PV Master OPERATION MANUAL

GoodWe Technical Services Center   December, 2017   Ver. 1.00

BRIEF INTRODUCTION

PV Master is an external application for GoodWe inverters to monitor or configure inverters or to do Wi-Fi configuration, used on smart phone or pad for both Android and iOS system, main function of PV Master App as below:

1. Edit system configuration, locally or remotely, to make the system work as it is required

2. Monitor and check performance of both grid-tied and or hybrid systems

The following pages will introduce the usage of PV Master App on GoodWe hybrid inverters. Any operation on the App for the system please follow this instruction. Any confusion on this introduction, please contact GoodWe for explanation.

PV Master is used on both iOS and Android system, customers need install this app on your device before using it.

For Android system:
Download Platform: *Google Play*
Search Keywords: *PV Master / EzViewer*
Compatible System: Android

For IOS system:
Download Platform: *App Store*
Search Keywords: *PV Master / EzViewer*
Compatible System: *iOS 8.0 or higher version for Iphone/Ipad/Ipod Touch*

Android System   iOS System

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INTERFACE INTRODUCTION

1. Home Page Overview

As the App is started up, the first page shows two configuration interfaces as below:
- local configuration (connect smart phone directly to Solar-WiFi * of the inverter)
- log in for remote monitoring and configuration (after Wi-Fi configuration and registered on GoodWe portal)
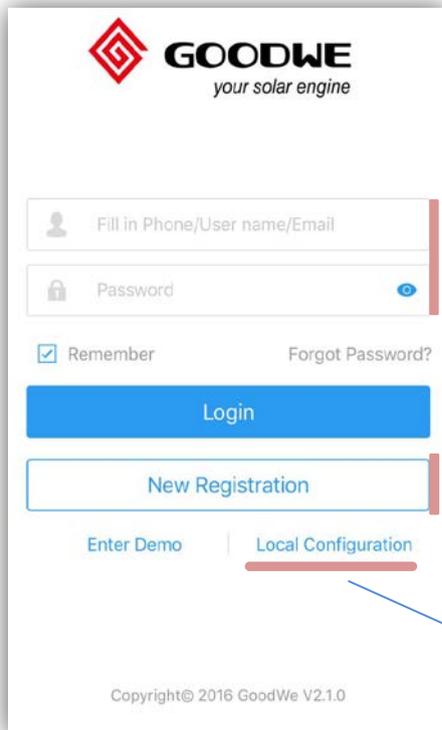
If customer had already registered an account, login here use your user name and password (**+** and **&** are not allowed for user name or password)

Here to register an account by email or by phone
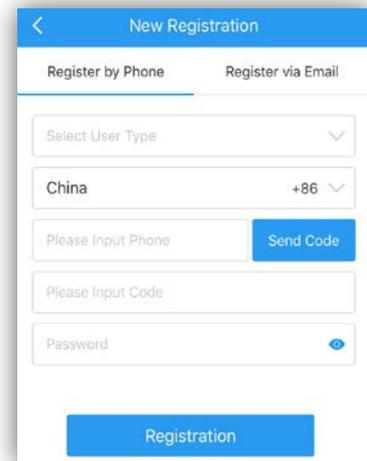
Click here to configure inverters by directly connecting Solar-WiFi *

2. Parameters Configuration --- Local Configuration

Local configuration means do inverter configuration by optional two ways:

a. Connecting Solar-WiFi* from inverter directly to your smart phone or pad (pic 1):
    Wi-Fi name: "Solar-WiFi" (* means the last 8 characters of inverter serial No.)*
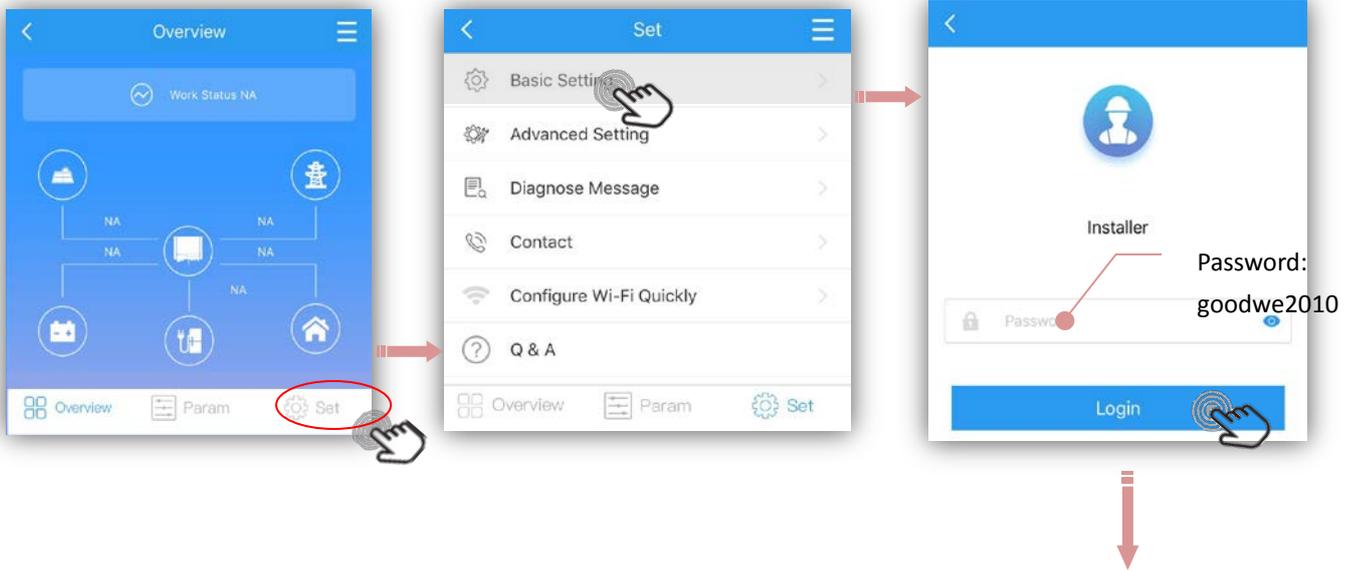   *Password: 12345678*
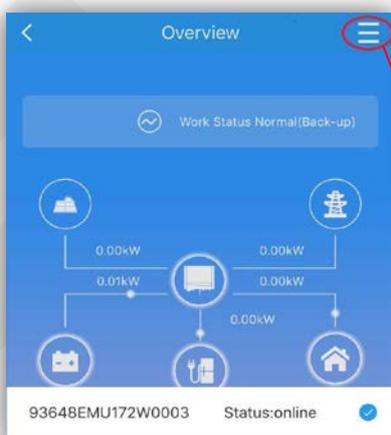
b. Connect your smart phone to the same network your inverter configured to (after Wi-Fi configuration) refer to Pic 2

Click here to choose the hybrid inverter you want to configure

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Basic Setting

To select Safety Country, Work Mode and Battery Model (all Compulsive settings)

Password: goodwe2010

- Click "Login" to enter configuration pages

➔ **Select "Safety Country"**

Please select the right safety country according to the local grid regulations.

