GOODWE

PV Master

User Manual

PV Master App

V1.2 -2022 -09-30

Contents

1   About This Manual

- This manual introduces commonly used operations in PV Master.
- Before setting any parameters, read through the app and the inverter user manual to learn the product functions and features. When the inverter parameters are set improperly, the inverter may fail to connect to the utility grid or fail to connect to the grid in compliance with related requirements and damage the battery, which will affect the inverter's power generation.
- This manual is subject to update without notice. For more product details and latest documents, visit https://www.goodwe.com/.

1.1 Target Audience

This manual applies to trained and knowledgeable technical professionals. The technical personnel has to be familiar with the product, local standards, and electric systems.

1.2 Symbol Definition

Different levels of warning messages in this manual are defined as follows:

⚠ DANGER
Indicates a high-level hazard that, if not avoided, will result in death or serious injury.

⚠ WARNING
Indicates a medium-level hazard that, if not avoided, could result in death or serious injury.

⚠ CAUTION
Indicates a low-level hazard that, if not avoided, could result in minor or moderate injury.

NOTICE
Highlights and supplements the texts. Or some skills and methods to solve product-related problems to save time.

1.3 Updates

The latest document contains all the updates made in earlier issues.

V1.0   2021-12-17
- First Issue

V1.1   2022-03-03
- Updated 3.3 Setting Export Power Limitation.

V1.2   2022-09-30
- Updated 3 APP Operations.

2 Product Introduction

PV Master is an external monitoring / configuration application for hybrid inverters, used on smart phones or tablets for both Android and iOS system. Features include:
1.   Edit system configurations according to customer needs.
2.   Check the firmware version.
3.   Set the safety region by country and region according to local utility requirement.
4.   Adjust the export limit.
5.   Monitor and check the performance of the hybrid system.

2.1 Applicable Inverter Model

PV Master applies to GoodWe hybrid inverters.

2.2 Downloading and Installing the App

Make sure that the mobile phone meets the following requirements:
   •   Mobile phone operating system: Android 4.3 or later, iOS 9.0 or later.
   •   The mobile phone can access the Internet.
   •   The mobile phone supports WiFi or Bluetooth.

 Search PV Master in Google Play (Android) or App Store (iOS), then download and install the app.

NOTICE
After installing the app, it can automatically prompt users to update the app version.

2.3　App Connection

After turning on the inverter, the app can connect to the inverter as the following shows.
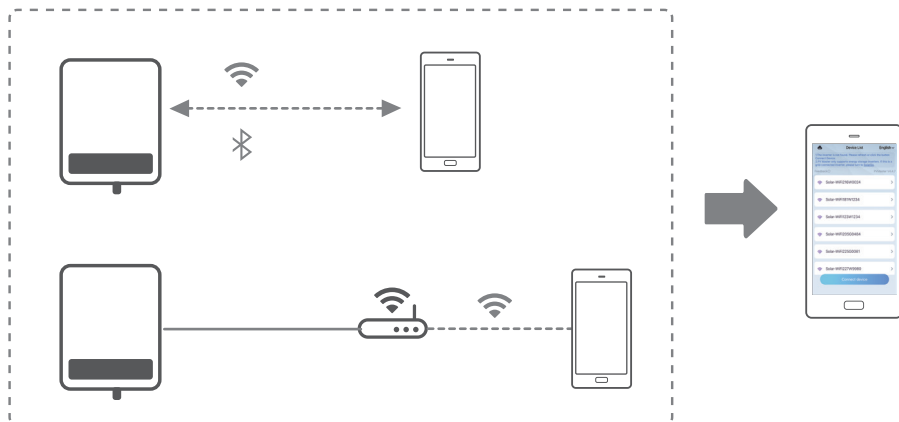
2.4　Set the App Language

The interface can be displayed in 6 different languages. Switch the language as the following shows.
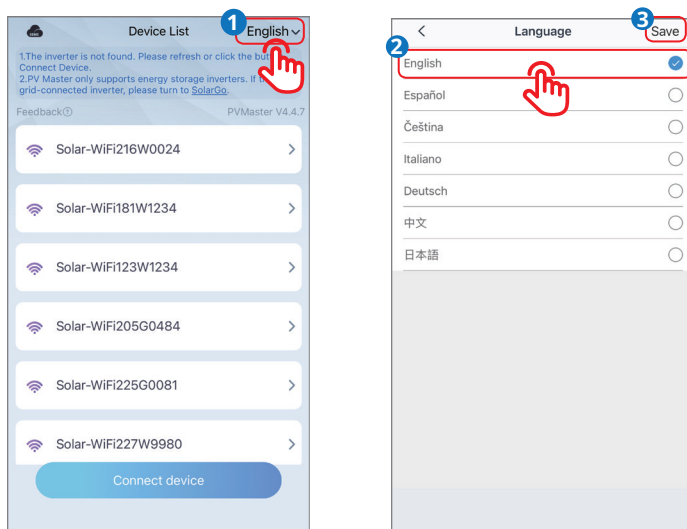
2.5 Log In

Select WiFi connection or LAN connection according to the communication module type.
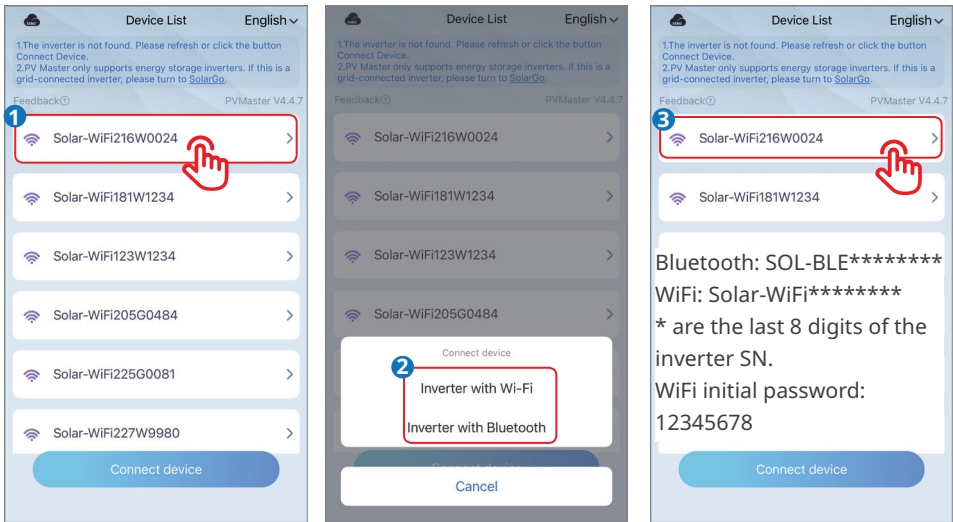
2.6 App Interface Structure

The interface structure of PV Master is shown as follows.

Check system data, equipment information, and alarms on Overview and Parameters interfacce.

