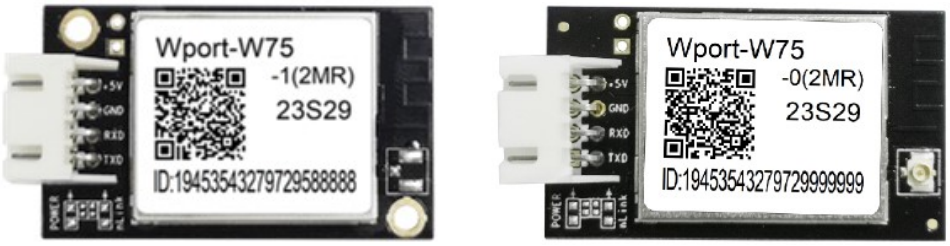
Wport-W75-X(2MR)

UART To Wi-Fi+BLE Collection Module

User Manual

V 1.1



Product Features

- ✧ **Supports WiFi 802.11b/g/n wireless standards**
- ✧ **Adopting RISC architecture SOC chip, with a maximum frequency of 160MHz, 276KB RAM, 2MB Flash, based on FreeRTOS system**
- ✧ **Support BLE 5.0 for diagnostic or local Bluetooth debugging and data collection functions**
- ✧ **Supports UART TTL to WiFi data transmission, with a maximum serial port rate of 460800bps**
- ✧ **Support photovoltaic energy management platforms, web pages or apps to monitor energy data**
- ✧ **Supports different types of antenna options: built-in PCB antenna, external 1st generation IPEX interface, or external antenna pad**
- ✧ **5V single power supply**
- ✧ **Size: 41.3±0.3mm x 24.1±0.3mm x 6±0.5mm**

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V 1.1 2023-09-13 Update appearance

1. PRODUCT OVERVIEW

1.1. Overview

The Wport-W75-X (2MR) module adopts a WiFi+BLE data transmission method, which facilitates the collection and monitoring of data from inverters, energy storage and other devices. The protection level is IP65, suitable for harsh outdoor scenarios, and the sub models support different interfaces to adapt to external devices.

Wport-W75-X (2MR) is equipped with rich network protocols and integrated with TTL standard data transmission interfaces, without the need for any driver programs. It is convenient for traditional serial device networking and docking with photovoltaic energy management, suitable for the photovoltaic energy industry.

1.2. Product Parameters

Table1. Wport-W75-X(2MR) Product Technical Parameters

Classification	Parameters
System Information	
Processor/Main Frequency	RISC 160MHz
Flash	2MB
RAM	276KB
Operating System	FreeRTOS
Wi-Fi Interface	
Wireless Standards	802.11 b/g/n
Frequency Range	2.412GHz ~ 2.472GHz
Network Mode	STA/AP/STA+AP
Security Type	WEP/WPA-PSK/WPA2-PSK/WPA3-SAE
Encryption	WEP64/WEP128/TKIP/AES
Transmitting Power	802.11b: +17dBm ± 1.5dBm (@11Mbps) 802.11g: +15dBm ± 1.5dBm (@54Mbps) 802.11n: +14dBm ± 1.5dBm (@HT20, MCS7)
Receiving Sensitivity	802.11b: -96dBm (@1Mbps) 802.11b: -89dBm (@11Mbps) 802.11g: -91dBm (@6Mbps) 802.11g: -76dBm (@54Mbps) 802.11n: -91dBm (@MCS0) 802.11n: -73dBm (@MCS7)
Antenna Option	Internal PCB, external 1st generation IPEX
BLE Interface	
Wireless Standards	BLE5.0
Frequency Range	2.402GHz ~ 2.480GHz
Transmitting Power	Max 15dBm

