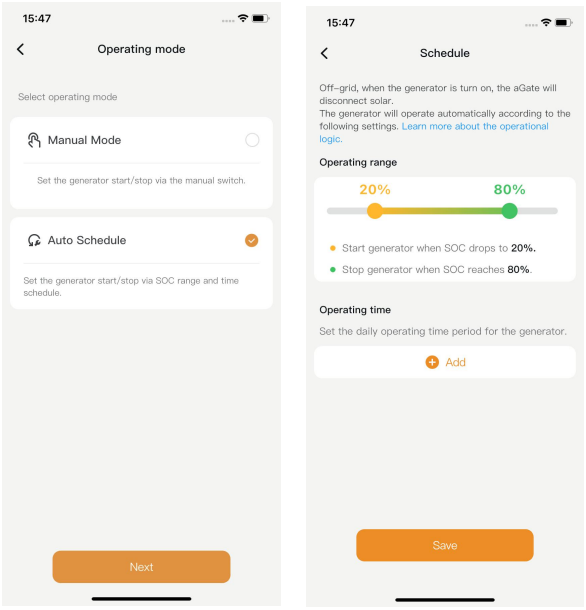
Standby Generators are supported by two operating modes: **Manual** and **Auto Schedule**. Portable generator automatically detects and connects to the system.

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

Auto Schedule: Check the **Auto Schedule** option. The generator will run according to the set time periods or battery state of charge.

a. Set your preferred **Operating Range** by adjusting the slider at the top of the screen. In off-grid mode with the operating mode set to Auto Schedule, the generator will start when the SOC of the aPower batteries connected to the same MAC 1 fall to or below the SOC low limit, and it will automatically shut down when the SOC of the same batteries reaches the upper limit.

b. Tap the plus icon (as shown) to the operating time period. The system allows up to 3 non-overlapping periods (00:00-23:59 allowed for each) with an interval of at least 1 minute.

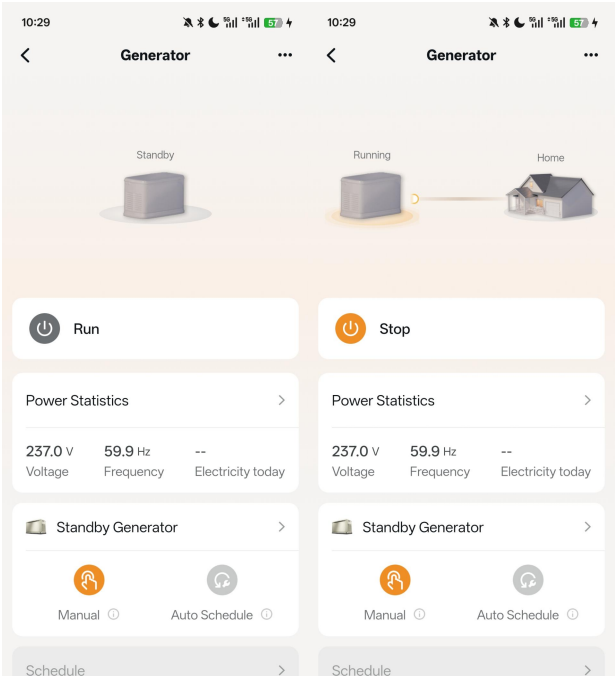


Tap **Save**.

Step 7. Once all previous setup steps are complete, a pop-up will prompt that the installation was successful. The page will automatically redirect to the generator home screen.

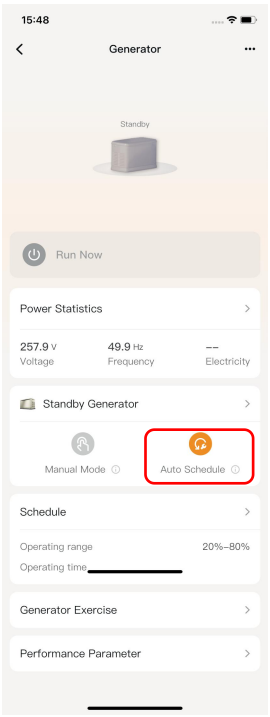
Standby Generator: Manual

In Manual Mode, the automatic schedule will be disabled. To start or stop the generator, tap the **Run** or **Stop** button.



Standby Generator: Auto Schedule

In automatic mode, the manual buttons on the interface will be disabled, and the generator will operate according to the configured schedule.



Portable Generator

If the portable generator has been properly connected and the utility grid is unavailable:

a. Plug the generator into the inlet box.

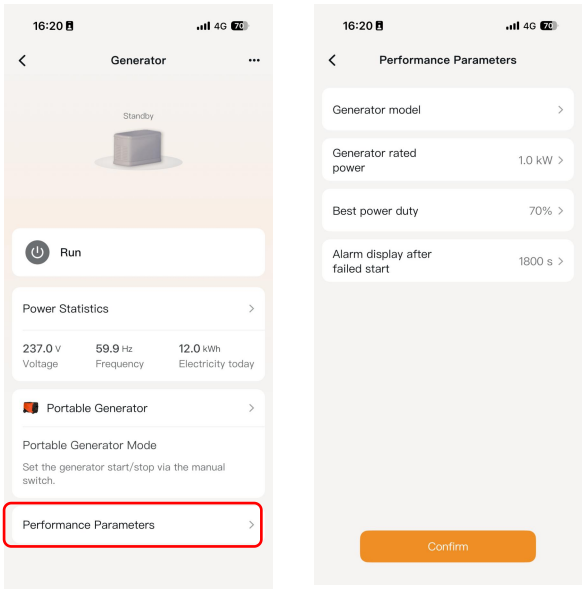
b. Manually start the generator using its power switch.

c. After approximately 3 minutes, tap **Run** in the app. The system will automatically connect the generator to supply power to the backup loads.

