Solplanet App Manual

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1 About this Document

1.1 Overview

This document describes the common operations of the Solplanet app.

This manual is subject to update without notice. For more product details and latest documents, please visit www.solplanet.net.

1.2 Intended audience

This manual is intended for trained and knowledgeable technical professionals who are familiar with the product, local standards, and electrical systems.

2 Download and install

The corresponding, free Solplanet app can be downloaded from the relevant app store and installed on a mobile device (smartphone or tablet) with an Android operating system (version 9.0 or newer) or iOS operating system (version 11.0 or newer). Alternatively, scan the QR code below to download and install the app, following the on-screen instructions.





Android

Fig. 1. QR code for download the Solplanet App application

2.1 Revision history

The revision log provides a description of each document update. The latest version includes all updates from previous versions.

Version	Change Description	APP software version	Date
V01	/	4.5.0	2025.01

3 Account administration

3.1 Register a new account

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Before using the Solplanet app, you must create an account.

Step 1: Open Solplanet App to enter the login screen, and click <Register> to enter the next screen.

Step 2: The user groups < Business user> and <End user> need be selected according to your identity, and click <Next step>.

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The end user and the business user have the different permissions for setting parameters. The end user only can set the parameter during commissioning. The business user has more permissions, along with greater responsibilities.

Step 3: Select your desired registration method (mobile phone/email), enter the correct email or mobile, perform image verification.

Note

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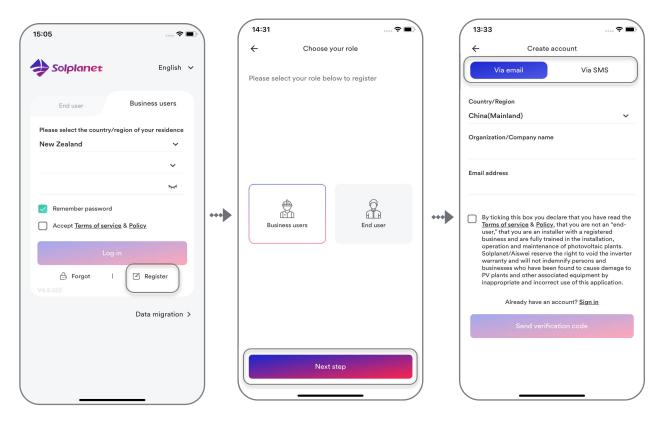
By ticking this box you declare that you have read the terms of service & pravicy policy, that you are not an "end-user," that you are an installer with a registered business and are fully trained in the installation, operation and maintenance of photovoltaic plants. Solplanet/Aiswei reserve the right to void the inverter warranty and will not indemnify persons and businesses who have been found to cause damage to PV plants and other associated equipment by inappropriate and incorrect use of this application.

Step 4: Correctly enter the verification code received via SMS/email on your mobile phone to be automatically taken to the next page.

Step 5: Set the login password you wish to enter for this login account and click<Register>. At this point, account registration is complete.

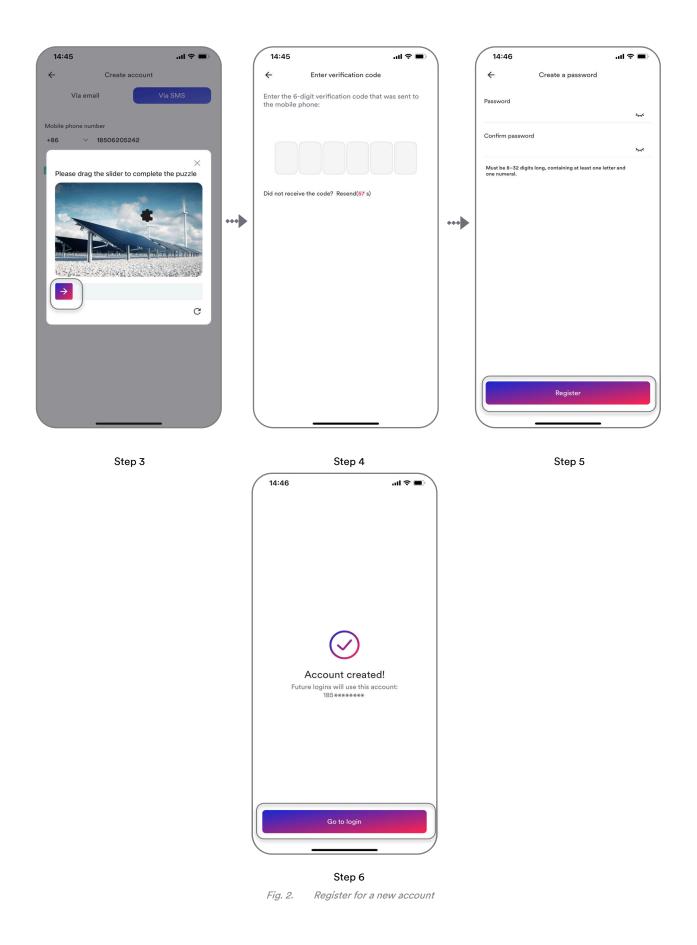
The password must be 8-32 digits long and contain at least one letter and one number

Step 6: After registration is completed, prompt for registration completion. You can click <Go to login>, then jump to the login page and enter the registered account password to successfully log in.



Step 1

Step 2



3.2 Forgot password

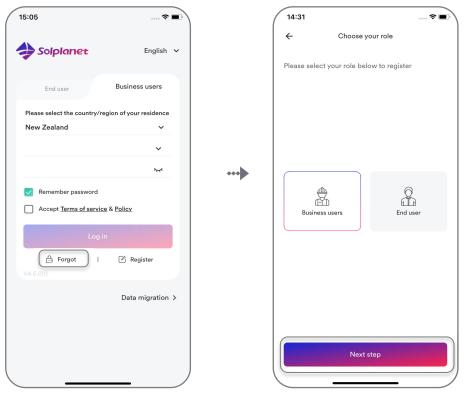
If you already have an account but have forgotten your password, you can reset it.

Step 1: Open Solplanet App to enter the login screen, and click <Forgot> to enter the next screen.

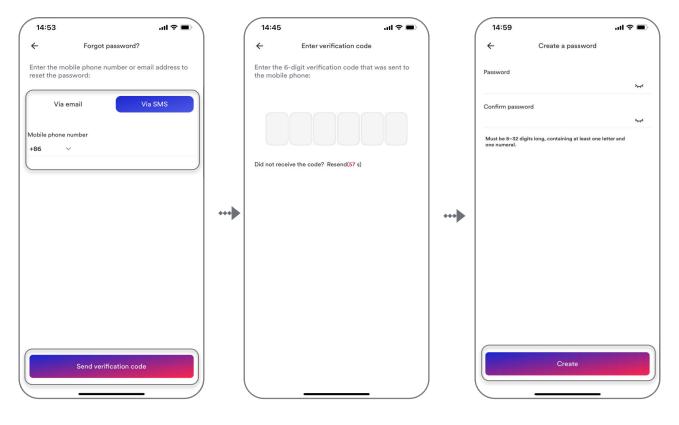
Step 2: The user groups < Business user> and < End user> need be selected according to your identity, and click<Next step>.

Step 3: The system allows you to retrieve your password from your cell phone or via email by switching the method.

- a) Enter registered mobile phone number or email.
- b) Your mobile phone or email will receive a 6-digit pure digital verification code, and please enter it.
- c) After the verification code is successful, please enter your desired new password (8-32 bits, supports mixed letters and numbers), attention verification code countdown reminder.
- d) After the reset is successful, you can log in to the app with the new password.









4 Create a new plant & commissioning

4.1 Create a new plant

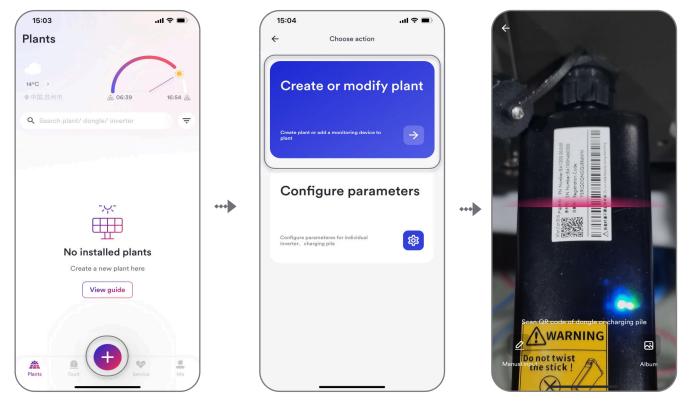
Before creating a new plant, you must log into the Solplanet app

- Step 1: Click the symbol <+> to enter the next screen, and click <Create or modify plant>, and scan the QR code of the Ai-dongle/Wi-Fi Stick or similar device to enter the next screen.
- Step 2: Please click <Create new plant > to go to the next screen.
- Step 3: Enter the plant information in all fields marked with a red asterisk <*>, and tap <Create> to enter the next screen.

Step 4: Plant created! Click <Start commissioning> to commission as described in Section 4.2, Step 3, or click <Finish > to complete.

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Clicking <Finish> will complete the plant, but no devices will be added to the plant. Commissioning can then be carried out according to Section 4.2 or 4.3.

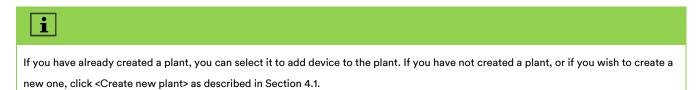


9:41		.ıl ≎ ■		15:46 •	እ ⁷⁶ 46 ₀ 11	³⁶ 11 30'	(15:46 9		♣ ^{9,1} 46 at 36 at 30 at 10 at
9:41 ← Q Search	Choose plant	I ? ■	••••		angsu lanchezhan Road, hanghai, China	© kwp	••••	÷	Create new pla	nt əd!
	Create new plant			Electricity price Not configured Note	Create	>			Start commissior Finish	ing

Step 3 Fig. 4. Create a new plant

Step 4

4.2 Add the inverter monitoring devices to the plant



- Step 1: Click the symbol <+> to enter the next screen, and click <Create or modify plant>, and scan the QR code of the Ai-dongle/Wi-Fi Stick to enter the next screen.
- Step 2: Please select an existing plant to go to the next screen.

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If you have already created a plant, you can select it to add device to the plant. If you have not created a plant, or if you wish to create a
new one, click <create new="" plant=""> as described in Section 4.1.</create>

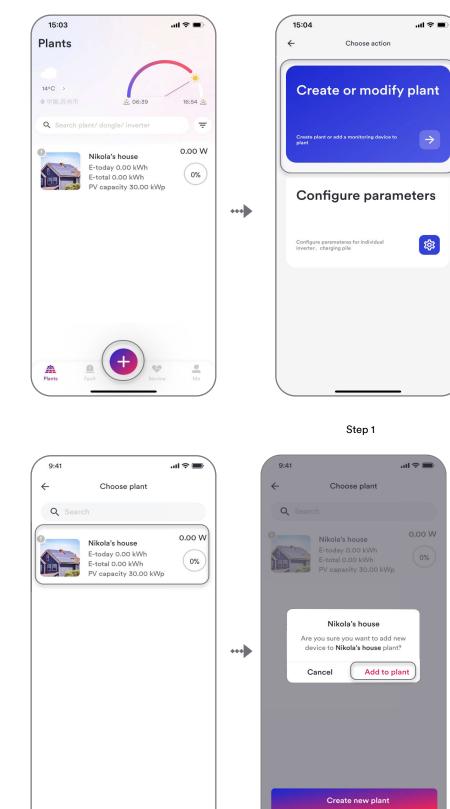
- Step 3: Click <Add to plant> to the next screen.
- Step 4: Click <Hotspot> to connect to the dongle and click <Next > to enter the next screen.



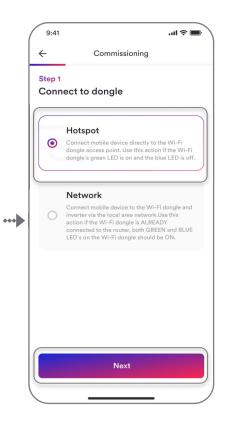
- Step 5: The smart device will connect to dongle hotspot automatically. The inverter list can be found after the connection successful. If the connection fails, you can open your phone's Wi-Fi settings page and manually connect to the dongle access point. Then return to the application to continue the process.
- Step 6: Keep the mobile phone close to the dongle. Pay attention to the information field in the window that appears, then click the <Join> button..

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Please confirm the name of the hotspot. The hotspot name of the dongle is AISWEI-XXXX, where XXXX represents the last four digits of the dongle's serial number.
Step 7: Confirm that the inverter serial number displayed in the app matches the serial number of the actually installed inverter.
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If your device is not found in the list, you can click <Device is incorrect? Scan again> to scan again.









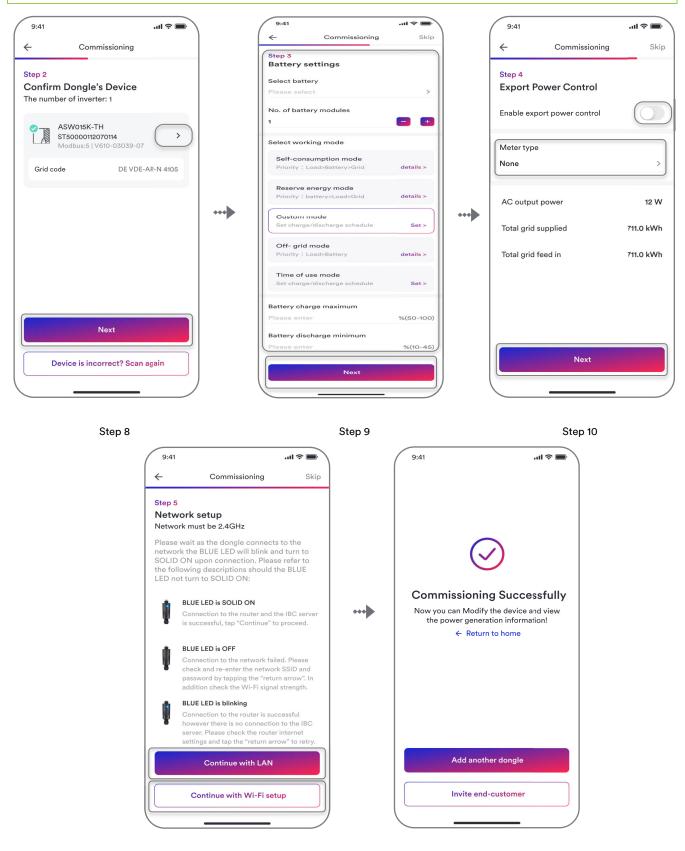
Step 3 Fig. 5. Create a new plant

9:41	· II 🗢 III.	9:4	:41 i ? 	D	9:41
~	Commissioning	<i></i>	Commissioning		← Commissioning
Step 1 Conne	ect to dongle	Step Cor	p1 nnect to dongle		Step 2 Confirm Dongle's Device The number of inverter: 1
	Connecting device to dongle hotspot	•••	"Solplanet" Want to Join WLAN Network "AISWEI-097C"? Cancel Join	•••	ASW015K-TH ST50000112070114 Modbus:5 V610-03039-07 Grid code DE VDE-AR-N 4105
	Step 5		Step 6		Device is incorrect? Scan again
		Fig	g. 6. Add dongle's device to p	olant	
i					
Before o	click <next> button, choose the</next>	inverter to set	t the grid code as described in	Section 5.2	3.
Step 8: (Click <next> to enter the next p</next>	age.			
Step 9:	Choose the battery model, bat	tery number a	nd the energy management mo	odel, then cl	ck <next step=""> to enter the next page.</next>
i					
Battery	settings are only applicable to	hybrid inverter	rs; PV inverters will automatica	lly skip this	step.
Step 10:	Set the parameters of the "Exp	ort Power Con	itrol", and click "Next "to go to	the next pag	ge.
i					
Before o	click <next> button, choose the</next>	inverter to set	t Set the parameters of the "Ex	port Power (Control" as described in Section 5.4.
Step 11:	If the dongle is connected to th	e router via an	Ethernet cable, check the blue	e indicator li	ght. When the light is on, click <continue< th=""></continue<>
with LAN	> to complete the configuration	n. If you want t	the dongle to connect to the ro	uter via WL	AN, click <next> to enter the next page.</next>
i					
Wi-Fi St	tick will automatically skip this	step.			
		the list and en			

configuration is successful.

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At this point, your dongle is connected to your network, which refers to either your home network or a specified network. If your network is connected to the Internet, the inverter will automatically connect to the Solplanet Cloud server.



Step 11 Successfully configured via Ethernet

9:41II 중 ■ ← Commissioning Skip	9:41I 중 ■ ← Commissioning Skip	9:41 .11 🗢 🖿
Step 5 Network setup Network must be 2.4GHz There is more than one network, you need to choose client's main network to connect. Wi-Fi home Other's home Mi's home	Step 5 Network setup Network must be 2.4GHz There is more than one network, you need to choose client's main network to connect. Wi-Fi home Paasword 12345678 Other's home Mi's home 	Commissioning Successfully Now you can Modify the device and view the power generation information! C Return to home
Next	Next	Add another dongle
No network found? Scan to add	No network found? Scan to add	Invite end-customer

Step 12 Successfully configured via hotspot

Fig. 7. Commissioning Successfully

Step 13: Once the configuration is complete, you can return to the home page by clicking <Retry to home>. If you want to add an owner account, click < Invite end-customer > and enter the mail address or phone number to add it.

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If you are a Business User, you can invite an End User and assign them as the owner of the plant.
If you are an End User, you can invite a Business User and assign them to manage the operation and maintenance of the plant.
Step 14: The end customer has been successfully added, and the page will display r the newly registered account information. You can

click <Confirm and copy> to save the information.

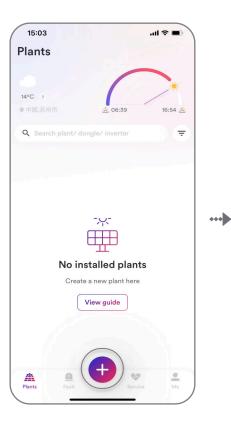
9:41	••••	9:41 9:41 Provide end-cutomer Phone number +86 Please enter Cancel Invite	•••	9:41 P:41
Add another dongle		Add another dongle		Add another dongle
	Step 13			Step 14

Fig. 8. Invite end-customer

4.3 Add the EV Charger to the plant



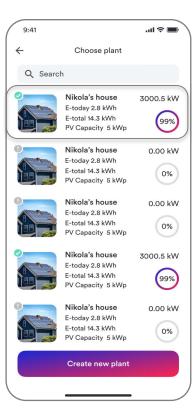
- Step 1: Click the symbol <+> to enter the next screen, and click <Create or modify plant>, and scan the SN QR code of the EV charger then it will automatically enter the next scree.
- Step 2: Please select an existing plant to go to the next screen.







Step 1



Step 2

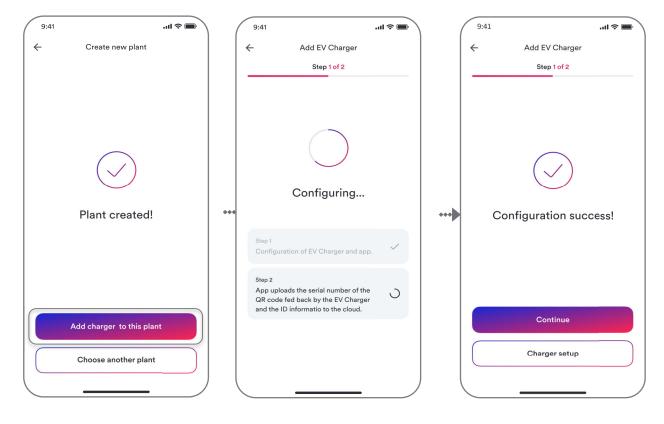
Step 3: Click <Add charger to this plant>.

Step 4: The EV Charger will automatically connect to the Solplanet app via Bluetooth. Please do not perform any actions during this time and wait for a few minutes until < Configuration successful ! > is displayed. Then click <Continue> and enter the next page.

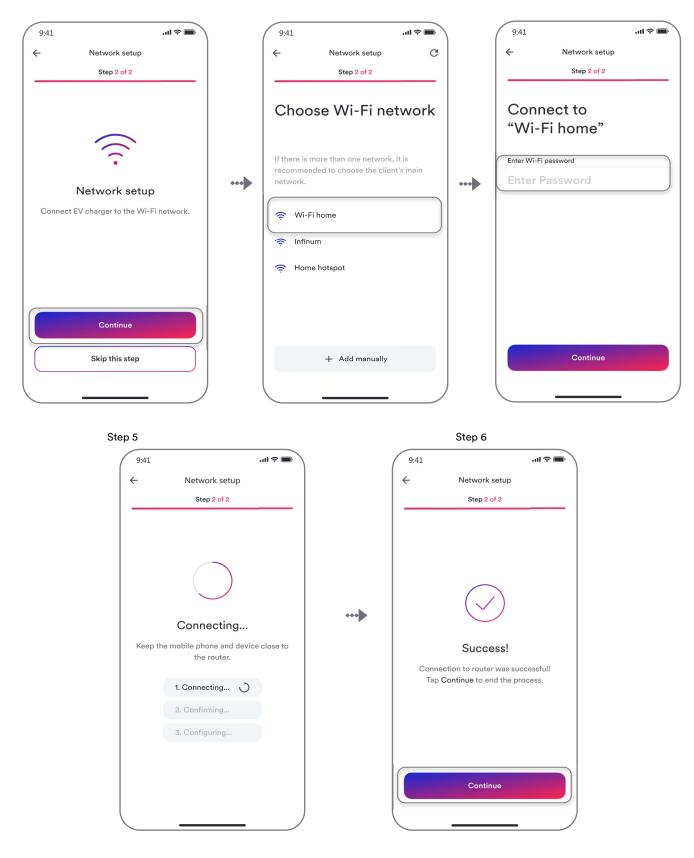
Step 5: Click <Continue> after < Network setup > is displayed.

Step 6: Select the Wi-Fi network from the list and enter the Wi-Fi network password. Then click <Continue>, the system will prompt that the configuration is successful.





Step 3



Step 7 Fig. 9. Add EV Charger to plant

5 Inverter parameter configuration

5.1 Choose the connection method

5.1.1 Connect by "Network configuration"

If you have configured the dongle to connect to your home network or a specific network as described in Section 4.2, you may choose this method.

The smart phone is connected to the home network router via WLAN, and the dongle is also connected to the same router, either via Ethernet or WLAN.



- Step 1: Click on the <+> icon.
- **Step 2:** Click the <Configure parameters> icon.
- Step 3: Scan dongle QR code or manually enter the serial number and the registration code.
- Step 4: Select the <Network> to enter the next page, then you can configure the devices in the plant.

Note

Business users and end users have different permissions here. Business users can modify the inverter grid code and protection parameter settings for the inverter. However, end users can only perform firmware upgrade operations here.

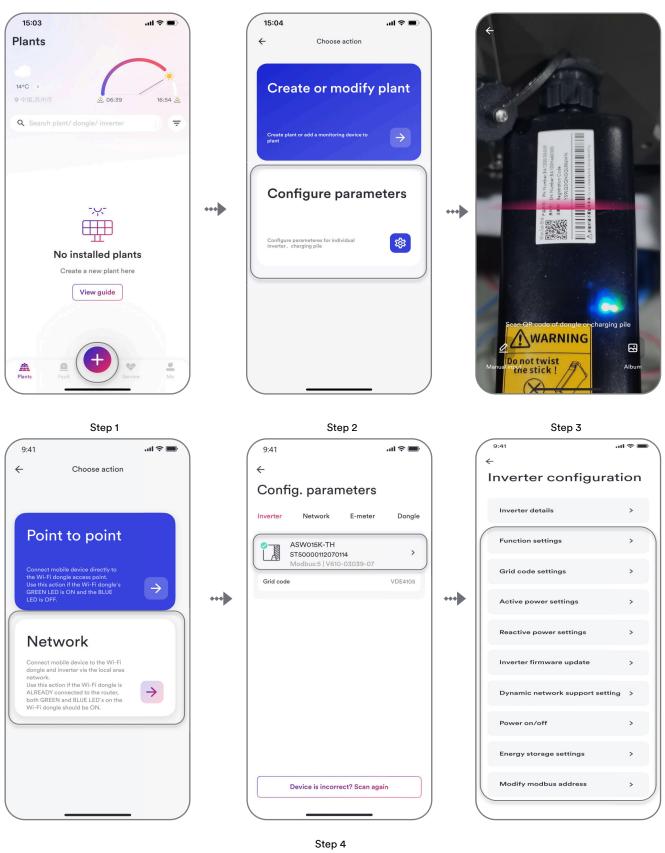


Fig. 10. Network configuration

5.1.2 Connect by "Point to Point"



If you have not configured the dongle to connect to your home network or a specific network, you may choose this method.

The smartphone connects directly to the dongle's built-in hotspot via WLAN.

Step 1: Click on the <+> icon.