- *Scroll up on the page to show more options*

- *If you did not find your local safety country, please select "50Hz Grid Default" or "60Hz Grid Default" according to your local grid frequency*

- After choose the right Safety Country, Click "Next" to select Work Mode for your hybrid inverter

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➔ **Select "Work Modes"**

Work Modes decides the automatic operation logic of your hybrid system. So make sure what you select is exactly what you want.

- When you choose any mode, a instruction of the mode you choose will be pop up, as below:

Click "Next" to next setting
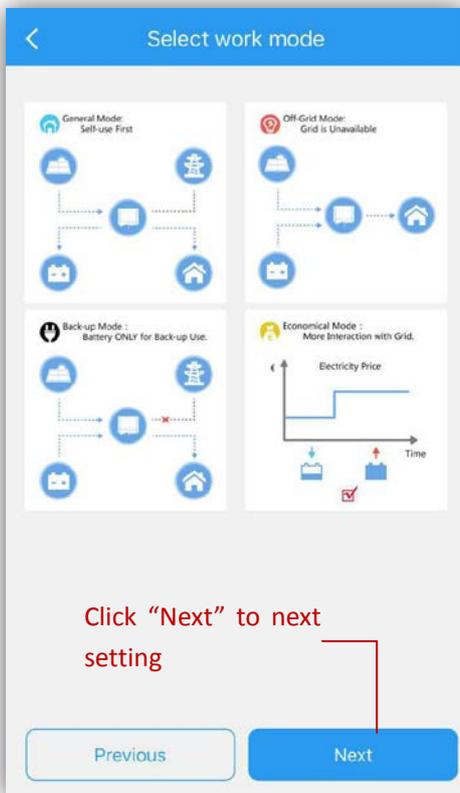
General Mode: normally customer use this mode. Solar power firstly support loads, then charge battery, rest power exports to grid, battery will charge or discharge automatically based on the system condition.

Off-Grid Mode: used for off-grid condition (without grid access). Choose this mode, system will automatically cut off grid connection even though your grid is connected.
Click this option will turn on off-grid charge function permanently till inverter totally shut down, even though change to another mode.

Back-Up Mode: Battery only discharge when grid is unavailable, for urgent use to support back-up loads. Battery charge time set as 00:00-23:59
Note: battery still possibly charge during 23:59-00:00 each day

Economical Mode: used to set charge/discharge time as customer need, details as below:

- If you choose Economical Mode, it will show options for charge/discharge management (pic 6)
  Note: Charge/discharge time and power limit only valid when grid is available

Charge Manage: Set a time range and percentage of rated power for battery charge.
   Charge time: during charge time, battery will not discharge unless grid is unavailable.
   Charge Power Limit: max charge power (% of nominal power of the inverter) during charge time
*Eg. for GW3648D-ES, power limit set as 50%, then max charge power of battery from grid will be 50%*3600W=1800W during charge time*

Discharge Manage: Set a time range and percentage of discharge power for battery discharge.
   Discharge time: during discharge time, battery will always discharge unless grid is unavailable or SOC is low.
   Discharge Power Limit: max battery discharge power (% of nominal power of the inverter) during discharge time
*Eg. for GW3648D-ES power limit set as 50%, then max discharge power to grid will be 50%*3600W=1800W during discharge time*
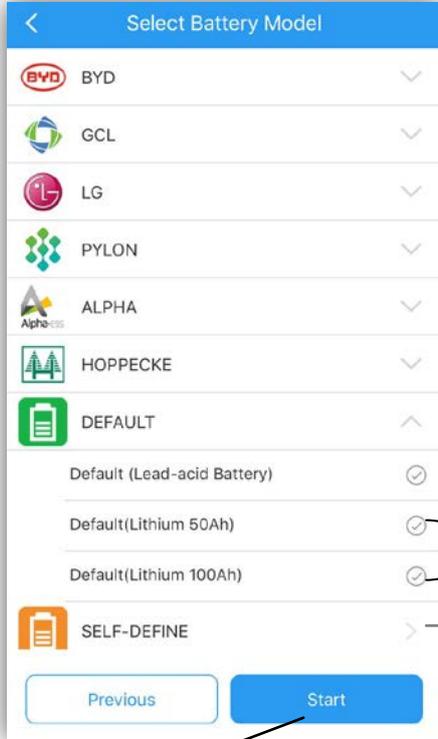

Click "Set" to save the settings

Pic 6

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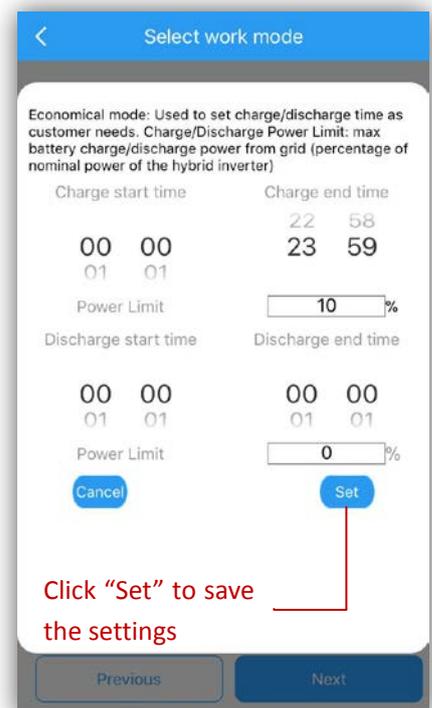
➔ **Select "Battery Type"**

- After set work mode, click "Next" to select battery type (pic 7)

NOTE:

1. *For lithium battery, choose wrong battery type will lead to BMS communication failure*
2. *When choose the battery type, the settings about this battery are all inset, do not have to change*

Select Battery Model

BYD	⌄
GCL	⌄
LG	⌄
PYLON	⌄
ALPHA	⌄
HOPPECKE	⌄
DEFAULT	⌃
Default (Lead-acid Battery)	⊘
Default(Lithium 50Ah)	⊘
Default(Lithium 100Ah)	⊘
SELF-DEFINE	>

[Previous] [Start]

Normally NOT used. This is used only for previous hybrid inverters with lead-acid battery to reset discharge voltage back to default 40V

Used for connecting lithium batteries with BMS communication, which is not in the list with capacity of 50Ah or 100Ah
(normally only used for third-party lithium battery communication)

If your battery is not in the list, please choose SELF-DEFINE to set detailed parameters as below

