



IM-WR4

WIFI-RS485 IoT Modules

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Specifications

► WIFI specifications

Items	Parameter
Frequency range	2.4G~2.5G(2400M~2483.5M)
Transmitting power	802.11b: +20 dBm 802.11g: +17 dBm 802.11n: +14 dBm
Receiving sensitivity	802.11b: -91 dbm(11Mbps) 802.11g: -75 dbm(54Mbps) 802.11n: -72 dbm(MCS7)
Antenna	Interface type SMA (gain 2DBI omnidirectional antenna)
Operating voltage	5V
Operating current	Average current:50 mA , Peak current:150mA
Operating temperature	-10°C ~ 65°C
Storage temperatures	-40°C ~ 85°C
Wi-Fi Pattern	Station/AP
Security mechanism	WPA/WPA2
Encryption type	WEP/TKIP/AES

Product description

IM-WR4 communication adapter is a wireless data terminal of the Internet of Things. It uses WIFI network to realize the protocol conversion to RS-485 for users. Solar charge controller, inverters, solar pump inverter and other devices using traditional serial communication can realize network communication and realize the rapid networking of serial devices. Converters are configured intelligently. Users do not need to know the complex TCP/IP protocol. They can realize network connection of devices through simple operation. Simple and flexible configuration and high reliability can meet your monitoring and remote-control needs.

Function introduction

IM-WR4 communication adapter provides Wifi and serial port conversion functions. It can convert serial communication to Wifi, and provide local master station mode and cloud connection mode.

Local mode: IM-WR4 communication adapter acts as a hotspot signal for the host station. Users' mobile phones and other devices can connect this hotspot to configure the adapter and communicate with 485 connected devices to exchange data.

Cloud mode: The IM-WR4 communication adapter connects to the cloud through the configured 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

► Specification of Serial Port Communication

Item	Specifications
Interface type	RJ-45
Transfer method	RS-485
Transmission rate	9600
Protocol	MODBUS

► Indicator light instructions

Item	Implications
LOCAL	Local light, always on after switching to local mode, flashing when data exchange
CLOUD	Cloud Connection Indicator, always bright after switching to cloud mode, flashing when data exchange
SWITCH	Short press 3 seconds to switch between local and cloud communications, long press 10S clear settings

Installation

The adapter must be properly installed for 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 with power to avoid accidents!

1. Unpacking inspection

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.

► Packaging contents

Content	Quantity	Comments
Adapter	1	Piece
Instructions	1	Piece
Antenna 2.4G	1	Piece
Communication cable	1	Piece

2. Connect the matching antenna to the SMA antenna pedestal on the right side, lock the screw to ensure and make sure there is no metal around etc. to influence 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

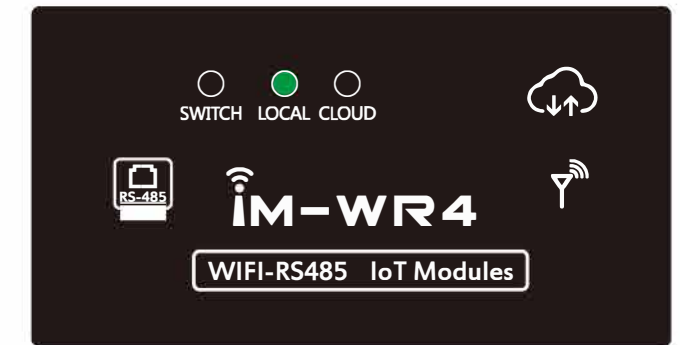
4. Disconnect the power of the device and insert the RJ45 socket of the device and the RJ45 socket of the adapter with the matching Communication cable to ensure a firm connection.

Use tutorial

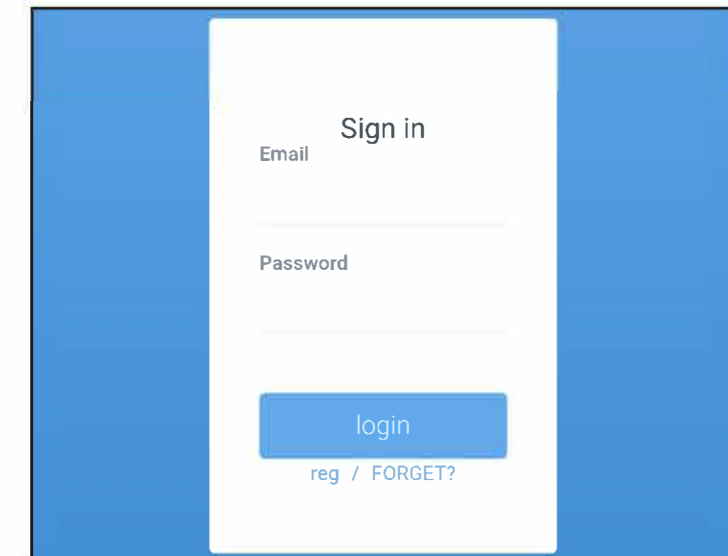
The adapter can use both local mode and cloud mode.