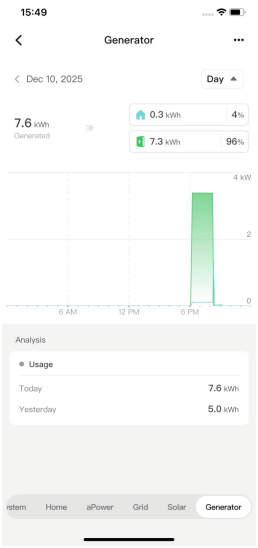
d. Tap **Stop** in the app. The generator automatically disconnects.

e. Manually shut down the generator using its power switch.

Note: The portable generator does not support automatic start or shutdown. When utility grid is restored, the generator is automatically disconnected from the system and must be shut down manually.



Tap **Power Statistics** to view the generator's power output statistics.



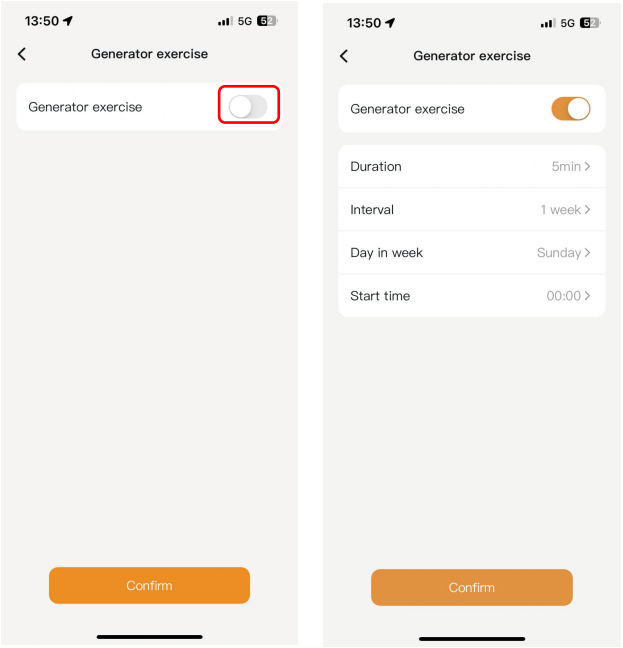
Tap **Generator exercise** and turn on **Generator exercise** slider to enable parameter setting (only available for Standby Generator).

Duration: Set the exercise duration.

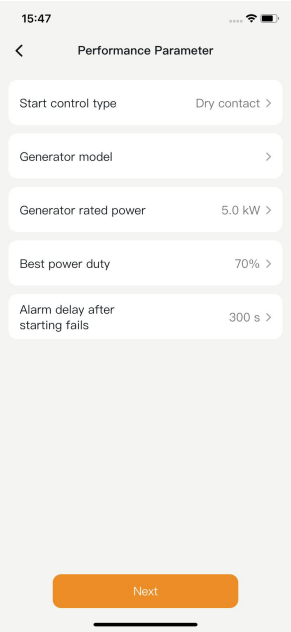
Interval: Set the exercise interval period.

Day in week: Set the day in week for the exercise.

Start time: Set the exercise start time.



Tap **Performance Parameter** to set up the generator parameter as instructed in Step 5 above.

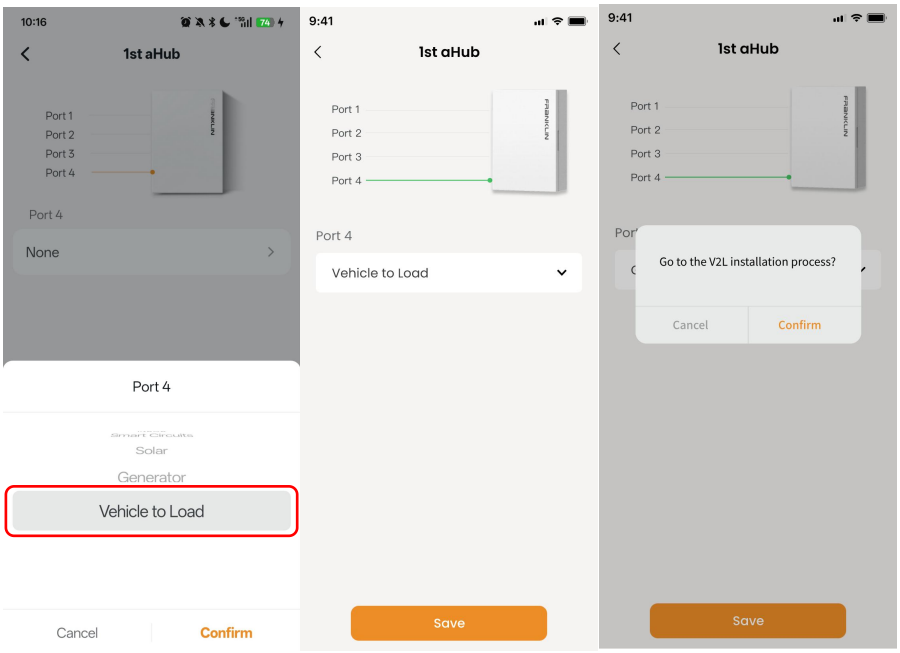

15:47
Performance Parameter
Start control type
Dry contact
Generator model
Generator rated power
5.0 kW
Best power duty
70%
Alarm delay after starting fails
300 s
Next

aHub: Vehicle to Load

Configure V2L port: Select **Vehicle to Load** for port of aHub, and a prompt will pop up. Tap **Confirm** to redirect to the V2L installation process where you can set up the V2L-related parameters.