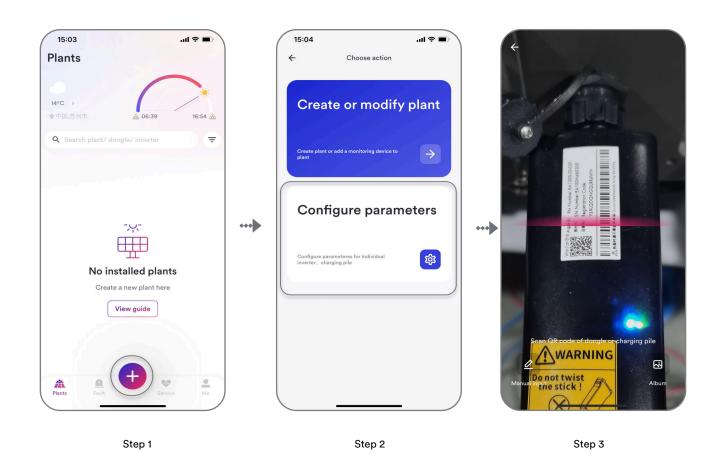
Step 2: Click the <Configure parameters> icon.

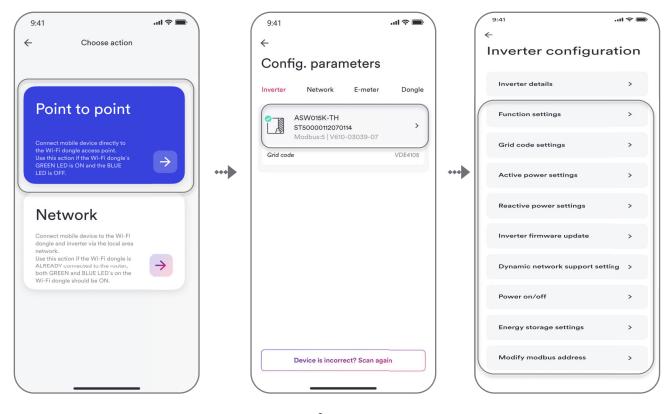
Step 3: Scan dongle QR code or manually enter the serial number and the registration code.

Step 4: Select the <Point to point> to enter the next page, then you can configure the devices in the plant.

Note

Business users and end users have different permissions here. Business users can modify the inverter grid code and protection parameter settings for the inverter. However, end users can only perform firmware upgrade operations here.





Step 4
Device hotspot configuration

Fig. 11.

5.2 Inverter list

This page displays a list of inverters connected to the dongle. If the installed inverter is not listed, click < Scan inverter> and wait for 5 minutes. You can select any inverter from the list to configure its detailed parameters.

9:41	(■	15:34	.ıl ≎ ■
÷		← Inverter configura	tion
Config. parameters		Inverter details	>
ASW015K-TH ST50000112070114	Dongle	Function settings	>
Grid code	VDE4105	Grid code settings	>
		Active power settings	>
		Reactive power settings	>
		Inverter update	>
		Dynamic network support setti	ing >
		Power on/off	>
Device is incorrect? Scan age	ain	Energy storage settings	>

Fig. 12. Inverter list

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Solplanet's products comply with local grid codes when leaving the factory. The grid code and the parameters according to the requirements of the installation site should still be checked and confirmed. Once configuration of the product is completed, the product will start operating automatically.

Function	Description
Inverter Details	Displays the general information of the inverter.
	Displays the present operation value of the inverter.
Function settings	Activate general inverter functions.
Grid code settings	Choose a grid code. Allows the configuration of protection parameters, start operation parameters and automatic reconnection parameters.
Active power settings	Configure the parameters of the P(U) curve, P(f) curve, active power limit and active power ramp rate.
Reactive power settings	Configure the parameters of the Q (U) curve, $\cos \phi$ (P) curve, fixed Q value or fix $\cos \phi$ value.
Inverter firmware update	Update the firmware of the inverter.
Dynamic network support setting	Allows the configuration of LVRT and HVRT parameters.
Power on/off	Remote turn ON/OFF of the inverter on the App.
Energy storage settings	Configure the parameters of the hybrid inverter.
Energy storage settings	Configure the parameters of the battery that is connected to the inverter.
Modify Modbus address	Configure the address of Modbus

Note

Inverter parameter configuration requires very professional knowledge of both the inverter and the power grid. Incorrect configuration may damage the inverter or cause abnormal grid behaviour, so please perform this task under the guidance of professionals.

5.2.1 Inverter details



The page displays the inverter serial number and inverter details, and the inverter configuration parameters can be exported as a report.

15:34	. ⇒ III.		15:36			''II \$ ■
← Inverter configuration			÷	FJ2222222	2222222	ð
			Data update: 2	024-12-03 15:36	:01	\square
Inverter details	`)		Inverter SN		FJ222	2222222222222
Function settings	>		E-today			0.0 kWh
Grid code settings	>		E-total			21.0 kWh
			H-total			3 h
Active power settings	>	••••	Active Power			6 W
Reactive power settings	>		Power factor			1.00
			Error code			0
Inverter update	>		DC			
Dynamic network support setting	>			Voltage (V)	Current (A)	Power (W)
			MPPT1	466.9	0.3	126.1
Power on/off	>		MPPT2	0.0	0.0	0.0
			MPPT3	0.0	0.0	0.0
Energy storage settings	>		MPPT4	0.0	0.0	0.0
Energy storage settings	,		AC (The following	ng values are absolu	ute values)	
-						

Click the export button to generate the report, sign your name to confirm, and the report will be created. You can then download the report to your smartphone.

15:36		aıl ≎ ∎.
÷	FJ2222222222222222	22 🙆
Inverter SN	Fv	J2222222222222222
E-today		0.0 kWh
E-total		21.0 kWh
H-total		3 h
Active Power		6 W
	Signature	Clear
Cance	el 🖉	Confirm

9:41		.ıl ≎ 🔳		
←	LDQ111111111111	[
`	Ebqiiiiiiiiii			
PARAM	ETER			
07.01.2025 16				
07.01.2020 10				
nverter Basic Inform	ation			
łodel				
ierial number		LDQmmmmm		
laster software version MI software version		V610-05003-01.000 V610-50119-00.011		
afety software version		V610-5019-00.07 V610-11027-02		
irid code		V610-11027-02 VDE4103		
		10000		
nverter Parameter In	formation			
ctive power control		Enable		
EG configuration for Germ	sany	Disable		
ower ramp rate control ctive power overvoltage r		Enable		
ctive power overvoltage r ictive power overfrequenc		Disable		
teactive power control	y response P(0	Enable		
VRT		Enable		
WRT		Enable		
Overvoltage protection (10	min average)	Enable		
slanding detection status		Enable		
E connection monitoring		Enable		
irid disconnection for 0%		Disable		
Active power undervoltage response P(U)		Disable		
ctive power underfrequer	icy response P(f)	Disable		
nverter status		Wał		
inergy meter status oport power control statu		01		
Aport power control auto				
itart voltage max limit		253.0		
itart voltage min limit		195.5		
itart frequency max limit		50.10 H		
itart frequency min limit		47.50 H		
Overvoltage threshold stag Overvoltage operate time s		300.0		
overvoltage threshold stag		287.5		
overvoltage operate time s		287.5		
Vervoltage threshold stag		287.5		
Overvoltage operate time :		120		
Indervoltage threshold sta		45.0		
Indervoltage operate time	stage 3	300 m		
Indervoltage threshold sta		103.5		
Indervoltage operate time		300		
indervoltage threshold sta		184.0		
Andervoltage operate time		3000		
Overvoltage 10 min mean p		253.0		
Overvoltage 10 min mean p		100		
uto reconnect upper volta		253.0		
uto reconnect lower volta		196.5 55.00		
Overfrequency threshold s Overfrequency operate tim				
overfrequency operate tim overfrequency threshold si				
werfrequency operate tim		54.00 H		
verfrequency threshold s		51.50 H		
Overfrequency operate tim		120 m		
nderfrequency threshold		45.00 H		
		120		
nderfrequency operate ti				

Fig. 13. Inverter details & Export the report

5.2.2 Function settings

5.2.2.1 General function settings

Some general functions related to the grid code can be activated.

- Step 1: Select < Function settings > to go to the next screen.
- Step 2: Select < General function settings >

Step 3: Each function has a switch. Once turned on, the function will be activated.

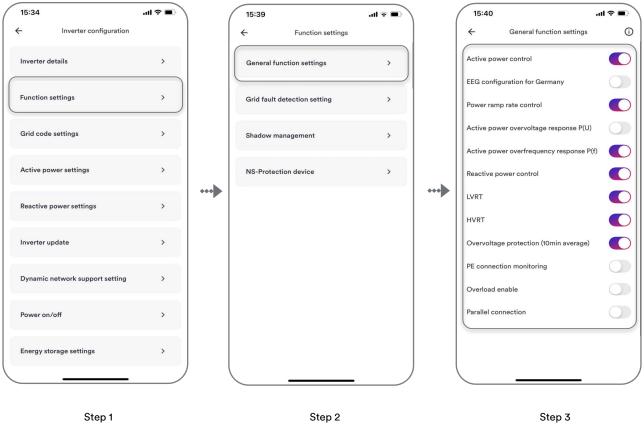


Fig. 14. General function settings

5.2.2.2 Grid fault detection setting

For hybrid inverters, the transfer time for the inverter to switch from on-grid mode to off-grid mode can be chosen.

Step 1: Select < Function settings > to go to the next screen.

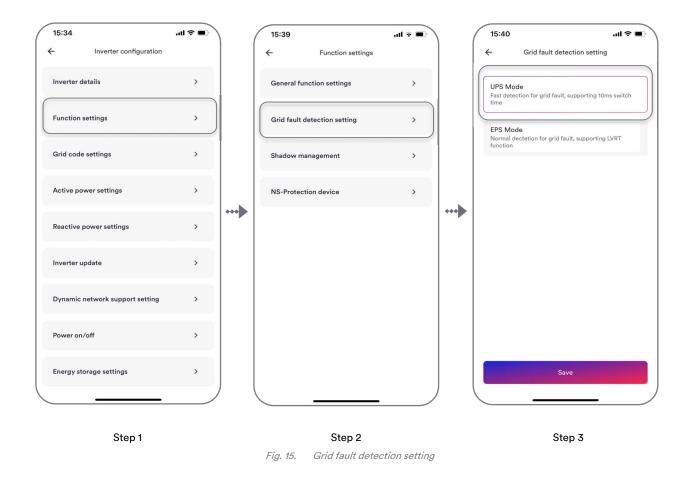
Step 2: Select < Grid fault detection setting >

Step 3: Choose the < UPS mode > or < EPS mode >.

Note

UPS Mode: EPS load is high priority. When a grid voltage fault occurs, immediately switch from on-grid mode to off-grid mode, with a transfer time of less than 10ms.

EPS Mode: Grid support is high priority. When a grid voltage fault occurs, the inverter will support the grid (e.g. LVRT function) first, then switch to off-grid mode.



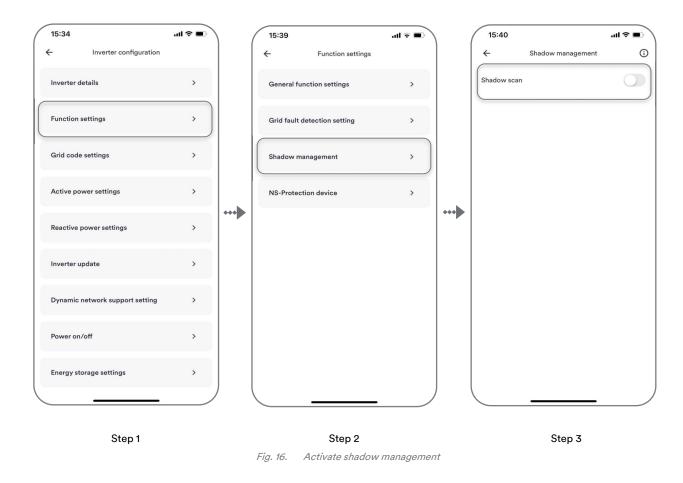
5.2.2.3 Shadow management

Activate the shadow management to optimize MPP tracking. Once activated, each MPP channel is scanned at 10-minute intervals. The system captures and tracks the maximum power point voltage when the output power is not limited, and the input power of this MPP channel is not overdriven.

Step 1: Select < Function settings > to go to the next screen.

Step 2: Select < Shadow management >.

Step 3: Turn on to activate the shadow scan function.



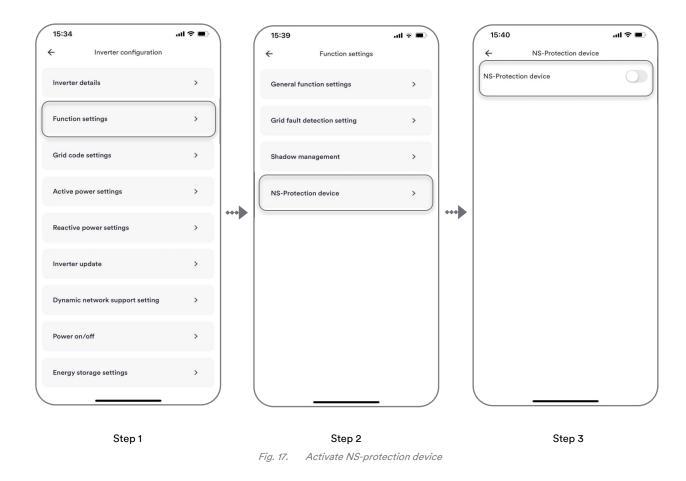
5.2.2.4 NS-Protection device

Depending on the total of the maximum apparent power of all power generation systems and storage systems at a network connection point ΣSA max. the central network and system protection (NS protection) at the central meter panel may be required. If the inverter supports connection to the NS-protection device and the device is already connected, this function needs to be activated.

Step 1: Select < Function settings > to go to the next screen.

Step 2: Select < NS-Protection device >

Step 3: Turn on to activate the function to start detecting the NS-Protection device signal.



5.2.3 Grid code settings

5.2.3.1 Grid code settings

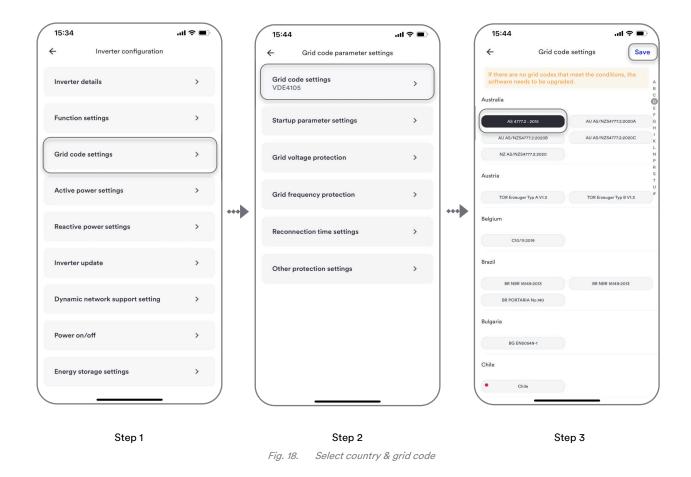
If the current grid code is not set reasonably according to the requirements of the local distribution system operator, the right grid code should be chosen.

Step 1: Select < Grid code settings > to go to the next screen.

Step 2: Click < Grid code settings >

Step 3: Select the operator country and grid type in the field according to the grid operator requirements and confirm with <Save>.





5.2.3.2 Startup parameter settings

The voltage range and the frequency range can be adjustable if the local distribution system operator required.

- **Step 1:** Select < Grid code settings > to go to the next screen.
- Step 2: Click < Startup parameter settings >
- Step 3: Set the parameters for startup and confirm with <Save>.

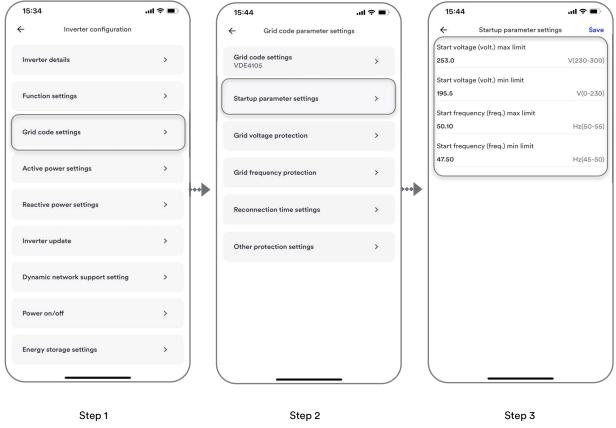


Fig. 19. Set start voltage and start frequency value

5.2.3.3 Grid voltage protection settings

There are three threshold levels for overvoltage and undervoltage protection. The threshold Stage 1 represents the minimum range, and the threshold Stage 3 represents the maximum range.

All thresholds need to follow the following principles:

- Overvoltage threshold stage 1 ≤ Overvoltage threshold stage 2 ≤ Overvoltage threshold stage 3
- Undervoltage threshold stage 1 ≥ Undervoltage threshold stage 2 ≥ Undervoltage threshold stage 3
- Operate time stage 1 ≤ Operate time stage 2 ≤ Operate time stage 3

Step 1: Select < Grid code settings > to go to the next screen.

Step 2: Click < Grid voltage protection > , the next page will display the parameters.

Step 3: Set the voltage protection parameters and confirm with <Save>.

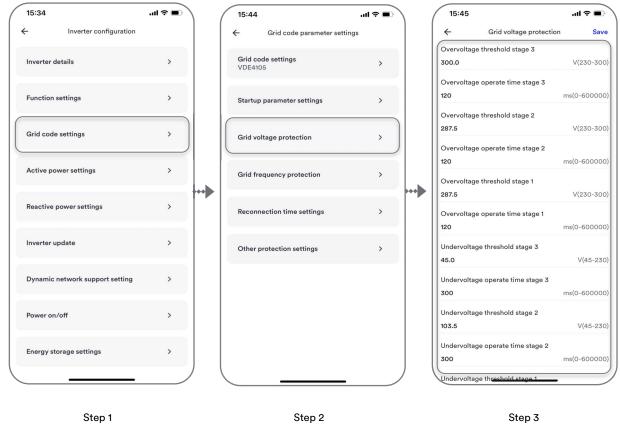


Fig. 20. Grid voltage protection settings

5.2.3.4 Grid frequency protection settings

There are three threshold levels for overfrequency and underfrequency protection. The threshold Stage 1 represents the minimum range, and the threshold Stage 3 represents the maximum range.

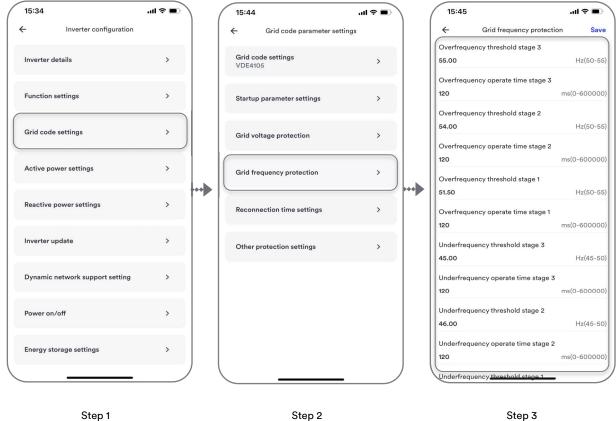
All thresholds need to follow the following principles:

- Overfrequency threshold stage 1 ≤ Overfrequency threshold stage 2 ≤ Overfrequency threshold stage 3
- Underfrequency threshold stage 1 ≥ Underfrequency threshold stage 2 ≥ Underfrequency threshold stage 3
- Operate time stage 1 ≤ Operate time stage 2 ≤ Operate time stage 3

Step 1: Select < Grid code settings > to go to the next screen.

Step 2: Click < Grid frequency protection > , the next page will display the parameters.

Step 3: Set the frequency parameters and confirm with <Save>.



Grid frequency protection settings Fig. 21.

5.2.3.5 The observation time settings for starting and reconnection

Connection and starting to generate electrical power is only allowed after voltage and frequency are within the allowed voltage and frequency ranges for at least the specified observation time. The observation time for starting and reconnection can be set seperately.

Step 1: Select < Grid code settings > to go to the next screen.

Step 2: Click < Reconnection time settings > , the next page will display the parameters.

Step 3: Set the observation time and confirm with <Save>.

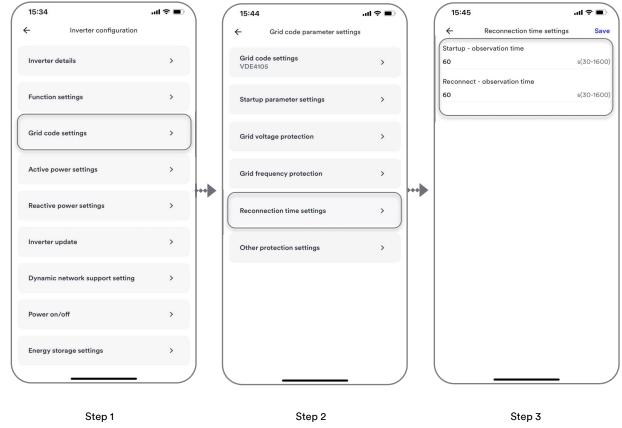


Fig. 22. Reconnection time settings

5.2.3.6 Other protection settings

The parameters for some other safety-related functions can be configured.

Step 1: Select < Grid code settings > to go to the next screen.

Step 2: Click < Other protection settings > , the next page will display the parameters.

Step 3: Set the parameters and confirm with <Save>.

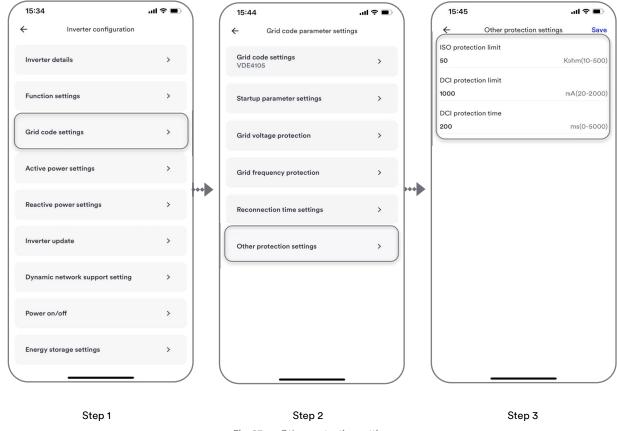


Fig. 23. Other protection settings

5.2.4 Active power settings

5.2.4.1 Ramp rate settings

After connection or reconnection, the active power generated by the inverter shall not exceed the prescribed gradient, expressed as a percentage of the inverter's nominal active power per minute. The active power gradient for "Startup" and "Reconnection" can be configured.

Step 1: Select < Active power settings > to go to the next screen.

Step 2: Click < Ramp rate settings > , the next page will display the parameters.

Step 3: Set the gradient as the percentage of the inverter's nominal active power per minute and confirm with <Save>.

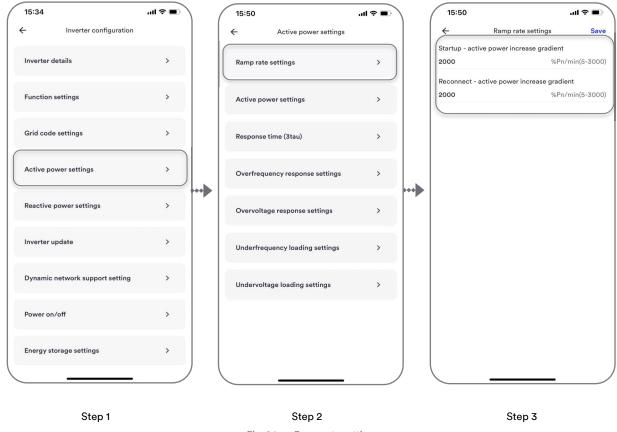


Fig. 24. Ramp rate settings

5.2.4.2 Active power limit settings

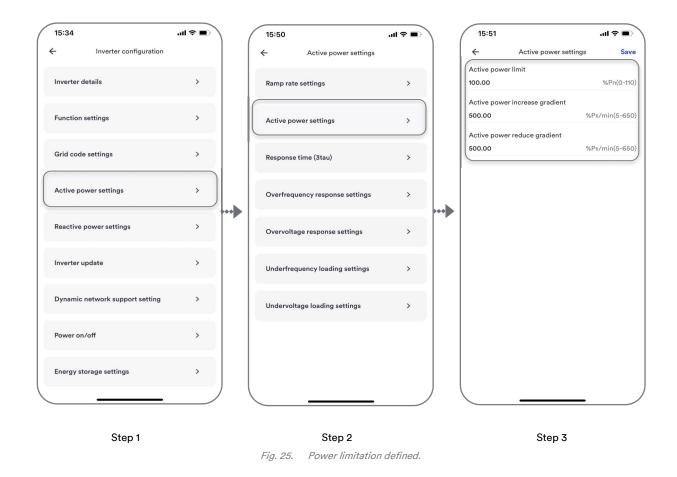
The output active power of the device can be set permanently to a lower value than the maximum output active power. This may be necessary in order to limit the maximum active power rating of the system at the grid connection point, upon the grid operator's request. The active power changing shall not exceed the prescribed gradient, expressed as a percentage of the inverter's nominal active power per minute.