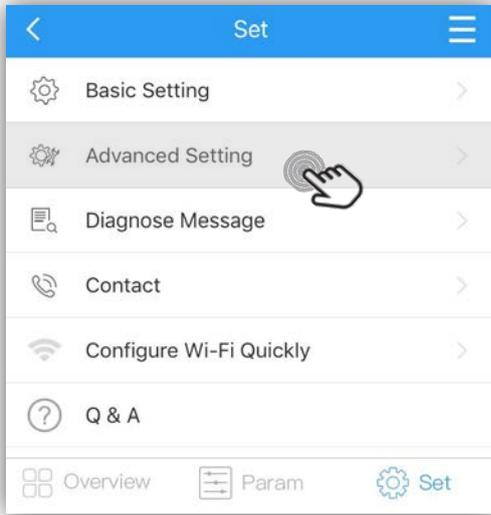*Click "Start" as you choose your battery, basic setting done*

Select Battery Model

Battery Capacity   106   Ah
Set the closest value to the sum of whole battery package

Charge Voltage   60.0   V
The maximum charge voltage is limited from 50V to 60V.Enter the proper value carefully according to the parameters of the batteries and connection structure

Charge Current   50.0   A
The maxium charge current is limited from 5A to 100A. Enter the proper value carefully according to the parameters of the batteries and connection structure

There is explanation for each option

Discharge Current   50.0   A
Set the max discharge current(only under on-grid mode),

SOC Protect   ⊘
Battery stops discharge according to the discharge depth set below.Eg. Discharge depth as 60%, then battery stop discharge when SOC reaches 40%.(only under on-grid mode)

Discharge Depth
Namely DOD, means the max percentage of battery power capacity allowed to discharge. Only effective when SOC Protection is turned ON

Scroll down to check more parameters

Floating Voltage   54.5   V
Suggest 3V lower than charge voltage

Floating Current   3.0   A
Suggest 5-8A

Floating time   30   Min
Suggest 15-20 Min

[Set]

Set parameters to change, you need to restart the equipment

NO   Yes
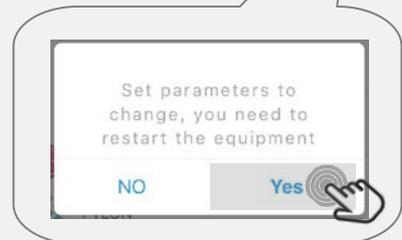
NOTE: all the settings must be 100% honest to the battery specifications first

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Advanced Setting

NOTE: Advanced settings are used special use like "Power Limit" & "Back-Up Function". Normally the password is only for dealers and installers, so please do not tell end users the password if not necessary

Set

- ⚙ Basic Setting >
- ⚙ Advanced Setting >
- 📋 Diagnose Message >
- 📞 Contact >
- 📶 Configure Wi-Fi Quickly >
- ❓ Q & A

Overview | Param | ⚙ Set

Installer

🔒 Password 👁

Login
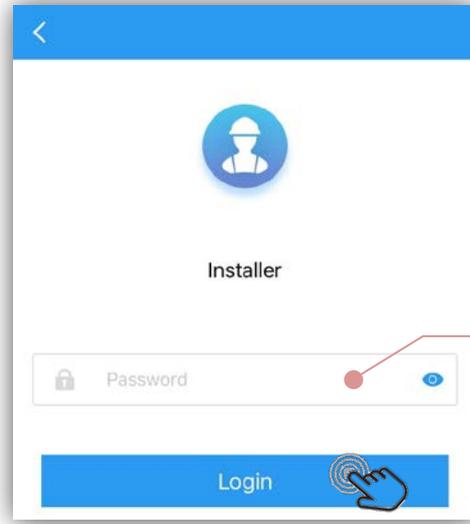
Password: goodwe2010

Turn on to use if your grid company does not allow external power feed into grid or customer himself do not want PV production exported to grid

NOTE: If you use this function and set a Power limit value, then PV production could be limited if consumer or battery charge power is low

There is explanation for each option

Back-Up Supply should always be ON if you have load on Back-Up side (no matter grid is available or not)
Off-Grid Output Switch should be ON **when grid is not available** to access power on Back-Up side

Power Factor: Only used for adjustment when you have reactive power load connected to balance active and reactive power

Advanced Setting

Export Power Limit ⬜
Only effective when EzMeter connected well in the system. Export Power Limit ON, then you can set Power Limit (W) below, which means the max power allowed to feed into grid.

Power Limit(W)
The maximum power that can be exported.

Shadow Scan 🔵
Suggest OFF if your panels not heavily shadowed. Shadow Scan ON, means the system will take one minute to track the MPPT point once an hour, during the minute, PV will not produce

Back-Up Supply 🔵
Under On-Grid mode, there is always power supply on Backup side;Under Off-Grid mode, need turn on this function to get power supply on Backup side.

Off-Grid Output Switch
Used to access power on back-up side under off-grid condition(Back-Up Supply must be ON)

Power Factor | 1.00 | Set
Power Factor

Battery Activated ⬜

Battery Activated: Used when lithium battery switch off because of low voltage. But for some battery like LG, should switch on battery switch manually first.

Grid Quality Detection: only used when customer want system switch to Back-Up mode as grid quality is not good like high grid voltage or bad waveform

Low Sensitivity: normally not used. Same function with "Grid Quality Detection" but with lower sensitivity

Reset Back-Up Overload…: only used when the system report Back-Up Over Load fault continuously. After decrease Back-Up load to normal range, use this function to start up Back-Up function immediately.

Click here to choose yes to save advanced settings
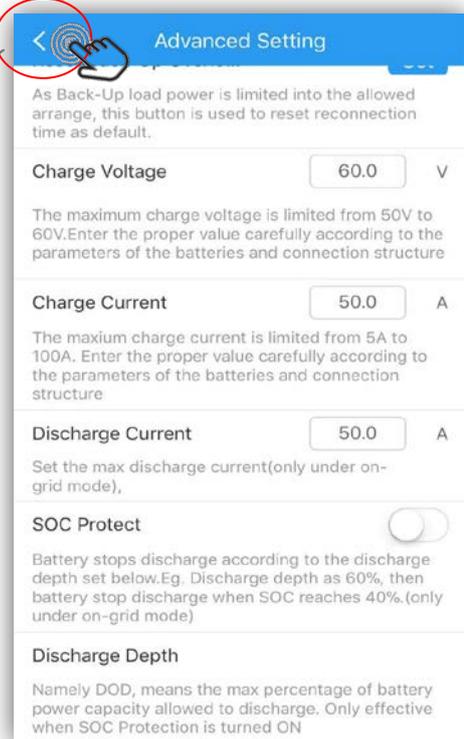
All these functions are same as that in Basic Setting. Normally only for checking.
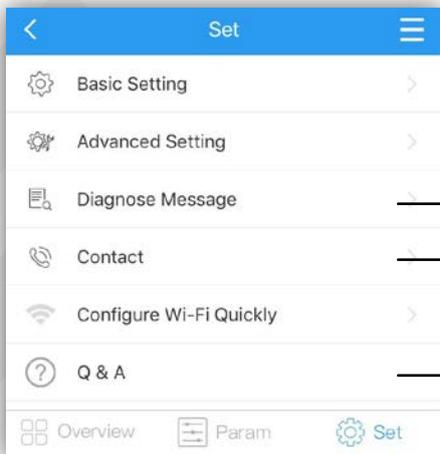
Diagnose Massage: If the system works abnormally, customer can click this to check operation condition