Set system equipment parameters on Setting interface.
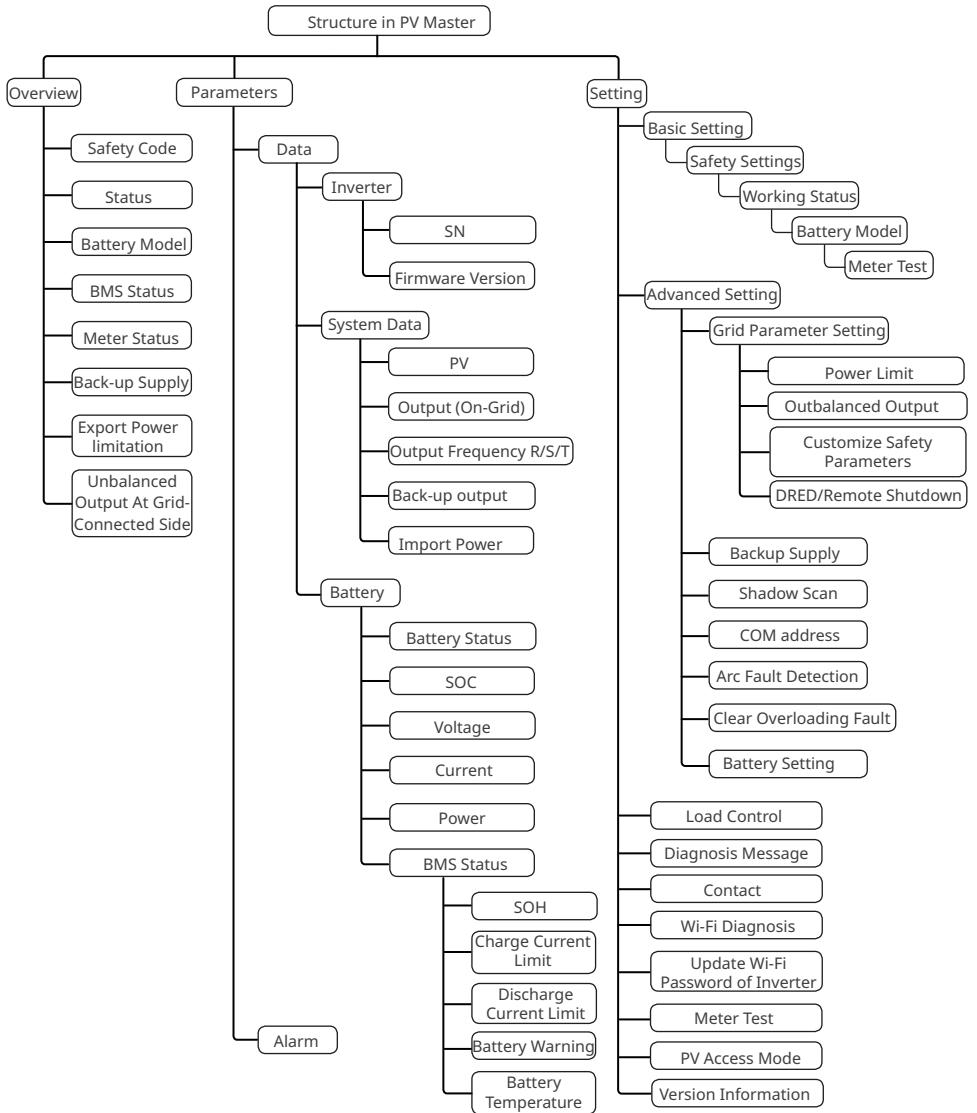
3　App Operations

NOTICE
• All the user interface (UI) screenshots in this document are based on PV Master App V4.4.7. The UI may be different due to the version upgrade or inverter model. The data on the UI screenshots is for reference only. • Before setting any parameters, read through the app and the inverter user manual to learn the product functions and features. When the inverter parameters are set improperly, the inverter may fail to connect to the utility grid or fail to connect to the utility grid in compliance with related requirements and damage the battery, which will affect the inverter's power generation.

3.1 Checking Information

3.1.1 Checking Basic Information

Tap **Overview** to check the inverter and battery status after login.
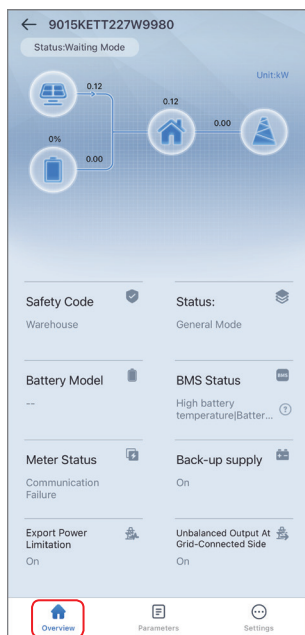
3.1.2 Checking the System and Real-time Data

Step 1 Tap **Overview** > **Parameters** > **Data** to check the real-time system, battery, and inverter data.
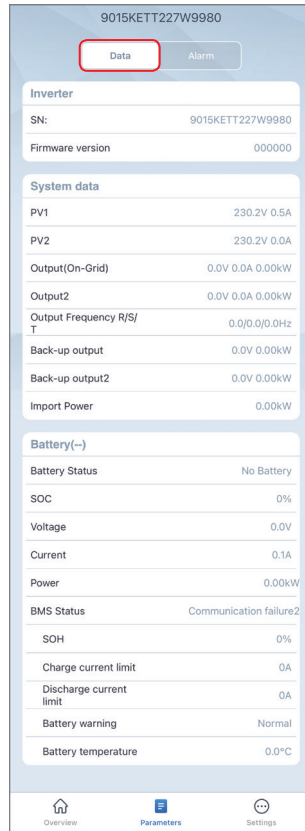
3.1.3 Checking Alarms

Step 1 Tap **Overview** > **Parameters** > **Alarm** to check the alarms.
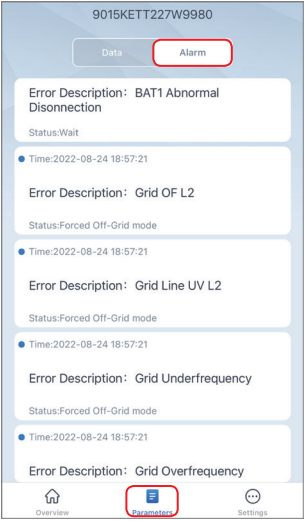
3.1.4 Checking the Contact Information

Step 1 Tap **Overview** > **Setting** > **Contact** to check the contact information.
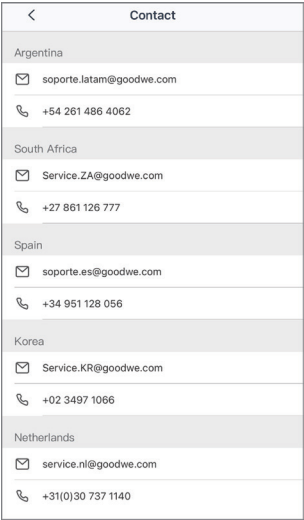
3.1.5 Checking the App Version
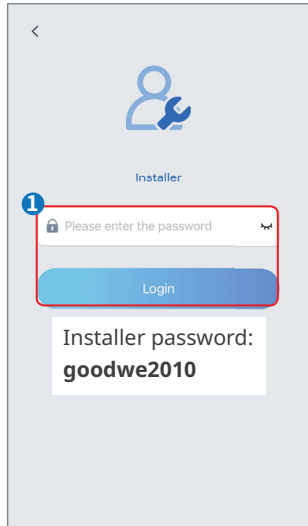
Step 1 Tap **Overview** > **Setting** to check the app version information.
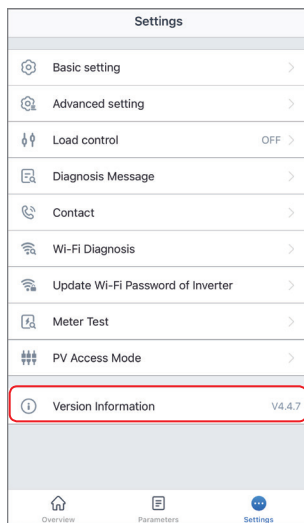
3.2 Setting Basic Parameters

Step 1: Tap **Overview** > **Setting** > **Basic Setting** to set the basic parameters according to the inverter location and actual application scenarios.

For ET15-30kW Inverters
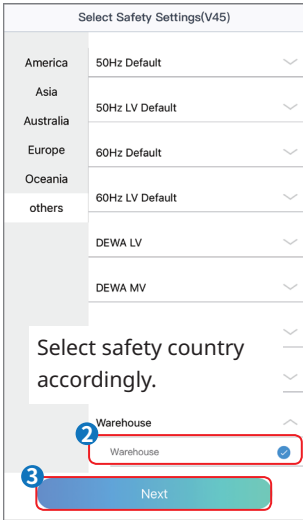
Installer

❶ Please enter the password

Login

Installer password:
goodwe2010
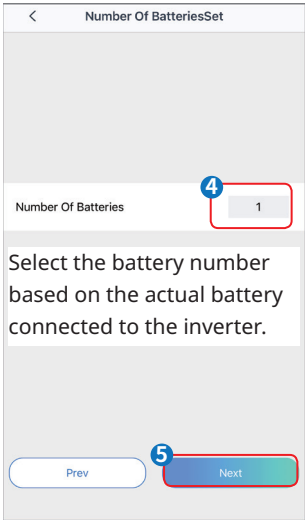
Select Safety Settings(V45)

America	50Hz Default
Asia	50Hz LV Default
Australia	60Hz Default
Europe	60Hz LV Default
Oceania	DEWA LV
others	DEWA MV

Select safety country accordingly.