Receiving Sensitivity	-97dBm
Antenna Option	Same as Wi-Fi interface
Serial Port	
Number of Port	1
Interface Standard	TTL 5V
Data Bit	7, 8
Stop Bit	1, 2
Check Bit	None, Even, Odd
Baud Rate	TTL: 1200 bps~460800 bps
Flow Control	No flow control
Software	
Collocation Method	APP
Firmware update	Serial port or OTA network upgrade
Basic Parameters	
Size	41.3±0.3mm x 24.1±0.3mm x 6±0.5mm
Working Temperature	-40 ~ 85°C
Storage Environment	-45 ~ 105°C, 5 ~ 95% RH (No condensation water)
Humidity Sensitivity Level	MSL3
Input Voltage	4.7~6V
Average Current	Peak (1ms in 100 milliseconds):<350mA Average (STA, networked standby): 40mA Average (STA, 1KB/s): 60mA Average (AP): 70mA Standby mode: 310uA (Reset pin pulled low)

1.3. Main Application Areas

Wport-W75-X (2MR) connects serial devices to the Internet and transmits serial data in accordance with the TCP/IP protocol.

- Monitoring of photovoltaic solar energy and energy storage;

2. HARDWARE INTRODUCTION

Wport-W75-X (2MR) is a Wi Fi+BLE solution for serial device networking, which enables data transmission through routers, making product integration very easy. It is divided into three models based on the antenna form: -0, -1.

2.1. Hardware Introduction

The appearance of the module is as follows.