Contact: Please contact local GoodWe office or service@goodwe.com if you want consult

Check commonly-asked questions and answers

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3. Check Parameters of System

■ Click "Local Configuration" on the first page to enter configuration page as below:
  Note:
  ● *The statues and data on this page might be a few minutes delay from the real-time inverter data*
  ● *By touch the icons on the diagram, it will show the real-time data of each part, as below:*
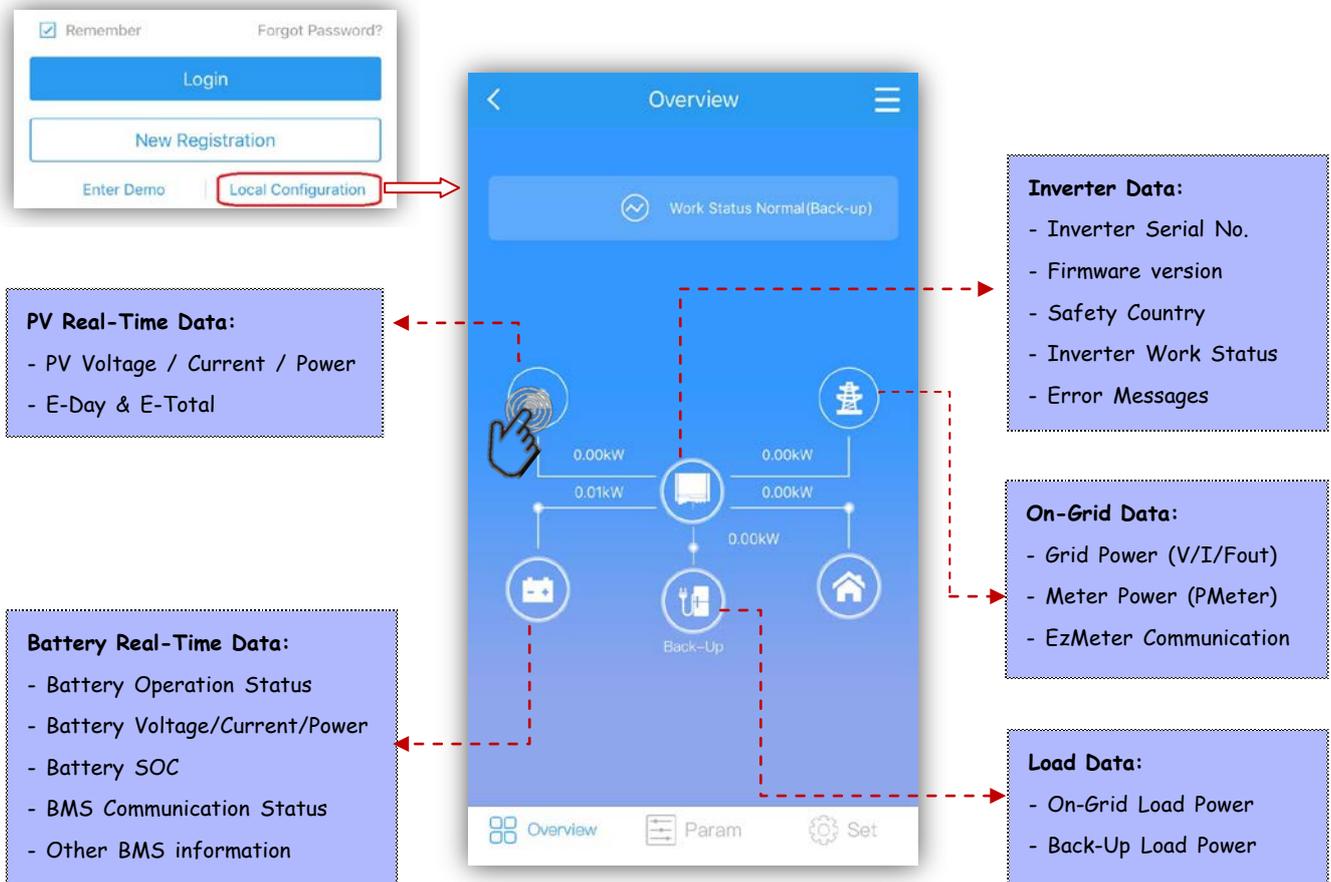
PV Real-Time Data:
- PV Voltage / Current / Power
- E-Day & E-Total

Battery Real-Time Data:
- Battery Operation Status
- Battery Voltage/Current/Power
- Battery SOC
- BMS Communication Status
- Other BMS information

Inverter Data:
- Inverter Serial No.
- Firmware version
- Safety Country
- Inverter Work Status
- Error Messages

On-Grid Data:
- Grid Power (V/I/Fout)
- Meter Power (PMeter)
- EzMeter Communication

Load Data:
- On-Grid Load Power
- Back-Up Load Power

■ Or Click "Param" to check more parameters
  Note: the parameters might be different from that on homepage because of refresh time delay and different calculation formula

Battery Status: showing real-time battery SOC and work status including "Charge" or "Discharge"

BMS Status: showing real-time BMS communication status of lithium battery *("Communication OK" means normal)*

SOH: BMS send out this info, showing the health status of lithium battery – 100% means perfectly healthy

Charge/Discharge Current Limit: showing the real-time limitation on battery charge/discharge – this determines the real allowed charge/discharge current for Lithium battery.

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4. Auto-Test (for Italy only)