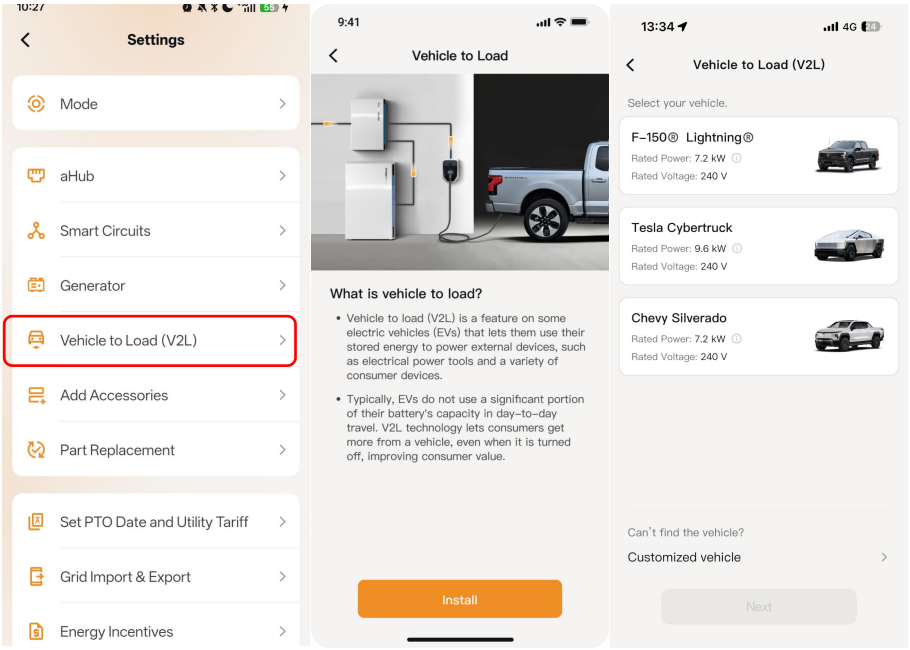
NOTE

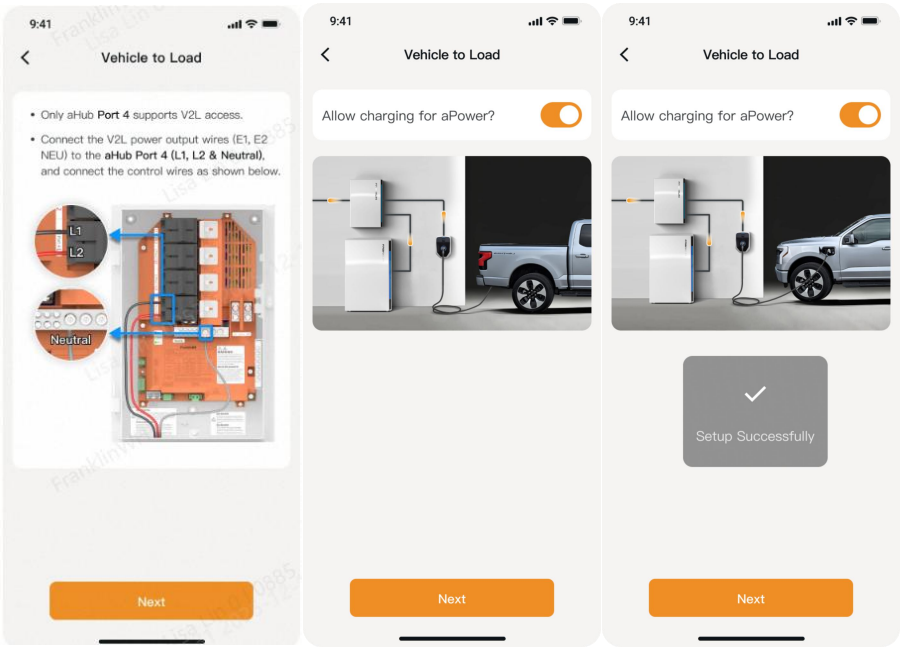
- If you tap **Cancel** on the pop-up prompt, the app will return to the aHub port settings screen. You can tap **Vehicle to Load** on the settings screen to set up V2L-related parameters later.
- When using RS485 communication port, aHub does not support connecting to generator or V2L.



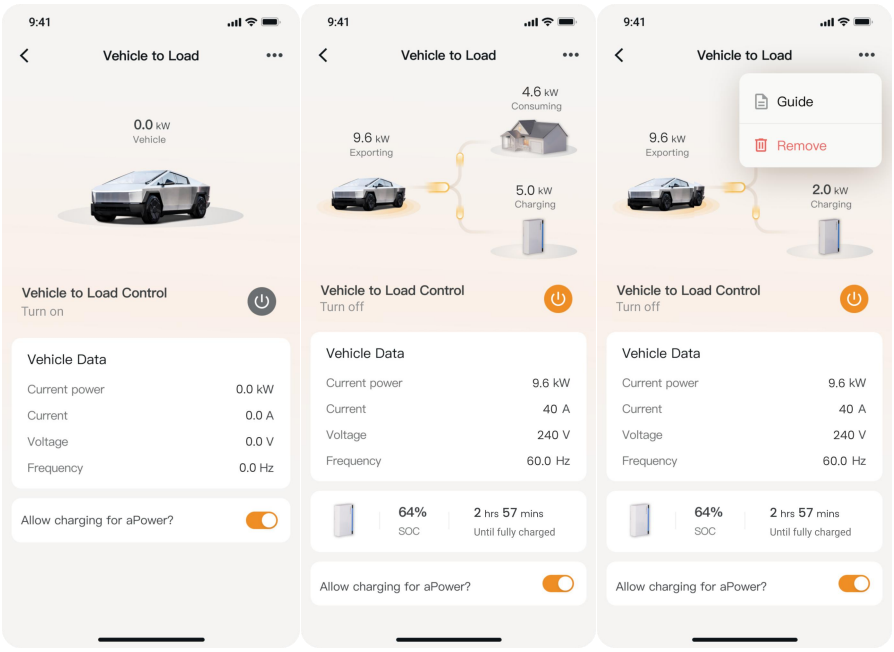
Tap **Confirm**, and follow the V2L installation guide:

Introduction to V2L → Select vehicle type→Follow the wiring diagram→Select whether charging for aPower is allowed→Successful setup