Warehouse
❷ Warehouse ✓

❸ Next
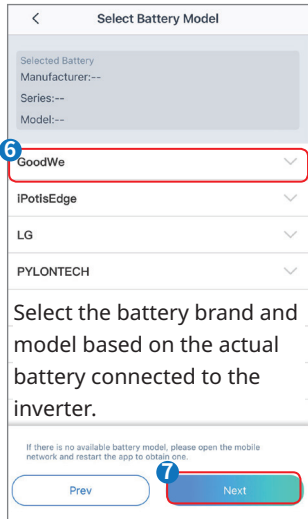
< Number Of BatteriesSet

Number Of Batteries   ❹ 1

Select the battery number based on the actual battery connected to the inverter.

Prev   ❺ Next

< Select Battery Model

Selected Battery
Manufacturer:--
Series:--
Model:--

❻ GoodWe
iPotIsEdge
LG
PYLONTECH

Select the battery brand and model based on the actual battery connected to the inverter.

If there is no available battery model, please open the mobile network and restart the app to obtain one.

Prev   ❼ Next

< Status:

Select a working mode based on actual needs.

❽ ✓

🏠 Self use mode
⚙ Set

✓

⚡ Peak-shaving
⚙ Set

Prev   ⓫ Next

After selecting Peak-shaving mode, the UI is as follows.

< Peak-shaving   ❿ Save

Turn on time	❾ 10:10
End Time	15:15
Rated power (%) Range[0,50]	-32.5 ✓
Max charging SOC Range[10,100]	66 ✓

After selecting Self-use mode, you have to set the Advanced setting and select specific working mode.
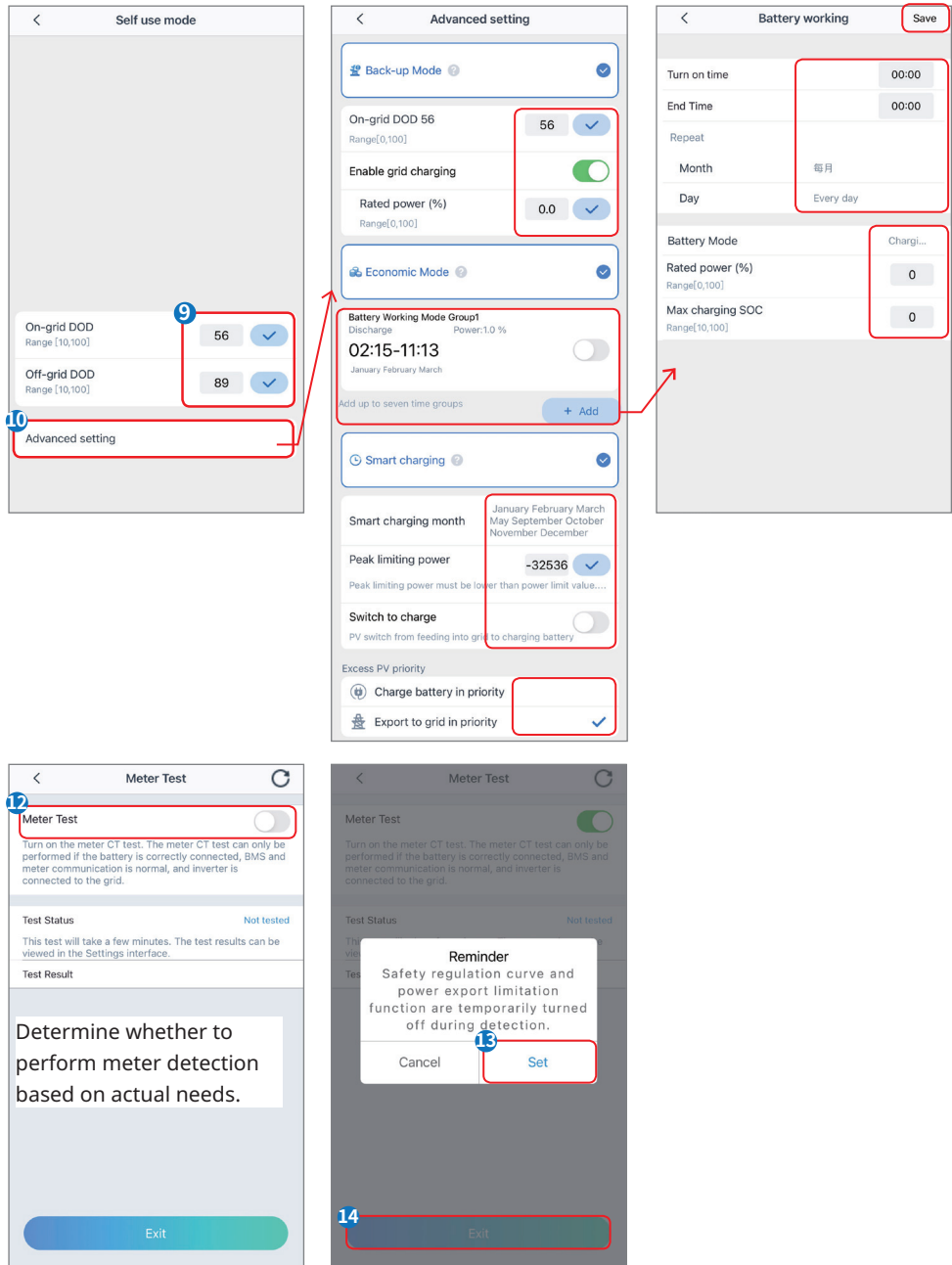
NOTICE

The parameters will be configured automatically after selecting the safety country/region, including overvoltage protection, undervoltage protection, overfrequency protection, underfrequency protection, voltage/frequency connection protection, cosφ curve, Q(U) curve, P(U) curve, FP curve, HVRT, LVRT, etc. Tap **Overview** > **Settings** > **Advanced Setting** > **Custom Safety Parameters** to check the detailed parameters.

The power generation efficiency will be different in different working modes. Set the working mode according to the local requirements and situation.
Back-up mode, Economic mode, and Smart charging mode can be enabled at the same time.
- **Back-up Mode:** The back-up mode is mainly applied to the scenario where the grid is unstable and there is an important load. When the grid is disconnected, the inverter turns to off-grid mode to supply power to the load; when the grid is restored, the inverter switches to on-grid mode.
- **Economic Mode:** It is recommended to use economic mode in scenarios when the peak-valley electricity price varies a lot. Select Economic mode only when it meets the local laws and regulations.
- **Smart Charging:** Set the charing month, the battery charging will automatically start.
- **Peak Shaving Mode:** When required grid power is greater than import power limit, battery will discharge preferentially to cover the demand; if power consumption is lower than import power limit in the set time period, the excess grid power will charge the battery.

For Other GoodWe Inverters

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① Please enter the password

Installer

Login

Installer password:
goodwe2010

Select Safety Settings(V45)

America	50Hz Default
Asia	
Australia	50Hz LV Default
Europe	60Hz Default
Oceania	
others	60Hz LV Default
	DEWA LV
	DEWA MV

Select safety country accordingly.

② Warehouse

Warehouse ✓

③ Next

Select Working Mode

④ General Mode ✓

Forced Off-Grid Mode

Back-up Mode ✓

Economic Mode ✓

Peak Shaving mode ✓

Select a working mode based on actual needs.

Previous **⑤** Next

Select Battery Model

Selected Battery
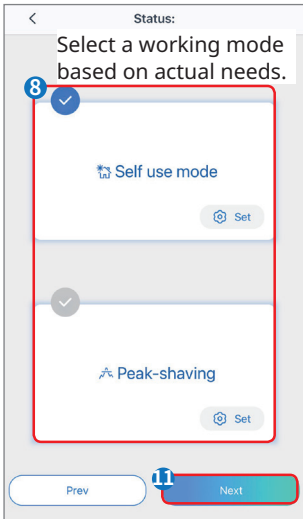Manufacturer:--
Series:--
Model:--

⑥ GoodWe

iPotisEdge

LG

PYLONTECH

Select the battery brand and model based on the actual battery connected to the inverter.

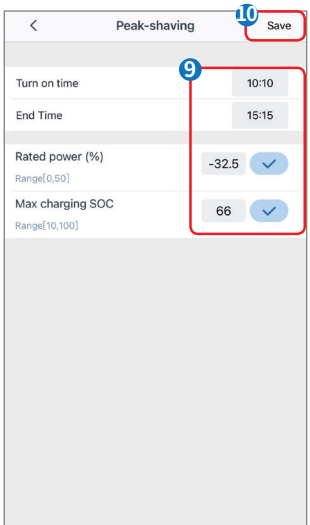If there is no available battery model, please open the mobile network and restart the app to obtain one.