Note:
a. Auto-test option only accessible when you choose "Italy" as safety country
b. Before use Auto-Test, make sure Solar-WiFi signal is connected on your smart phone stably
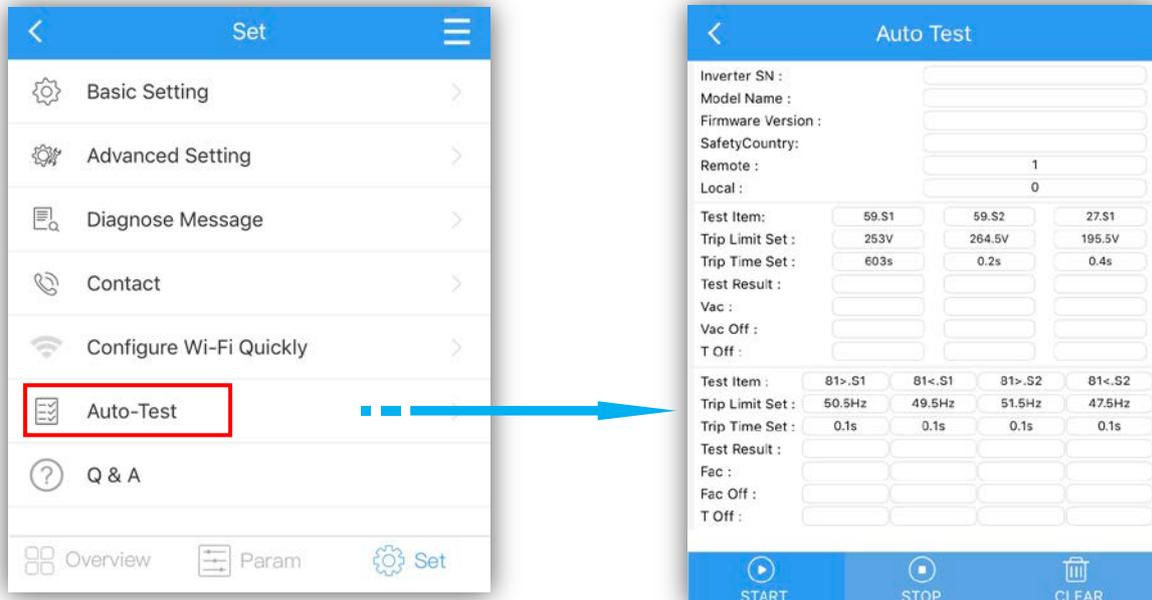
● **Auto-Test Operation Process**

1. Click Auto-Test ,then inverter will be under auto-test mode
2. Connect AC, the inverter shows on-grid successfully, and output power is zero.
3. Under normal communication condition, the inverter SN, model, firmware version and safety country (If it's not Italy, please change it to Italy) will be obtained automatically
   Note:
   a. "Remote" default set is 1, unable to be modified
   b. "Local" default set is 0, which can be set to 0 or 1.

4. If no setting "Remote" and "Local", then test with the default value.
   Testing in order : 59.S1, 59.S2, 27.S1, 81>S2, 81<S2
   NOTE: If set "Local" to 1, then testing order would be 59.S1, 59.S2, 27.S1, 81>S2,81<S2

5. If sub test finishes and shows Pass, inverter relay breaks off and reconnect to grid automatically according to CEI 0-21 requirement. Then start the next testing.
   NOTE:
   a. After passing Auto-test, testing data will be stored in the album, for future reference.
   b. If you quit the test or exit testing screen halfway, test will be terminated.

WARNING:
1. Make sure your smart phone keeps unlocked during Auto-Test, or, the test will stop and fail
2. If the test fails during Auto-Test, inverter will enter wait mode. Will need reconnect Solar-WiFi* to finish the test or totally power inverter and reboot to try again.

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5. Wi-Fi Configuration

A successful Wi-Fi configuration is necessary for remote monitoring, configuration and after-sales maintenance and control.

➔ Enter Wi-Fi Configuration page: there are two ways for access to Wi-Fi Configuration

a. Before Log in: *Local Configuration➔ Set➔ Configure Wi-Fi Quickly* as below*:*
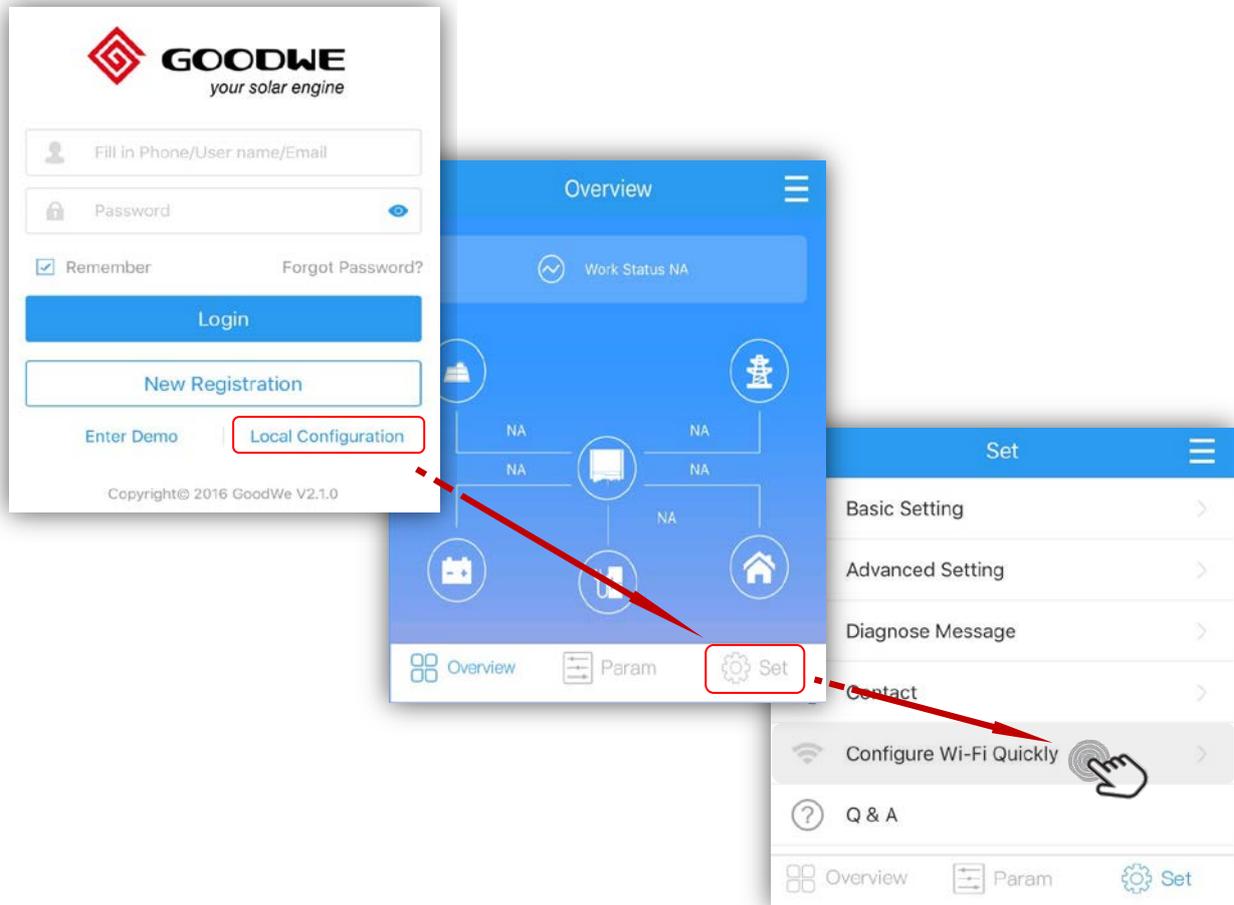
b. Login your account or enter Demo account: see below**:**
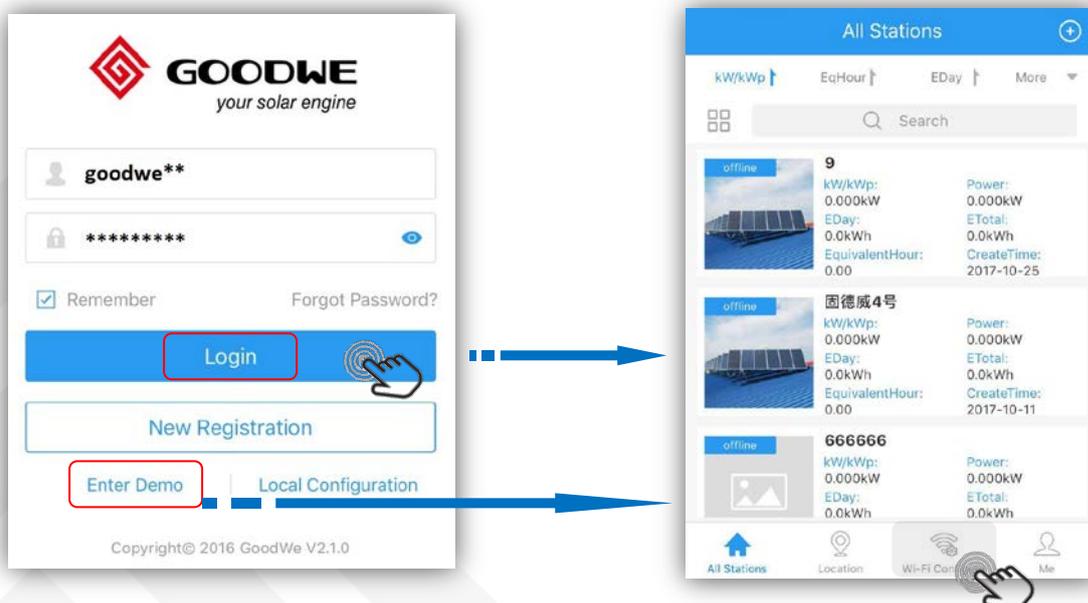
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Wi-Fi Configuration Process:

