



Wi-Fi Module and
WatchPower App
User's Manual

Version1.0.0

www.fullcirclesolar.co.za

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1. Introduction

Wi-Fi module can enable wireless communication between off-grid inverters and monitoring platform. Simply put this module connected to an inverter with communication cable, and installed APP from Google Play or Apple stores, it can not only monitor the inverters' operation status, but also set up parameters of the inverters through your mobile phone.



2. Unpack and Overview

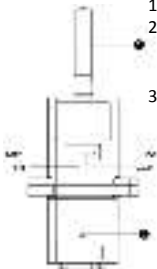
2.1 Packing list

Before installation, please inspect the unit. Be sure that nothing inside the package is damaged. You should have received the following item inside of package:

- Wi-Fi Module x 1
- User's Manual x 1



2.2 Product overview



1. Antenna
2. Inverter connection status LED
OFF: Inverter does not power to Wi-Fi module.
ON: Inverter powered to Wi-Fi module successfully.
3. PWR: To indicate if the power is on.
COM: To indicate if communication between Wi-Fi module and Inverter is normal.
NET: To indicate if Wi-Fi module is connected to router.
SRV: To indicate if Wi-Fi module is connected to the internet.

3. Wi-Fi Module Installation

Please follow below steps to install Wi-Fi module:

Step 1: The module contains four strong magnetics backing and can be easily be placed on the side of the inverter.

Step 2: Please use one RJ45 to RS-232 communication cable to connect an inverter and Wi-Fi module as below chart.



4. WatchPower App Overview and Installation

WatchPower APP is the monitoring application which can monitor off-grid inverters via mobile phone Wi-Fi interface. The major functions of this APP:

- Delivers device status during normal operation.
- Allows to configure device setting after installation.
- Notifies users when a warning or alarm occurs.
- Allows users to query inverter history data.

System Requirement and App Installation

- Android mobile phone with Android 5.0 or above
- iPhone with iOS 9.0 or above



Download the “WatchPower” app from the Apple® Store or “WatchPower Wi-Fi” in Google® Play Store.



NOTE: The following introduction will be based on iOS system for demonstration. For Android users, the setting steps are similar.

5. Initial Setup

5.1 Startup and user registration

After the installation, please tap the shortcut icon  on your mobile phone. Then, it will start the software, follow by below “User Registration” page. Tap “Register” to fill in the required information accordingly. You can scan the Wi-Fi Module PN by tap icon . Tap “Register” when your complete the registration.



Then, a “Registration success” window will pop up. Tap “Go now” to continue configure local Wi-Fi network connection.



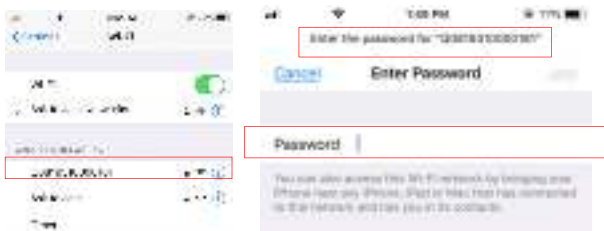
5.2 Local Wi-Fi Network Configuration


Please plug the Wi-Fi module with inverter and then please follow below steps to configure the Wi-Fi module connect with local router via your mobile phone.

Step 1: In Log in page, tap “Wi-Fi Config”, to enter “Wi-Fi configuration” page.



Step 2: Follow How to connect instruction, switch mobile phone page to Wi-Fi list. Find the Wi-Fi PN number(Q08XXXXXXXXXX) of your Wi-Fi module in accordance with Network name to connect by entering default password: 12345678. Then return to Wi-Fi configuration page when connected successfully.



Step 3: Tap icon  in routine line to enter your local Wi-Fi router name and password configuration.



The setting is successful, the Wi-Fi Module is restarting, please confirm whether to reconnect

Step 4: Tap “Confirm” to complete the Wi-Fi configuration between the Wi-Fi module and the Internet.



Step 5: If the connection fails, please repeat Step 2 and 3.



Step 6: Tap “Network diagnostics” to enter the page after successful reconnection.



5.3 Diagnose Function

If the module is not monitoring properly, please tap “Diagnose” for further details and follow the Repair suggestion shown in below diagram. Please repeat the steps in the chapter 5.2 and then tap “Rediagnosis” to re-connect again successfully.