Prev **⑦** Next

Meter Test

⑧ Meter Test

Turn on the meter CT test. The meter CT test can only be performed if the battery is correctly connected, BMS and meter communication is normal, and inverter is connected to the grid.

Test Status   Not tested

This test will take a few minutes. The test results can be viewed in the Settings interface.

Test Result

Determine whether to perform meter detection based on actual needs.

Exit

Meter Test

Meter Test

Turn on the meter CT test. The meter CT test can only be performed if the battery is correctly connected, BMS and meter communication is normal, and inverter is connected to the grid.

Test Status   Not tested

Reminder
Safety regulation curve and power export limitation function is temporarily turned off during detection.

Cancel **⑨** Set

⑩ Exit

NOTICE
The parameters will be configured automatically after selecting the safety country/region, including overvoltage protection, undervoltage protection, overfrequency protection, underfrequency protection, voltage/frequency connection protection, cosφ curve, Q(U) curve, P(U) curve, FP curve, HVRT, LVRT, etc. Tap **Overview** > **Settings > Advanced Setting > Custom Safety Parameters** to check the detailed parameters.
The power generation efficiency will be different in different working modes. Set the working mode according to the local requirements and situation. • **General Mode:** The power generated by the PV panels firstly supports the load, secondly it charges the battery, and the rest of the power is exported to the grid. Battery charge/discharge time is set to 00:00-00:00 by default. Battery is charged or discharged automatically based on the system operation condition. • **Forced Off-Grid Mode:** Used for off-grid operation (no grid connection). When choosing this mode, the system automatically cuts off the connection to the grid, even if the grid is available. • **Backup Mode:** Battery is only discharged for urgent use to support backup loads when grid is unavailable. Battery charge time set to 00:00-23:59. • **Eco Mode:** The power generated by the PV panels firstly supports the load, secondly it charges the battery, and the rest of the power is exported to the grid. Battery charge/discharge time is set to 00:00-00:00 by default. Battery is charged or discharged automatically based on the system operation condition. • **Peak Shaving Mode:** When required grid power is greater than import power limit, battery will discharge preferentially to cover the demand; if power consumption is lower than import power limit in the set time period, the excess grid power will charge the battery.

3.3 Setting the Export/Power Limit Parameters

Enable the Export/Power Limit function, which is disabled by default. Set Export/Power Limit after enabling the function. Set the Export/Power Limit in compliance with local grid requirements.

3.3.1 Power Limit Setting (Only for Australia)

Step 1: Tap **More** > **Advanced Setting** > **Grid Parameter Setting**.
Step 2: Enter the parameters based on actual needs and tap "√ ".The parameters are set successfully.
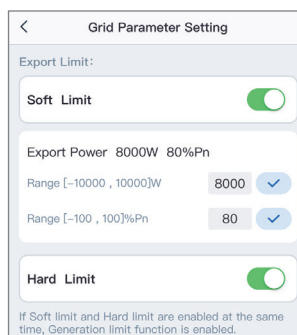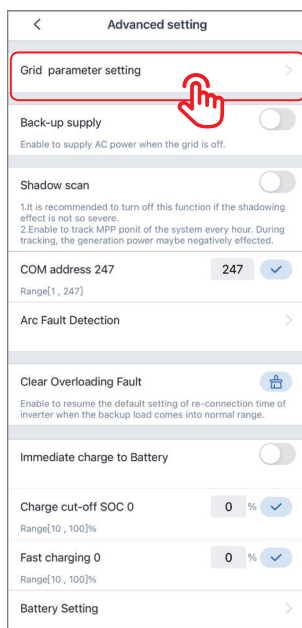
No.	Parameters	Description
1	Soft Limit	Enable Soft Limit when power limiting is required by local grid standards and requirements.
2	Export Power	Set the value based on the actual maximum power feed into the utility grid.
3	Hard Limit	After enabling this function, the inverter and the utility grid will automatically disconnect when the power feeds into the grid exceeds the required limit.

3.3.2 Power Limit Setting (For countries and regions except Australia)

Step1: Tap **More** > **Advanced Setting > Grid Parameter Setting**.
Step2: Enter the parameters based on actual needs and tap "√ **"**.The parameters are set successfully.

3.4 Setting the Outbalanced Output

Enable the Outbalanced Output when connecting unbalanced loads, which means L1, L2, L3 of the inverter respectively connected to loads with different power.

Step1: Tap **More** > **Advanced Setting** **> Grid Parameter Setting**.
Step2: Enter the parameters based on actual needs and tap "√ **"**.The parameters are set successfully.
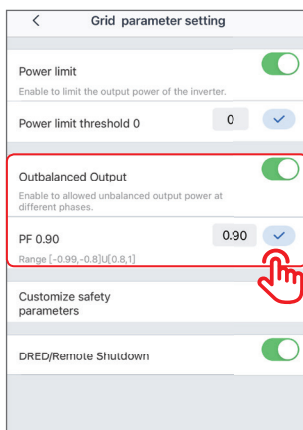
3.5 Setting the DRED/Remote Shutdown

Enable DRED/Remote Shutdown before connecting the third party DRED or remote shutdown device.

Step1: Tap **More** > **Advanced Setting** **> Grid Parameter Setting**.
Step2: Enable or disable the DRED/Remote shutdown function based on your actual needs.
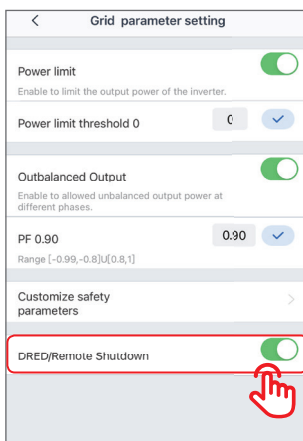
3.6 Setting Custom Safety Parameters

NOTICE
Set the custom safety parameters in compliance with local requirements. Do not change the parameters without the prior consent of the grid company.

3.6.1 Setting Voltage Protection Parameters

Step 1: Tap **Overview** > **Settings** > **Advanced Setting > Custom Safety Parameters > Protection Parameters**.

Step 2: Set the parameters based on the actual needs.

No.	Parameters	Description
1	OV stage 1/2 trip value	Set the level 1/2 overvoltage protection threshold value.
2	OV stage 1/2 trip time	Set the level 1/2 overvoltage protection tripping time.
3	UV stage 1/2 trip value	Set the level 1/2 undervoltage protection threshold value.
4	UV stage 1/2 trip time	Set the level 1/2 undervoltage protection tripping time.
5	OV 10min mean value	Set the 10min overvoltage protection threshold value.

3.6.2 Setting Frequency Protection Parameters

Step 1: Tap **Overview** > **Settings > Advanced Setting > Custom Safety Parameters >
Protection Parameter**.
Step 2: Set the parameters based on the actual needs.

<	Custom Safety Parameters	
Protection parameters	Connection Parameters	
Frequency Protection Parameters:		
OF stage1 trip value	52.50Hz >	
OF stage1 trip time	0.06s >	
UF stage1 trip value	47.50Hz >	
UF stage1 trip time	0.06s >	
OF stage2 trip value	52.50Hz >	
UF stage2trip time	0.06s >	
UF stage2 trip value	47.50Hz >	
Underfrequency2 Protection Time	0.06s >	

No.	Parameters	Description
1	OF stage 1/2 trip value	Set the level n overfrequency protection threshold value.
2	OF stage 1/2 trip time	Set the level n overfrequency protection tripping time.
3	UF stage 1/2 trip value	Set the level n underfrequency protection threshold value.
4	UF stage 1/2 trip time	Set the level n underfrequency protection tripping time.

3.6.3 Setting Connection Point

Step 1: Tap **Overview** > **Settings** > **Advanced Setting > Custom Safety Parameters > Connection Point**.
Step 2: Set the parameters based on the actual needs.