Step 1: Select < Active power settings > to go to the next screen.

Step 2: Click < Active power settings > , the next page will display the parameters.

Step 3: Set <Active power limit> as the percentage of the inverter's nominal active power.

Step 4: Set the gradient as the percentage of the inverter's nominal active power per minute. and confirm with <Save>.



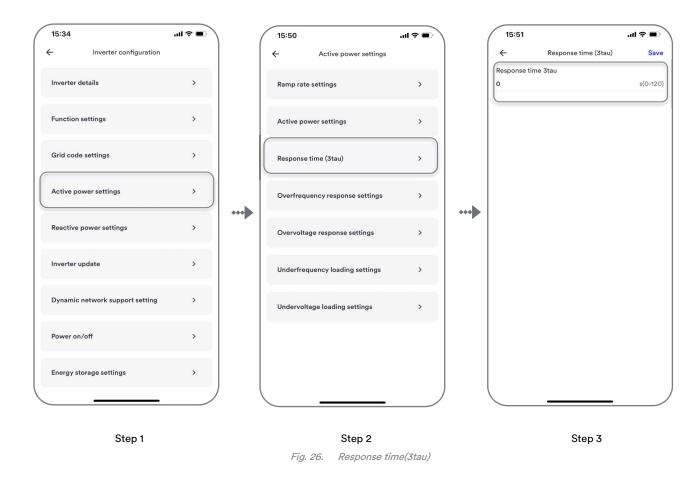
5.2.4.3 Response time 3tau

The dynamics of the P(U) control shall correspond with a first-order filter with a configurable time constant between 3 s and 60 s for some country code, e.g. Austria. That means 95% of a new setpoint must be achieved within three times the time constant. The response time is defined as three times the time constant.

Step 1: Select < Active power settings > to go to the next screen.

Step 2: Click < Response time 3tau > , the next page will display the parameters.

Step 3: Set the response time and confirm with <Save>.



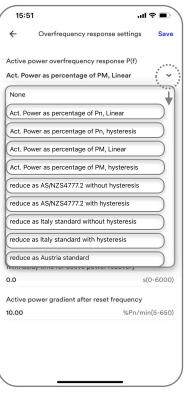
5.2.4.4 Active power overfrequency response P(f)

'Limited frequency sensitive mode - overfrequency' or 'LFSM-O' or 'Active power frequency response to overfrequency' means a powergenerating module which will result in active power output reduction in response to a change in system frequency above a certain value. There are nine modes which can be chosen for this function and certain parameters can be configured according to the requirement of the local grid company.

- **Step 1:** Select < Active power settings > to go to the next screen.
- Step 2: Click < Overfrequency response settings > to go to the next screen.
- Step 3: Click the drop-down menu to choose the mode of this function.
- Step 4: Configure the parameters and confirm with <Save>.

15:34	·⊪ ≎ ∎`	(15:50	чII &
- Inverter configuration			← Active power settings	
Inverter details	>		Ramp rate settings	;
Function settings	>		Active power settings	:
Grid code settings	>		Response time (3tau)	;
Active power settings	,	•••	Overfrequency response settings	;
Reactive power settings	>		Overvoltage response settings	;
Inverter update	>		Underfrequency loading settings	3
Dynamic network support setting	>		Undervoltage loading settings	;
Power on/off	>			
Energy storage settings	>			
		(

Step 1



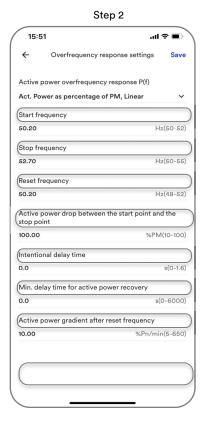
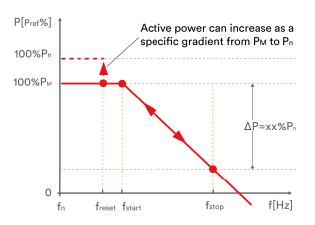




Fig. 27. Overfrequency response settings

Mode 1: Act. Power as a percentage of Pn, Linear



Pn: Nominal output active power

P_M: the actual active power at the instant when the frequency reaches the threshold fstart.

fn: Nominal frequency

freset: Reset frequency

f_{start}: Start frequency

fstop: Stop frequency

 ΔP : Active power drop between the start frequency point and the stop frequency point

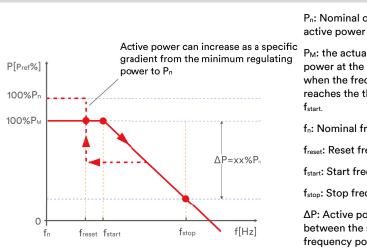
Active power drop "DP" between the start frequency point and the stop frequency point is defined the percentage of the inverter's nominal active power (Pn).

An intentional delay time can be configured. The intentional delay time shall not be higher than 1.6s, because the total time for the intrinsic dead time and the intentional delay time shall less than 2s.

The minimum delay time for active power recovery also can be configured. The active power is kept constant until the frequency falls below freset for a configurable delay time. Then the active power increase from P_M to P_n as a percent of P_n per minutes.

	14 🔉 📰	? €D
÷	Overfrequency response setting	s Save
Active po	ower overfrequency response P(f)	
Act. Pow	ver as percentage of Pn, Linear	~
Start free	quency	
50.20		Hz(50-52)
Stop free	quency	
52.70		Hz(50-55)
Reset fre	quency	
50.20		Hz(48-52)
		and the
Active po stop poir 100.00	nt	
Active poir stop poir 100.00 Intention	nt	and the %Pn(10-100)
Active point stop point 100.00 Intention 0.0	al delay time	and the
Active point stop point 100.00 Intention 0.0 Min. dela	nt	and the %Pn(10-100) s(0-1.6)
Active point stop point 100.00 Intention 0.0	al delay time	and the %Pn(10-100)
Active poir stop poir 100.00 Intention 0.0 Min. dela 0.0	al delay time ay time for active power recovery ower gradient after reset frequency	and the %Pn(10-100) s(0-1.6) s(0-6000)





Pn: Nominal output

Mode 2: Act. Power as a percentage of Pn, hysteresis

P_M: the actual active power at the instant when the frequency reaches the threshold

fn: Nominal frequency

freset: Reset frequency

fstart: Start frequency

fstop: Stop frequency

 ΔP : Active power drop between the start frequency point and the stop frequency point

Active power drop "DP" between the start frequency point and the stop frequency point is defined the percentage of the inverter's nominal active power (Pn).

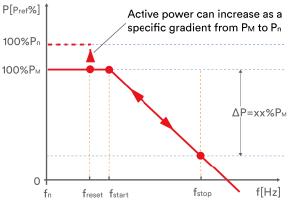
An intentional delay time can be configured. The intentional delay time shall not be higher than 1.6s, because the total time for the intrinsic dead time and the intentional delay time shall less than 2s.

The minimum delay time for active power recovery also can be configured. The active power is kept constant until the frequency falls below freset for a configurable delay time. Then the active power increase from the minimum regulating power to Pn as a percent of P_n per minutes.

	14 🔉 🛛 📲	::!! 🗢 🗊	
÷	Overfrequency response settings	Save	
Active p	ower overfrequency response P(f)		
Act. Pov	ver as percentage of Pn, hysteresis	~	
Start fre	quency		
50.20		Hz(50-52)	
Stop free	quency		
52.70		Hz(50-55)	
Reset fre	auency		
50.20	/	Hz(48-52)	
Active p stop poi	ower drop between the start point ar nt	nd the	
	%	Pn(10-100	
100.00			
	nal delay time		
Intentior	nal delay time	s(0-1.6)	
Intentior 0.0		s(0-1.6)	
Intentior 0.0 Min. dela	nal delay time ay time for active power recovery	s(0-1.6) s(0-6000)	
0.0 Min. del: 0.0			

Fig. 29. Act. Power as percentage of Pn, hysteresis

Mode 3: Act. Power as percentage of P_M, Linear



power P_M: the actual active power at the instant when the frequency reaches the

Pn: Nominal output active

threshold f_{start}.

fn: Nominal frequency

freset: Reset frequency

fstart: Start frequency

fstop: Stop frequency

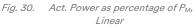
 ΔP : Active power drop between the start frequency point and the stop frequency point

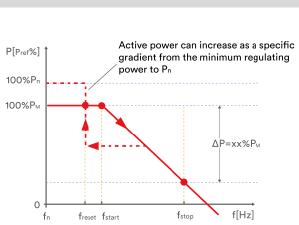
Active power drop " ΔP " between the start frequency point and the stop frequency point is defined the percentage of P_M.

An intentional delay time can be configured. The intentional delay time shall not be higher than 1.6s, because the total time for the intrinsic dead time and the intentional delay time shall less than 2s.

The minimum delay time for active power recovery also can be configured. The active power is kept constant until the frequency falls below freset for a configurable delay time. Then the active power increase from P_M to P_n as a percent of P_n per minutes.

÷	Overfrequency response settings	s Save
Active p	oower overfrequency response P(f)	
Act. Pov	wer as percentage of PM, Linear	~
Start fre	quency	
50.20		Hz(50-52)
Stop fre	quency	
52.70		Hz(50-55)
Reset fr	equency	
50.20		Hz(48-52)
Active p stop poi	oower drop between the start point a int	ind the
100.00	%	PM(10-100)
Intentio	nal delay time	
0.0		s(0-1.6)
Min. del	ay time for active power recovery	
0.0		s(0-6000)
	oower gradient after reset frequency	
Active p		





Mode 4: Act. Power as percentage of P_M, hysteresis

power

point

Pn: Nominal output active

P_M: the actual active power at the instant when the frequency reaches the threshold fstart. fn: Nominal frequency freset: Reset frequency fstart: Start frequency fstop: Stop frequency ΔP : Active power drop between the start frequency point and the stop frequency

Active power drop "DP" between the start frequency point and the stop frequency point is defined the percentage of P_M.

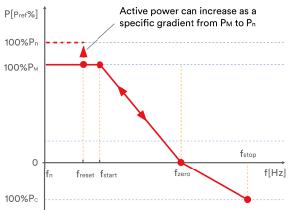
An intentional delay time can be configured. The intentional delay time shall not be higher than 1.6s, because the total time for the intrinsic dead time and the intentional delay time shall less than 2s.

The minimum delay time for active power recovery also can be configured. The active power is kept constant until the frequency falls below freset for a configurable delay time. Then the active power increase from the minimum regulating power to Pn as a percent of Pn per minutes.

15:4	14 🔉 📰	? 50
÷	Overfrequency response settings	s Save
Active p	ower overfrequency response P(f)	
Act. Pow	ver as percentage of PM, hysteresis	· ~
Start free	quency	
50.20		Hz(50-52)
Stop free	quency	
52.70		Hz(50-55)
Reset fre	quency	
50.20		Hz(48-52)
Active p stop poir	ower drop between the start point a nt	and the
100.00	%	SPM(10-100)
ntentior	al delay time	
0.0		s(0-1.6)
Vin. dela	ay time for active power recovery	
0.0		s(0-6000)
Active p	ower gradient after reset frequency	
10.00	%Pn.	/min(5-650)

Fig. 31. Act. Power as percentage of P_M, hysteresis

Mode 5: reduce as AS/NZS4777.2 without hysteresis



power P_M: the actual active power at the instant when the frequency reaches the threshold fstart.

Pn: Nominal output active

Pc: Nominal charge power

fn: Nominal frequency

freset: Reset frequency

fstart: Start frequency

fzero: The frequency when the active power is zero

fstop: Stop frequency

This model applies to hybrid inverter according to AS/NZS 4777.2 and the other standards with similar requirements. Frequency points fstart, fzero, and fstop correspond to 100% PM, 0% Pn, and 100% Pc, respectively.

An intentional delay time can be configured. The intentional delay time shall not be higher than 1.6s, because the total time for the intrinsic dead time and the intentional delay time shall less than 2s.

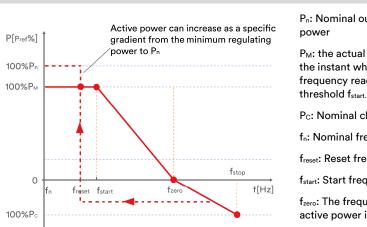
The minimum delay time for active power recovery also can be configured. The active power

is kept constant until the frequency falls below fresst for a configurable delay time. Then the

active power increase from P_M to P_n as a percent of P_n per minutes.

15:44	1 🄉 🛛 🔡	- 6
÷	Overfrequency response setting	s Save
	wer overfrequency response P(f)	
reduce as	AS/NZS4777.2 without hysteres	is 🗸
Start frequ 50.20	Jency	Hz(50-52)
Stop frequ 52.70	iency	Hz(50-55)
Reset freq 50.20	uency	Hz(48-52)
Intentiona 0.0	I delay time	s(0-1.6)
Min. delay 0.0	time for active power recovery	s(0-6000)
Active por 10.00	wer gradient after reset frequency %Pr	/ n/min(5-650)
The freque	ency when the active power is zer	o Hz(50-55)

Fig. 32. reduce as AS/NZS4777.2 without hysteresis



Pn: Nominal output active power

Mode 6: reduce as AS/NZS4777.2 with hysteresis

P_M: the actual active power at the instant when the frequency reaches the

Pc: Nominal charge power

fn: Nominal frequency

freset: Reset frequency

fstart: Start frequency

fzero: The frequency when the active power is zero

fstop: Stop frequency

This model applies to hybrid inverter according to AS/NZS 4777.2 and the other standards with similar requirements. Frequency points f_{start} , f_{zero} , and f_{stop} correspond to 100% P_M, 0% P_N, and 100% Pc, respectively.

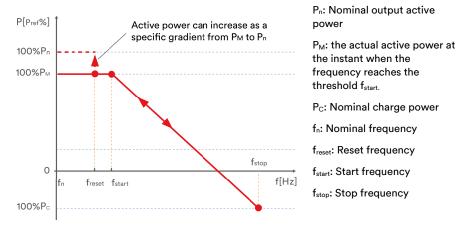
An intentional delay time can be configured. The intentional delay time shall not be higher than 1.6s, because the total time for the intrinsic dead time and the intentional delay time shall less than 2s.

The minimum delay time for active power recovery also can be configured. The active power is kept constant until the frequency falls below freset for a configurable delay time. Then the active power increase from the minimum regulating power to Pn as a percent of Pn per minutes.

÷	Overfrequency response settin	gs Save
Active po	ower overfrequency response P(f)	
reduce a	s AS/NZS4777.2 with hysteresis	~
Start free	quency	
50.20		Hz(50-52
Stop free	quency	
52.70		Hz(50-55
Reset fre	quency	
50.20		Hz(48-52
Intention	al delay time	
0.0		s(0-1.6
Min. dela	ay time for active power recovery	
0.0		s(0-6000
Active po	ower gradient after reset frequenc	:y
10.00	%P	n/min(5-650
The frequ	uency when the active power is ze	ero
52.70		Hz(50-55

Fig. 33. reduce as AS/NZS4777.2 with hvsteresis

Mode 7: reduce as Italy standard without hysteresis



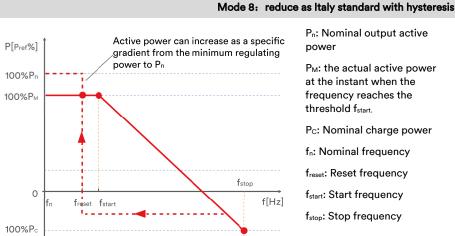
This model applies to hybrid inverter according to CEI 0-21 and CEI 0-16 and the other standards with similar requirements. Frequency points f_{start} and f_{stop} correspond to 100% P_M and 100% P_C, respectively.

An intentional delay time can be configured. The intentional delay time shall not be higher than 1.6s, because the total time for the intrinsic dead time and the intentional delay time shall less than 2s.

The minimum delay time for active power recovery also can be configured. The active power

is kept constant until the frequency falls below $f_{\mbox{\tiny reset}}$ for a configurable delay time. Then the

active power increase from P_M to P_n as a percent of P_n per minutes.



¢

This model applies to hybrid inverter according to CEI 0-21 and CEI 0-16 and the other standards with similar requirements. Frequency points f_{start} and f_{stop} correspond to 100% P_{M} and 100% P_{C} , respectively.

An intentional delay time can be configured. The intentional delay time shall not be higher than 1.6s, because the total time for the intrinsic dead time and the intentional delay time shall less than 2s.

The minimum delay time for active power recovery also can be configured. The active power is kept constant until the frequency falls below f_{reset} for a configurable delay time. Then the active power increase from the minimum regulating power to P_n as a percent of P_n per minutes.

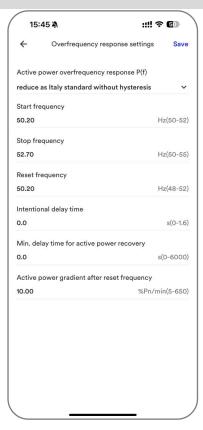
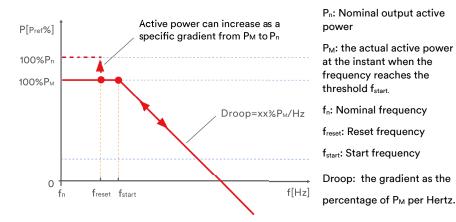


Fig. 34. reduce as Italy standard without hysteresis

	::!! ? 🗊
← Overfrequency respo	nse settings Save
Active power overfrequency res	ponse P(f)
reduce as Italy standard with hy	steresis 🗸
Start frequency 50.20	Hz(50-52
Stop frequency	
52.70	Hz(50-55)
Reset frequency 50.20	Hz(48-52)
Intentional delay time	-(0.4.6)
0.0	s(0-1.6)
Min. delay time for active power	
0.0	s(0-6000)
Active power gradient after rese	
10.00	%Pn/min(5-650)

Fig. 35. reduce as Italy standard with hysteresis

Mode 9: reduce as Austria standard



This model is same as "Act. Power as percentage of P_M , Linear" except the active power drop " ΔP " changing to "Droop". Droop is defined as the gradient as the percentage of P_M per Hertz. And the stop frequency is no longer effective.

An intentional delay time can be configured. The intentional delay time shall not be higher than 1.6s, because the total time for the intrinsic dead time and the intentional delay time shall less than 2s.

The minimum delay time for active power recovery also can be configured. The active power is kept constant until the frequency falls below f_{reset} for a configurable delay time. Then the active power increase from P_M to P_n as a percent of P_n per minutes.

15:4	5 🔉 💼	! ? D
÷	Overfrequency response setting	gs <mark>Save</mark>
Active po	wer overfrequency response P(f)	
reduce as	a Austria standard	~
Start freq	uency	
50.20		Hz(50-52)
Stop freq	uency	
52.70		Hz(50-55)
Reset free	quency	
50.20	. ,	Hz(48-52)
Droop		
100.00	%PI	M/Hz(10-100)
Intention	al delay time	
0.0		s(0-1.6)
Min. dela	y time for active power recovery	
0.0		s(0-6000)
Active po	wer gradient after reset frequenc	У
10.00	%Pi	n/min(5-650)

Fig. 36. reduce as Austria standard

5.2.4.5 Active power overvoltage response P(U)

In order to avoid disconnection due to overvoltage protection, generating units are allowed to reduce active power output as a function of this rising voltage. This function normally call "Voltage-Watt response" or "Voltage-controlled active power limitation P (U)" or "Active power overvoltage response P(U)".

There are five modes which can be chosen for this function and certain parameters can be configured according to the requirement of the local grid company.

- **Step 1:** Select < Active power settings > to go to the next screen.
- Step 2: Click < Overvoltage response settings > to go to the next screen.
- Step 3: Click the drop-down menu to choose the mode of this function.
- Step 4: configure the parameters and confirm with <Save>.

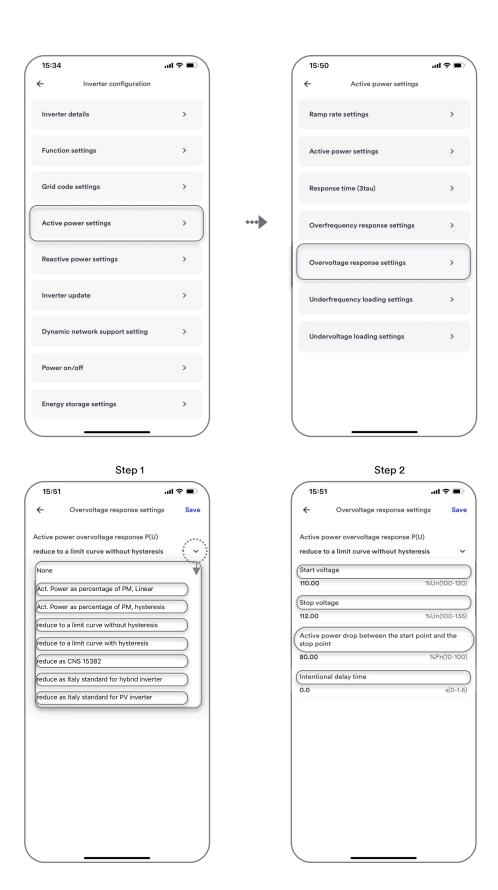
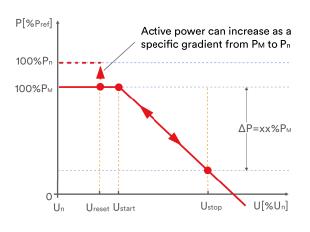




Fig. 37. Overvoltage response settings

Mode 1: Act. Power as percentage of PM, Linear



Pn: Nominal output active power P_M: the actual active

power at the instant when the grid voltage reaches the threshold Ustart.

Un: Nominal grid voltage

Ureset: Reset voltage

Ustart: Start voltage

Ustop: Stop voltage

 ΔP : Active power drop between the start voltage point and the stop voltage point

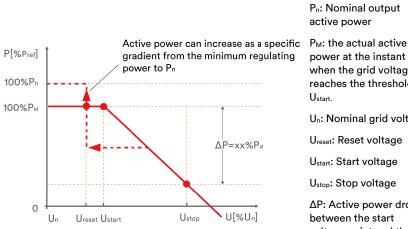
Active power drop " Δ P" between the start voltage point and the stop voltage point is defined the percentage of P_M.

An intentional delay time can be configured. The intentional delay time shall not be higher than 1.6s, because the total time for the intrinsic dead time and the intentional delay time shall less than 2s.

The minimum delay time for active power recovery also can be configured. The active power is kept constant until the voltage falls below Ureset for a configurable delay time. Then the active power increase from P_M to P_n as a percent of P_n per minutes.

	A 6	::!! 🕈 🚺
÷	Overvoltage response set	tings Save
Active pov	wer overvoltage response P(U)
Act. Powe	er as percentage of PM, Line	ar 🗸
Start volta	ge	
110.00		%Un(100-120)
Stop volta	ge	
112.00		%Un(100-135)
Reset volta	age	
110.00		%Un(80-120)
Active pov stop point	wer drop between the start p	point and the
80.00		%PM(10-100)
	l delay time	%PM(10-100)
	l delay time	%PM(10-100) s(0-1.6)
Intentiona 0.0	I delay time / time for active power recov	s(0-1.6)
Intentiona 0.0		s(0-1.6)
Intentiona 0.0 Min. delay 0.0		s(0-1.6) ery s(0-6000)

Act. Power as percentage of P_M, Linear Fig. 38.



Mode 2: Act. Power as percentage of P_M, hysteresis

Pn: Nominal output active power

power at the instant when the grid voltage reaches the threshold Ustart.

Un: Nominal grid voltage

Ureset: Reset voltage

Ustart: Start voltage

Ustop: Stop voltage

 ΔP : Active power drop between the start voltage point and the stop voltage point

Active power drop " ΔP " between the start voltage point and the stop voltage point is defined the percentage of P_M.

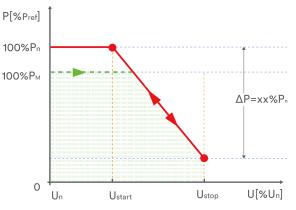
An intentional delay time can be configured. The intentional delay time shall not be higher than 1.6s, because the total time for the intrinsic dead time and the intentional delay time shall less than 2s.

The minimum delay time for active power recovery also can be configured. The active power is kept constant until the voltage falls below U_{reset} for a configurable delay time. Then the active power increase from the minimum regulating power to Pn as a percent of Pn per minutes.