Settings
Mode
aHub
Smart Circuits
Generator
Vehicle to Load (V2L)
Add Accessories
Part Replacement
Set PTO Date and Utility Tariff
Grid Import & Export
Energy Incentives
Vehicle to Load
What is vehicle to load?
Vehicle to load (V2L) is a feature on some electric vehicles (EVs) that lets them use their stored energy to power external devices, such as electrical power tools and a variety of consumer devices.
Typically, EVs do not use a significant portion of their battery's capacity in day-to-day travel. V2L technology lets consumers get more from a vehicle, even when it is turned off, improving consumer value.
Install
Vehicle to Load (V2L)
Select your vehicle.
F-150® Lightning®
Rated Power: 7.2 kW
Rated Voltage: 240 V
Tesla Cybertruck
Rated Power: 9.6 kW
Rated Voltage: 240 V
Chevy Silverado
Rated Power: 7.2 kW
Rated Voltage: 240 V
Can't find the vehicle?
Customized vehicle
Next


Vehicle to Load
Only aHub Port 4 supports V2L access.
Connect the V2L power output wires (E1, E2 NEU) to the aHub Port 4 (L1, L2 & Neutral), and connect the control wires as shown below.
L1
L2
Neutral
Next
Vehicle to Load
Allow charging for aPower?
Next
Vehicle to Load
Allow charging for aPower?
Setup Successfully
Next

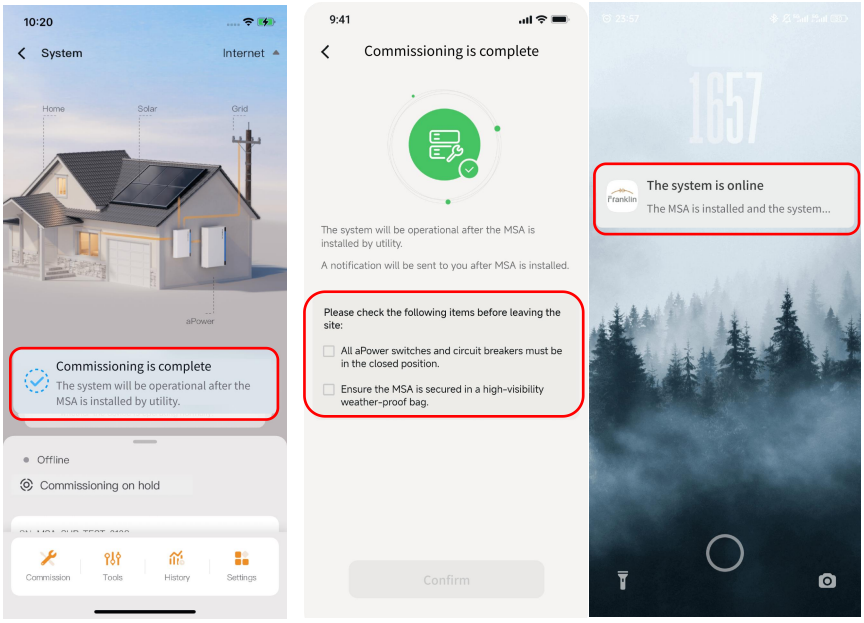
After setup is complete, enter the V2L screen, tap the power switch to run V2L for debugging. If you need to remove it, tap **Remove** in the upper right corner.



After Commissioning

If the MSA is NOT installed by the utility yet after the installer completes commissioning:

Tap on the **Commission is complete** banner on the home screen. After reviewing and confirming the on-screen notice, the installer may leave the site. The system will automatically go online and send a notification via the app once the MSA is installed by the utility.



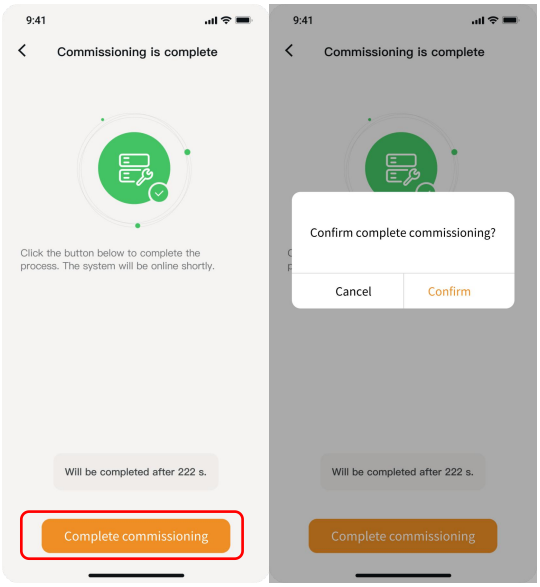
NOTE

- After confirmation, the "Commission is complete" banner will no longer appear on the app home screen. The installer will receive an automatic notification once the system goes online.

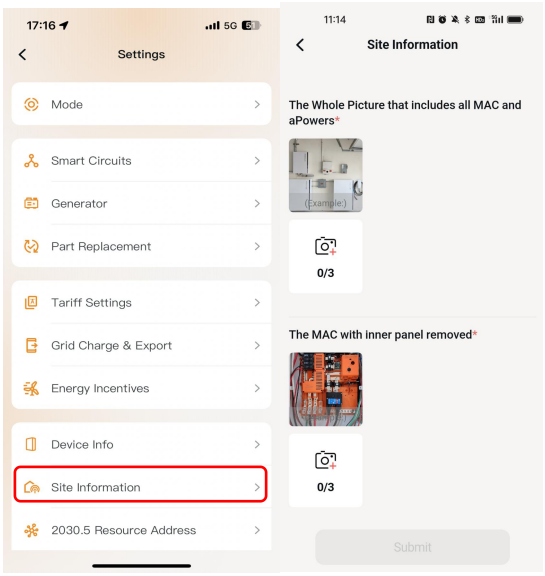
If the MSA is already installed by the utility after the installer completes commissioning:

The system will automatically detect the MSA connection. Tap the **Commission is complete** banner on the home screen to check the progress.

The installer can wait until the process finishes or tap on the **Complete Commissioning** button below to complete in advance. The system will go online immediately.



Also, the installer shall upload site pictures when the commissioning has been completed.



Press the switch on the right side of all aPower(s) to confirm that they are turned OFF (switch is flush with the case).