Custom Safety Parameters	
Connection Parameters	Curve Settin...
Upper voltage	269.0V ⟩
Lower voltage	171.0V ⟩
Upper frequency	52.45Hz ⟩
Lower frequency	47.55Hz ⟩
Observation time	60s ⟩
Fault Condition Connection Upper Volta...	269.0V ⟩
Low Voltage Limit Under Fault Conditions	171.0V ⟩
High Frequency Limit Under Fault Conditions	52.45Hz ⟩
Low Frequency Limit Under Fault Conditions	47.55Hz ⟩
Observation Time Under Fault Conditions	5s ⟩
Enable Power Slope	⬤
Output (On–Grid) Power Slope	600s ⟩
Output (On–Grid) Power Slope Under Fault Condi...	350s ⟩

P/S_{rated} (%)

Linearity Boundary (High)
Desired ramp rate
Linearity Boundary (Low)
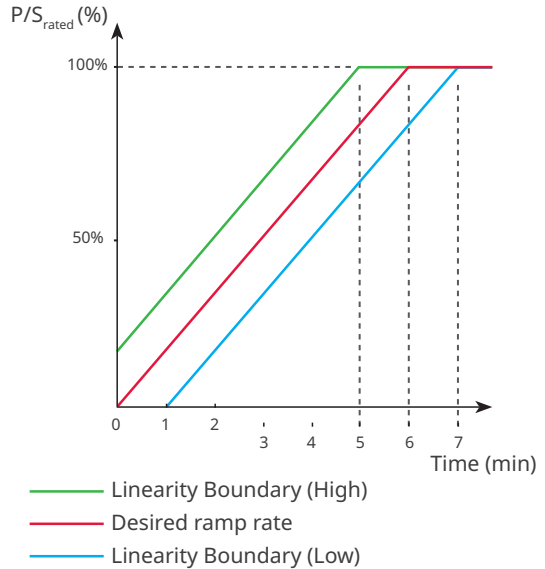
No.	Parameters	Description
1	High Voltage	The inverter cannot connect to the grid if it is powered on for the first connection and the grid voltage is higher than the High Voltage.
2	Low Voltage	The inverter cannot connect to the grid if it is powered on for the first connection and the grid voltage is lower than the Low Voltage.
3	High frequency	The inverter cannot connect to the grid if it is powered on for the first connection and the grid frequency is higher than the High Frequency.

No.	Parameters	Description
4	Low frequency	The inverter cannot connect to the grid if it is powered on for the first connection and the grid frequency is lower than the Low Frequency.
5	Observation Time	The waiting time for connecting the inverter to the grid when meeting the following requirements. 1. The inverter is powered on for the first connection. 2. The utility grid voltage and frequency meet certain requirements.
6	High Voltage Limit Under Fault Conditions	The inverter cannot connect to the grid if it is reconnecting due to a fault and the grid voltage is higher than the High Voltage Limit Under Fault Conditions.
7	Low Voltage Limit Under Fault Conditions	The inverter cannot connect to the grid if it is reconnecting due to a fault and the grid voltage is lower than the Low Voltage Limit Under Fault Conditions.
8	High frequency Limit Under Fault Conditions	The inverter cannot connect to the grid if it is reconnecting due to a fault and the grid frequency is higher than the High frequency Limit Under Fault Conditions.
9	Low frequency Limit Under Fault Conditions	The inverter cannot connect to the grid if it is reconnecting due to a fault and the grid frequency is lower than the Low frequency Limit Under Fault Conditions.
10	Observation Time Under Fault Conditions	The waiting time for connecting the inverter to the grid when meeting the following requirements. 1. The inverter is reconnecting to the grid due to a fault. 2. The utility grid voltage and frequency meet certain requirements.
11	Enable Power Slope	Enable the start up power slope.
12.	Output (On-Grid) Power Slope	Indicates the duration for the output power increases to the rated power when the inverter connects to the utility grid for the first time.
13	Output (On-Grid) Power Slope Under Fault Conditions	Indicates the duration for the output power increases to the rated power when the inverter reconnects to the utility grid due to a fault.

3.6.4 Setting Cosφ (P) Curve

Step 1: Tap **Overview** > **Settings** > **Advanced Setting > Custom Safety Parameters > Curve Settings**.
Step 2: Set the parameters based on the actual needs.

No.	Parameters	Description
1	Cosφ (P) Curve	Enable Cosφ (P) Curve when it is required by local grid standards and requirements .
2	Point A/B/C Power	The percentage of the inverter output active power to the rated power at point A/B/C.
3	Point A/B/C Cosφ	The power factor at point A/B/C.
4	Lockin Voltage	When the grid voltage is between Lock-In Voltage and Lock-Out Voltage, the voltage meets Cosφ curve requirements
5	Lockout Voltage	
6	Lockout Power	The Cosφ(P) curve cannot work when the output active power to rated power ratio is lower than the Lock-Out Power.

3.6.5 Setting Q(U) Curve

Step 1: Tap **Overview** > **Settings** > **Advanced Setting** > **Custom Safety Parameters** > **Curve Settings**.
Step 2: Set the parameters based on the actual needs.

No.	Parameters	Description
1	Q(U) Curve	Enable Q(U) Curve when it is required by local grid standards and requirements.
2	Lock in Power	When the inverter output reactive power to the rated power ratio is between the Lock-In Power and Lock-Out Power, the ratio meets Q(U) curve requirements.
3	Lock out Power	
4	Vn voltage	The utility grid voltage at point Vn, n=1,2,3,4.
5	Vn reactive powewr	The percentage of the inverter output reactive power to the rated power at point Vn, n=1,2,3,4.
6	Time constant	The power is required to reach 95% in the first order LPF curve within three time contant.

3.6.6 Setting P(U) Curve

When the grid voltage is too high, decrease the inverter output power to decrease the grid-tied power.

Step 1: Tap **Overview** > **Settings** > **Advanced Setting** > **Custom Safety Parameters** > **Curve Settings**.

Step 2: Set the parameters based on the actual needs.

No.	Parameters	Description
1	P(U) Curve	Enable P(U) Curve when it is required by local grid standards and requirements .
2	Vn voltage	The utility grid voltage at point Vn, n=1,2,3,4.
3	Vn active power	The percentage of the inverter output active power to the rated power at point vn, n=1,2,3,4.
4	Time constant	The power is required to reach 95% in the first order LPF curve within three time contant.

3.6.7 Setting FP Curve

Step 1: Tap **Overview** > **Settings > Advanced Setting > Custom Safety Parameters > Curve Settings**.
Step 2: Set the parameters based on the actual needs.

No.	Parameters	Description
1	FP Curve	Enable FP Curve when it is required by local grid standards and requirements.
2	Overfrequency threshold	The inverter output active power will decrease when the utility grid frequency is too high. The inverter output power will decrease when the utility grid frequency is higher than Overfrequency threshold.
3	Underfrequency threshold	The inverter output active power will increase when the utility grid frequency is too low. The inverter output power will increase when the utility grid frequency is lower than Underfrequency threshold.
4	Overfrequency endpoint	The inverter output active power will decrease when the utility grid frequency is too high. The inverter output power will stop decreasing when the utility grid frequency is higher than Overfrequency endpoint.
5	Underfrequency endpoint	The inverter output active power will increase when the utility grid frequency is too low. The inverter output power will stop increasing when the utility grid frequency is lower than Underfrequency endpoint.
6	Observation time	Indicates the time the output power of the inverter needs for recovering after the power grid recovers.
7	F(stop) upper	The inverter output active power decreases when the utility grid frequency is too high. The inverter output power recovers when the utility grid frequency is lower than F(stop) upper.
8	F(stop) lower	The inverter output active power will increase when the utility grid frequency is too low. The inverter output power will recover when the utility grid frequency is higher than F(stop) lower.
9	Reconnection gradient	Indicates the time the inverter output power recovers.
10	Settings	Set the FP curve mode based on the utility grid standards and requirements.
11	Power response to overfrequency gradient	The inverter output active power will decrease when the utility grid frequency is too high. Indicates the slope when the inverter output power decreases.
12.	Power response to underfrequency gradient	The inverter output active power will increase when the utility grid frequency is too low. Indicates the slope when the inverter output power increases.
13	Recovery Power Slope	Indicates the variation slope when the power recovers.

3.6.8 Setting Other Parameters

Step 1: Tap **Overview** > **Settings** > **Advanced Setting** > **Custom Safety Parameters** > **Others**.
Step 2: Set the parameters based on the actual needs.