	A	::!! 🗢 🗊
÷	Overvoltage respo	nse settings Sav
	wer overvoltage resp	
Act. Powe	r as percentage of Pl	M, hysteresis 💊
Start volta	ge	
110.00		%Un(100-120
Stop volta	ge	
112.00		%Un(100-135
Reset volta	age	
110.00		%Un(80-120
Active pov stop point	wer drop between the	e start point and the
80.00		%PM(10-100
Intentional	l delay time	
0.0		s(0-1.6
	time for active powe	ar recovery
Min. delav		
	time for active powe	s(0-6000
0.0	wer gradient after res	

Fig. 39. Act. Power as percentage of P_M, hysteresis

Mode 3: reduce to a limit curve without hysteresis



power P_M: the actual active power at the instant when the grid voltage reaches the threshold Ustart

Pn: Nominal output active

Un: Nominal grid voltage

Ureset: Reset voltage

Ustart: Start voltage

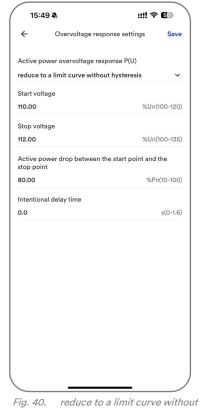
Ustop: Stop voltage

ΔP: Active power drop between the start voltage point and the stop voltage point

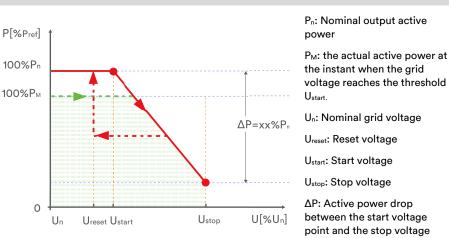
Active power drop " Δ P" between the start voltage point and the stop voltage point is defined the percentage of P_n.

If the inverter is operating below the limit curve, the active power does not need to be reduced; if the inverter is operating above the limit curve, the active power needs to be reduced to the limit curve.

An intentional delay time can be configured. The intentional delay time shall not be higher than 1.6s, because the total time for the intrinsic dead time and the intentional delay time shall less than 2s.



hysteresis



Mode 4: reduce to a limit curve with hysteresis

the instant when the grid voltage reaches the threshold Un: Nominal grid voltage Ureset: Reset voltage Ustart: Start voltage Ustop: Stop voltage ΔP : Active power drop between the start voltage point and the stop voltage point

Active power drop " Δ P" between the start voltage point and the stop voltage point is defined the percentage of Pn.

If the inverter is operating below the limit curve, the active power does not need to be

reduced; if the inverter is operating above the limit curve, the active power needs to be

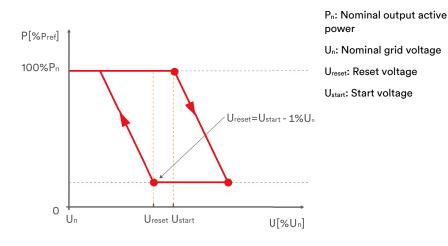
reduced to the limit curve.

An intentional delay time can be configured. The intentional delay time shall not be higher than 1.6s, because the total time for the intrinsic dead time and the intentional delay time shall less than 2s.

The minimum delay time for active power recovery also can be configured. The active power is kept constant until the voltage falls below U_{reset} for a configurable delay time. Then the active power increase from the minimum regulating power to Pn as a percent of Pn per minutes.

	9 🔊 👘 🖬	? 50
÷	Overvoltage response settings	Save
Active po	wer overvoltage response P(U)	
educe to	a limit curve with hysteresis	~
Start volt		
110.00	%U	n(100-120)
Stop volta	age	
112.00	%U	ln(100-135)
Reset vol	tage	
110.00	%	Un(80-120)
Active po stop poin	wer drop between the start point ar t	id the
80.00	%	Pn(10-100)
Intention	al delay time	
0.0		s(0-1.6)
Min. dela	y time for active power recovery	
0.0		s(0-6000)
Active po	wer gradient after reset voltage	
10.00	%Pn/r	min(5-650)

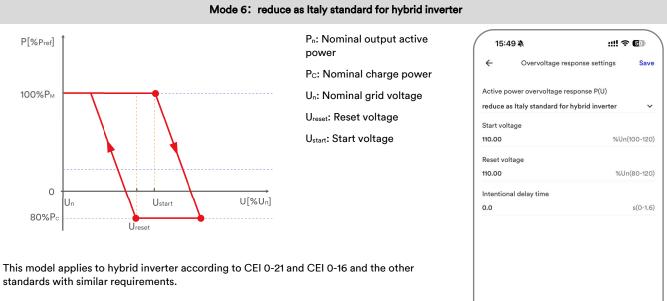
Mode 5: reduce as CNS 15382



This mode is only used for CNS 15382. The active power reduces to $10\%P_n$ within one second after the grid voltage reaches the threshold $U_{start.}$ And the active power will increase to $100\%P_n$ within one second after the grid voltage back to the threshold $U_{reset.}$





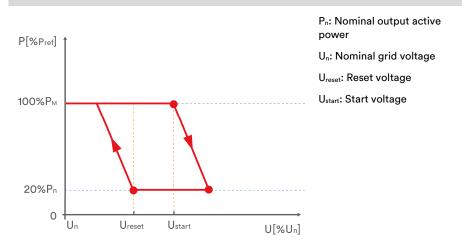


The active power reduces to zero and switches to charge to $80\% P_C$ within five minutes after the grid voltage reaches the threshold U_{start} . And the charge power will reduce to zero and switches to discharge to $100\% P_n$ within five minutes after the grid voltage back to the threshold U_{reset} .

An intentional delay time can be configured. The intentional delay time shall not be higher than 1.6s, because the total time for the intrinsic dead time and the intentional delay time shall less than 2s.

Fig. 43. reduce as Italy standard for hybrid inverter

Mode 7: reduce as Italy standard for PV inverter



This model applies to PV inverter according to CEI 0-21 and CEI 0-16 and the other standards with similar requirements.

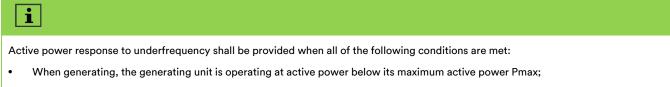
The active power reduces to 20%Pn within five minutes after the grid voltage reaches the threshold U_{start}. And the charge power will increase to 100%Pn within five minutes after the grid voltage back to the threshold Ureset.

An intentional delay time can be configured. The intentional delay time shall not be higher than 1.6s, because the total time for the intrinsic dead time and the intentional delay time shall less than 2s.

5.2.4.6 Active power underfrequency response P(f)

'Limited frequency sensitive mode - underfrequency' or 'LFSM-U' or 'Active power frequency response to underfrequency' means a powergenerating module which will result in active power output increase in response to a change in system frequency below a certain value.

There are five modes which can be chosen for this function and certain parameters can be configured according to the requirement of the local grid company.



- When generating, the generating unit is operating at active power below the available active power PA;
- The voltages at the point of connection of the generating plant are within the continuous operating voltage range; and when generating, the generating unit is operating with currents lower than its current limit.

Step 1: Select < Active power settings > to go to the next screen.

Step 2: Click < Underfrequency loading settings > to go to the next screen.

Step 3: Click the drop-down menu to choose the mode of this function.

Step 4: Configure the parameters and confirm with <Save>.

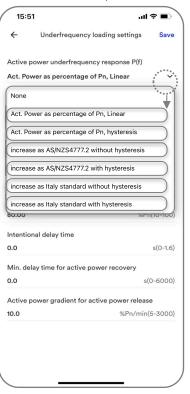
tings Save
(L
r v
%Un(100-120)
%Un(80-120)
s(0-1.6)

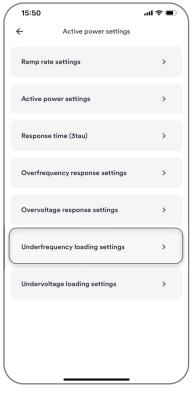
45.40

Fig. 44. reduce as Italy standard for PV inverter

15:34	≎ ■)		15:50
← Inverter configuration			← Activ
Inverter details	>		Ramp rate settings
Function settings	>		Active power setti
Grid code settings	>		Response time (3ta
Active power settings	>	••••	Overfrequency res
Reactive power settings	>		Overvoltage respo
Inverter update	>		Underfrequency lo
Dynamic network support setting	>		Undervoltage load
Power on/off	>		
Energy storage settings	>		
Energy storage settings	`		

Step 1





Step 2

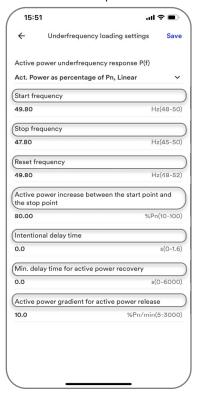
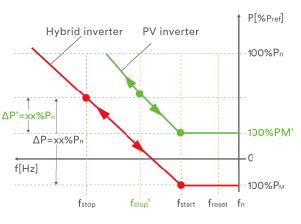




Fig. 45. Underfrequency loading settings

Mode 1: Act. Power as percentage of Pn, Linear



active power P_M: the actual active power at the instant when the frequency reaches the threshold

Pn: Nominal output

f_{start.}

fn: Nominal frequency

f_{reset}: Reset frequency f_{start}: Start frequency

f_{stop}: Stop frequency

ΔP: Active power increase between the start frequency point and the stop frequency point

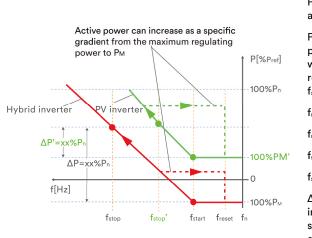
Active power drop " ΔP " between the start voltage point and the stop voltage point is defined the percentage of P_n .

An intentional delay time can be configured. The intentional delay time shall not be higher than 1.6s, because the total time for the intrinsic dead time and the intentional delay time shall less than 2s.

The minimum delay time for active power recovery also can be configured. The active power is kept constant until the voltage falls below U_{reset} for a configurable delay time. Then the active power increase from P_M to a new target active power as a percent of P_n per minutes.

	2 🔊 🛛 🔛	? 49
÷	Underfrequency loading settings	s Save
Active po	wer underfrequency response P(f)	
Act. Powe	er as percentage of Pn, Linear	~
Start frequ	uency	
49.80		Hz(48-50)
Stop frequ	uency	
47.80		Hz(45-50)
Reset fred	uency	
Reset frec 49.80	quency	Hz(48-52)
49.80 Active po stop point	wer increase between the start po	int and the
49.80 Active po	wer increase between the start po	int and the
49.80 Active por stop point 80.00	wer increase between the start po	
49.80 Active por stop point 80.00	wer increase between the start po	int and the
49.80 Active poi stop point 80.00 Intentiona 0.0	wer increase between the start po	int and the %Pn(10-100)
49.80 Active poi stop point 80.00 Intentiona 0.0	wer increase between the start po	int and the %Pn(10-100)
49.80 Active point stop point 80.00 Intentiona 0.0 Min. delay 0.0	wer increase between the start po	int and the %Pn(10-100) s(0-1.6) s(0-6000)

Fig. 46. Act. Power as percentage of P_n, Linear



Pn: Nominal output active power

Mode 2: Act. Power as percentage of Pn, hysteresis

P_M: the actual active power at the instant when the frequency reaches the threshold fstart.

fn: Nominal frequency

f_{reset}: Reset frequency

f_{start}: Start frequency

fstop: Stop frequency

ΔP: Active power increase between the start frequency point and the stop frequency point

Active power increase " ΔP " between the start frequency point and the stop frequency point is defined the percentage of the inverter's nominal output active power (P_n).

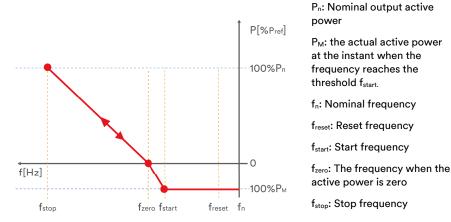
An intentional delay time can be configured. The intentional delay time shall not be higher than 1.6s, because the total time for the intrinsic dead time and the intentional delay time shall less than 2s.

The minimum delay time for active power recovery also can be configured. The active power is kept constant until the frequency falls below f_{reset} for a configurable delay time. Then the active power increase from the maximum regulating power to PM as a percent of P_n per minutes.

	2 🔉 📰	!! 奈 ❹〕
÷	Underfrequency loading setting	gs Save
Active po	wer underfrequency response P(1	F)
Act. Powe	er as percentage of Pn, hysteresi	s v
Start freq	uency	
49.80		Hz(48-50)
Stop frequ	uency	
47.80		Hz(45-50)
Reset free	quency	
49.80		Hz(48-52)
Active por stop point	wer increase between the start p t	oint and the
80.00		%Pn(10-100)
Intentiona	ıl delay time	
0.0		s(0-1.6)
Min. delay	y time for active power recovery	
0.0		s(0-6000)
Active po	wer gradient for active power rel	ease
		/min(5-3000)

Fig. 47. Act. Power as percentage of P_n, hysteresis

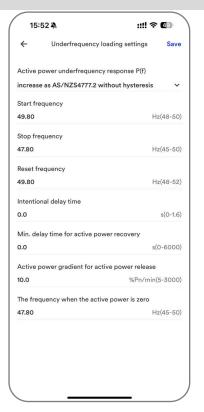
Mode 3: increase as AS/NZS4777.2 without hysteresis



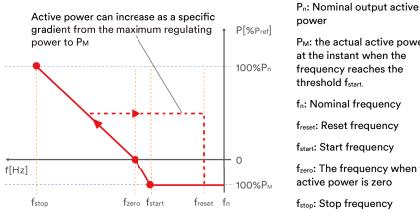
This model applies to hybrid inverter according to AS/NZS 4777.2 and the other standards with similar requirements. Frequency points $f_{star}t$, f_{zero} , and f_{stop} correspond to 100% P_M, 0% P_n, and 100% Pn, respectively.

An intentional delay time can be configured. The intentional delay time shall not be higher than 1.6s, because the total time for the intrinsic dead time and the intentional delay time shall less than 2s.

The minimum delay time for active power recovery also can be configured. The active power is kept constant until the frequency falls below freset for a configurable delay time. Then the active power increase from P_M to a new target active power as a percent of P_n per minutes.



increase as AS/NZS4777.2 without Fig. 48. hysteresis



Mode 4: increase as AS/NZS4777.2 with hysteresis

P_M: the actual active power at the instant when the frequency reaches the threshold f_{start.} fn: Nominal frequency freset: Reset frequency fstart: Start frequency fzero: The frequency when the active power is zero

fstop: Stop frequency

This model applies to hybrid inverter according to AS/NZS 4777.2 and the other standards with similar requirements. Frequency points fstart, fzero, and fstop correspond to 100% PM, 0% PN, and 100% Pn, respectively.

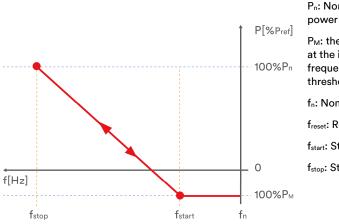
An intentional delay time can be configured. The intentional delay time shall not be higher than 1.6s, because the total time for the intrinsic dead time and the intentional delay time shall less than 2s.

The minimum delay time for active power recovery also can be configured. The active power is kept constant until the frequency falls below freset for a configurable delay time. Then the active power increase from the maximum regulating power to PMas a percent of Pn per minutes.

::!! ? **(**1) 15:52 Underfrequency loading settings Save Active power underfrequency response P(f) increase as AS/NZS4777.2 with hysteresis Start frequency 49.80 Hz(48-50) Stop frequency 47.80 Hz(45-50) Reset frequency 49.80 Hz(48-52) Intentional delay time 0.0 s(0-1.6) Min. delay time for active power recovery 0.0 s(0-6000) Active power gradient for active power release 10.0 %Pn/min(5-3000) The frequency when the active power is zero 47.80 Hz(45-50)

increase as AS/NZS4777.2 with Fia. 49. hvsteresis

Mode 5: increase as Italy standard without hysteresis



Pn: Nominal output active power PM: the actual active power at the instant when the frequency reaches the threshold fstart. fn: Nominal frequency freset: Reset frequency fstart: Start frequency fstop: Stop frequency

This model applies to PV inverter or hybrid inverter according to CEI 0-21 and the other standards with similar requirements. Frequency points f_{start} and f_{stop} correspond to 100% P_M and 100% P_n, respectively.

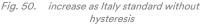
An intentional delay time can be configured. The intentional delay time shall not be higher than 1.6s, because the total time for the intrinsic dead time and the intentional delay time shall less than 2s.

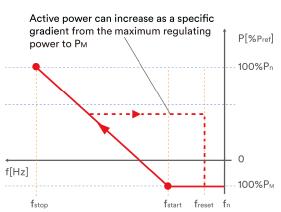
The minimum delay time for active power recovery also can be configured. The active power

is kept constant until the frequency falls below $f_{\mbox{\scriptsize reset}}$ for a configurable delay time. Then the

active power increase from P_M to a new target active power as a percent of P_n per minutes.







Mode 6: increase as Italy standard with hysteresis

Pn: Nominal output active power PM: the actual active power at the instant when the frequency reaches the threshold fstart. fn: Nominal frequency freset: Reset frequency fstart: Start frequency

fstop: Stop frequency

This model applies to PV inverter or hybrid inverter according to CEI 0-21 and the other standards with similar requirements. Frequency points f_{start} and f_{stop} correspond to 100% P_M and 100% P_n, respectively.

An intentional delay time can be configured. The intentional delay time shall not be higher than 1.6s, because the total time for the intrinsic dead time and the intentional delay time shall less than 2s.

The minimum delay time for active power recovery also can be configured. The active power is kept constant until the frequency falls below f_{reset} for a configurable delay time. Then the active power increase from the maximum regulating power to PM as a percent of P_n per minutes.

15:53 🔉	::!! ব	49
← Underfree	quency loading settings	Save
Active power underfr	requency response P(f)	
increase as Italy stan	dard with hysteresis	~
Start frequency		
49.80	1	Hz(48-50)
Stop frequency		
47.80		Hz(45-50)
Reset frequency		
49.80	3	Hz(48-52)
Intentional delay time	3	
0.0		s(0-1.6)
Min. delay time for ac	ctive power recovery	
0.0		s(0-6000)
Active power gradien	nt for active power release	e
10.0	%Pn/mir	n(5-3000)

5.2.4.7 Undervoltage loading settings

Similar to active power overfrequency response P(f), the active power undervoltage response P(U) can also be set. In order to avoid disconnection due to undervoltage protection, generating units are allowed to increase the output active power or reduce the input active power (Charging power) as a function of this reducing voltage. This function normally is called "Voltage-Watt response" or "Voltage-controlled active power limitation P (U)" or "Active power overvoltage response P(U)".

There are three modes which can be chosen for this function and certain parameters can be configured according to the requirement of the local grid company.

Step 1: Select < Active power settings > to go to the next screen.

Step 2: Click < Undervoltage loading settings > to go to the next screen.

Step 3: Click the drop-down menu to choose the mode of this function.

Step 4: Configure the parameters and confirm with <Save>.

(15:34	.ıl ≎ ∎	(15:50	.ul ≎ III.
	Inverter configuration			← Active power settings	
	Inverter details	>		Ramp rate settings	>
	Function settings	>		Active power settings	>
	Grid code settings	>		Response time (3tau)	>
	Active power settings	>	•••	Overfrequency response settings	>
	Reactive power settings	>		Overvoltage response settings	>
	Inverter update	>		Underfrequency loading settings	>
	Dynamic network support setting	>		Undervoltage loading settings	,
	Power on/off	>			
	Energy storage settings	>			

Step 1

.ul ≈ ■ \	15:52	ul ≎ ∎
loading settings Save	← Undervolt	age loading settings Sa
ge response P(U)	Active power undervo	
Jor Ph, Linear		tage of Ph, Linear
of Pn Linear	95.60	%Un(80-10
	(Stop voltage	
	90.00	%Un(70-10
r Australia	Reset voltage	
%Un(80-120)	95.60	%Un(80-12
tween the start point and	Active power increase the stop point	e between the start point and
%Pn(10-100)	100.00	%Pn(10-10
	(Intentional delay time	
s(0-1.6)	0.0	s(0-1
power recovery	Min. delay time for ac	tive power recovery
s(0-6000)	0.0	s(0-600
r active power release	Active power gradien	t for active power release
	e response P(U) of Pn, Linear of Pn, Linear of Pn, hysteresis Australia %Un(80-120) tween the start point and %Pn(10-100) s(0-1.6) power recovery	loading settings Save loading settings Save loading settings Save loading settings Save loading settings Active power undervolt loading settings Act. Power as percent of Pn, Linear Start voltage of Pn, Linear Stop voltage g0.00 Reset voltage %Un(80-120) 95.60 tween the start point and Active power increase the stop point %Pn(10-100) 100.00 s(0-1.6) Min. delay time power recovery Min. delay time for active power increase

Step 3

Step 4

ul 🕈 🔳

%Un(80-100)

%Un(70-100)

%Un(80-120)

%Pn(10-100)

s(0-1.6)

s(0-6000)

%Pn/min(5-3000)

Save

~

Fig. 52. Undervoltage loading settings



Active power increase " ΔP " between the start voltage point and the stop voltage point is defined the percentage of the inverter's nominal output active power (Pn).

Ustart

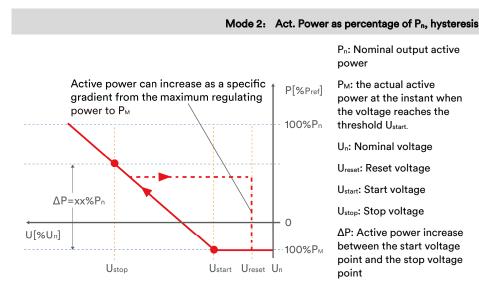
 $\Delta P = xx\%Pn$

Ustop

U[%U_n]

An intentional delay time can be configured. The intentional delay time shall not be higher than 1.6s, because the total time for the intrinsic dead time and the intentional delay time shall less than 2s.

The minimum delay time for active power recovery also can be configured. The active power is kept constant until the voltage falls below Ureset for a configurable delay time. Then the active power increase from P_M to a new target active power as a percent of P_n per minutes.



defined the percentage of the inverter's nominal output active power (Pn).

Active power increase "DP" between the start voltage point and the stop voltage point is

An intentional delay time can be configured. The intentional delay time shall not be higher than 1.6s, because the total time for the intrinsic dead time and the intentional delay time shall less than 2s.

The minimum delay time for active power recovery also can be configured. The active power is kept constant until the voltage falls below Ureset for a configurable delay time. Then the active power increase from the maximum regulating power to PM as a percent of P_n per minutes.

point and the stop voltage Un point

Pn: Nominal output active

power at the instant when

the voltage reaches the

P_M: the actual active

Un: Nominal voltage

Ureset: Reset voltage

Ustart: Start voltage

U_{stop}: Stop voltage

 ΔP : Active power increase

between the start voltage

threshold Ustart.

3000.0 %Pn/min(5-3000) Fig. 5

15:53

Start voltage 95.60

Stop voltage

Reset voltage

90.00

95.60

stop poin

Intentional delay time

100.00

0.0

0.0

4

Save

%Un(80-100)

%Un(70-100)

%Un(80-120)

%Pn(10-100)

s(0-1.6)

s(0-6000)

Undervoltage loading settings

Active power increase between the start point and the

Min. delay time for active power recovery

Active power gradient for active power release

Active power undervoltage response P(U)

Act. Power as percentage of Pn, Linear



	Linear	
15:53	a ::	!! ? (4)
÷	Undervoltage loading settings	s Save
	er undervoltage response P(U) as percentage of Pn, hysteresi	s 🗸
itart voltagi 5.60	e	%Un(80-100)
top voltage 0.00	e	%Un(70-100)
eset voltag 5.60	ge	%Un(80-120)
Active powe top point	er increase between the start p	oint and the
00.00 ntentional o	delay time	%Pn(10-100)
0.0		s(0-1.6)
/lin. delay t .0	ime for active power recovery	s(0-6000)
ctive powe	er gradient for active power rel %Pn.	ease /min(5-3000)

Fig. 54. Act. Power as percentage of Pn, hysteresis

Mode 1: Act. Power as percentage of Pn, Linear

P[%Pref]

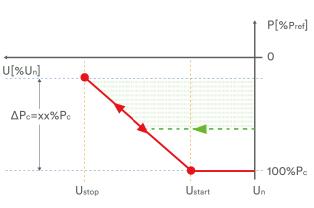
100%Pn

0

100%Pм

power

Mode 3: Limit the charge power for Australia



Pn: Nominal output active power

at the instant when the voltage reaches the

P_M: the actual active power

- P_c: Nominal charge power
- Un: Nominal voltage
- U_{reset}: Reset voltage

threshold U_{start.}

- U_{start}: Start voltage
- Ustop: Stop voltage

 ΔP : Charging active power reduce between the start voltage point and the stop voltage point

This model applies to hybrid inverter according to AS/NZS 4777.2 and the other standards with similar requirements.

Charging active power drop " ΔP " between the start voltage point and the stop voltage point is defined the percentage of P_C.

If the inverter is operating above the limit curve, the charging active power does not need to

be reduced; if the inverter is operating below the limit curve, the charging active power needs

to be reduced to the limit curve.

An intentional delay time can be configured. The intentional delay time shall not be higher than 1.6s, because the total time for the intrinsic dead time and the intentional delay time shall less than 2s.