Functional Validation

Checklist

Startup Steps and Measurements.

Tools	Multimeter				
Before startup	Account	1	Has the homeowner signed into the mobile app?	☐ Yes	☐ No
	Networking	1	Is the family network working?	☐ 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 main panel OFF?	☐ Yes	☐ No
		3	Is the MAC 1 power switch OFF?	☐ Yes	☐ No
		4	Is the aPower breaker on the main panel OFF?	☐ Yes	☐ No
		5	Is the aHub main breaker on the main panel OFF?	☐ Yes	☐ No
	Indicating LED	1	Are LED strips on all the aPower units OFF?	☐ Yes	☐ No
		2	Is the MAC 1 power indicator OFF?	☐ Yes	☐ No
		3	Is the aHub power indicator OFF?	☐ Yes	☐ No
Start up	On-grid	**Step: Turn on the Grid breaker on the main panel.**			
		1	Is the L1 to N input voltage at the main panel grid breaker 120 V ± 10 V?	☐ Yes	☐ No
		2	Is the L2 to N input voltage at the main	☐ Yes	☐ No

			panel grid breaker 120 V ± 10 V?		
		3	Is the L1 to L2 input voltage at the main panel grid breaker 240 V ± 20 V?	☐ Yes	☐ No
		Steps: **Turn on the aPower breaker on the main panel.** **Turn on the aHub main breaker on the main panel.** **Turn on the aPower switch on the side of each aPower.** **Turn on the MAC 1 power switch.** **Turn on the aHub RST button.** **NOTE:** If there are multiple aPower units in the FranklinWH System, their power switches need to be turned on in sequence. Check whether the FranklinWH App reports any alarm for each activation.			
		1	Does the mode shown on the FranklinWH App agree with the mode set during installation?	☐ Yes	☐ No
		2	Are the Grid, Home, and FranklinWH icons lit in the app?	☐ Yes	☐ No
	Solar with grid power	**Step: Turn on the Solar breaker on the main panel and aHub**			
		1	Is the output voltage at the solar breaker 240 Vac?	☐ Yes	☐ No
		2	Check the Solar icon on the app to ensure if the solar system is successfully connected?	☐ Yes	☐ No
aHub	Smart Load	**Step: Turn on the Load breaker on the aHub**			
		1	Check if the load and the aHub port are connected properly?	☐ Yes	☐ No

	Generator (Standby/Portable)	**Step: Turn on the Generator breaker on the aHub**			
		1	Is the Generator and the aHub port connected properly?	☐ Yes	☐ No
		2	Is the power grid disconnected and has the app successfully sent the command to start the generator?	☐ Yes	☐ No
	V2L	**Step: Turn on the V2L breaker on the aHub**			
		1	Is the vehicle and aHub port properly connected?	☐ Yes	☐ No
		2	Is the power grid disconnected and has the app successfully sent the command to start V2L?	☐ 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.*

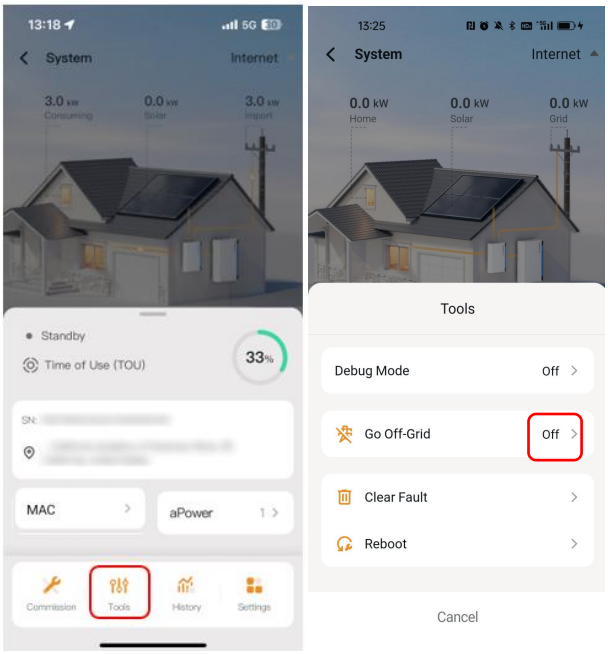
② *If there is any large electrical load, such as air conditioners or electric motors, when the system is working in the off-grid mode, please turn off such loads first and restart them after the FranklinWH System has successfully started.*

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.*

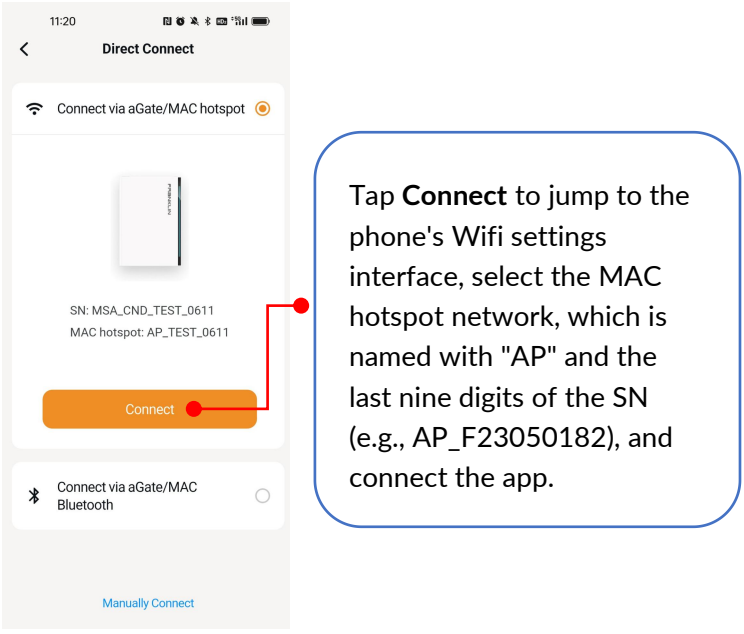
Validation

Go Off-Grid

Step 1. Turn on the grid breaker and the system will switch to on-grid operations within 5 minutes. After the system is connected to the grid, tap **Tools** > **Go Off-Grid** enable button.