< **Custom Safety Parameters**	
Connection Parameters Curve Settings Other	
OV stage3 trip value	0.0V >
Overvoltage trigger third-order trip time	0.00s >
UV stage3 trip value	0.0V >
UV stage3 trip time	0.00s >
LVRT	
Extended functions	⬤
Ride through voltage start point	180.0V >
Ride through voltage end point	39.1V >
Ride through time start point	2.80s >
Ride through time end point	0.18s >
Ride through trip threshold	180.0V >
HVRT	
Extended functions	⬤
Ride through voltage start point	270.0V >
Ride through voltage end point	287.5V >
Ride through time start point	5.20s >
Ride through time end point	0.16s >
Ride through trip threshold	270.0V >

Parameters	Description
OV stage3 trip value	Set the level 3 overvoltage protection threshold value.
Overvoltage trigger third-order trip time	Set the level 3 overvoltage protection tripping time.
UV stage3 trip value	Set the level 3 undervoltage protection threshold value.
UV stage3 trip time	Set the level 3 undervoltage protection tripping time.
LVRT (Low Voltage Ride Through)	
Extended functions	Enable the low voltage ride through function.
Ride through voltage start point	The inverter will not be disconnected from the utility grid immediately when the grid voltage is between Start point of ride through and End point of ride through.
Ride through voltage end point	
Ride through time start point	The longest time for the inverter stays connected to the grid when the grid voltage is at the Start point of ride through.
Ride through time end point	The longest time for the inverter stays connected to the grid when the grid voltage is at the End point of ride through.
Ride through trip threshold	LVRT is allowed when the grid voltage is lower than the Limit of ride through.
HVRT (High Voltage Ride Through)	
Extended functions	Enable the high voltage ride through function.
Ride through voltage start point	The inverter will not be disconnected from the utility grid immediately when the grid voltage is between the Start point of ride through and the End point of ride through.
Ride through voltage end point	
Ride through time start point	The longest time for the inverter stays connected to the grid when the grid voltage is at the Start point of ride through.
Ride through time end point	The longest time for the inverter stays connected to the grid when the grid voltage is at the End point of ride through.
Ride through trip threshold	HVRT is allowed when the grid voltage is higher than the Limit of ride through.

3.7 Setting the Backup Supply

Step1: Tap **Overview** > **Settings > Advanced Setting > Back-up supply**.
Step2: Enable or disable the BACKUP supply function based on your actual needs.
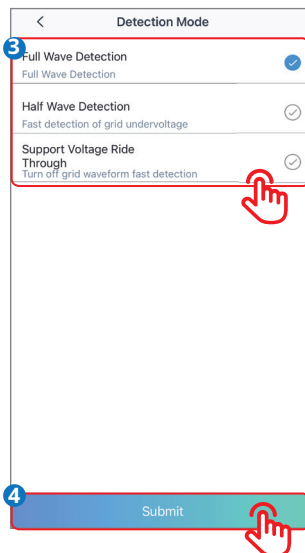
| No.	Parameters	Description
1	Full Wave Detection	Check whether the utility grid voltage is too high or too low.
2	Half Wave Detection	Check whether the utility grid voltage is too low.
3	Support Voltage Ride Through	Stop detecting utility grid voltage
4	Cold start	When the utility grid is disconnected, enable Cold start to turn on the inverter for backup supply.

3.8 Setting the Shadow Scan

Enable Shadow Scan when the PV panels are severely shadowed to optimize the power generation efficiency.

Step 1: Tap **Overview** > **Settings** > **Advanced Setting** > **Shadow scan**.
Step 2: Set Shadow Scan.
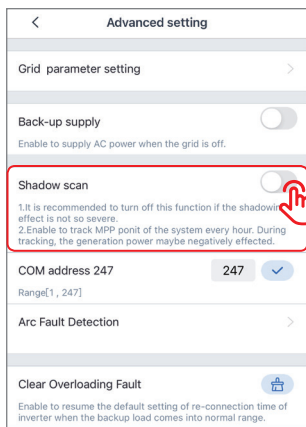
3.9 Setting the COM Address

NOTICE
Set the communication address of the inverter. For a single inverter, the address is set based on actual needs. For multi connected inverters, the address of each inverter should be different while cannot be 247.

Step 1: Tap **Overview** > **Setting** > **Advanced Setting** > **COM address**.
Step 2: Enter the parameters based on actual needs and tap "√ ".The parameters are set successfully.
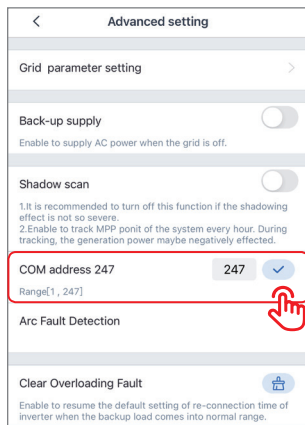
3.10 Setting the Arc Fault Detection

Step 1: Tap **Overview** > **Settings** > **Advanced Setting** > **Arc Fault Detection**.
Step 2: Enable Arc Detection based on your actual needs.
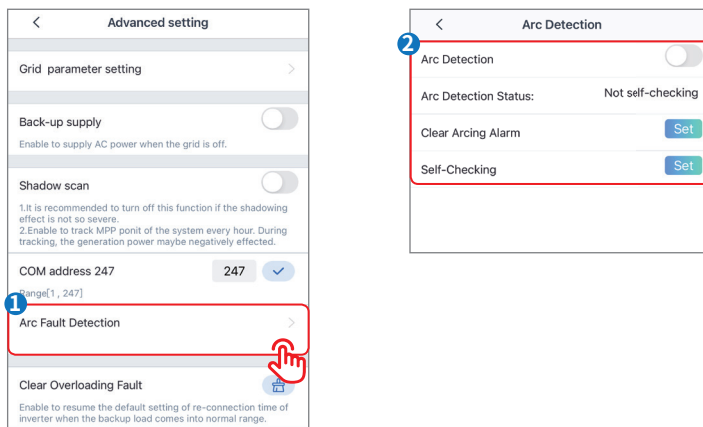
No.	Parameter	Description
1	Arc Detection	Enable or disable the Arc Detection based on your actual needs.
2	Arc Detection Status	The detection status like Not Self-checking.
3	Clear Arcing Alarm	Clear the arc alarm records.
4	Self-Checking	Check whether the arc detection function is normal.

3.11 Setting the Battery

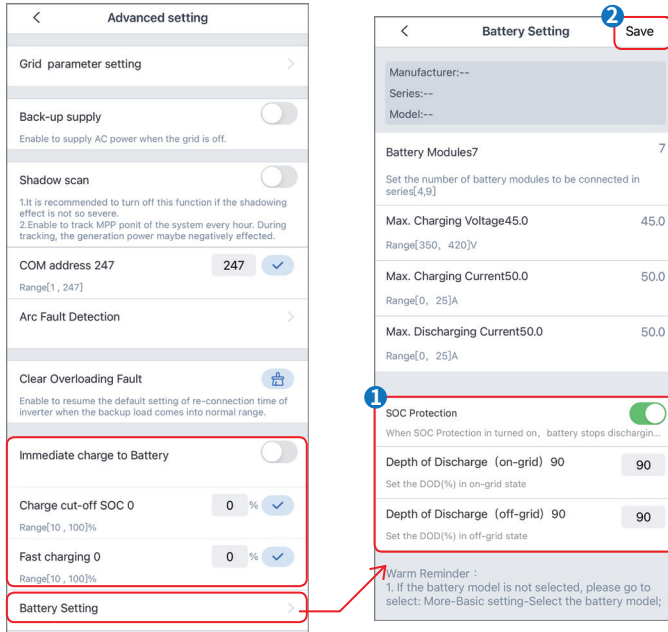**Step 1:** Tap **Overview** > **Settings** > **Advanced Setting** > **Immediate Charge to Battery / Battery Setting**.
Step 2: Enter the parameters based on actual needs and tap Save. The parameters are set successfully.

No.	Parameter	Description
1	Immediate charge to Battery	Set for battery fast charging. It will only take effect once.
2	Charge cut-off SOC	The battery charging will stop once the battery SOC reaches the Charge cut-off SOC.
3	Fast charging	Indicates the percentage of the charging power to the inverter nominal power. For example, setting the Fast charging value of a 10kW inverter to 60 means the charging power of the inverter is 10kW*60%=6kW.
4	SOC Protection	The battery will stop discharging to protect it when the battery capacity is lower than the Depth of Discharge.
5	Depth of Discharge (on-grid)	The depth of discharge of the battery in on-grid / off-grid mode
6	Depth of Discharge (off-grid)	

3.12 Setting the Load Control

The inverter reserves a dry contact controlling port, which supports connecting additional contactors to enable/disable the loads via PV Master app.

Step 1: Tap **Overview** > **Settings > Load Control** to set the load control mode.
Step 2: Select the load control mode based on your actual needs.