15:5	3 🔉 💷	२ 4 ₽
÷	Undervoltage loading settings	Save
Active po	ower undervoltage response P(U)	
Limit the	charge power for Australia	~
Start volt	age	
95.60	9	6Un(80-100
Stop volt	age	
90.00	9	6Un(70-100
Reset vol	tage	
95.60	9	6Un(80-120
Active po stop poin		int and the %PC(10-100
0.0	al delay time	s(0-1.6

Fig. 55. Limit the charge power for Australia

5.2.5 Reactive power settings

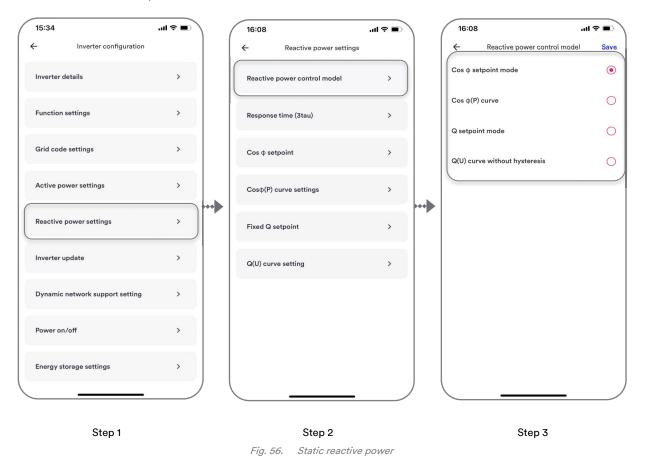
5.2.5.1 Reactive power control model

Steady-state voltage stability is understood to be the reactive power supply by a power generating plant for the purpose of voltage stability in the distribution network. The steady-state voltage stability is intended to keep slow (quasi-steady-state) voltage changes in the distribution network within tolerable limits.

There are four modes which can be chosen for this function and certain parameters can be configured according to the requirement of the local grid company. Only one of the four reactive power control modes can be selected at one time.

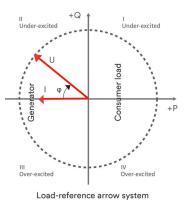
- **Step 1:** Select < Reactive power settings > to go to the next screen.
- Step 2: Click < Reactive power control model > , the next page will display the parameters.

Step 3: Choose one of the reactive power control modes.



Information

From the perspective of the grid, the inverter behaves like a load in accordance with the national standard. This means that the inverter operates in quadrant II (under-excited) or III (over-excited).



Over-excited reactive power, also known as capacitive reactive power or leading power factor.

Under-excited reactive power, also known as inductive reactive power or lagging power factor.

5.2.5.2 Response time (3tau)

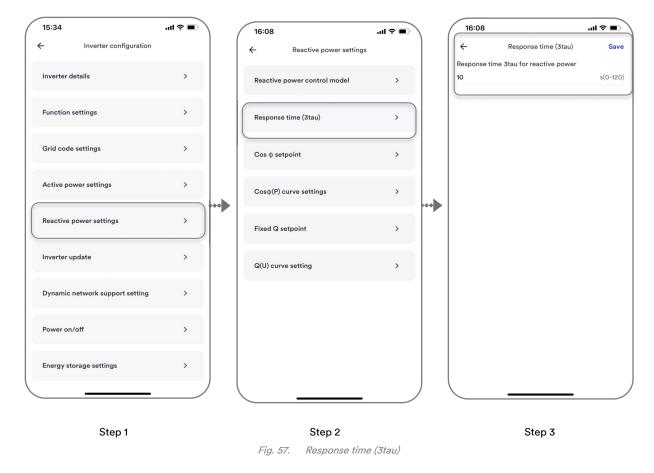
The dynamics of the reactive power control shall correspond with a first-order filter with a configurable time constant between 3 s and 60 s. That means 95% of a new setpoint must be achieved within three times the time constant. The reactive power settling time is defined as three times the time constant.

The response time (3 tau) is used for every reactive power control mode.

Step 1: Select < Reactive power settings > to go to the next screen.

Step 2: Click < Response time (3tau) > , the next page will display the parameters.

Step 3: Set the value and confirm with <Save>.



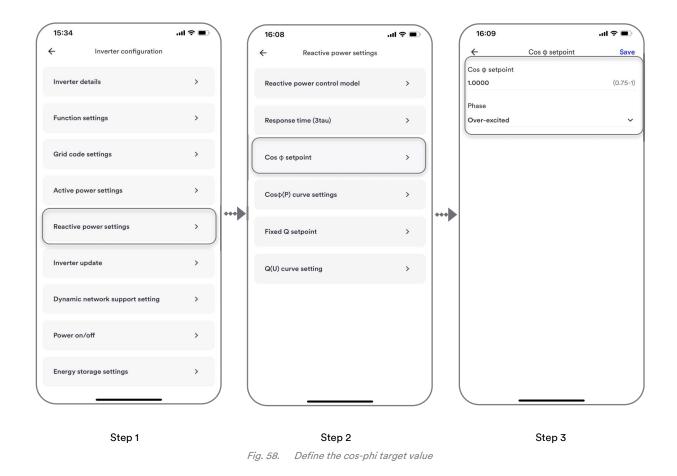
5.2.5.3 Cos φ setpoint

Cos φ setpoint mode control the cos φ of the output power according to a set point. Cos φ is defined the cosine of the phase angle between the fundamental components of a phase-to-earth voltage and of the current on the same conductor

Step 1: Select < Reactive power settings > to go to the next screen.

Step 2: Click < Cos φ setpoint>, the next page will display the parameters.

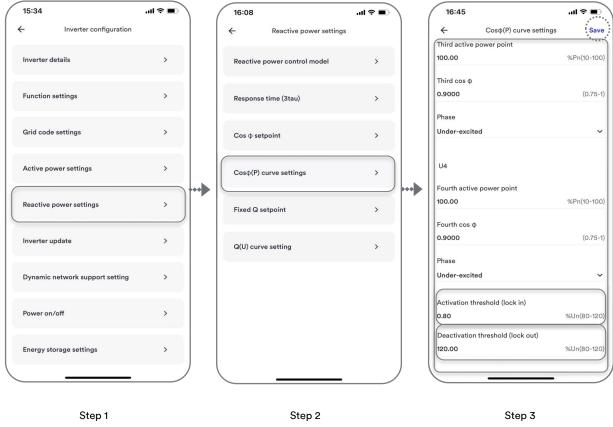
Step 3: Set Cos φ value and choose Over-excited or Under-excited from the drop-down field, then confirm with <Save>.



5.2.5.4 Cos ϕ (P) curve settings

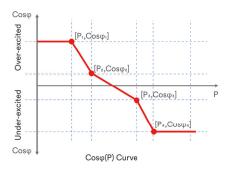
The power related control mode $\cos \phi$ (P) controls the $\cos \phi$ of the output as a function of the active power output.

- **Step 1:** Select < Reactive power settings > to go to the next screen.
- **Step 2:** Click < Cos ϕ (P) curve setting > , the next page will display the parameters.
- Step 3: Set the value for the curve.
- Step 4: Set the < Activation threshold > and < Deactivation threshold >, if available, and confirm with <Save>.



Set Cos (P) parameters Fig. 59.

There are four adjustable coordinate points on the curve, as shown below



The horizontal axis of the coordinate point represents the percentage of Pn, and the vertical axis of the coordinate represents the $\cos \varphi$ value.

A grid operator can specify two voltage thresholds as a percentage of Pn to activate or deactivate the function. The voltage thresholds are normally referred to as the "Lock-In" and the "Lock-Out" voltage.

5.2.5.5 Fixed Q setpoint

Reactive power Q setpoint mode control the output reactive power according to a set point.

Step 1: Select < Reactive power settings > to go to the next screen.

Step 2: Click < Fixed Q setpoint> , the next page will display the parameters.

Step 3: Set reactive power Q value as the percentage of Sn and choose Over-excited or Under-excited from the drop-down field, then confirm with <Save>.

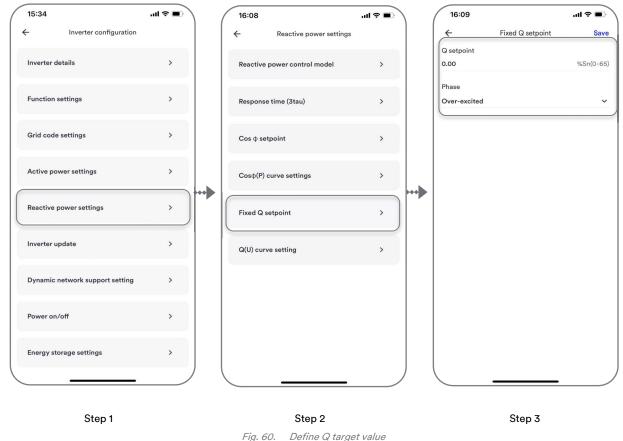


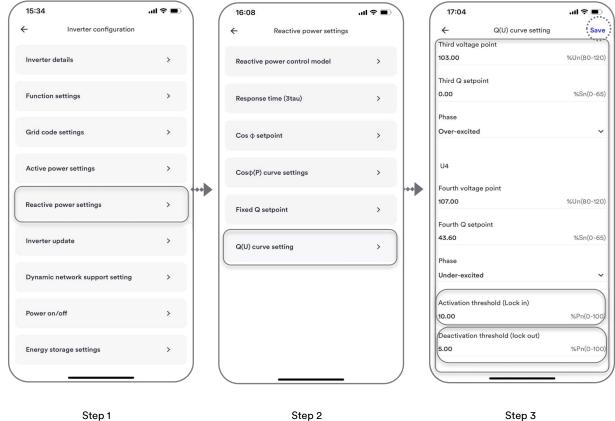
Fig. 60. Define Q target V

5.2.5.6 Q(U) curve setting

The voltage related control mode Q (U) controls the reactive power output as a function of the voltage.

- **Step 1:** Select < Reactive power settings > to go to the next screen.
- **Step 2:** Click < Cos ϕ setpoint>, the next page will display the parameters.
- Step 3: Set the value for the curve.

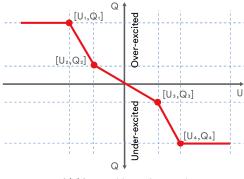
Step 4: Set the < Activation threshold > and < Deactivation threshold >, if available, and confirm with <Save>.

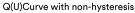


Set Q(U) parameters Fig. 61.

Q(U) curve settings is as shown:

There are four adjustable coordinate points on the curve, as shown below

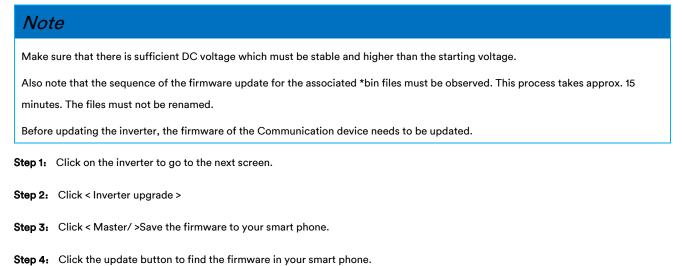




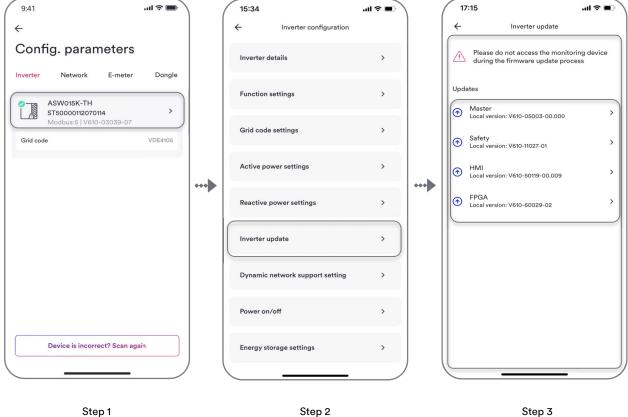
The horizontal axis of the coordinate point represents the percentage of Un, and the vertical axis of the coordinate represents the reactive power Q value.

A grid operator can specify two voltage thresholds as a percentage of Pn to activate or deactivate the function. The voltage thresholds are normally referred to as the "Lock-In" and the "Lock-Out" voltage.

5.2.6 Inverter upgrade



Step 5: Wait for the uploading and keep the power during the upgrade process, and the whole process will take about 10 minutes at least. After 10 minutes, you can check the firmware with the tool app.



Step 1

Fig. 62. Inverter upgrade

i

Sections 5.2.6.1 and 5.2.6.2 both describe only the HMI, but in reality the process of selecting an upgrade package in the phone is the same whether it is Master, Safety or FPGA.

5.2.6.1 Steps for storing Android upgrade files

i

The prerequisite for using this function is that the upgrade file has been placed in the phone's SDCARD (the file name cannot be modified, otherwise it will cause the upgrade to fail). The following steps are for Android operation. Please refer to "5.2.6.2 Steps for storing iOS upgrade files" for selecting the upgrade file.

i

Open the Solplanet application, refer to section 5.2.6 Open to the Inverter Upgrade page .

Step 1: HMI can be upgraded, downgraded, or upgraded to the same version. Click < HMI >go to the file selector (the current HMI version is comm V610-50119-00.009).

Step 2: Click on the More button in the upper left corner of the file selector to open the left menu.

Step 3: Click < Downloads > to go to the next screen.

Step 4: Click < WeiXin > to go to the next screen.

i

The paths shown below may vary depending on the brand of your phone. In this example, take HUAWEI Mate 30 as an example, the upgrade file is stored in Downloads Documents folder "WeiXin", the actual upgrade file needs to be selected according to your storage location. Open the Documents folder.

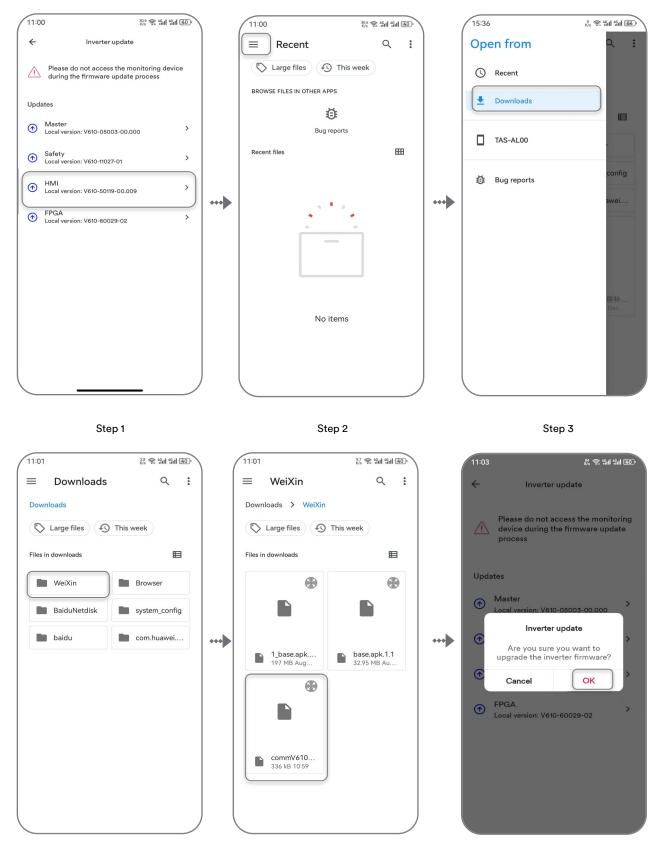
Step 5: Select< commV610-50119-00.014.bin > to go to the next screen.

Step 6: Click <OK> to start sending the upgrade file.

Note

Please wait for the upload and keep the power off during the upgrade process, the whole process will take at least 15 minutes. 15 minutes later, you can see the current version of the HMI has been changed to V610-50119-00.014, the upgrade is successful!

Step 7: After successfully sending the upgrade file, go back to the homepage.





Step 5 Fig. 63. Inverter upgrade

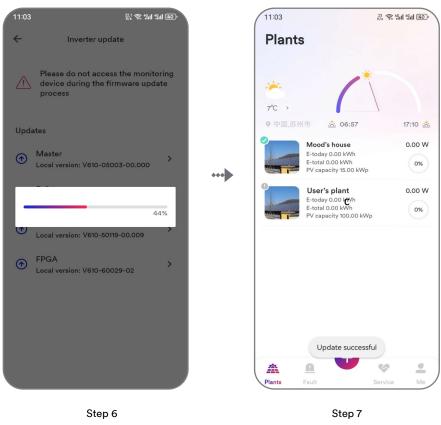
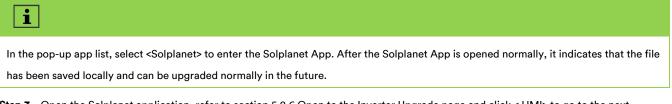


Fig. 64. Steps for storing Android upgrade files

5.2.6.2 Steps for storing iOS upgrade files

Step 1: Transfer the upgrade file to "Chat tool" and receive it (if using other instant messaging software, the operation steps are similar).

Step 2: Click<Open in Other App> and choose to open it using another app.

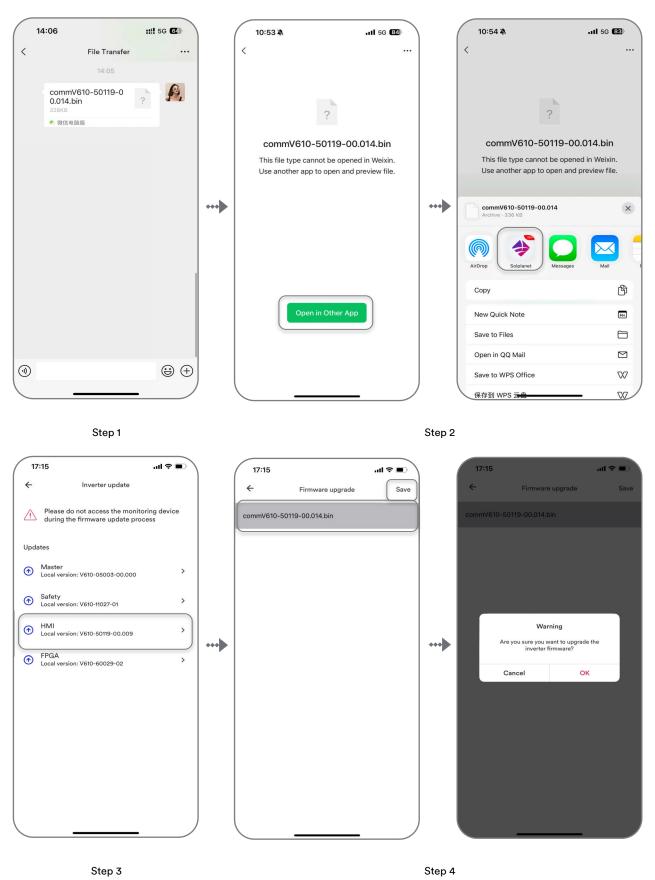


Step 3: Open the Solplanet application, refer to section 5.2.6 Open to the Inverter Upgrade page and click < HMI> to go to the next screen.

Step 4: Enter the software version selection page, select the version you want to upgrade, click <Save> to proceed with the upgrade.

Note

Please wait for the upload and keep the power off during the upgrade process, the whole process will take at least 15 minutes. 15 minutes later, you can see the current version of the HMI has been changed to V610-50119-00.014, the upgrade is successful!





5.2.7 Dynamic network support setting

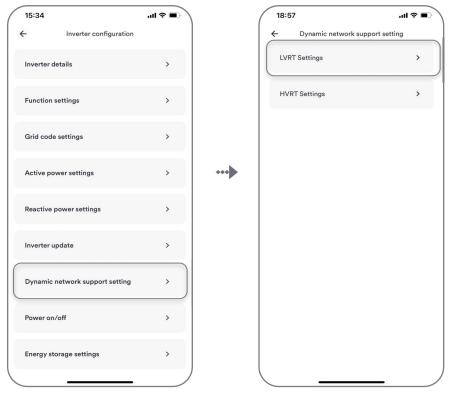
The dynamic network stability is to prevent any unintentional disconnection of the generation power and the risk to the network stability involved, in the event of short-term voltage dips or rises.

The dynamic network stability for voltage dips is normally called Under-voltage ride through (UVRT) or Low-voltage ride through (LVRT). And the function for voltage rises is called Over-voltage ride through (OVRT) or High-voltage ride through (HVRT).

5.2.7.1 LVRT Setting

- Step 1: Select < Dynamic network support setting > to go to the next screen.
- Step 2: Click < LVRT Settings >





Step 1

18:57		🗢 🔳
÷	LVRT Settings	Save
Reactive cu	rrent caculation for L	VRT
none		~
Reactive cu	rrent limit for symme	trical failure
105.00		%ln(0-110)
Reactive cu failure	rrent limit for asymm	etrical
40.00		%ln(0-110)
Voltage typ	e for activation thres	hold
phase to ne	utral voltage	*
	hreshold as xx%Un fo oltage sudden chang	
0.0		%Un(0-20)
	hreshold as xx%Un fo den change	or negative
0.0		%Un(0-20)
Activation t	hreshold as xx%Un	
80.00	ç	%Un(10-90)
Positive seq	quence reactive curre	nt K factor
2.00		(0-10)
Negative se	equence reactive curr	ent K facto
1.00		(0-10)
Reactive cu voltage	rrent duration after th	ne recovery
0	1	ms(0-1000)
Active curre	ent mode for LVRT	
active powe	er reduction below 10	%Pn ¥
Activation t current	hreshold as xx%Un fo	or zero
N/A		%Un(0-80)

Fig. 66. Set LVRT parameters

Parameter	Description
Reactive current calculation for LVRT	The additional reactive current should be provided for voltage supporting and it can be chosen according to different standard. The "None" can be chosen if the additional reactive current is not need.
Reactive current limit for symmetrical failure Reactive current limit for asymmetrical failure	Some special standards maybe need set the different reactive current limited value for the asymmetrical failure and symmetrical failure.
Voltage type for activation threshold	The voltage type for activation threshold can be chosen as phase to phase voltage, phase to neutral voltage or positive sequence voltage.
Activation threshold as xx%Un for positive sequence voltage sudden change Activation threshold as xx%Un for negative sequence voltage sudden change Activation threshold as xx%Un	The activation threshold for voltage sudden change and voltage dips can be set as the percent of the nominal voltage.
Positive sequence reactive current K factor Negative sequence reactive current K factor	The gradient k factor can be configurable in the range of 0 – 10.
Reactive current duration after the recovery voltage	Some special standards maybe require the reactive current continues to be output for a period time after the grid voltage returns to normal range.

Active current mode for LVRT	The active current mode during the LVRT also can be chosen according to different standard.
Activation threshold as xx%Un for zero current	Some special standards maybe require the current reduce down to or below 10 % of the rated current as fast as technically feasible when the voltage falls below a configured zero current thresholds.

5.2.7.2 HVRT Setting

- **Step 1:** Select < Dynamic network support setting > to go to the next screen.
- Step 2: Click < HVRT Settings >
- Step 3: Set and check all set parameters and confirm with <Save>.

15:34	ul ≎ ∎	(18:57	ul ≎ ∎
← Inverter configuration			← Dynamic network s	support setting
Inverter details	>		LVRT Settings	>
Function settings	>		HVRT Settings	>
Grid code settings	>			
Active power settings	>			
Reactive power settings	>			
Inverter update	>			
Dynamic network support setting	>			
Power on/off	>			
Energy storage settings	>			
		(

Step 1

Step 2

18:57		l 🗢 🔳
÷	HVRT Settings	Save
Reactive cu	Irrent caculation for H	VRT
none		~
Reactive cu	irrent limit for symmet	rical failure
105.00		%In(0-110)
Reactive cu failure	urrent limit for asymme	etrical
40.00		%ln(0-110)
Voltage typ	pe for activation thresh	old
phase to ne	eutral voltage	~
	threshold as xx%Un for oltage sudden change	
0.0	ç	%Un(0-20)
	threshold as xx%Un foi Iden change	negative
0.0	ç	%Un(0-20)
Activation	threshold as xx%Un	
115.00	%U	n(100-130)
Positive see	quence reactive curren	t K factor
2.00		(0-10)
Negative se	equence reactive curre	nt K facto
1.00		(0-10)
Reactive cu voltage	urrent duration after th	e recovery
0	п	ns(0-1000)
Active curr	ent mode for HVRT	
active pow	er reduction below 109	%Pn v
	threshold as xx%Un for	zero
current		

Step 3

Fig. 67. Set HVRT parameters

Parameter	Description
Reactive current calculation for HVRT	The additional reactive current should be provided for voltage supporting and it can be chosen according to different standard. The "None" can be chosen if the additional reactive current is not need.
Reactive current limit for symmetrical failure Reactive current limit for asymmetrical failure	Some special standards maybe need set the different reactive current limited value for the asymmetrical failure and symmetrical failure.
Voltage type for activation threshold	The voltage type for activation threshold can be chosen as phase to phase voltage, phase to neutral voltage or positive sequence voltage.
Activation threshold as xx%Un for positive sequence voltage sudden change Activation threshold as xx%Un for negative sequence voltage sudden change Activation threshold as xx%Un	The activation threshold for voltage sudden change and voltage dips can be set as the percent of the nominal voltage.
Positive sequence reactive current K factor Negative sequence reactive current K factor	The gradient k factor can be configurable in the range of 0 – 10.
Reactive current duration after the recovery voltage	Some special standards maybe require the reactive current continues to be output for a period time after the grid voltage returns to normal range.

