IM-WR4

WIFI-RS485 IoT Modules

WIFI Module Manual

Suitable for MPPT,inverter,integrated machine with Rs485 interface.

Version 3.0

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APP & Manual

1. Function Introduction

IM-WR4 communication adapter provides wifi and serial port conversion functions. The IM-WR4 communication adapter connects to the cloud through the ssid and password, enabling devices and cloud to communicate with each other.

Serial communication uses RS-485 to connect devices, and adapters only support master mode. The equipment needs to be configured at baud rate: 9600.

Address:01.

2. WIFI Specification

Items	Parameter
Frequency Range	2.4G-2.5G(2400M-2483.5M)
Transmitting Power	802.11b: +20dBm 802.11g: +17dBm 802.11n: +14dBm
Receiving Sensitivity	802.11b:-91dbm(11Mbps) 802.11g:-75dbm(54Mbps) 802.11n:-72dbm(MCS7)
Antenna	Port Type SMA(Along with 2DBI omnidirectional antenna)
Operating Voltage	5V
Operating Current	Average current:50mA, Peak current:150mA
Operating Temperature	-10°C~65°C
Storage Temperature	-40°C~85°C
WIFI Mode	Station/AP
Security Mechanism	WPA/WPA2
Encryption Type	WEP/TKIP/AES

3. Specification Of Port Communication

Items	Parameter
Interface Type	RJ-45
Transfer Method	RS-485
Transmission Rate	9600
Protocol	Modbus

4. Specification Of Port Communication

Items	Implications
Local	Local indicator(green) always on, wifi network disconnect.
Cloud	Cloud indicator light (blue), flashes once every 2-3 seconds during data exchange after successful WiFi connection.
Local & Cloud	The Local indicator is always on, and the Cloud indicator flashes twice a second to enter the distribution network mode. Please log in the App, use "WIFI distribution network" to connect to the network.
Switch	seconds to switch from connection mode to network distribution mode.

5. Installation

The adapter must be properly installed before use. Improper installation will not only damage the adapter and equipment, but also other hazards. Installation of the equipment must be performed under the installation or guidance of our engineers.

Note: Please do not install the adapter when power on to avoid accidents!

1. Before unpacking, please carefully check the conformity of product information and the integrity of product packaging. If you have any questions,please contact the supplier in time.

- Adapter x1
- Antenna 2.4G x1
- Instructions x1
- Communication cable x1

2. Connect the matching antenna to the sma antenna socket on the right side, screw it tight and make sure there is no metal around etc. To effect the wireless signal transmission.

3. Check the equipment serial voltage and signal adapter set up in line with the requirements. Require voltage and current to meet the requirements of adaptation.

4. Disconnect the power of the device and insert the RJ45 socket of the device and the RJ45 socket of the adapter with the matching communication cable to ensure a firm connection.

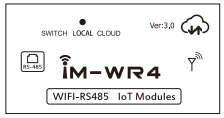
6. Use Tutorial

1. Please install the"Lucky PV" app. The installation process require storage permission,please agree. Users can download apps in the App Store and Play Store, respectively. For example, ios searches for "Lucky PV" in the App Store Figure 1, and Android searches for "Lucky PV" in the Play Store Figure 2.

Figure 1

Figure 2

2. Turn on the device, indicator light will be on. For the first time using, please press the switch key to switch the device mode, and turn on the local indicator, and the cloud indicator flashes (twice in 1 second), so that the device is in WiFi distribution network mode , and logging in to the App, use "WiFi distribution network" to connect to the network.



7. Cloud Mode Tutorial

1. Open the "Lucky PV" application, pop up the "Privacy Protection Prompt" dialog box, click the "Agree" button, enter the user login interface, if you have not registered, please select "Select Server", the server selection is the same as "IM-WR4 Communication Adapter" with QR code under "Server: ***", and then click the "Register" button below, registration is divided into mobile phone registration and email registration.

(1) Mobile phone registration

Enter your phone number in the "Please enter a mobile phone number" box and select your country and region click the "Get Verification Code" button, fill in the received verification code in the "Please enter the verification code" box, enter the password in the "Please enter password" box, and click register.

(2) Email registration

Enter the email address in the "Please enter email" box, click the "Get Verification Code" button, fill in the received verification code in the "Please enter verification code" box, enter the password in the "Please enter password" box, click Register to save your password correctly. Your device will be associated with this username.