• Power switch mode: when the switch status is ON, the loads will be turned on; when the switch status is OFF, the loads will be turned off.
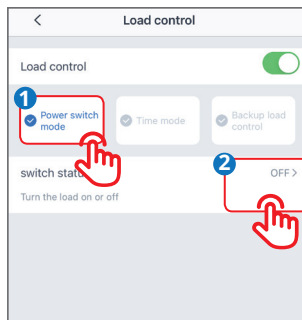
• Time mode: set the time to enable/disable the load, and the load will be turned on or off automatically within the setting time period. Select standard mode or intelligent mode based on your actual needs.
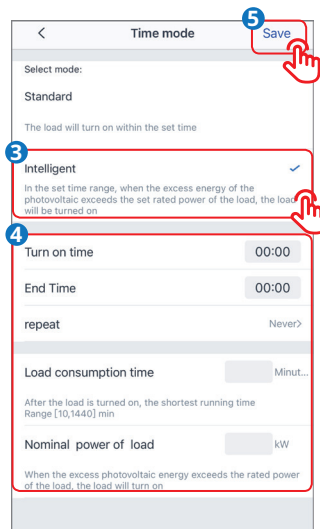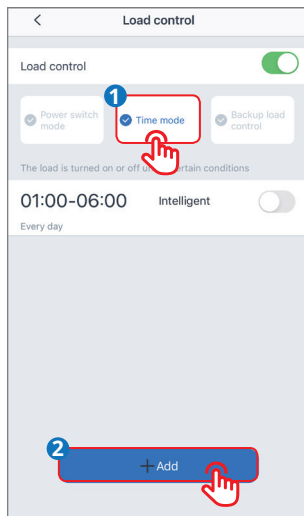
| No.	Parameters	Description
1	Standard mode	The loads will be turned on within the setting time period.
2	Intelligent mode	Once the excess energy of the photovoltaic exceeds the load nominal power within the time period, the loads will be turned on.
3	Turn on time	The time mode will be on between the Turn on time and End time.
4	End time	
5	Repeat	The repeat days.
6	Load consumption time	The shortest load working time after the loads been turned on. The time is set to prevent the loads be turned on and off frequently when the PV power fluctuates greatly. Only for Intelligent mode.
7	Nominal power of load	The loads will be turned on when the excess energy of the photovoltaic exceeds the nominal power of load. Only for Intelligent mode.

- Backup load control: the inverter has built-in DO dry contact controlling port, which can control whether the load is off or not by contactor. In off-grid mode, the load connected to the DO port can be turned off if the BACKUP overload is detected or the battery SOC value is lower than the Off-grid battery protection value.
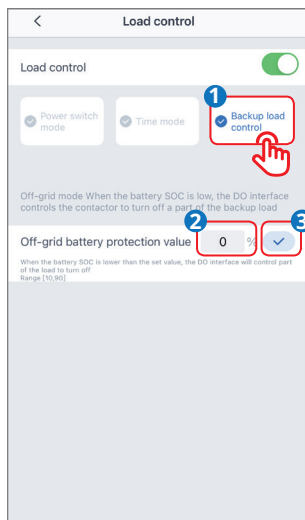
3.13 Equipment Maintenance

3.13.1 Diagnosis Message

Tap **Diagnosis Message** to check inverter working status information and battery charge and discharge information.

Step 1: Tap **Overview** > **Settings** > **Diagnosis Message**.
Step 2: The following figure shows the messages.
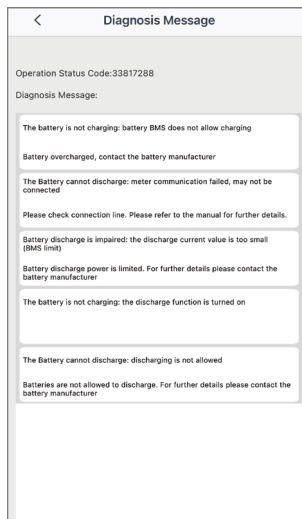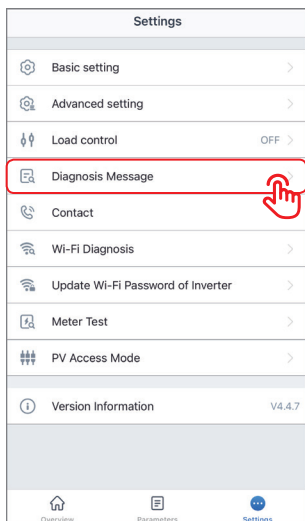
3.13.2 WiFi Diagnosis

WiFi Diagnose helps to find out the problem in the WFi communication route. Available when connecting PV Master to inverter Solar-WiFi signal directly.

Step 1: Tap **Overview** > **Settings > WiFi Diagnosis.**
Step 2: Perform WiFi diagnosis as the following shows.
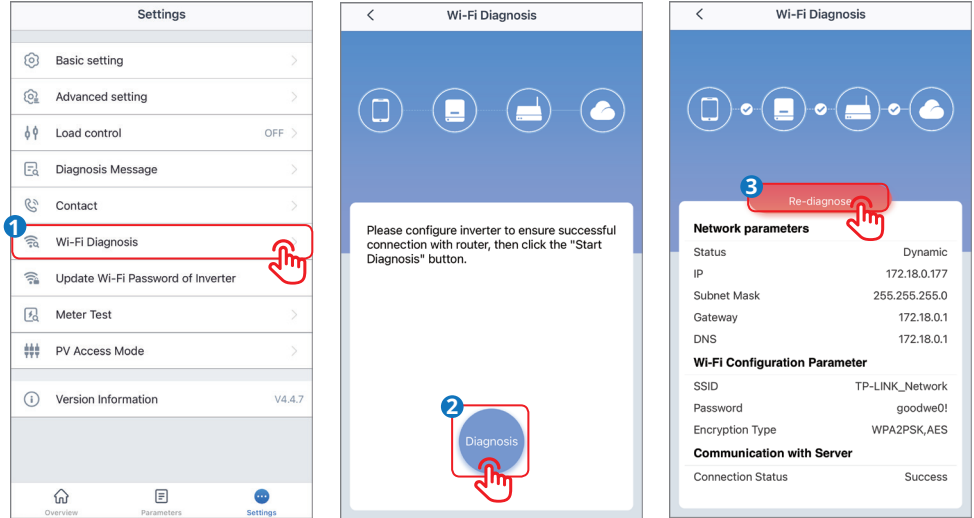
3.13.3 Update Wi-Fi Password of Inverter

NOTICE
Initial password: 12345678. To ensure account security, change the password periodically.

Step 1: Tap **Overview** > **Settings > Update Wi-Fi Password of Inverter**.
Step 2: Change the WiFi password.
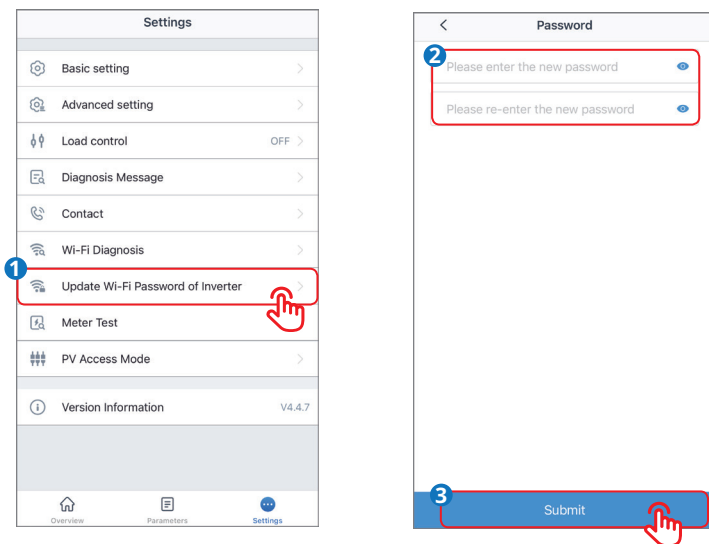
3.13.4 Meter Test

Meter Detection is used to auto-check if the Smart Meter and CT are connected in the right way or not in the energy storage system.