1. Please install the "InvIoT" app. If the installation process prompts you need storage permission, please agree.

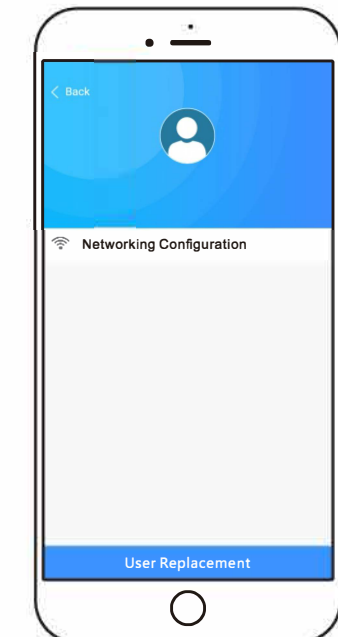
2. Turn on the device, the indicator light on the adapter will light up, check if the LOCAL indicator is lit or not. If the CLOUD indicator is lit, press the switch to switch the device to make the LOCAL indicator light, and let the device be in local mode.



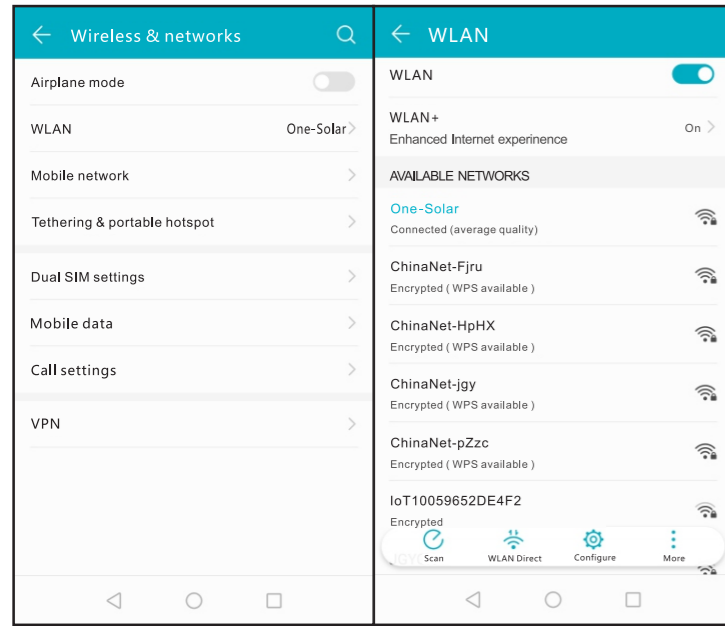
3. Open the "InvIoT" app, select remote monitoring, enter the user login interface, if not registered, please click the "Register" button below, enter your common mailbox as the user name. please enter no less than 6-digit as a password in the password setting field. Then click on the "Register button" to register the user. Please do not set a password that is too simple, and keep your password safe. Your device will be associated with this username.



4. Fill in your user name and password in log page to log in. After logging in, go to the following page, and then do not exit the app and go to the phone network settings.