2. Enter your username and password on the login page, and select the corresponding server to log in. After successful login, enter the home page of the APP, as shown in Figure 3, click the "Add Device" button to enter the "Add Device" page, as shown in Figure 4, we provide two network configuration methods.

Figure 3

Figure 4

(1) Click "Scan", scan the IM-WR4 communication adapter with a 12-digit number QR code, as shown in Figure 5, the binding success prompts "Success", as shown in Figure 6, after successful binding, automatically jump back to the "WiFi Configuration" page, as shown in Figure 7. At this time, the WIFI connector of Figure 5 and the inverter should be connected through the network port, so that the IM-WR4 communication adapter is in working condition (default factory: LOCAL indicator is always on, CLOUD indicator flashes twice a second), then we return to the interface of the mobile phone "WIFI network", as shown in Figure 7, SSID is the name of the WIFI that your mobile phone is now connected to, enter the password in the "password" box, enter the number of connected devices in the "number of devices" box, "broadcast" and "multicast" Select any one of them and click Confirm to submit the data for network configuration.

Figure 5

Figure 6

Figure 7

At this point, the page enters the connection state, as shown in Figure 8:

Figure 8

The connection successfully enters Figure 9, and the failure enters Figure 10 (failure can be retryed).

Figure 9

Figure 10

After successful network configuration, exit the "WiFi Network Configuration" page, click the icon in the lower left corner, enter the home page, and view the device data, as shown in Figure 11, when the dot is green, there is data in the operating status display, indicating that the device is online, at this time you can view and modify the operating parameters of the device. When the dot is grayed out, the running status shows offline, indicating that the device is offline.

Figure 11

(2) Click "Enter", as shown in Figure 12, find the "IM-WR4 Communication Adapter" QR code with a 12-digit number, enter the device number in the "Please enter the device ID" box, click the "Bind" button, the following steps are the same as "Scan" to add the device.

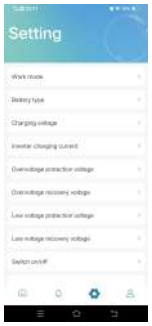
Figure 12

(1) Real-time Parameters

Click the device on the device list to jump to the real-time parameter interface.

(2) Device Settings

After entering the real-time parameters page of the device, users can click the icon in the lower right corner to enter the setting interface and set, view and control the device parameters.



Note: Please set the parameters reasonably according to the hardware conditions of the equipment, and clearly define the meaning of the set parameters, Unreasonable settings will cause equipment damage and danger!

8. Common Problem

(1) After 10 seconds of power on, the indicator light does not flash or light up.

- Check whether the supply voltage and current of the equipment meet the requirements of the adapter and whether the connection line is connected correctly.

(2) The LOCAL indicator lights up occasionally during use.

- This is caused by the instability of the local WIFI router network.

(3) When the user register, they are prompted to "Choose the server".

- You need to select a server nearby.

(4) When the user log in, they are prompted to "Choose the server".

- You need to select the same server as the one when you registered.

9. Supplement AP access point distribution network

If the 'broadcast distribution network' above is not successful, follow the steps below to operate.Long press "SWITCH" for seconds to switch to AP network. The indicator light status is "LOCAL" and "CLOUD", flashing every 0.5 seconds. Open the WiFi connection interface on your phone and find the WiFi for "IOT4CEBD683EFED". This is consistent with the 12 digit number on the IM-WR4 communication adapter, as shown in Figure 13,

Figure 13

Figure 14

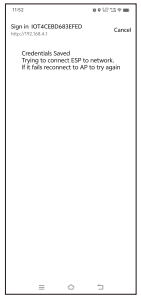


Figure 15

After clicking on "OT4CEBD683EFED" and waiting for about 1 second, a distribution network interface will automatically pop up as shown in Figure 14. Click on the WiFi you are using, enter your password, click "save" to submit, and you will switch to the waiting interface as shown in Figure 15. If the networking is successful, the "LOCAL" indicator light of the IM-WR4 communication adapter will turn off, and the "CLOUD" indicator light will flash every 2-3 times. If it is not successful, please try again.

10. Attachment

Attachment 1.Exit Settings:

Serial Port Parameters	
Interface Type	RJ-45
Communication Type	RS-485
Baud Rate	9600
Data Bits	8
Parity	None
Stop Bit	1

Appendix 2.Definition Of Interface Pns:

Pin	Explain
1	485+
2	485-
7	VCC
8	GND