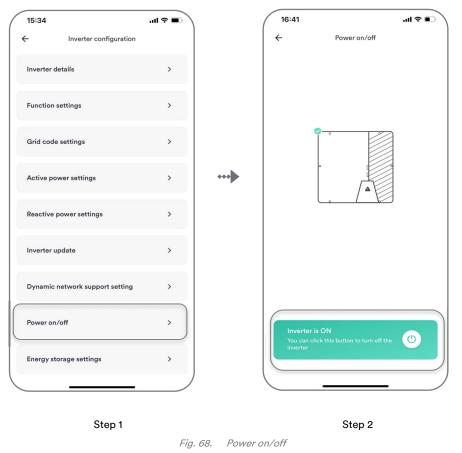
Active current mode for HVRT	The active current mode during the HVRT also can be chosen according to different standard.
Activation threshold as xx%Un for zero current	Some special standards maybe require the current reduce down to or below 10 % of the rated current as fast as technically feasible when the voltage falls below a configured zero current thresholds.

5.2.8 Power on/off

If the local grid company has special needs, the inverter can be turned on and off remotely.

Step 1: Select < Power on/off > to go to the next screen.

Step 2: You can click this button to turn off the Inverter.



5.2.9 Energy storage settings

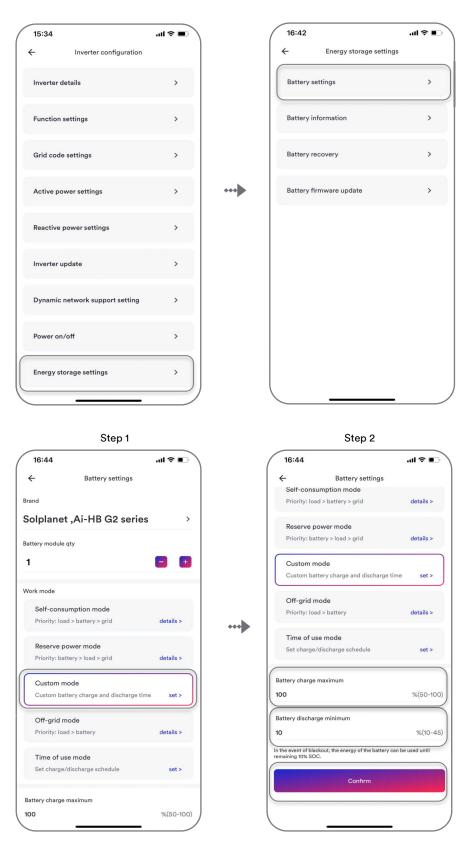
5.2.9.1 Battery settings

It is necessary to set the parameters of the battery during commissioning or when changing the operating mode of the hybrid inverter.

Step 1: Select < Energy storage settings >.

Step 2: Click < Battery settings> , the next page will display the settings.

Step 3: Set the relevant value and select the working mode.



Step 3

Fig. 69. Setting working mode

Introduction to battery working mode

Self-consumption mode

In this mode, when there is sufficient sunlight, the photovoltaic system supplies power to the household loads, and any excess energy is first used to charge the battery, and the remaining surplus energy can then be sold to the grid. When sunlight is insufficient and solar energy alone cannot meet the household's power demand, the battery discharges to help supply the load along with the solar energy. If the battery is also insufficient, the grid provides the remaining power required to meet the household's needs.

The priorities for using energy from the photovoltaic system are as follows:

Load>Battery>Grid

Reserve storage mode

In this mode, the photovoltaic system always prioritizes charging the battery first. Once the battery is fully charged, any excess energy is used to power the household loads, and if there is still surplus energy, it is sold to the grid. This mode is primarily intended for emergency situations, such as power outages, to ensure that the power supply to critical loads is not disrupted.

The priorities for using energy from the photovoltaic system are as follows:

Load>Battery>Grid

Custom mode

In this mode, you can customize the charging power and the corresponding charging time period, as well as the discharging power and its respective time period. This mode is mainly used to reduce peak loads and fill valleys, ensuring smooth input and output power for the grid.

Off-grid mode

In this mode, when there is sufficient sunlight, the photovoltaic system supplies power to the household loads, and any excess energy is first used to charge the battery. When sunlight is insufficient and solar energy alone cannot meet the household's power demand, the battery discharges to help supply the load along with the solar energy. This mode is used when there is no grid.

The priorities for using energy from the photovoltaic system are as follows:

Load>Battery

Time of use mode

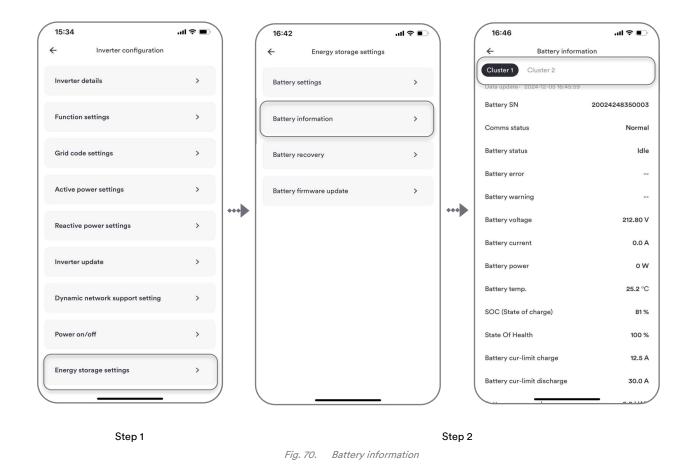
Normally, the hybrid inverter operates in self-consumption mode. When the battery's State of Charge (SOC) drops below a specified threshold, the inverter automatically switches to reserve storage mode.

5.2.9.2 Battery information

In the case of replacing a new battery, the basic information of the battery can be queried.

Step 1: Select < Energy storage settings >.

Step 2: Click < Battery information> , the next page will display the Battery information.



5.2.9.3 Battery recovery

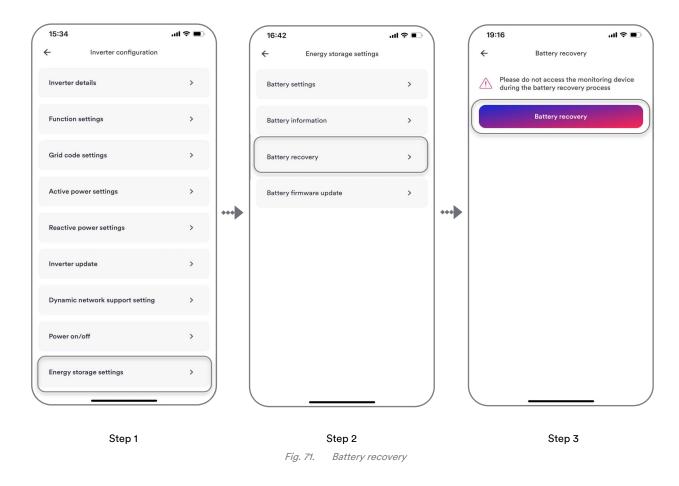
Some energy storage batteries in a dormant state need to be activated or "awakened" to function properly, typically by applying a lowlevel charge.

Step 1: Select < Energy storage settings >.

Step 2: Click < Battery recovery > to go to the next screen.

Step 3: Click < Battery recovery >





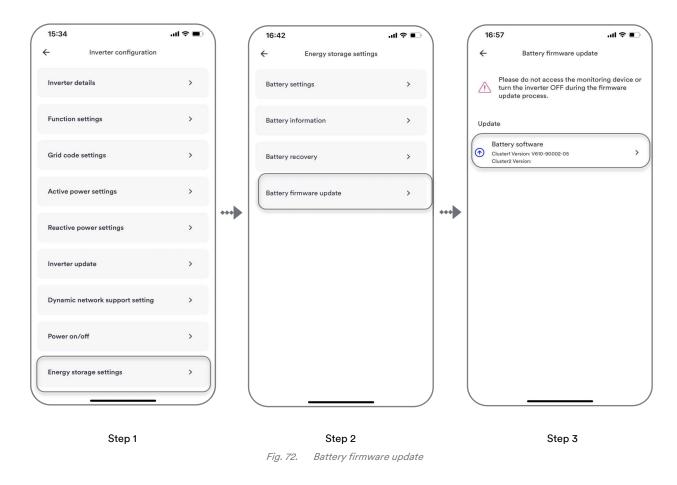
5.2.9.4 Battery firmware update

In some cases, such as when the communication protocols of the battery and the inverter are incompatible, it may be necessary to update the battery firmware.

Step 1: Select < Energy storage settings >.

Step 2: Click < Battery firmware update > to enter the next screen.

Step 3: Click <Battery software> to update.

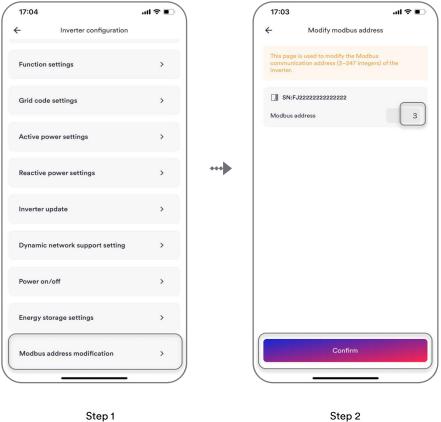


5.2.10 Modify Modbus address

Normally, there is no need to set the inverter's ModBus address, as the communication device will automatically assign an address to the inverter. However, in some special cases, the inverter's ModBus address may need to be arranged in a specific order, and in such cases, the address must be set manually.

Step 1: Select < Modbus address modification>.

Step 2: If necessary, enter a new value for inverter and <Confirm> after entering.



Step 1

Fig. 73. Modify Modbus address

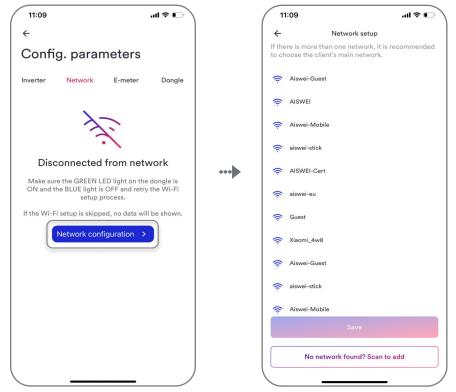
5.3 Network

During the commissioning phase, the communication network is typically configured. However, in some cases, such as when the router is replaced, the network connection may need to be reconfigured.

Step 1: Click <Network configuration> and get the router SSID nearby the dongle.

Step 2: Choose the right router SSID and enter the password and click <Save>. You can determine if the router is successfully connected by checking the status of the blue LED light. Click <Next> to exit.

- Blue LED off: The dongle is unable to connect to the router, possibly due to an incorrect password or being too far from the router.
- Blue LED flashing: The dongle is connected to the router, but unable to connect to the cloud server.
- Blue LED on: The dongle is successfully connected to both the router and the cloud server.



Step 1

11:10	.1	≑ ∎		11:1	0 0
÷	Network setup			÷	Network setup
to choose ·	nore than one network, it is recom the client's main network. ei-Mobile	nmended		BLUE L connec	wait as the dongle connects to the network the ED will blink and turn to SOLID ON upon titon. Please refer to the following descriptions the BLUE LED not turn to SOLID ON:
🤶 aiswe	ai-stick				BLUE LED is SOLID ON Connection to the router and the Solplanet server is successful, tap "Continue" to proceed.
🤶 AISW	/EI-Cert				
🤶 aiswe	si-eu		•••	ţ	BLUE LED is OFF Connection to the network failed. Please check and re-enter the network SSID and password by tapping the "return arrow". In addition check the Wi-Fi signal
Passwor	d 123456				strength.
🤶 Gues				Ņ	BLUE LED is BLINKING Connection to the router is successful however there is no connection to the Solplanet server. Please check the router internet settings and tap the "return arrow" to retry.
🔶 Xiaor	ni_4w8				
🤶 Aisw	ei-Guest				
🤶 aiswe	bi-stick				
🤶 Aisw	ei-Mobile				
	Save				
	No network found? Scan to add				Next

Step 2 Fig. 74. Network - router configuration

If the SSID is not found in the Wi-Fi list, you can manually add the SSID.

- Step 1: Click < No network found? Scan to add> to go to the next screen.
- Step 2: Click < Manual input> to enter the next screen.
- Step 3: Enter the SSID and password, and then click <join>.





Step 2 Fig. 75. Network - router configuration manually

5.4 E-meter (Export active power control)

During the commissioning phase, the export power control is typically configured. However, in some cases, such as when the smart meter is replaced, the export power control may need to be reconfigured.

Note	
Only smart meters that are meter models are compatib	compatible with the communication protocol of Solplanet products can be used. The following smart le with Solplanet products:
Manufacture	Model
EASTRON	SDM230-Modbus V1
	SDM120CT(40mA)
	SDM630MCT V2
	SDM630-Modbus V2
CHINT	DTSU666
	DDSU666
	DDSU666(40mA)
	DTSU666 (40mA)
Acrel	ADL400N-CT
STMHALL	СТ
Solplanet	СТ

Step 1: Click< Enable export power control> button to turn on or off the active power limitation function. Target power limit needs to be set after enabling active power limitation function.

Step 2: Set the anti-reverse flow function as you want and click Save

14:56			14:55	
←			(4.00)	
Config. parameters			Config. parameters	
Inverter Network E-meter	Dongle		Inverter Network E-meter	Dongle
Enable export power control			Enable export power control	
Limit mode	\bigcirc		Limit mode	
Total power	~		Lower phase power	~)
Export power limit setpoint			Export power limit setpoint	
5	%Pn(0-100)	••••	5	‰Pn(3-10)
Meter type			Meter type	
EASTRON SDM230-Modbus V1	~		EASTRON SDM230-Modbus V1	~
AC output power	0.0 W		AC output power	0.0 W
Total grid supplied	0.0 kWh		Total grid supplied	0.0 kWh
Total grid feed-in	0.0 kWh		Total grid feed-in	0.0 kWh
Save			Save	
)		

Step 1

Step 2

Fig. 76. Active power limitation setting

When the meter supports G100 function, the control type displays Criterion and G100.

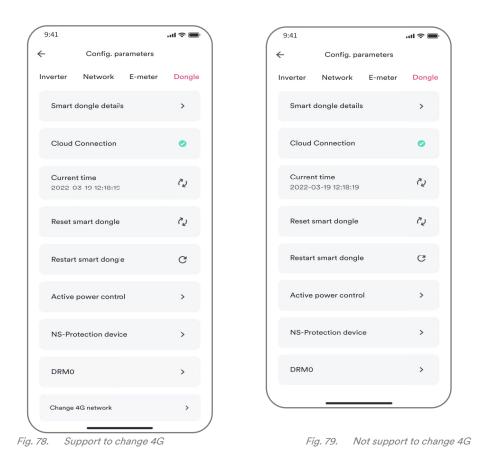
15:04	÷ •		15:04	÷ 🖻
÷				
Config. paramete	ers		Config. parameters	
Inverter Network E-me	eter Dongle		Inverter Network E-meter	Dongle
Export power control type			Criterion G100	
Criterion G100			Enable export power control	
Enable export power control		••••	Maximum Import Current Limit (per phase)	
Limit mode		F	63.0	A(0-600)
Total power	~		Maximum Export Current Limit (per phase)	
Export power limit setpoint			0.0	A(0-600)
22	%Pn(0-100)		Matana	
Meter type			Meter type CT-STMHALL	~
CT-STMHALL	~		Metering method	
Metering method			Phase balanced	~
Phase balanced	~		Fail safe enable	
Fail safe enable			Usage type	
AC output power	-2.6 kW		Domestic Installations	~
<u> </u>				
Step 1			Step 2	
Step I			Jiep Z	

Fig. 77. G100

5.5 Dongle

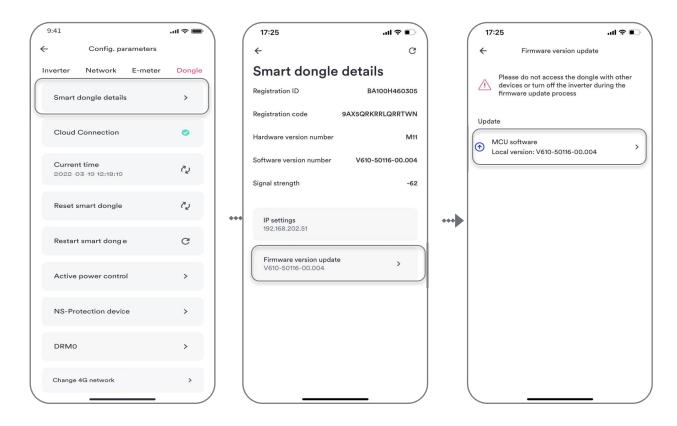
The basic information of the smart dongle can be viewed in this page.

- 1. View the status of cloud platform connection: normally connection to the cloud platform is indicated by a green tick; abnormal connection to the cloud platform is indicated by a red exclamation mark, the network exception code is in parentheses, and the code description is shown in appendix 2.
- 2. Click < Current time> button to synchronize the phone's time to the monitoring device. If the monitoring device can access the cloud platform through the external network, the monitoring device will be synchronized with the time of the cloud platform.
- Click < Reset smart dongle > button will restore the factory settings. You need to reconfigure the network before you can use it.
 For details, see 5.3 Network.
- 4. Click < Restart smart dongle > button will restart the Smart Dongle. You need to rescan and configure parameters in the App.



5.5.1 Dongle firmware upgrade

If the communication device firmware is not up to date, you can download the latest version of the firmware to your mobile phone via the mobile network and then transfer it to the dongle for upgrading.





5.5.2 Active power control (Ripple control receiver settings)

Network security management requires that the power generation systems and storage systems must be able to reduce their active power to a value specified by the network operator at the network connection point without disconnecting from the network. Normally the grid company maybe use the ripple control receiver to do Network security management in Germany.

The states of the four digital input signal ports connected to the ripple control receiver can be customized to correspond to specific active power limits. Each combination of these input states can be configured to define a unique active power threshold, allowing for flexible control and adjustment based on the system's requirements.

Step 1: Click< Active power control > to go to the next screen.

Step 2: Click <Add> to create a group combination. Click the DI to set the signal to a high level, then enter the active power value to define the limit for the group combination. You c click <Add> to create additional group combinations. Click <Save> after adding the desired groups.



9:41	.ul ≎ ■		10:34		···· 🕆 🔳
Config. paramete			÷	Active power control	Ad
nverter Network E-me	ter Dongle		Combination	1	_
Smart dongle details	>		DI 1	DI2 DI3	🗌 DI 4
Cloud Connection	0		Active pow	ver value(%)	0
Current time 2022-03-19 12:18:19	çs				
Reset smart dongle	5				
Restart smart dong e	G				
Active power control	>				
NS-Protection device	>				
DRMO	>				
Change 4G network	>			Save	
	- /				
Step 1				Step 2	
(9:41		·•• 🗢 III.		
	← Ac	tive power control	Add		
	Combination 1				
	🖌 DI 1 🔽	DI 2 🗌 DI 3	🗌 DI 4		
	Active powe	r value(%)	40		
	Combination 2		Ō		
	🗌 DI 1 🔽	DI 2 🔽 DI 3	🗌 DI 4		
	Active powe	r value(%)	20		
		Save			

Step 2

Fig. 81. Active power control

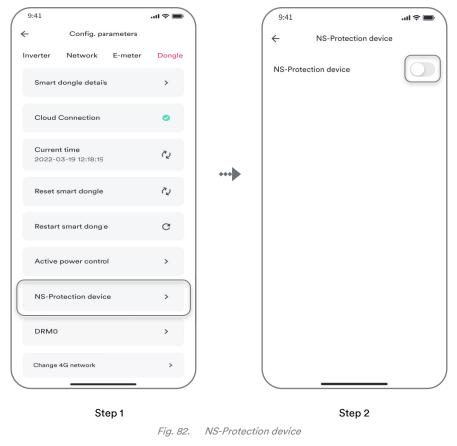
5.5.3 NS-Protection device

Depending on the total of the maximum apparent power of all power generation systems and storage systems at a network connection point ΣS_{Amax} , maybe the central NS protection at the central meter panel should be installed.

The function should be activated when the central NS protection device is connected to the product.

Step 1: Click< NS-Protection device > to go to the next screen.

Step 2: Activate < NS-Protection device > function.

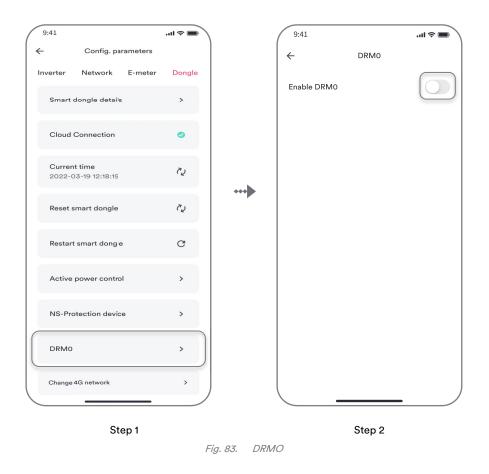


5.5.4 DRM0

The inverter shall support the demand response mode DRM 0 according to AS/NZS 4777.2 for Australia market. The function should be activated when the demand response enabling device (DRED) is connected to the product.

Step 1: Click< DRM 0> to go to the next screen.

Step 2: Activate < Enable DRM 0 > function.



5.5.5 Change 4G network

If your stick supports changing to a 4G network, do the following:

9:41	.ul ≎ ■)		9:41	.ul 🗢 🗩
Inverter Network E-meter	Dongle			
Smart dongle details	>		APN settings	>
Cloud Connection	0			
Current time 2022-03-19 12:18:19	<u>ر</u> 5			
Reset smart dongle	<u>ر</u> ج	••••		
Restart smart dongle	G			
Active power control	>			
NS-Protection device	>			
DRMO	>			
Change 4G network	,			

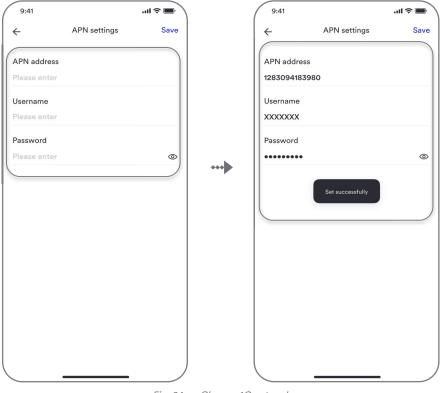


Fig. 84. Change 4G network

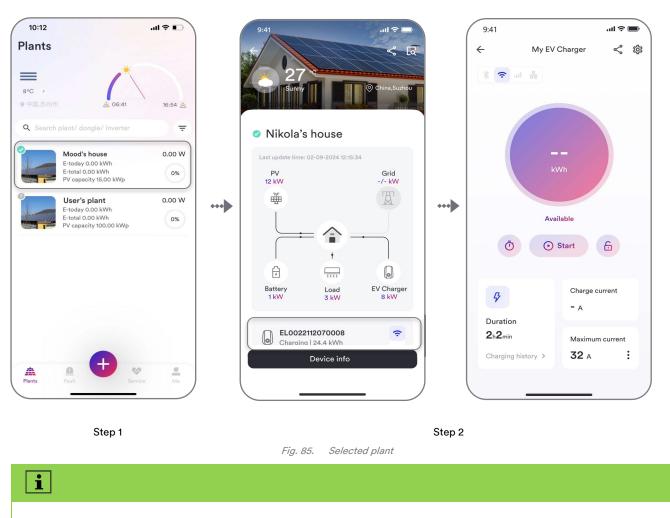
6 EV charger setting parameters

6.1 My EV Charger screen

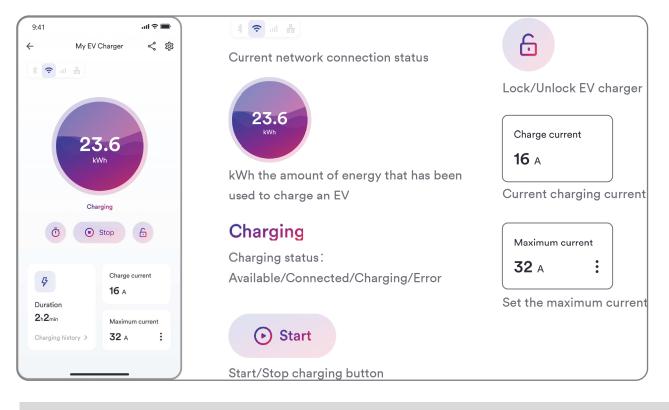
* Referring to section 4.3, you have successfully added the EV Charger to the plant.

Step 1: Please select an existing plant and click the plant name to enter the next screen.

Step 2: Click the series number of the EV Charger to enter the next screen. Then the status of the EV Charger can be viewed.



The following figure provides a detailed explanation of each section of the screen.