Step 1: Make sure your inverter is powered and Solar-WiFi signal is connected on your smart phone
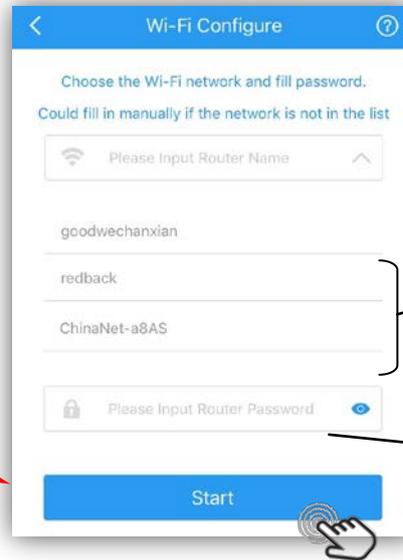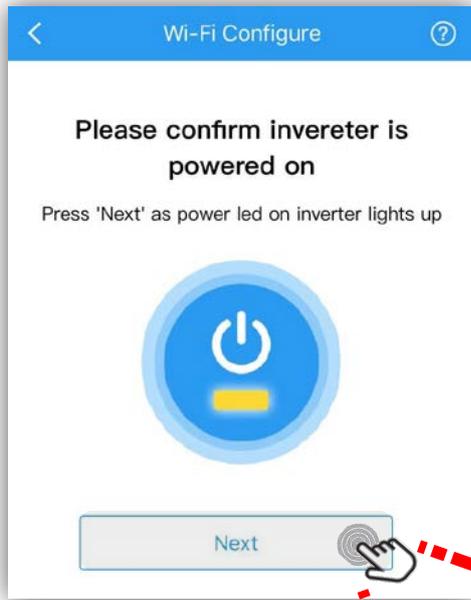
Choose your network here

Fill in password of your network

Step 2: Click "Next" to choose your network or input network name and password

Step 3: As you choose/input network name and password, press "Start" to start connection
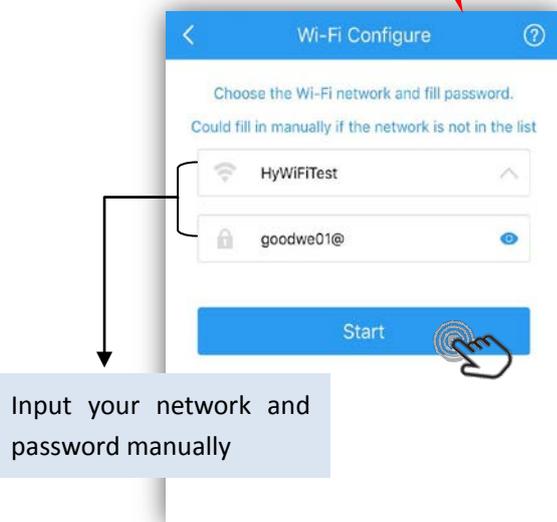
Input your network and password manually
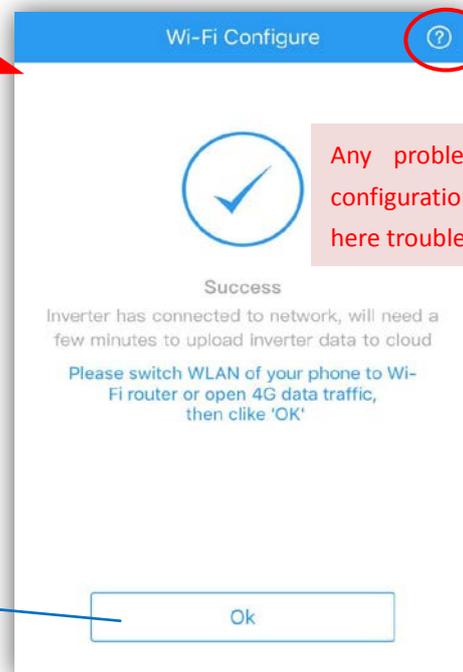
Any problem on Wi-Fi configuration, please find here trouble shootings

Step 4: As the page shows success, then click "OK" to finish configuration process

NOTE:
1. *After configuration, normally the Wi-Fi or Power led on inverter will change from double blink to quartic blink then burning after around 10 seconds*
2. *The configuration process might still finish even password of your network is wrong, so make sure the password you input is absolutely right.*

6. Account register and build station for your advices

On PV Master APP, you can register an account via E-mail or cell phone No. for monitoring and remote control.