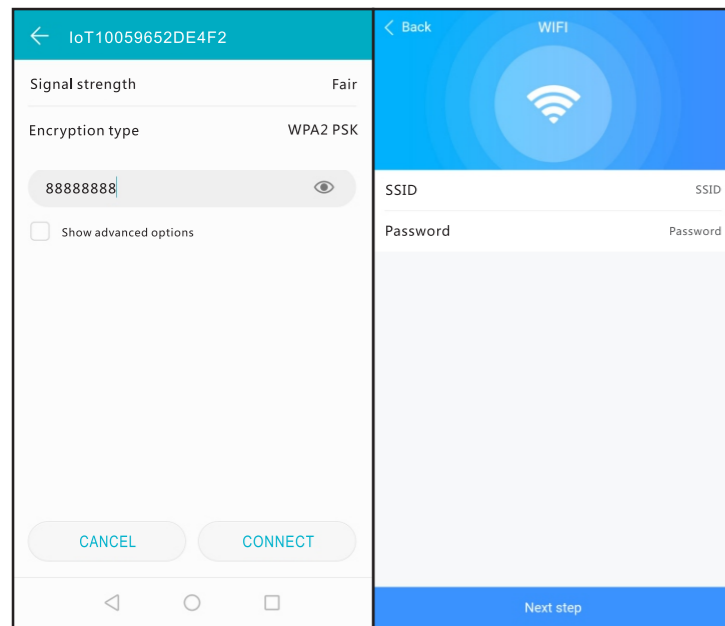


5. One cellphone "Setting" function, enter setting page of "Wireless & networks" or "WLAN". find out and select a network named IoT, similar to IoT***** (* stands for letters and numbers). Manually connect to this network, the network password is "88888888", enter 8 digits in succession. If the mobile phone prompts that the network cannot connect to the Internet, you still need to continue to use this network? please select "Yes".(5-1, 5-2, 5-3)



5-1

5-2

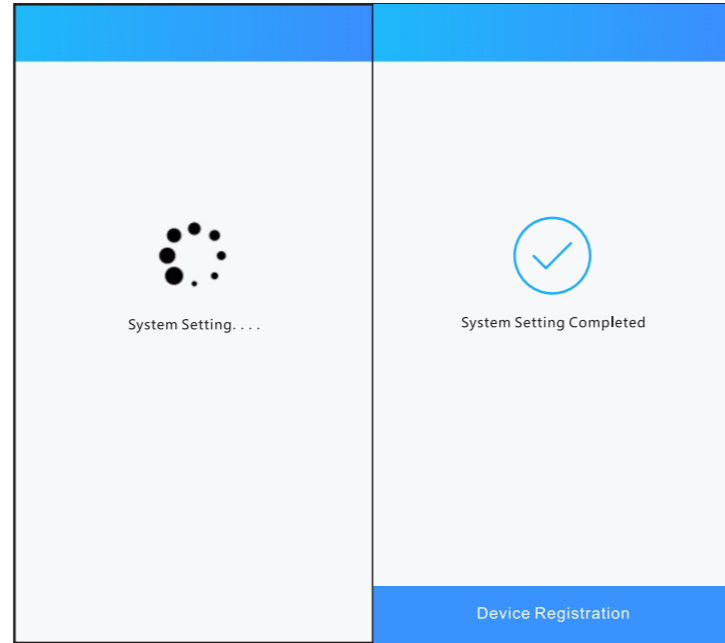


5-3

6-1

6. Go back to the app and click on "Network Settings". Please enter the local WIFI SSID and password. Please ensure that the adapter can receive this WIFI signal and connect to the Internet through this WIFI. Ensure the capitalization, symbols etc. completely correct during the input process. Otherwise the adapter cannot connect to the internet.(6-1)

7. Click Register Device to activate the adapter registration. If the adapter is already registered, skip this step.

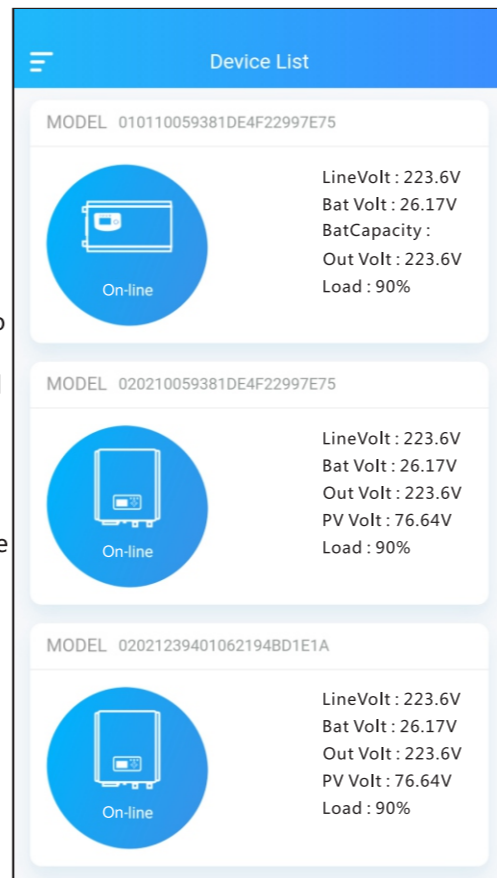


8. The adapter will automatically connect to the Internet for registration, the network of IoT beginning will be closed, and the adapter will enter cloud networking mode. The application automatically exits the registration page, the registration is successful, and the adapter is activated.