Icon	Charging status	Description
	Available	The EV Charger is available and the green light is always on.
	Waiting for response from vehicle	Waiting for vehicle response, blue light is always on.
kwh	Connected	Vehicle is connected, blue light is always on.
Connected	Charging paused due to vehicle	Car end pause, blue light always on.
Ŏ ⊙ Start	Charging	Charging, blue light breathing.
	Error	Fault, red light flashing.
lcon	Charging status	Description
23.6 KWh	Start	When the connect status is displayed, tap start to start charging.
Charging		
	Stop	When the charging status is displayed, tap stop to stop charging.

Fig. 86. My EV Charger Screen

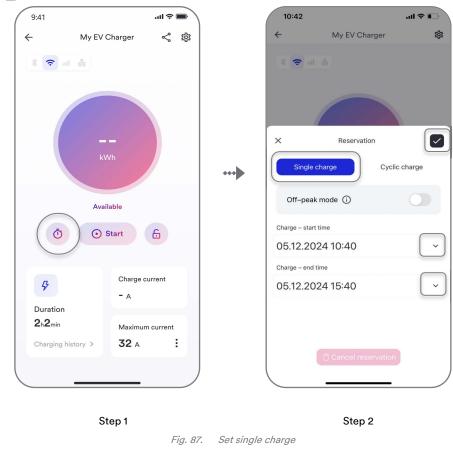
6.1.1 Scheduled charging

6.1.1.1 Single charge

You can schedule a charging time for your electric car, and the EV Charger will automatically begin charging at the setting time.

Step 1: Click the scheduled charging < (a) > icon.

Step 2: Click <Single charge >and set the start time and end time for charging.



Step 3: Click < I icon and the electric vehicle will be charged as per the schedule.

6.1.1.2 Cyclic charge

You can set a fixed charging time for the same period each day, and the EV Charger will automatically charge your electric car according to your preset schedule.

Step 1: Click the scheduled charging < <u>o</u> > icon.

Step 2: Click < Cyclic charge >and define start time, end time and weekly schedule for charging.

Step 3: Click < **Step 4**: Cl

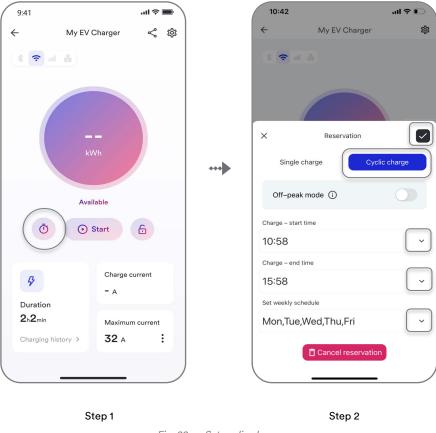


Fig. 88. Set cyclic charge

6.1.1.3 Off-peak mode

Taking advantage of lower electricity prices to charge your electrical car by enabling off-peak mode, you can set the start time and end time to avoid peak demand of power, ensuring that charging occurs only during the more affordable off-peak hours.

Step 1: Click the scheduled charging < (a) > icon.

Step 2: Select < Cyclic charge >or < Single charge > , Click < ()>icon enable Off-peak mode .

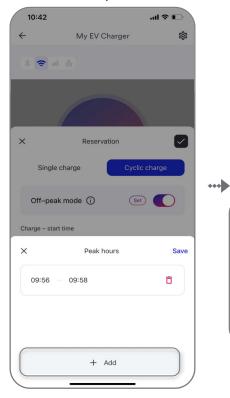
Step 3: Click < Set > to add peak hour period.

Step 4: Click <+ Add > to define peak hours start time and end time, and confirm with <OK >.

Step 5: Click <Save>, the EV charger will not operate during peak hours.

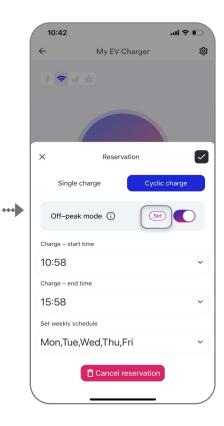


Step 1



		/ly EV Cha	rger	鐐
	? 111 ?			
×		Reservatio	'n	\checkmark
	Single charge		Cyclic	charge
c	Off–peak mode	e (j)		
Char	ge – start time			
10:	58			~
Char	ge – end time			
15:	58			~
Set v	veekly schedule			
Mo	n,Tue,Wed	,Thu,Fri		~
	Ō	Cancel rese	ervation	

Charge –	start time	+ * ? :
	29	
11	30	
12	31	
		×
Cancel	ОК	Single
Charge –	end time	Off-pe. Charge – sta
	29	×
14	30	00:50
15	31	09:56
		11:30
Cancel	ОК)



Step 3

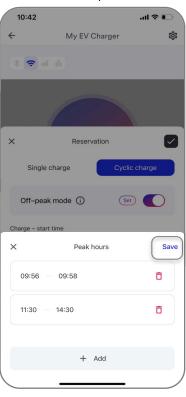




Fig. 89. Off-peak mode

Step 5

6.1.1.4 Scheduled charging for UK region

As per the UK's regulation, your EV charger has been pre-set not to charge at peak times. You can turn off the Off-peak mode, or change the default settings. Click< Skip > to accept the preset peak hours from 8-11am and 4-10pm, or click <Set> to modify according to your local rules..

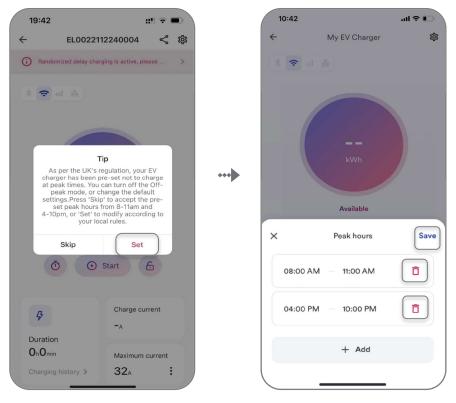


Fig. 90. Scheduled charging for UK region

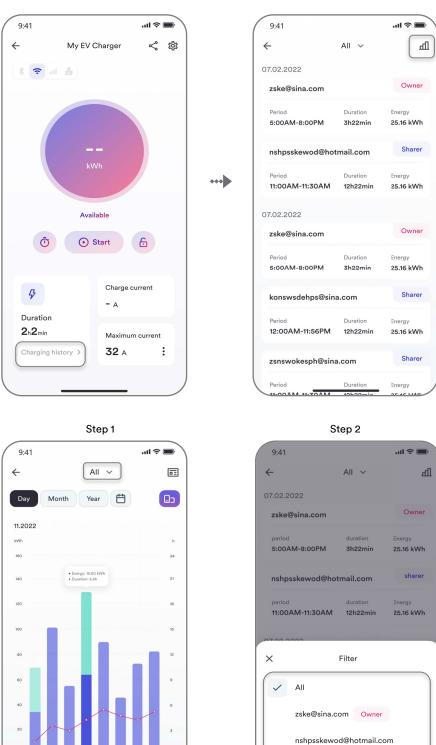
6.1.2 Lock/Unlock EV charger

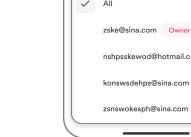
lcon	Charging status	Description
23.6 KWh	Lock	When the charging pile is not in charging or error state, you can lock the charging pile, after locking the pile, the charging pile can not be operated and the LED strip will become yellow.
Charging () () Stop	Unlock	The EV charger can be operated after unlocking it, and the LED strip will change colour according to the current status display, refer to section 6.1 for details.

6.1.3 Charging history

You can query the detailed historical charging data of the EV Charger.

- Step 1: Click the < Charging history> to go to the next screen.
- Step 2: You can see all the charging times recorded. Click < 📶 >icon to switch the view
- Step 3: You can view the charging history more intuitively. . Click <All > to switch users to view.





Step 3 Fig. 91. View charging history

6.1.4 Max. charging current configuration

Setting the maximum charging current, only in the non-charging state.

3

Owner

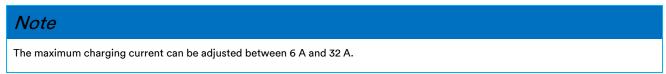
5

- Duration

Shared

Step 1: Click the < i > icon to go to the next screen.

Step 2: You can set the maximum allowable charge current to charge the electric vehicle.



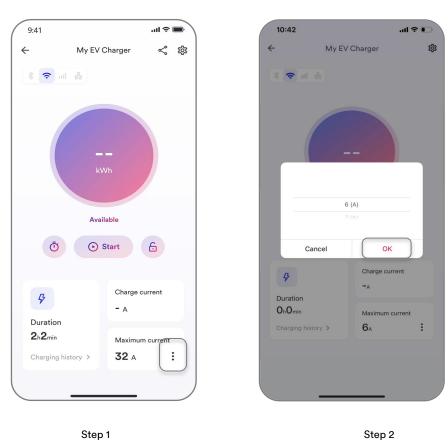


Fig. 92. Set Max. allowable charging current

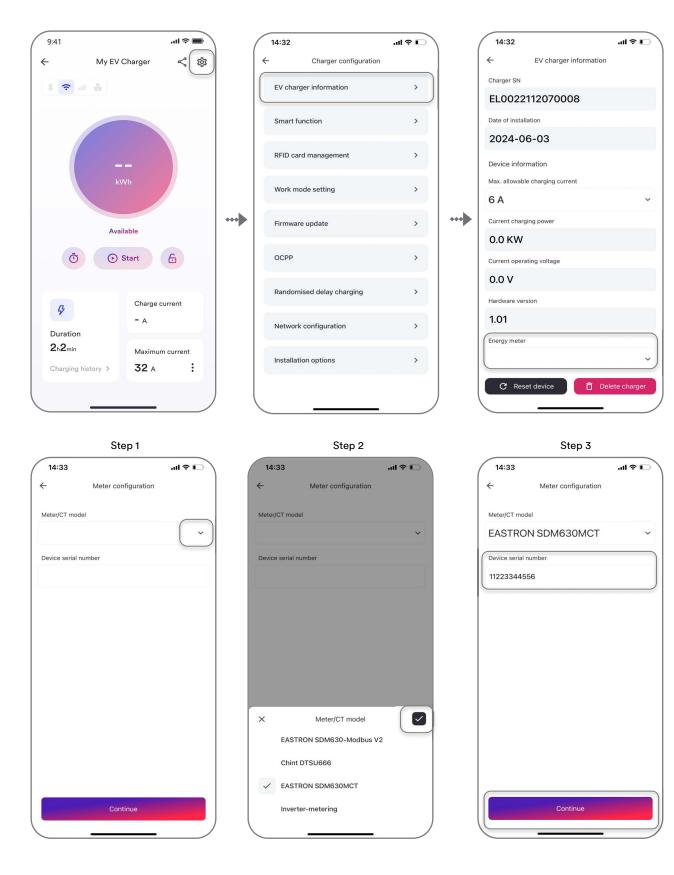
6.2 Charger configuration

6.2.1 EV charger information

You can view the basic information of the EV Charger and select the appropriate smart meter same as installed.

- Step 1: Click the < is > icon to go to the next screen.
- Step 2: Select <EV charger information> to go to the next screen.
- Step 3: Click < Energy meter>.

Step 4: Select smart meter model, enter the serial number, Click < Continue > the message shows "Configuration successful!", the energy meter is added successfully.



Step 4 Fig. 93. Manually to add meter

6.2.2 Smart function

6.2.2.1 Dynamic Load Balancing

Dynamic load balancing ensures you never overdraw your property's power capacity by balancing the power consumption between your EV charger and other electrical household appliances. The system measures the power consumption of the house by the energy meter (or assorted hybrid inverter with meter) and allocates all available power to your EV. The charging power is continuously adjusted, in response to changes in generation or power consumption elsewhere around the house. The EV charger may prioritise the use of excess solar power generated by a PV system, if available, rather than the grid power.

In order to enable dynamic load balancing function for your EV charger, you will need to install a compatible energy meter or assorted hybrid inverter with meter.

Note

Only smart meters that are compatible with the communication protocol of Solplanet products can be used. The following smart meter models are compatible with Solplanet products:

Manufacture	Model
	SDM230- Modbus V2
	SDM630-Modbus V2
EASTRON	SDM630MCT(40mA)
	SDM120CT
CHINT	DDSU666
	DTSU666

Step 1: Click <Smart function> to go to the next screen.

Step 2: Click < Dynamic Load balancing>.

Step 3: Activate < Load balancing>.

i

Step 4: Set the <Maximum system current> value and Click <Save>.

If the energy meter is not added or is not a compatible energy meter, the message will show: The specified meter is not installed. This function cannot be used. Click <Install> to bind the meter.

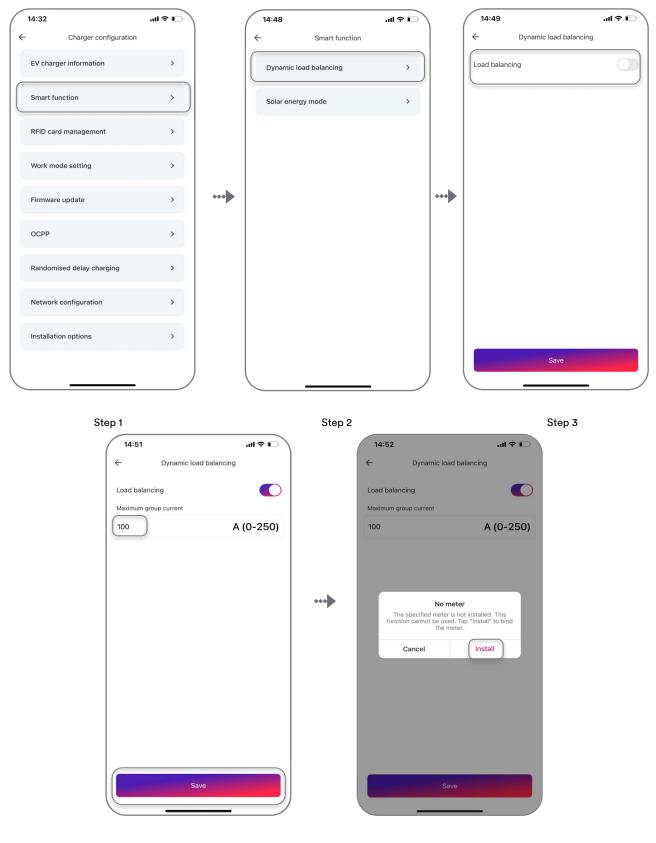




Fig. 94. Dynamic Load Balancing

Solar Energy mode allows you to use the photovoltaic generated energy to charge your electric vehicle in a sustainable and eco friendly way. It offers three different charging modes: Eco mode, boost Eco mode and Solar PV mode.

- Eco mode/Boost Eco mode: Unused surplus green energy will be detected and combined with grid power to charge vehicle.
- **Solar PV mode:** Uses 100% solar energy to charge vehicle.

Note

In order to enable solar energy mode for your EV charger, a compatible energy meter is required.

Step 1: Click <Smart function> to go to the next screen.

- Step 2: Click <Solar Energy Mode>.
- Step 3: Activate <Solar Energy Mode>.
- Step 4: Click <Eco mode> or <Solar PV mode> or <Boost Eco Mode> and confirm with <Save>.

14:32	ul ≎ ⊡	(14:48	ul 🕈 🗖
Charger configuration			← Smart function	
EV charger information	>		Dynamic load balancing	>
Smart function	>		Solar energy mode	>
RFID card management	>			
Work mode setting	>			
Firmware update	>	•••		
ОСРР	>			
Randomised delay charging	>			
Network configuration	>			
Installation options	>			

Step 1

Step 2

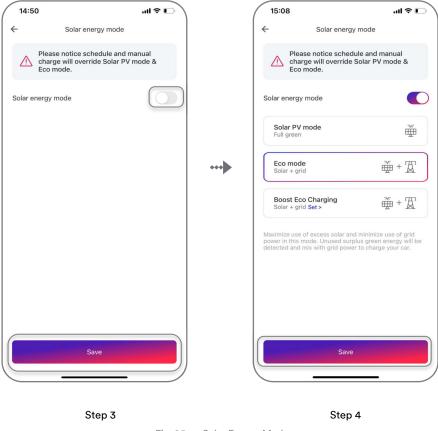


Fig. 95. Solar Energy Mode

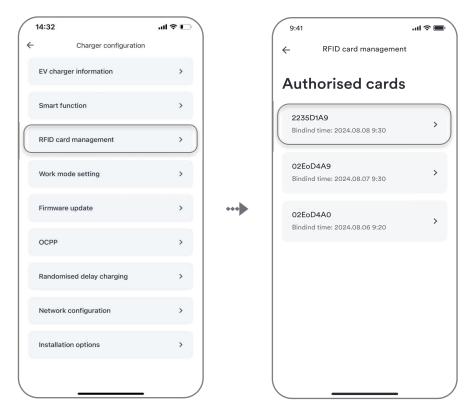
6.2.3 RFID card management

There are 3 authorized RFID cards bound to every EV charger, follow the next steps to enter the RFID card management function.

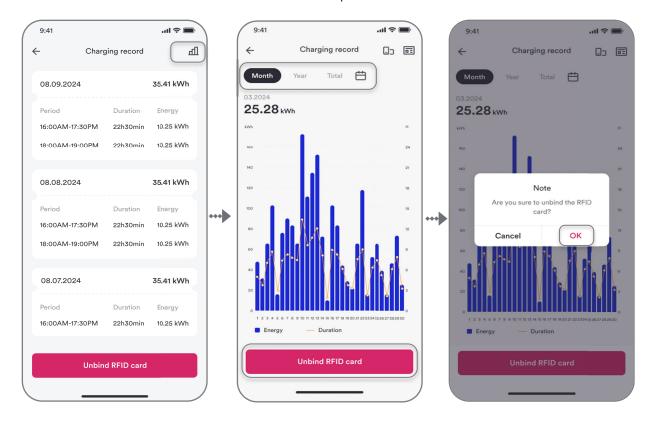
Step 1: Click <RFID card management> and you will see authorized cards.

Step 2: By clicking on the authorisation card (or click on the icon in the top right hand corner),

you can see the charge amount, charge duration and charge time for each RFID card.







Step 2

Fig. 96. RFID card management

i

- Do not connect your charging plug to your EV when your RFID card is activating.
- Currently, the recording of electricity consumption per card is only available when the EV charger is connected to the network.

• To delete RFID cards from the RFID management screen simply tap unbind icon and confirm the remove of the card.

Maximum 3 RFID cards can be bound. ٠

6.2.4 Work mode setting

Plug and play mode: This mode allows users to charge the EV simply by connecting the charger to the EV without the need of the App or swiping the authorized RFID card.

Step 1: Click <Work mode setting> to go to the next screen.

Step 2: Enable <Plug and play> mode.

Note

After the Plug and play mode is turned on, the scheduled charging and RFID card modes will not be enabled.

14:32	.ul ≎ ∎)		15:29	.ıl ≎ D		15:29		I 🕈 🕞
← Charger configuration			← Work mode setti	ng		÷	Work mode setting	
EV charger information	>		When this mode is enabl reservation and RFID car disabled	ed, the d modes will be		When reser disat	n this mode is enabled, t rvation and RFID card mo bled	he Ides will be
Smart function	>		Charge mode selection		_	Charge mode	selection	
RFID card management	>		Plug and play			Plug and play		
Work mode setting	>					-	Plug and play	
Firmware update	>	••••			>	Turn or be use	n "Plug and Play" mode, cha d without authentication. Co enable?	rger can nfirm to
OCPP	>						ОК	
Randomised delay charging	>							
Network configuration	>							
Installation options	>							
Step 1					Step 2			

Fig. 97. Work mode setting

6.2.5 Firmware update

Note

Sections 5.2.6.1 and 5.2.6.2 only describe the local upgrade of the HMI software for the inverter. However, software upgrades for the Master, FPGA, and Safety parts of the inverter, as well as local upgrades for the dongle and Ev-charger, are all done by selecting the ". bin" file in the phone folder.

6.2.5.1 Local firmware upgrade - Bluetooth

Note
Please do not interrupt the Bluetooth connection or power off the EV charger during the upgrade process.

Step 1: Click <Firmware update> to go to the next screen.

Step 2: Save the firmware to your smart phone, Click<Upgrade/Downgrade> button to find the firmware in your smart phone.

Note

Wait for the uploading and keep the power during the upgrade process, and the whole process will take about 15 minutes at least. After 15 minutes, you can check the firmware version with the app.

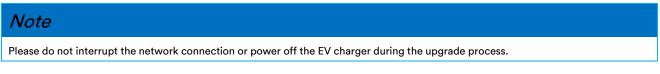
14:32	.u ≎ II.		14:32		I ≑ II.		14:30		::!! 5G 🗐
Charger configuration			÷	Firmware upgrade			÷	Firmware upgrade	Save
EV charger information	>		A PI	lease do not power off th	ne		1.37_2024112	20.bin	\bigcirc
Smart function	>			evice during the upgrade			1.35.bin		
RFID card management	>			ade/Downgrade version: 1.33	>		2.60.bin		
R D our a management	· · ·						CP_2024121	4.bin	
Work mode setting	>						1.33.bin		
Firmware update	>	••••				••••	A192Chger_	Head_20240604.bin	
							1.36_202409	907.bin	
OCPP	>						evse&hub_2	0241120.bin	
Randomised delay charging	>						1.36_mbs_h	ead.bin	
Network configuration	>						1.36_0924.b	in	
Installation options	>						A192Chger_	Head_20241217.bin	
	,						2.00_202410	030.bin	

Step 1

Step 2

Fig. 98. Local firmware upgrade - Bluetooth

6.2.5.2 Remote firmware upgrade - 4G, Wi-Fi, Ethernet

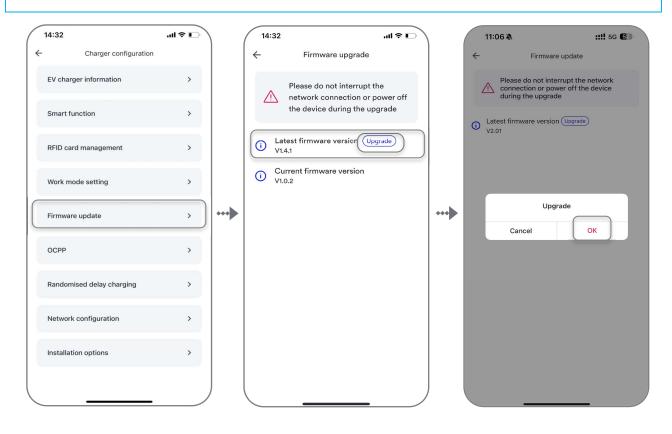


Step 1: Click <Firmware update> to go to the next screen.

Step 2: If the latest version exists, click < Upgrade>.

Note

Wait for the uploading and keep the power during the upgrade process, and the whole process will take about 15 minutes at least. After 15 minutes, you can check the firmware version with the app.



Step 1

Step 2 Fig. 99. Remote-firmware-upgrade-~4G,-Wi-Fi, Ethernet

6.2.6 OCPP

By enabling OCPP mode, you can make Connecting charging piles connected to a third-party OCPP platforms.

- Step 1: Click <OCPP> to go to the next screen.
- Step 2: Enable <OCPP> mode.
- Step 3: Scroll down to select the platform docking address.

Step 4: Click <OK> and confirm with <Save>.

Note

After OCPP function is enabled, the EV charger will disconnect from the Solplanet server and the communication between the EV charger and the server will stop, the operation by Solplant app will be forbidden. You can place an authorized RFID card in the front of the card reader for 10 seconds and the EV charger will emit a "beep" to disable the OCPP function

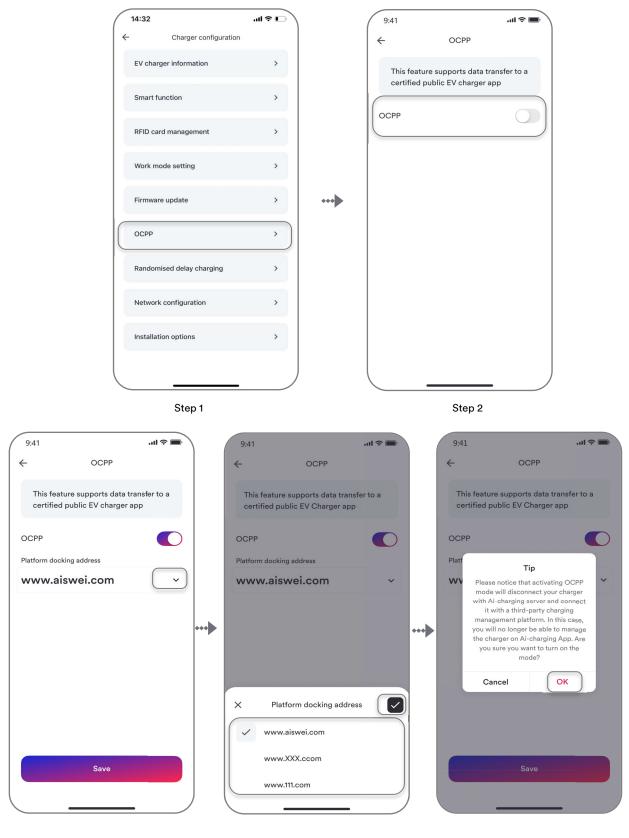




Fig. 100. OCPP mode

6.2.7 Randomised delay charging

After connect the EV charger to your EV, the EV charger will start charging automatically after a while, the delay time will be between 600 and 1800 seconds, it also can be set manually. This function can help the region reduce the risk of the potential grid stability issues where multiple EV chargers begin to charge at the same time.