Step 1: Tap **Overview** > **Settings** > **Meter Test** .
Step 2: Enable **Meter Test**.
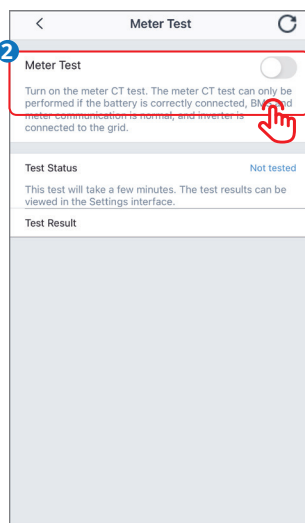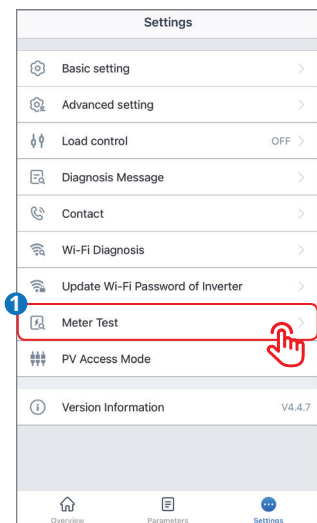
3.13.5 Setting the PV Access Mode

Step 1: Tap **Overview** > **Settings > PV Access Mode**.
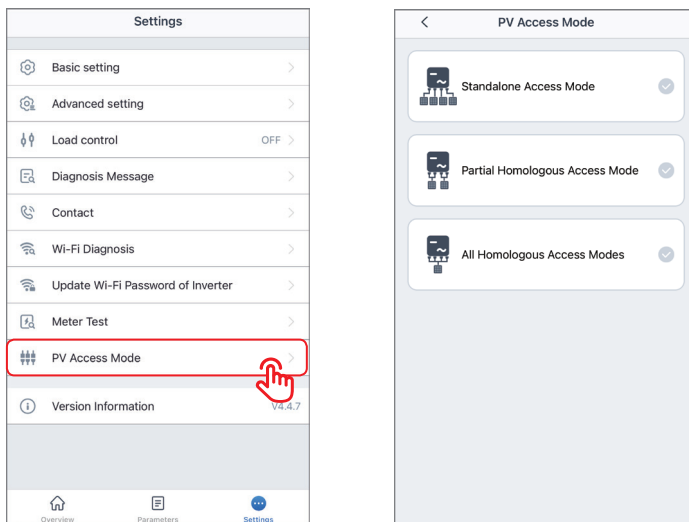
No.	Parameters	Description
1	Standalone Access Mode	The external PV modules are connected to the PV input terminals of the inverter one-to-one.
2	Partial Homologous Access Mode	The PV modules are connected to the inverter in two ways: one PV module to one PV input terminal. one PV module to more than one PV input terminal.
3	All Homologous Access Mode	One external PV module is connected to more than one PV input terminal.

4   Alarms

Battery Alarms

Alarm Code	Alarm Description	Troubleshooting
1	High battery temperature	The battery is overloaded. You are recommended to reduce loads. If the problem persists, contact the after-sales service for help.
2	Low battery temperature	The ambient temperature is too low to run the battery.
4	Battery cell voltage differences	If the problem persists, contact the after-sales service for help.
8	Battery over total voltage	
16	Battery discharge overcurrent	If the problem persists, contact the after-sales service for help.
32	Battery charge over current	If the problem persists, contact the after-sales service for help.
64	Battery under SOC	If the PV works properly but the problem persists, contact the after-sales service for help.
128	Battery under total voltage	
256	Battery communication failure	Check the electrical connections by professionals.
512	Battery output shortage	
1024	Battery SOC too high	If the problem persists, contact the after-sales service for help.
2048	BMS module fault	
4096	BMS system fault	
8192	BMS internal fault	
65536	High battery charge temperature	
131072	High battery discharge temperature	The battery is overloaded. You are recommended to reduce loads. If the problem persists, contact the after-sales service for help.
262144	Low battery charge temperature	The ambient temperature is too low to run the battery.
524288	Low battery discharge temperature	

Inverter Alarms

Alarm code	Alarm Descriptions	Troubleshooting
1	GFCI device check failure	Contact the after-sales service for help.
2	AC HCT check failure	
64	GFCI device failure	
128	Relay Device Failure	
256	AC HCT failure	
512	Utility loss	Utility grid input exception. Check the power supply and electrical connections by professionals.
1024	Ground I failure	System grounding exception. Check the power supply and electrical connections by professionals.
2048	DC Bus high	Detect the DC input voltage to see whether it is within the permissible range. If the problem persists, contact the after-sales service for help.
4096	Backup output overload	There are too many electric devices in the system. You are recommended to use less electrical equipment.
8192	Over-temperature	Check whether the equipment is blocked. If the problem persists, contact the after-sales service for help.
32768	PV voltage	The PV input voltage is too high. You are recommended to reduce the number of PV panels.
65536	External fan failure	Check whether the external fan is blocked. If the problem persists, contact the after-sales service for help.
131072	VAC failure	Utility grid input exception. Check the power supply and electrical connections by professionals.
262144	Isolation failure	Check whether the DC input cables are short circuit to the ground and whether the system is grounded reliably.

Alarm code	Alarm Descriptions	Troubleshooting
524288	High DC supply	The DC input voltage is too high. Check the system by professionals.
33554432	Relay check failure	Contact the after-sales service for help.
536870912	FAC failure	Utility grid input exception. Check the power supply and electrical connections by professionals.
1073741824	EEPROM R/W failure	Contact the after-sales service for help.
2147483648	Internal communication failure	

5   Appendix

 Australia safety regulations

To comply with AS/NZS 4777.2:2020 in Australian market, please select from Australia Region A/B/C or New Zealand. Contact your local electricity grid operator on which Region to select.

Selecting a Region B should then automatically load all region B setpoints for volt-watt, volt-var, underfrequency, overfrequency, etc.

Volt–var response set-point values

Region	Default value	U1	U2	U3	U4
Australia A	Voltage	207V	220V	240V	258V
	Inverter reactive power level (Q) % of Srated	44 % supplying	0%	0%	60 % absorbing
Australia B	Voltage	205V	220V	235V	255V
	Inverter reactive power level (Q) % of Srated	30 % supplying	0%	0%	40 % absorbing
Australia C	Voltage	215V	230V	240V	255V
	Inverter reactive power level (Q) % of Srated	44 % supplying	0%	0%	60 % absorbing
New Zealand	Voltage	207V	220V	235 V	244 V
	Inverter reactive power level (Q) % of Srated	60 % supplying	0%	0%	60 % absorbing
Allowed range	Voltage	180 to 230 V	180 to 230 V	230 to 265 V	230 to 265 V
	Inverter reactive power level (Q) % of Srated	30 to 60 % supplying	0%	0%	30 to 60 % absorbing

NOTE 1   Inverters may operate at a reactive power level with a range up to 100 % supplying or absorbing.
NOTE 2   Australia C parameter set is intended for application in isolated or remote power systems.

Volt–watt response default set-point values

Region	Default value		U3	U4
Australia A	Voltage		253V	260V
	Inverter maximum active power output level (P) % of S_{rated}		100%	20%
Australia B	Voltage		250V	260V
	Inverter maximum active power output level (P) % of S_{rated}		100%	20%
Australia C	Voltage		253V	260V
	Inverter maximum active power output level (P) % of S_{rated}		100%	20%
New Zealand	Voltage		242 V	250V
	Inverter maximum active power output level (P) % of S_{rated}		100%	20%
Allowed range	Voltage		235 to 255 V	240 to 265 V
	Inverter maximum active power output level (P) % of S_{rated}		100%	0 % to 20 %

NOTE: Australia C parameter set is intended for application in isolated or remote power systems.

Passive anti-islanding voltage limit values

Protective function	Protective function limit	Trip delay time	Maximum disconnection time
Undervoltage 2 (V < <)	70 V	1 s	2 s
Undervoltage 1 (V <)	180 V	10 s	11 s
Overvoltage 1 (V >)	265 V	1 s	2 s
Overvoltage 2 (V > >)	275V	-	0.2 s

Passive anti-islanding frequency limit values

	Region	Australia A	Australia B	Australia C	New Zealand
Underfrequency 1(F <)	Protective function limit value	47 Hz	47 Hz	45 Hz	45 Hz
	Trip delay time	1 s	1 s	5 s	1 s
	Maximum disconnection time	2 s	2 s	6 s	2 s
Over-frequency 1 (F >)	Protective function limit value	52 Hz	52 Hz	55 Hz	55 Hz
	Trip delay time	-	-	-	-
	Maximum disconnection time	0.2s	0.2s	0.2s	0.2s

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