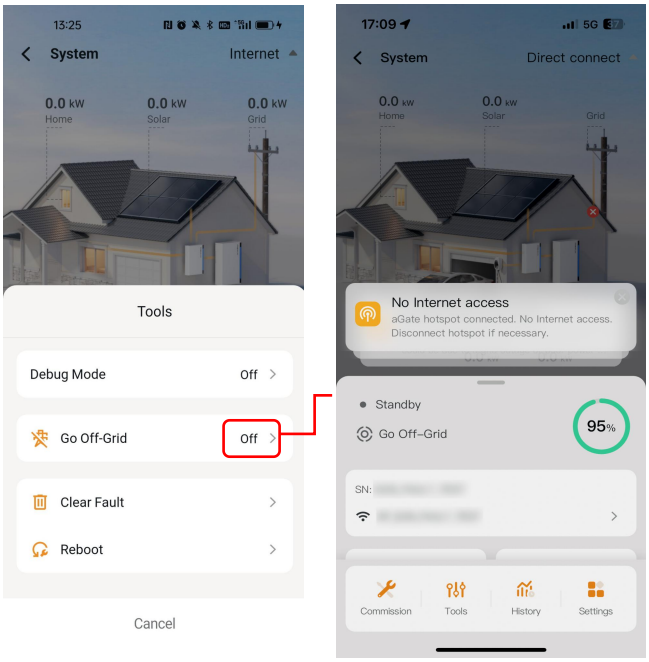
Step 2. Connect the app to the MAC 1 hotspot or Bluetooth.



Step 3. Tap **Tools** and enable **Go Off-Grid** to confirm and turn off the grid relay, switching the system to off-grid operations. Household loads will not experience any interruption during the transition.

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.



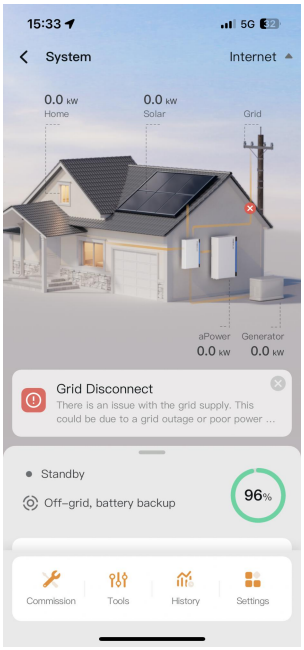
Verify the Display

Step 1. FranklinWH System Condition: Off-grid with load.

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

Step 3. Search for the MAC 1 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 consumption of the load 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

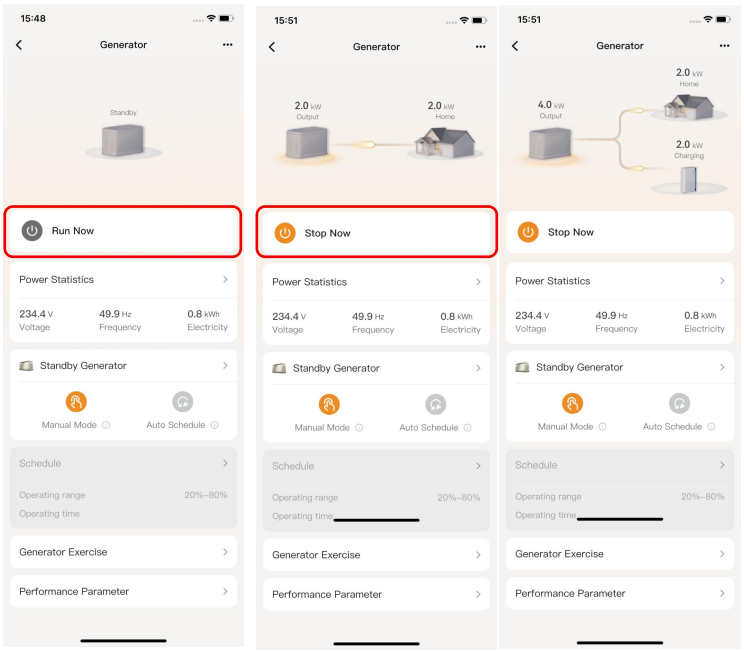
Generator Function Verification

Go Off-grid Generator Function

Step 1. Tap **Tools > Go Off-Grid** to enable off-grid.

Step 2. After the system starts off-grid, the app should show **off-grid, battery backup mode**.

Step 3. If the generator is configured, the installer can select **Manual Mode** type, and tap on Run Now/Stop Now icon to test whether the generator functions normally.



NOTE

After the system enable **Go Off-Grid** mode, verify the **Off-Grid** access function of the generator to ensure that the generator functions normally after the grid is truly powered off.

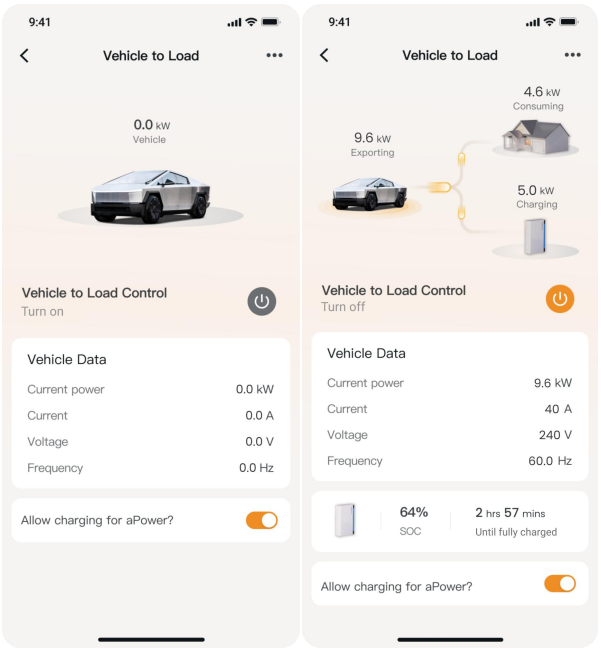
V2L Function Verification

Go Off-grid V2L Function

Step 1. Tap **Tools > Go Off-Grid** to enable off-grid.