➔ **Register an Account**
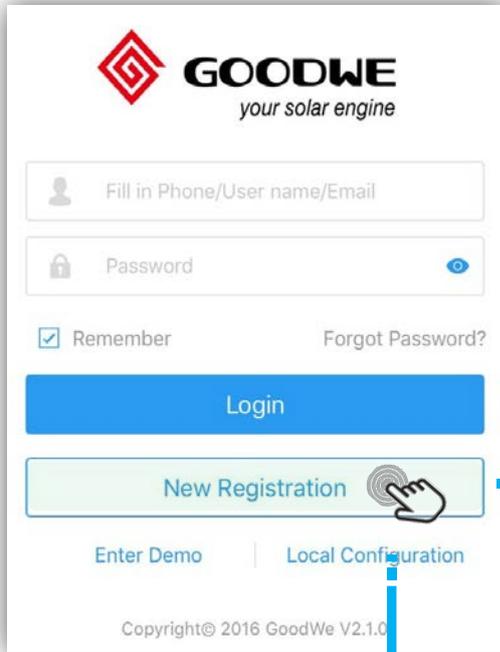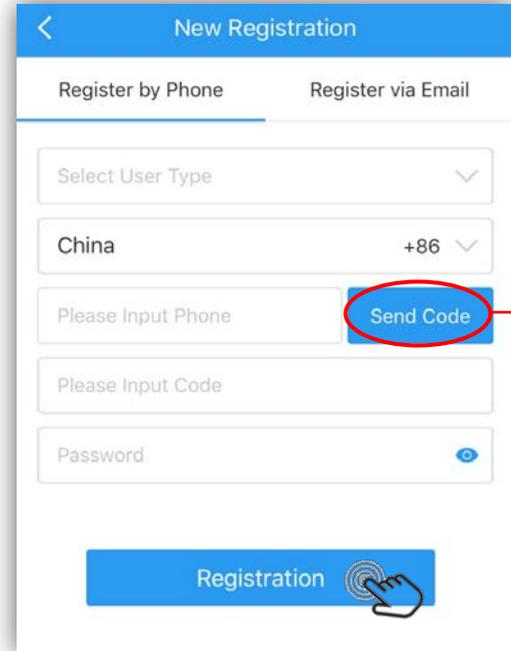
As input your phone No. click here to receive a checksum code by SMS
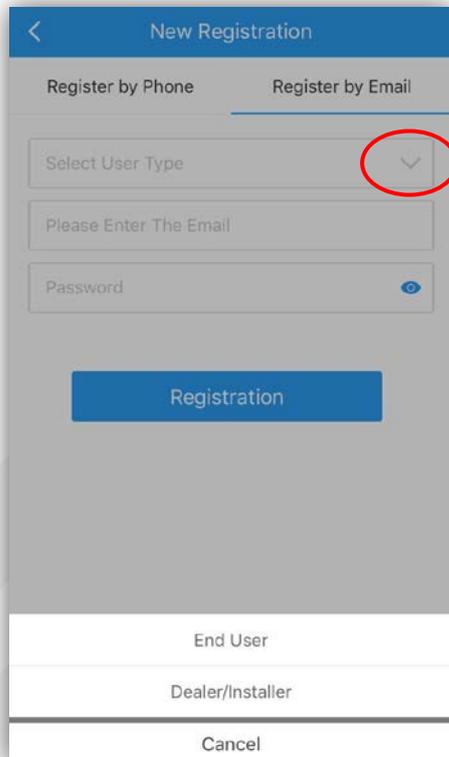
Please carefully choose your user type.
If you are an installer, please contact your distributor for a dealer code

If you are a dealer, direct distributor of GoodWe, then please contact GoodWe sales for dealer code

NOTE: Each E-mail address or cell phone No. can register only one account

➔ Build station and register device in it

Step1: Log in your account
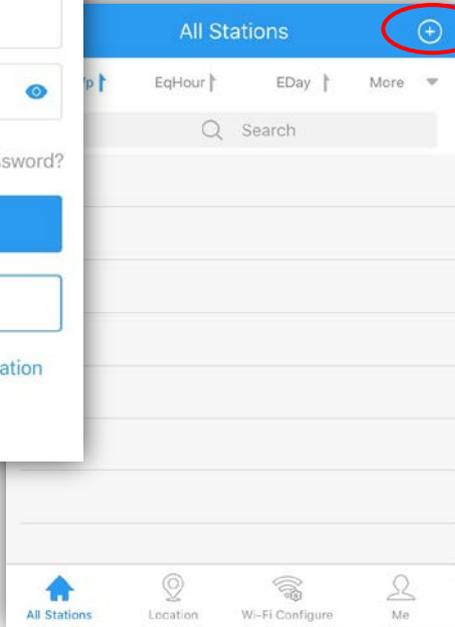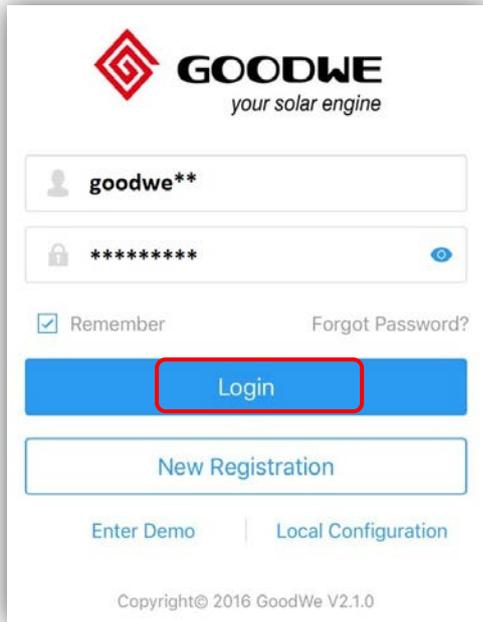
Click here to add new station for your devices, by scanning serial No. bar code

Last step: Click to save the station

Station name is a "MUST" information

Click here after input serial No. and check code

Or input inverter serial No. and check code manually
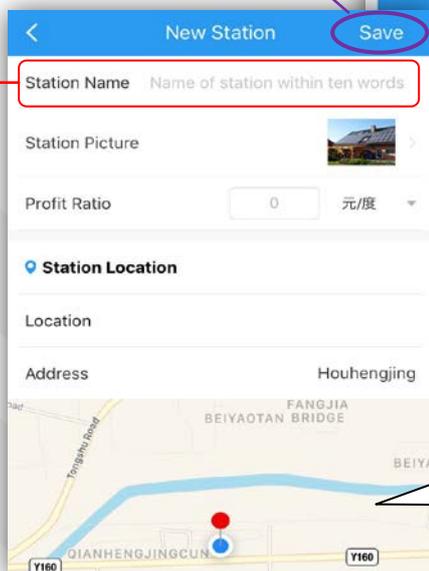
Station location will be located automatically where you use the phone to build station

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7. Remote Configuration and Monitoring

Remote configuration and monitoring is *only accessible for dealer account* after Wi-Fi configuration successfully and build station on PV Master App or GoodWe portal.