6. Login and APP Main Function

If you finished the user information registration and local Wi-Fi configuration, enter user name and the password, and press Login button.

Note: Tick “Remember Me” for your log-in convenience afterwards.




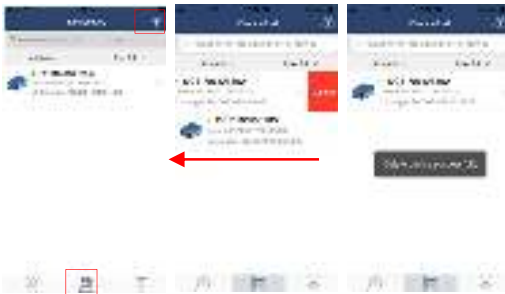
6.1 Overview


After logging in successfully, you can enter the Overview page and it displays all of your monitoring devices and their real-time status, including overall operation situation and Energy information for Current power and Today power as below diagram.



6.2 Devices

Tap the icon  , you can enter Device List page. You can review all of the devices in “Device List”. Also, you can add or delete Wi-Fi Module in this page.



Tap  icon on the top right corner to add Wi-Fi module and enter PN number by scanning bar code, printed on the Wi-Fi module’s surface, or manually enter it. Time zone and Wi-Fi module alias are required information. Tap “Confirm” to complete and the added Wi-Fi module can be reviewed in the Device list.



For more information about Device List, please refer to the chapter 7.

6.3 ME

In ME page, users can modify “My information”, including **【User’s Photo】**, **【Account security】**, **【Modify password】**, **【Clear cache】**, and **【Log-out】**, shown as below diagrams.



7. Device List

In Device List page, you can pull down to refresh the device information and then tap any device you want to check up for its real-time status and “Device Mode” and related information as well as to change parameter settings, please refer to the chapter 8.



7.1 Device Mode

On the top of screen, there is a dynamic power flow chart to show live operation. It contains five icons to present PV power, inverter, load, utility and battery. Based on your inverter model status, there will be **【Standby Mode】** , **【Line Mode】** , **【Battery Mode】** .

【Standby Mode】 Inverter will not power the load until “ON” switch is pressed. Qualified utility or PV source can charge battery in standby mode.



【Line Mode】 Inverter will power the load from the utility with or without PV charging. Qualified utility or PV source can charge battery.



【Battery Mode】 Inverter will power the load from the batter with or without PV charging. Only PV source can charge battery.



7.2 Device Information Data

Users can check up **【Basic Information】**, **【Product Information】**, **【Rated information】**, **【History】**, and **【Wi-Fi Module Information】** by sliding as the arrow direction.



【Basic Information】 displays basic information of the inverter, including AC voltage, AC frequency, PV input voltage, Battery voltage, Battery capacity, Charging current, Output voltage, Output frequency, Output apparent power, Output active power and Load percent. Please slide up to see more basic information.



【Production Information】 displays Model type (Inverter type), Main CPU version, Bluetooth CPU version and secondary CPU version.

【Rated Information】 displays information of Nominal AC voltage, Nominal AC current, Rated battery voltage, Nominal output voltage, Nominal output frequency, Nominal output current, Nominal output apparent power and Nominal output active power. Please slide up to see more rated information.

【History】 displays the record of unit information and setting timely.

【Wi-Fi Module Information】 displays of Wi-Fi Module PN, status and firmware version.

7.3 Device Alarm and Name Modification

In this page, tap the icon  on the top right to enter the device alarm page. Then, you can review alarm history and detailed information. Tap the icon  on the top right corner, a blank input box will pop out. Then, you can edit the name for your device and tap “Confirm” to complete name modification.



8. Parameter Setting

This page is to activate some features and set up parameters for inverters. Please be noted that the listing in “Parameter Setting” page in below diagram may differ from the models of inverter that is being monitored. Here will briefly highlight some of it, **【Output Setting】**, **【Battery Parameter Setting】**, **【Enable/ Disable items】**, **【Restore to the defaults】** to illustrate. Please refer to product manual when necessary.



Step 1: There are three ways to modify setting and they vary according to each parameter.