Step 2. After the system starts off-grid, the app should show **off-grid, battery backup mode**.

Step 3. If the **Vehicle to Load** is configured, the installer can tap the power switch to run V2L, verify whether the V2L function is normal.



Solar Functions

Off-grid Solar Functions

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

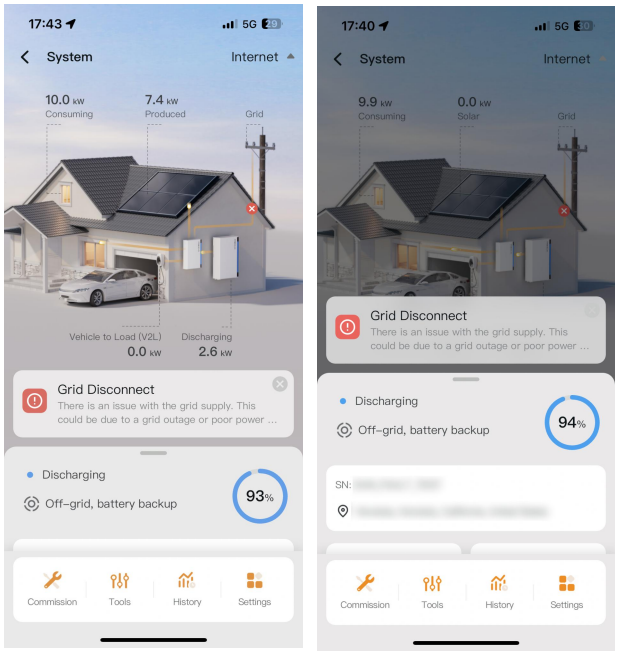
Step 2. Search for the MAC 1 serial number for which the solar functions are to be verified in the Search Device box, and then click into.

Step 3. Tap **Tools** > **Go Off-Grid** to enable off-grid.

Step 4. After the system starts off-grid, the app should show **off-grid**, **battery backup mode**.

When the system 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 chart in the app will show 0.0 kW, as shown below (image on the left) . After the solar 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 in the app shows the solar system power information, as shown below (image on the right).



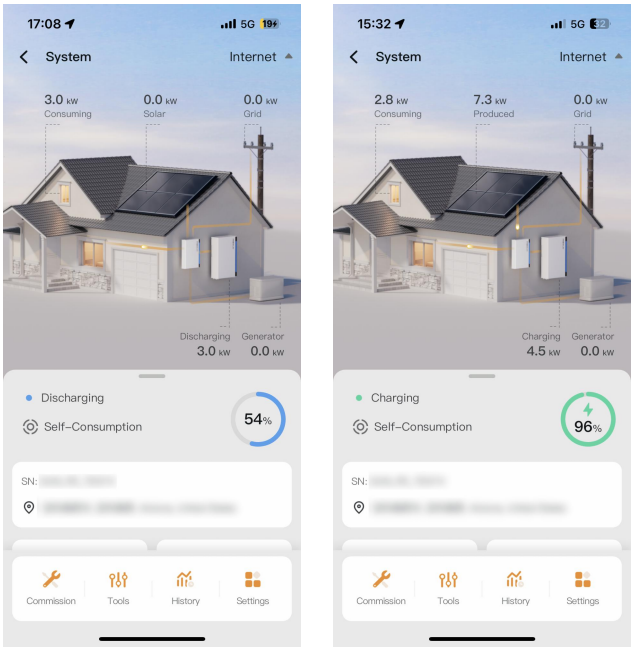
NOTE

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. With the system 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 chart in the app (Shown in the installer account) will show 0.0 kW, as shown below (image on the left). After the solar system 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 in the app shows the output power as shown below (image on the right).



NOTE

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

Final Inspection

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

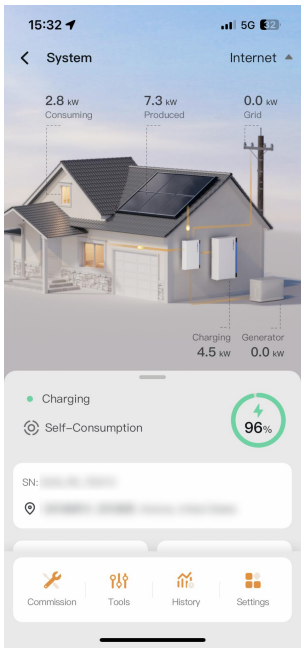
Step 2. Check whether the devices are working properly.

Consuming: When the home loads are connected, the values at the top of the screen indicate your home energy usage whenever any equipment is online.

aPower: The values at the top of the screen show aPower's charging and discharging. When your aPower is charging, a negative value is displayed. When your aPower is discharging to power your home or exporting energy to the grid, a positive value is displayed.

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

Grid: If the system is on-grid and the grid is working properly, the values at the top of the grid icon will show the energy totals for imports and exports, and the connection will show an energy-flow animation.



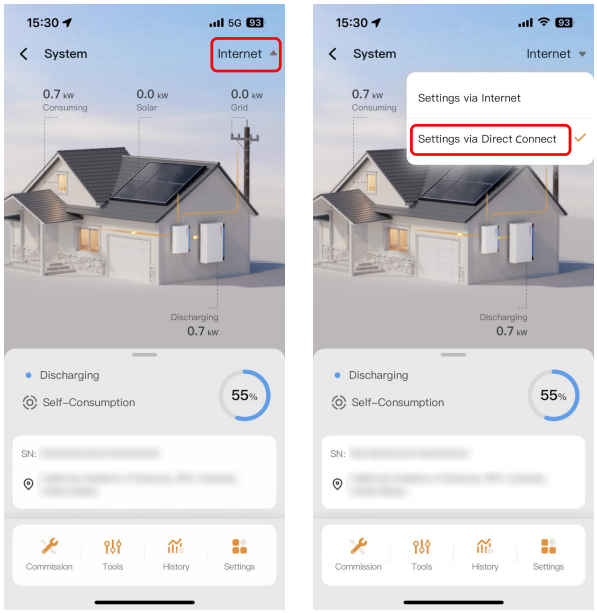
Step 3. The system commissioning is complete. For detailed user guide, please refer to ***FranklinWH User Manual*** and ***FranklinWH App User Manual***.