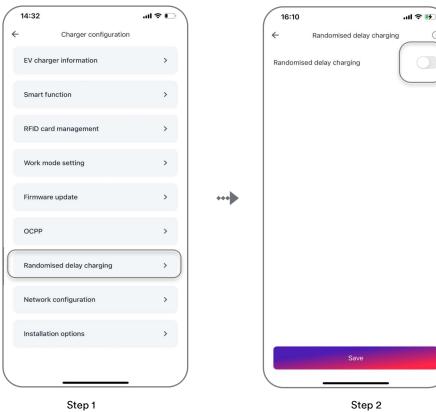
Step 1: Click < Randomised delay charging>to go to the next screen.

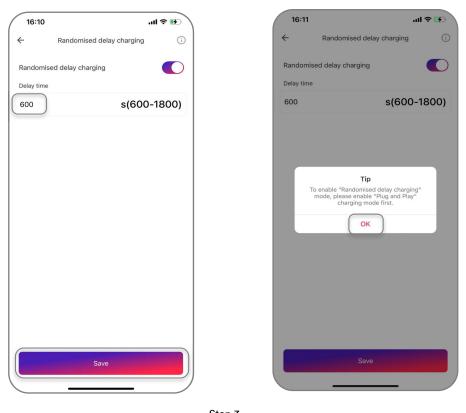
Step 2: Enable <Randomized delay charging> mode.

Step 3: Set delay time, Click <Save> and will active this mode.

Note

Before enable the randomised delay charging, please make sure Plug and Play function has been enabled.





Step 3 Fig. 101. Randomised delay charging

If you are UK user, after the EV charger is successfully set up, the randomised delay setting will be enabled by default based on UK regulation, user can manually override the setting after the initial set up.

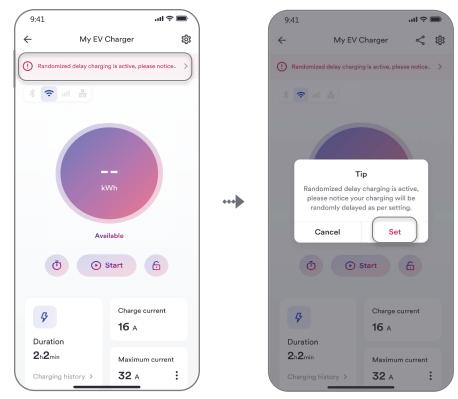
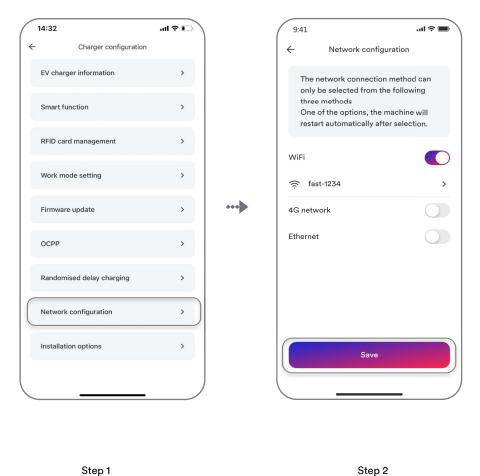


Fig. 102. Randomised delay charging in UK

6.2.8 Network configuration

Step 1: Click the <Network Configuration> entry.

Step 2: Choose and enable the network type to be used (4G, Wi-Fi, Ethernet), then click the <Save> button to validate the network configuration.



Step 1

Fig. 103. Network Configuration

Note

- Only one network connection mode can be selected and enabled (two or more cannot be turned on at the same time). ٠
- After changing the network mode, the EV charger will restart. .
- Enter this entry, if you have previously configured Wi-Fi or 4G, the corresponding switch will show on the state. After select the Wi-• Fi, 4G or Ethernet network mode and save process, the corresponding icon status will become blue from grey.

Wi-Fi configuration introduction

Here you can configure the Wi-Fi network or change the current Wi-Fi network.

Step 1: Click < Network configuration> to go to the next screen.

Step 2: Enable Wi-Fi.

Step 3: Select network from the list you want to configure or choose a different Wi-Fi network name and enter the password, then Click <Continue>.

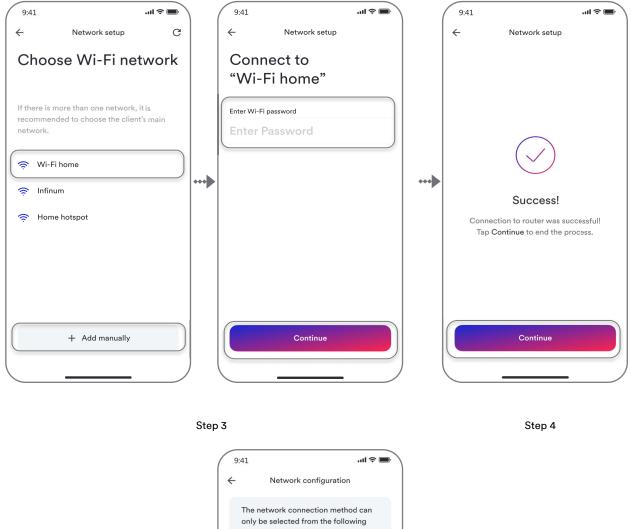
*If your Wi-Fi network does not appear in the search list, you can manually search to configure it by entering the Wi-Fi name (SSID) and password.

Step 4: After completing the above steps, the app will feedback a "success" on the screen, click <Continue> to end the process.

Step 5: At this point, return to the higher-level page and click the <Save> button to make the network configuration effective.

14:3	32	.ul ≎ D	(9:41	·■ \$ III.	(9:41	· ■
÷	Charger configuration			Network configura	ation		← Network configu	ration
EV	charger information	>		The network connection monly be selected from the t			The network connection only be selected from the	
Sm	nart function	>		three methods One of the options, the ma restart automatically after			three methods One of the options, the m restart automatically afte	
RFI	ID card management	>		WiFi			WiFi	
Wo	ork mode setting	>		No wifi, configure	,		No wifi, configure	,
Firr	mware update	>	•••	4G network		••••	4G network	\bigcirc
ос	PP	>		Ethernet			Ethernet	
Rar	ndomised delay charging	>						
Net	twork configuration	>						
Inst	tallation options	>		Save			Save	

Step 1



9:41		ا ن ج الر
÷	Network co	nfiguration
only three One	be selected from e methods of the options, t	ction method can m the following the machine will y after selection.
WiFi		C
🤶 Wi	-Fi home	>
4G netw	vork	0
Etherne	t	\bigcirc
	Sav	ve

Step 5 Fig. 104. Wi-Fi configuration

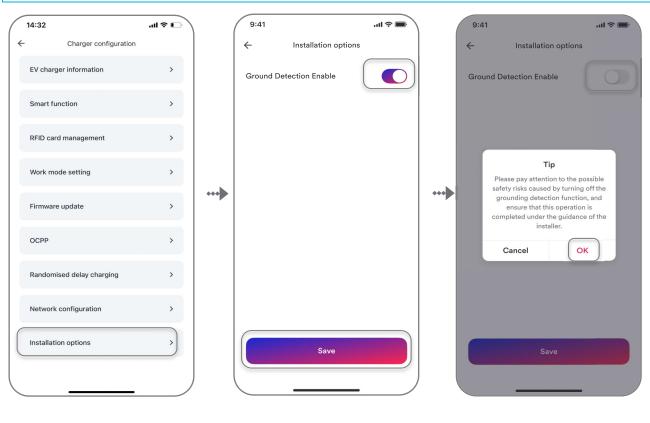
6.2.9 Installation options

Protective earth wire may not connected well for some users in their house and the EV charger will detect a PE fault, you can turn off the grounding detection function to ignore this fault, however, we recommend that keep this function on for safety reasons.

Step 1: Click < Installation options>to go to the next screen.

Step 2: Enable < Ground Detection Enable> mode,

Note Please pay attention to the possible safety risks caused by turning off the grounding detection function, and ensure that this operation is completed under the guidance of the installer.



Step 1

Step 2 Fig. 105. Installation options

7 Monitoring information

7.1 About plants

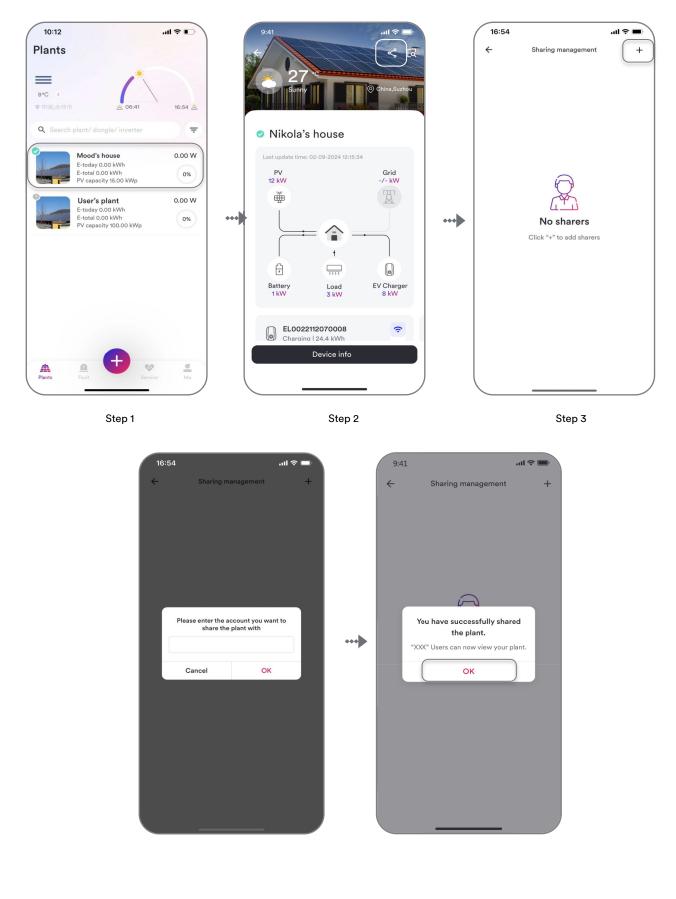
- Click to view the weather condition of the coming week in the location of the app.
- Here you can search for eligible power plants by fuzzy search of "power plant name", "collector serial number" and "inverter serial number".
- Filter the list of eligible power plants according to the specified conditions.
- Show the list of power plants under this account.



Fig. 106. View Plant

7.1.1 Share plants

- Step 1: Choose the Plant to be shared, to go to the next screen.
- Step 2: Click the Share icon in the upper right corner.
- Step 3: Click <+>to add sharers, enter the account you want to share, then click <OK>.
- Step 4: Click <OK>, Plant is successfully shared!









7.1.2 Edit a plant

Step 1: Add a power station editing button to the power station details page. Click to enter and edit other detailed information of the power station.

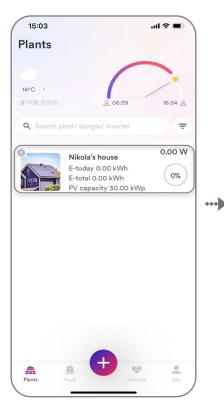
Step 2: Incomplete information was not filled in during the creation of the power station, which can be edited in this step.

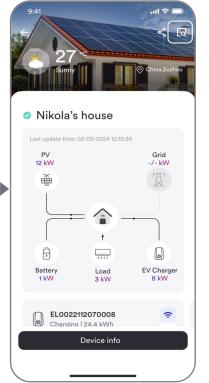
Step 3: Click on the electricity price setting to enter the electricity price editing page. There are two options for the Tariff type that are fixed price and peak- valley.

Step 4: Drop down to select peak valley electricity price. You can set the time period from Monday to Sunday and import/export traffic, Click to <Go to setting>.

Step 5: If set to be completed 24 hours a day on Monday, you can click on the copy operation to copy to another date.

Step 6: You can also delete the power station by clicking on the delete icon, and there will be a prompt asking if you want to delete it.



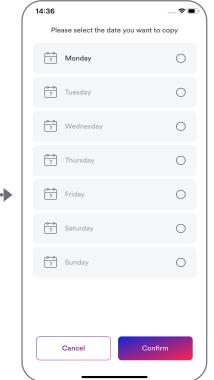


9:41 .ul 🗢 🔳 4 Plant information Ō 0 Plant name User's plant Country/State Germany Address Xiangyang Rd 22, Suzhou 🌱 Time zone UTC+1 Capacity(kWp) 1400 Plant type Residential energy storage Electricity price No configured > Owner contact info +385 17852718923 Organization code 01233 Installer email karlos@aiswei-tech.com Installer phone 1763241526 Battery capacity (kWh) 0 Application category Full feed-in

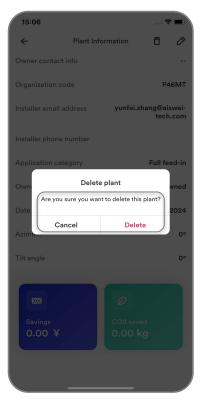
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			Plant type				Application category Full feed-in		
Change icon image	1.110		Residential grid co	nnect	~				
			Electricity price*				Ownership type		
21- ut us us at		l	Not configured		>		Privately owned		`
Plant name* User's plant							Date of installation		
			Owner contact info*		>		28.10.2024		:
Country/State*					· · · · ·		Azimuth(°)		
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Address*			P46MT		>		Tilt angle(°)		
3891 Ranchview Dr.Richar	dson, California		Installer email addres	s		••••	0		
Time zone*			yunfei.zhang@aisw	vei-tech.com			Note 1		
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							Note 2		
Capacity(kWp)*			Application category				Note 2		
1400			Full feed-in		~				
Plant type			Ownership type				Note 3		
Residential energy storage	•		Privately owned		~				
Electricity price*									
Save				Save				Save	
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	Fixed price				Peak-valley		~		
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	Import tariff*		V (DAVE	••••		Con	setting		
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	Export tariff*								
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Export tar	iff	
12		/kWh
	Add period	



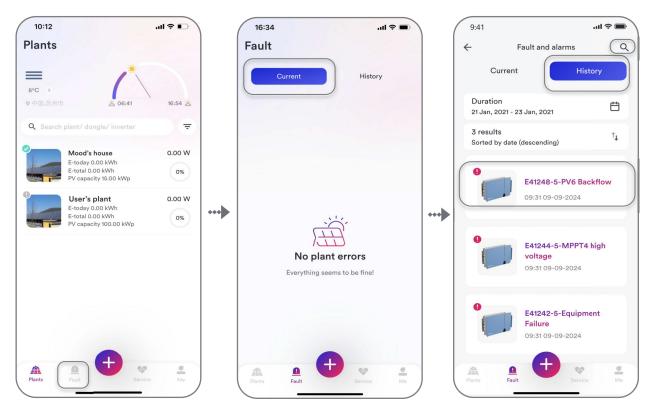
Step 5





7.2 About Fault

If there is a faulty device under your account ID, you can view the fault in the two dimensions of "current" and "history" through the "Fault" column of the home page. Click on the specified fault to view the details and get a solution.



You can select a fault and click to enter and view details

Click on the magnifying glass to enter the inverter serial number for search. Other forms of input do not support search operations.

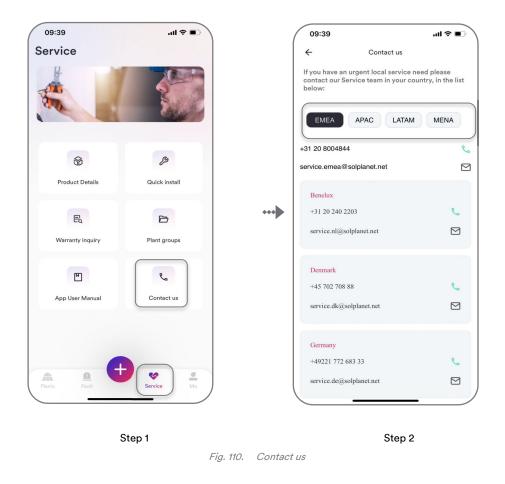
10:45	١	10:48	🕈 🔳
← Troubleshooting		← Inverter serial number	
Inverter SN: LA010K12C2430016		Recent searches	
Plant name: Libra 并机测试 Copy		vhhhh	
Causes			
• E34 - AC Voltage Out of Range			
Solutions			
 Disconnect the AC air switch and measure the AC voltage. It should be the voltage between line and the neutral(the value is about 230V), and the voltage between neutral and the ground (the value is within 20V). 	•••		
 If the measured voltage is abnormal, the failure is caused by the system voltage. If the measured voltage is normal, please switch on the air switch and proceed to the next step. 			
 Measure the AC voltage UL1-N, UL2-N, UL3- N, UN-PE by multimeter. 			
 If the measured voltage is normal, it is caused by the inverter fault, please contact with service center. 			
 If the measured voltage exceeds the safety requirement, please check system voltage. 			
))		_
Fig. 109.	View fault det	ails	

7.3 About Service

If you encounter technical issues related to our product, please contact our regional service department within working hours.

Follow below steps to find the contact information of different regions for help.

- 1. Click< Product Details>, you can go to the information platform, according to the machine side label on the inverter type query supporting information (including: Manuals, Quick install, Datasheet, Install video, Protocol, Warranty and other information).
- 2. Click< Quick install > to quickly search for installation videos for your machine.
- 3. Click< Warranty inquiry>, you can inquire the warranty start time and end time of the specified inverter.
- Click< Plant groups > can be assigned to the existing plants under this account, which is convenient for subsequent batch operation and maintenance management.
- 5. Click< App User Manual> to get the latest app manual.
- 6. Click< Contact us > for contact information for different regions.



7.4 About Me

Account login, click <Me >, enter the service module.

The End user login screen does not look like the Business user login screen.

9:4	1	-
		0
	Nikola Hoult ID:12354566	
R	Organizational management	>
O	Account and security	>
Û	Notifications	>
ഹ	App Feedback	>
8	Data migration	>
()	About us	>
⊕	Languages	>
囙	Privacy	>
€	App download	>
Ø	Clear cache 234 MB Including images, data, etc	>
[→	Log out	>
Plant	Fault Service	e Me

Fig. 111. B-end

No.	Name	Description
1	Organizational management	For hierarchical management of the Business user of the organization.
2	Account and security	Can be cancelled account, binding (mobile phone / email) to change the password and other settings
3	Notifications	To set the form of notification (mobile phone/email).
4	App Feedback	You can feedback the problems and suggestions you encountered when using the app, we look forward to your better suggestions!
5	Data Migration	Refer to section 7.4.2.
6	About us	To know more about us.
7	Languages	For the Privacy Policy and Terms of Service, including system permission settings.
8	Privacy	For the Privacy Policy and Terms of Service, including system permission settings.
9	App download	You can see the version model of the current app, of course the QR code below, you are welcome to recommend it to the people around you who need it. Thank you for sharing!
10	Clear cache	To cache memory containing images, data, etc.
11	Log out	To log out of the current login.

7.4.1 Organizational management

Business user logs in and clicks on organization management to bind administrator and add subordinates.

Step 1: Click< Organizational management > to go to the next screen.

Step 2: Click< Bind administrator > in the upper right corner to add administrator.

Step 3: Fill in the ID of the administrator.

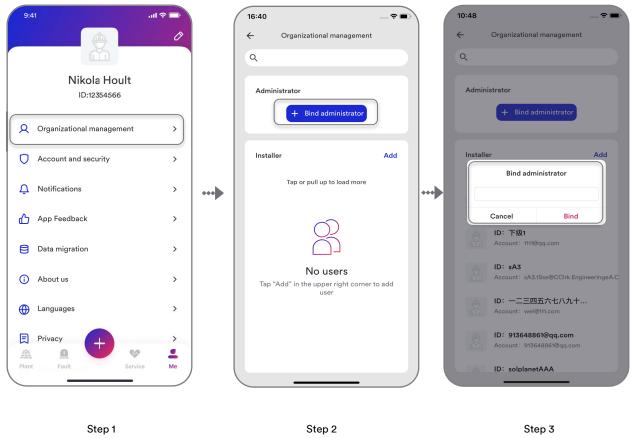


Fig. 112. Bind administrator

If you don't have a subordinate account, you can create one by clicking <Add>.

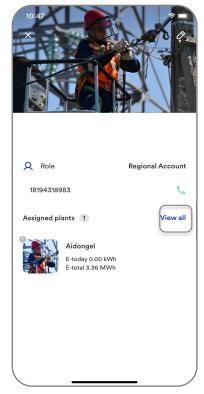
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← Organizational management		× Add installer
٩		Note: Fill in at least one mobile phone or email address
Administrator + Bind administrator		+ Add profile photo
Installer Add		Installer name*
Tap or pull up to load more	•••	Email address
8		Mobile phone +86 ∨
No users		Password*
Tap "Add" in the upper right corner to add user		Role* Regional Account
		Create
	(

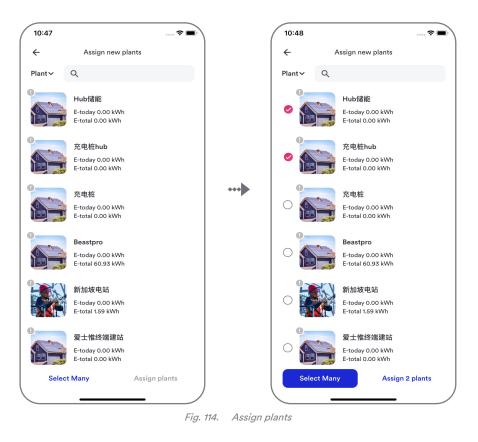
Fig. 113. Adding subordinate accounts

Click on an existing subordinate to enter the management page, where you can verify account information and view assigned power stations.

Click on the <View all > button to enter the list of assigned plants. When assigning plants again, you can select them one by one or select them all. After successful selection, the allocation is successful.

10:47	
÷	Organizational management
Q	
Admin	istrator
	+ Bind administrator
Install	
	ID: 18194318983 Account: 18194318983
\subseteq	
	ID: service.emea@solplane Account: service.emea@solplanet.net
	ID: 下级1
	Account: 1111@qq.com
	ID: sA3
	Account: sA3.1Sse@CClrk.EngineeringeA.C
	ID: 一二三四五六七八九十 Account: wei@111.com
	Account: Weight.com
	ID: 913648861@qq.com Account: 913648861@qq.com
	Account: 913048881@qq.com





Click the edit button to edit the information of the subordinate account. You can modify the account information and click save. Save successfully.

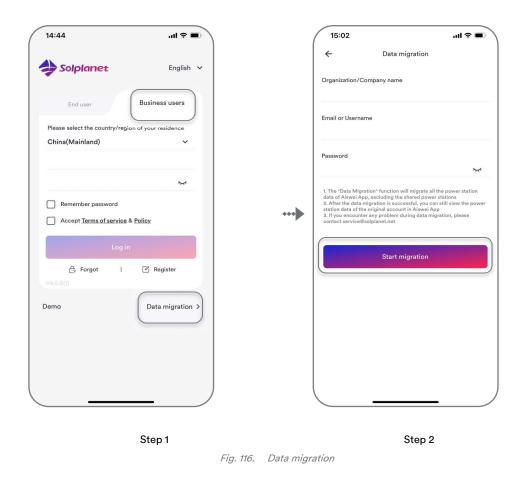
10:47		🗢 🔳		10:48	
÷	Assigned plants	Edit		÷	Save
1 result Sorted by dat	e added (Descending)	ţ,		Edit Inst	taller
	Aidongel E-today 0.00 kWh E-total 3.36 MWh			Note: Fill in at lea	ast one mobile phone or email address
	Tap or pull up to load more				Change profile photo
			•••	Installer name*	
				Email address	
				Mobile phone +86 ∨	18194318983
					Delete installer
		⊕			

Fig. 115. Editing subordinate account information

7.4.2 Data migration

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- This function is used for upgrading end users in this application to Business users, and migrating all power station information under the end user account to Business users. After the migration is successful, the account of the original end user will not be able to log in again. If you want to be an end user, you need to register again.
- The data migration function can only migrate your own power station, not the shared power station.
- If you encounter any problem during data migration, please contact service@solplanet.net.
- Step 1: In the login window, switch the login identity to "Business users".
- **Step 2**: After entering the corresponding information, click "Start migration" to proceed.



 If you have registered an account with Business user identity through the "Solplanet" application and want to migrate all the power station information in the account with your end user identity. You can migrate data through <Data migration> on the <Me> page. The operation steps are the same as the data migration on the login page above.

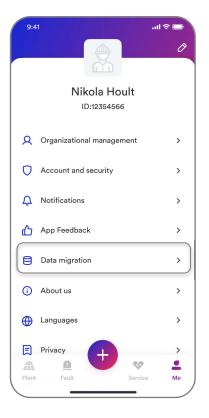


Fig. 117. Data migration