→ **Remote Configuration**

Click Station name to find device you want to configure remotely

Click "Configure" to change settings of the inverter remotely

Scroll down to see more settings and click "Send" to save all the settings

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➔ **Remote Monitoring**

Step 1: Login your account

Step 2: Click the station you want check

Step 3: Click here to choose the inverter you want check

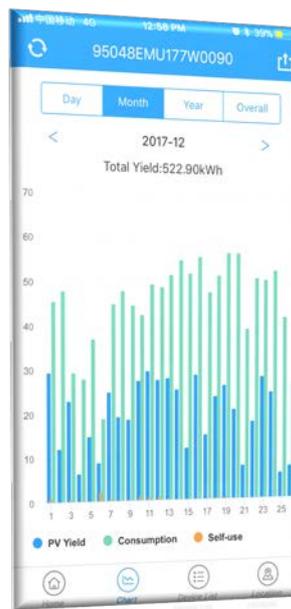In the monitoring page, you can check data as below:

Overall real-time performance
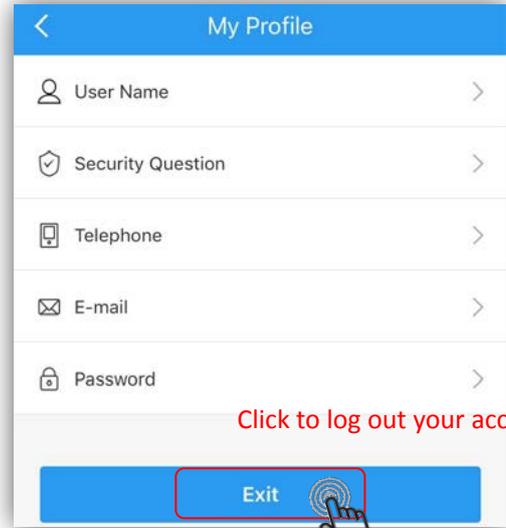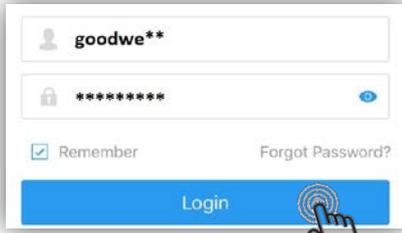
Daily performance
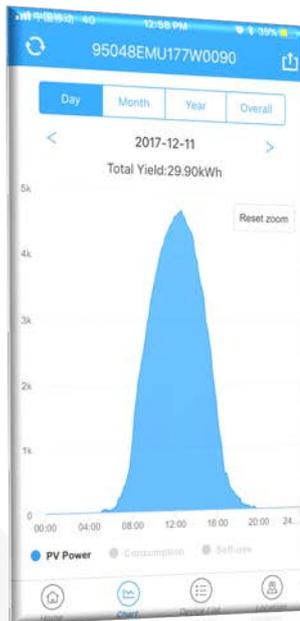
Monthly / Yearly performance

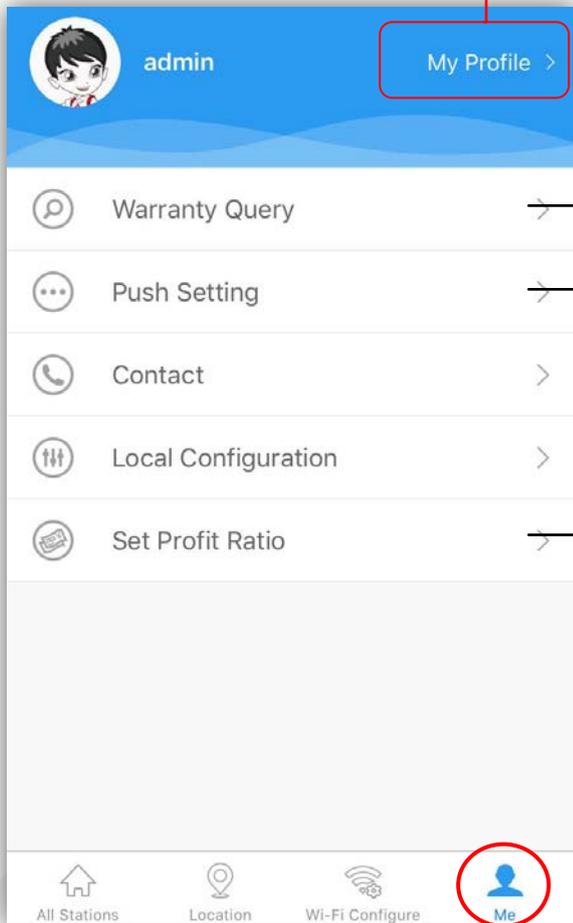Inverter location

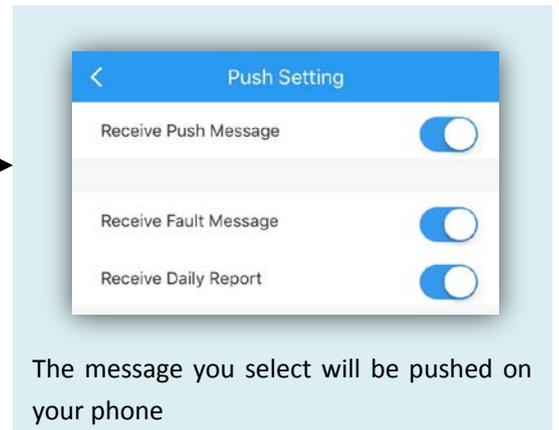Where the sun shines there is GoodWe

8. User Center

User center is a self-designable page to create your own style
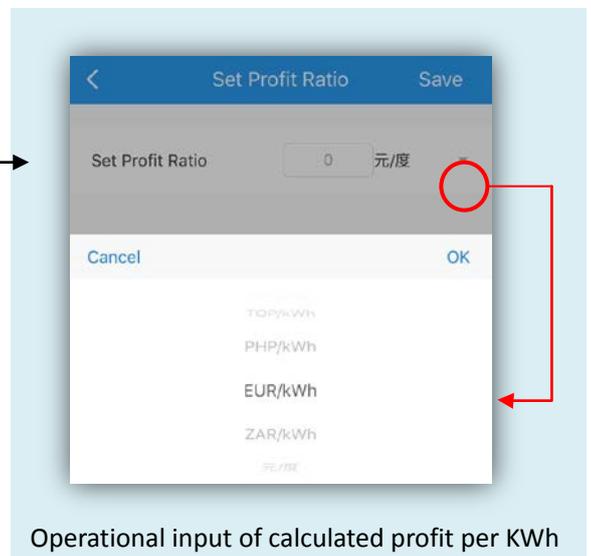
Click to log out your account

Check the warranty of your inverter

The message you select will be pushed on your phone

Operational input of calculated profit per KWh

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