Use

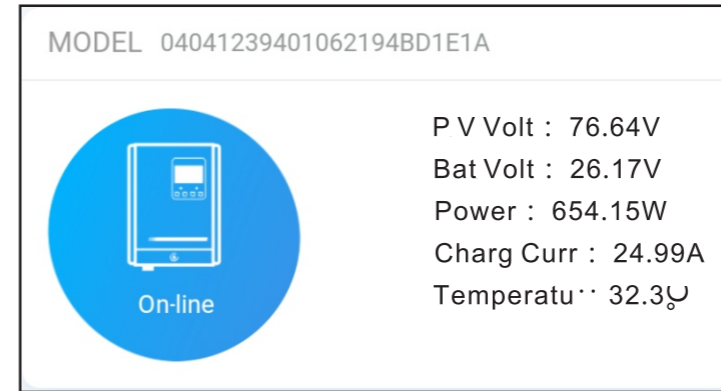
The adapter can use both local mode and cloud mode.

1. Cloud mode
The adapter is activated and properly networked, pressing the button to make the device "CLOUD" indicator light to put the device in cloud mode, and the device can communicate directly with the cloud. When a user clicks on the cloud mode to log in, all associated devices will appear in the device list.



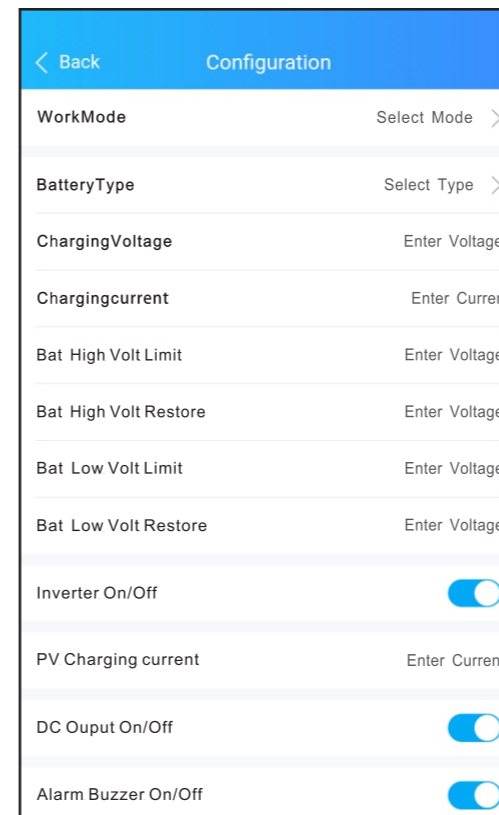
2. local mode

The adapter has been activated, press the button to make the device "LOCAL" indicator light to put the device in local mode, the user sets the name of the "WLAN" or "wireless LAN" under the "Wireless and Network" item in the phone settings. The name of the connection adapter For the network that starts with InvIoT, and then click Local mode in the application, the device connected to the adapter can appear in the device list.



Device Setting

After the user enters the real-time parameter page of the device, he can click the setting icon to enter the setting interface, and set parameters, view and control the device.



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!

Common problem

1. When the power is on, the indicator does not flash or turn on.
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 hot signal SSID of the adapter could not be found.
Press the switch button to keep the adapter in LOCAL local terminal mode
3. After the connection, the indicator does not flicker and the data is not displayed on the page.
Check that the equipment is set correctly and conforms to the serial communication format of the equipment
4. Unable to connect through the cloud
Check that SSID and password are correct
Check that the adapter is too far away from the wireless device or is blocked by objects to ensure that the adapter information is good.
5. Cloud can't register devices
Contact the distributor to confirm whether the equipment has been registered and bound.
6. Clear user settings, or other exceptions
Press and hold the button for 10 seconds to restore the factory settings. Reset the parameters.

Attachment 1.Exit Settings:

Network parameters	
IP address	192.168.4.1
Subnet mask	255.255.255.0
SS-ID	IoT*****(*:Representative characters)
Password	8888888
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 pins

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