Appendix:

Internet/Direct Connect Switching

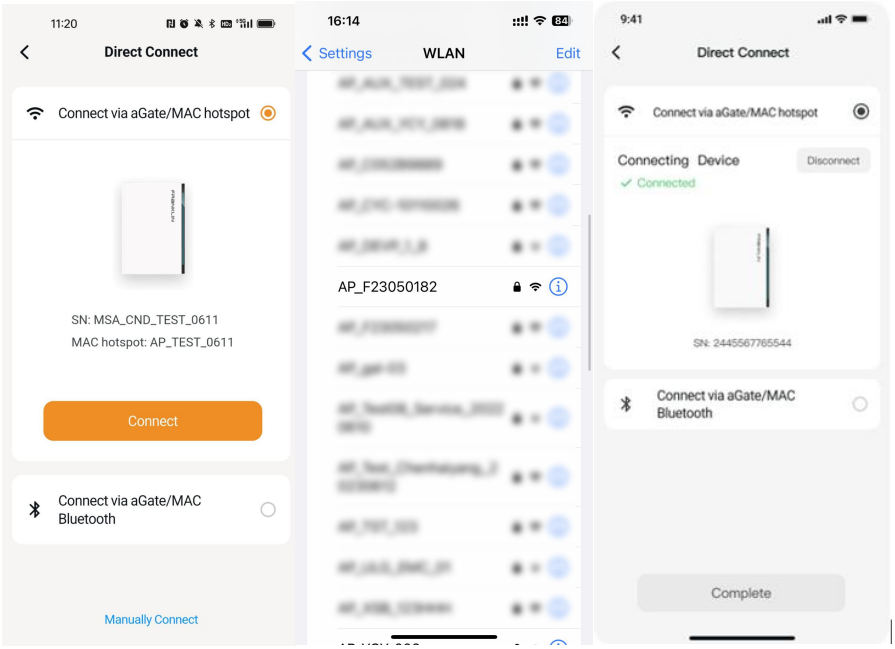
- Switching FranklinWH App connectivity from the Internet to the MAC 1 direct connect.

Step 1. Select **Settings via Direct Connect**.

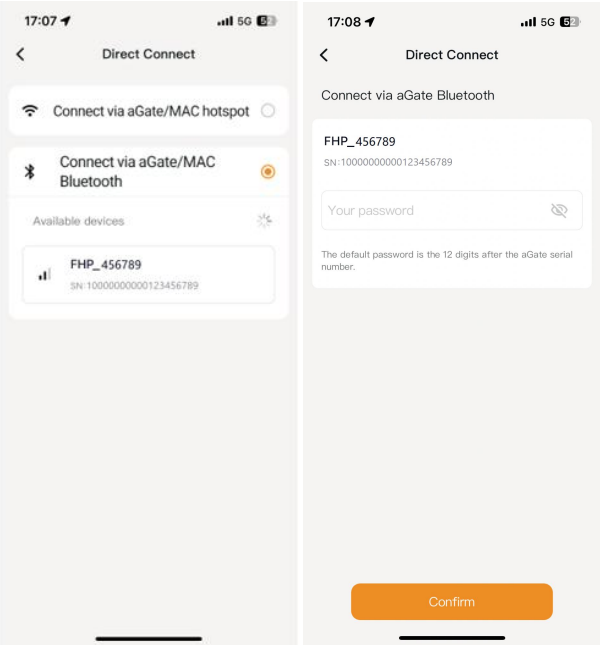


Step 2. There are two options for system direct connect: via MAC 1 hotspot or Bluetooth.

Default check the Connect via MAC 1 hotspot option. Tap **Connect** to go to the Wifi settings interface, select the MAC 1 hotspot, which is named with AP and the last nine digits of SN (e.g., AP_F23050182), and connect your app to the Wifi.

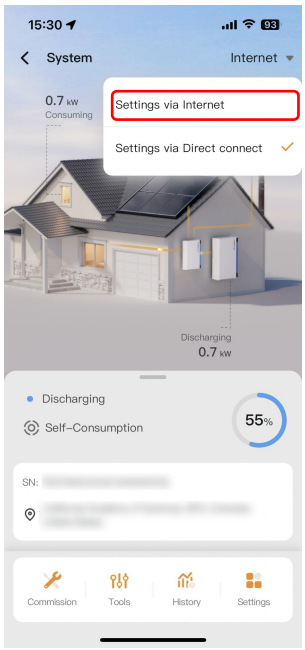


If the MAC 1 hotspot is not available and you search for an available Bluetooth near the MAC 1, it is possible to connect via MAC 1 Bluetooth. Select the MAC 1 Bluetooth named with FHP_SN, where the SN is the last six digits of the MAC 1 serial number (e.g. FHP_456789) and connect the app to the MAC 1 Bluetooth for pairing.

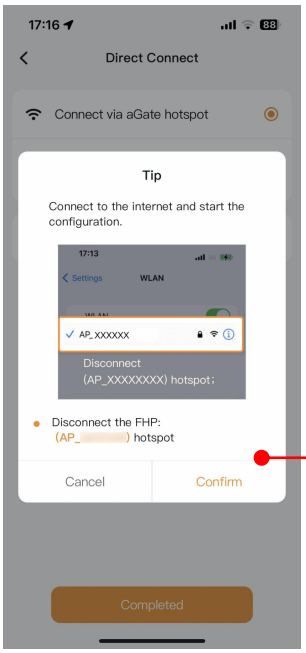


- Switching from the Direct connect to the Internet.

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



Step 2. Connect to the internet.



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