- a) Listing options to change values by tapping one of it.
- b) Activate/Shut down functions by clicking “Enable” or “Disable” button.
- c) Changing values by clicking arrows or entering the numbers directly in the column.

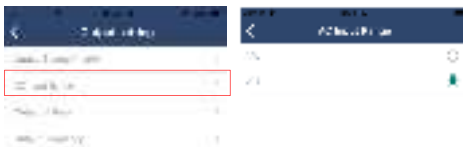
Step 2: Each function setting is saved by clicking “Set” button.

8.1 Output Setting

This includes Output source priority, AC input range, Output voltage and Output frequency. Tap Output Source Priority setting page. Please refer to product manual for definition of shown options.



Tap AC input range. When selecting "Appliance", it's allowed to connect home appliances. When selecting "UPS", it's allowed to connect personal computer. For the detailed input range for connected devices, please check product manual.



Tap Output voltage to select 220, 230 or 240. Tap Output frequency to select 50Hz or 60Hz.



8.2 Battery Parameters Setting

This includes battery type, battery cut-off voltage, back to grid voltage, back to discharge voltage, charger source priority, max charging current, max AC charging current, float charging voltage, buck charging voltage and battery equalization.

Battery type: Select connected battery type. There are three options: AGM, Flooded and User define. Please refer to product manual for charging parameter for these three battery types.

Battery cut-off voltage: Tap to enter battery low cut-off voltage setting page. Please refer to product manual for the recommended voltage range based on connected battery type.

Back to grid voltage: Click arrow to enter low battery voltage setting. If “SBU” is selected in output source priority, the inverter will transfer output source to grid when battery voltage drops to low battery voltage point. Please select low battery voltage and click “Apply” button.

Back to discharge voltage: When battery voltage is higher than this setting voltage, battery will be allowed to discharge. Please select discharge voltage point by clicking “Apply” button.

Charger source priority: Click arrow to enter charger source setting page. There are 4 options: utility first, solar first, utility and solar, and only solar charging. See product manual for the details of these options. Select one item and click “Apply” button.

Max. charging current: Click arrow to enter maximum charging current setting page. The selectable charging current values in different inverter model may be different. Please refer to product manual for the details.

Max. AC charging current: Click arrow to enter max. AC charging current setting page. The selectable charging current values in different inverter model may be different. For the detailed setting, please check inverter manual.

Float charging voltage: Click arrow to enter float charging voltage setting page. Please refer to product manual for the recommended float charging voltage based on connected battery type.

Bulk charging voltage: Click arrow to enter bulk charging voltage setting page. Please refer to product manual for the recommended bulk charging voltage based on connected battery type.

Battery equalization setting: This section is only available for some inverters with battery equalization function.



Battery Equalization: Enable or disable battery equalization function. It is necessary to enable this function in software before executing this function in device.

Real-time Activate Battery Equalization: It's real-time action to activate battery equalization by selecting "Activate". Select "Cancel" to stop equalization immediately.

Equalized Time Out: Tap to set up the extended time to continue battery equalization. The setting range is 5~900 minutes.

Equalized Time: Tap to set up duration time for battery equalization. The setting range is 5~900 minutes.

Equalization Period: Tap to set up the frequency for battery equalization. The setting range is 0~90 days. When 0 is selected, it means this function is activated every 24 hours.

Equalization Voltage: Tap to set up the battery equalization voltage.

8.3 Enable and Disable items

This section is only to enable or disable functions.



LCD Auto-return to Main screen: If enable, LCD screen will return to its main screen after one minute automatically.

Fault Code Record: If enabled, fault code will be recorded in the inverter when any fault happens.

Backlight: If disabled, LCD backlight will be off when panel button is not operated for 1 minute.

Bypass Function: If enabled, unit will transfer to line mode when overload happened in battery mode.

Beeps while primary source interrupt: If enabled, buzzer will alarm when primary source is abnormal.

Over Temperature Auto Restart: If disabled, the unit won't be restarted after over-temperature fault is solved.

Overload Auto Restart: If disabled, the unit won't be restarted after overload occurs.

Buzzer: If disabled, buzzer won't be on when alarm/fault occurred.

8.4 Restore to the defaults

This function is to restore all settings back to default settings.



APP download QR Code

WatchPower(iOS)



WatchPower(Android)