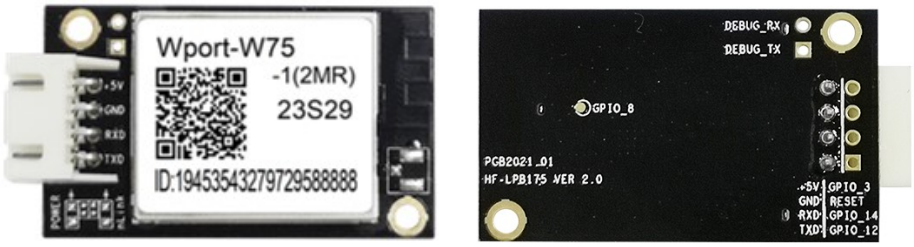


Figure 1. Wport-W75-1(2MR) Appearance Diagram

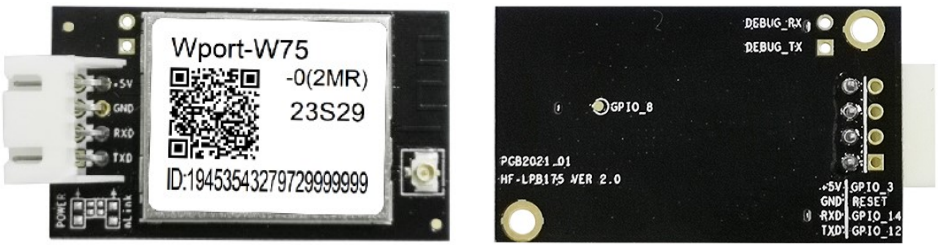


Figure 2. Wport-W75-0(2MR) Appearance Diagram

2.1.1. Wport-W75-X(2MR) Pin Definition

Figure 3. Wport-W75-X(2MR) Pin Definition

Table2. Wport-W75-X(2MR) Pin Function Definition

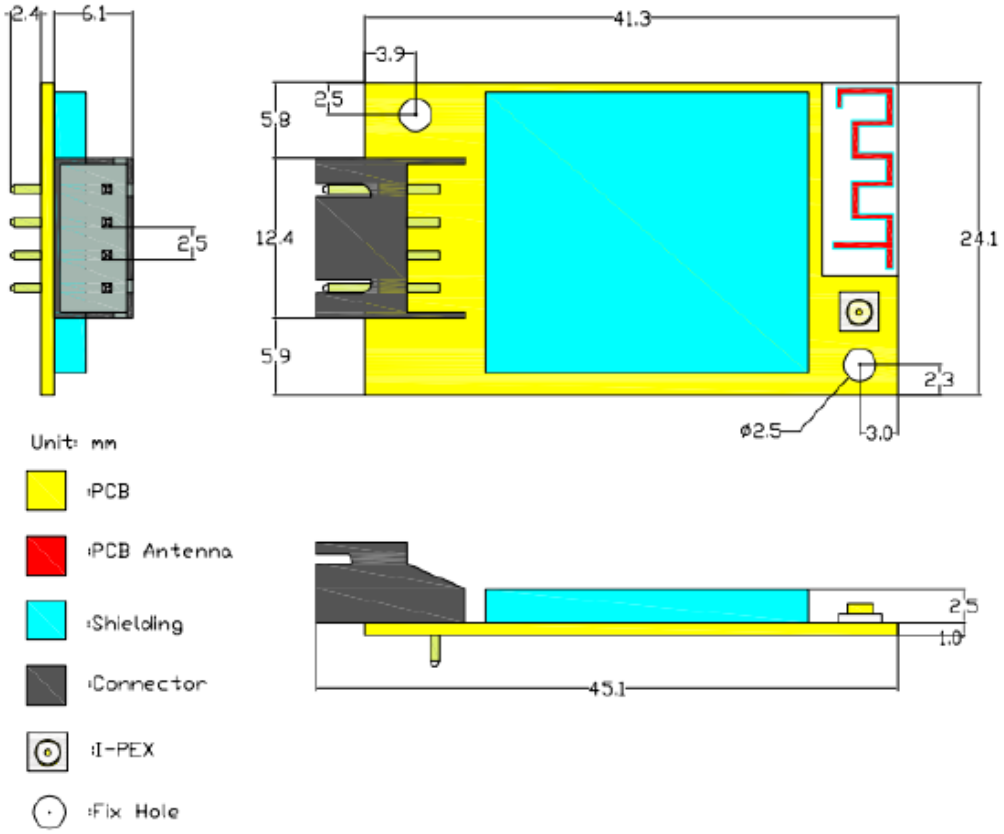
Pin	Describtion	Net Name	Signal Type	Comments
1	+5V Power	DVDD	Power	5V@300mA
2	Ground	GND	Power	Ground
3	UART0	UART0_RX	I	5V TTL UART0 Communication Input GPIO7
4	UART0	UART0_TX	O,PU	5V TTL UART0 Communication Output GPIO16

<Description>:

I - Input; O - output; PU - Internal weak resistance pull-up; PD - Internal weak resistance pull-down; Digital I/O; Power - Power supply

2.2. Wport-W75-X(2MR) Mechanical Dimensions

The dimensions of the Wport-W75-X (2MR) model product are defined as follows (in millimeters).



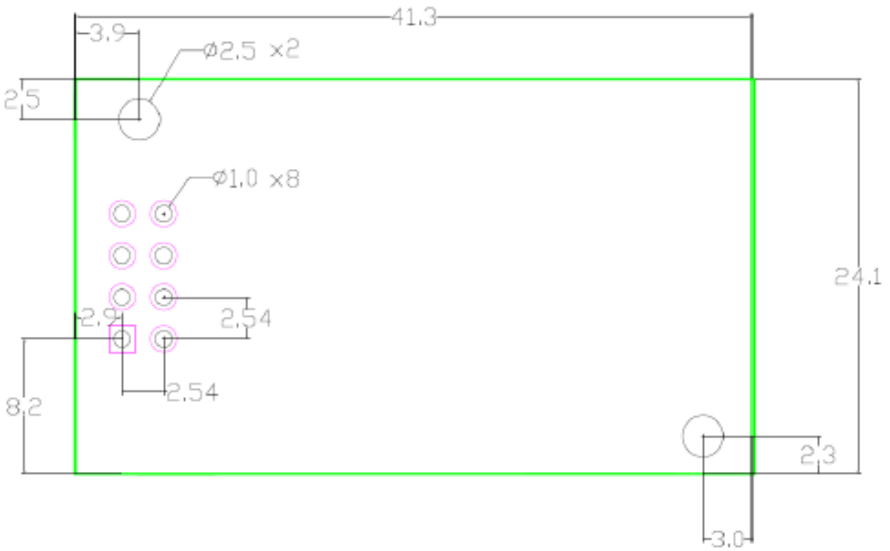


Figure 4. Mechanical Dimensions

2.3. Internal antenna

The module supports built-in antenna options. When customers choose a built-in antenna, they need to follow the following precautions for the built-in antenna and the overall rules for module placement:

- On the user's PCB board, components and GND cannot be placed in the module antenna area (as shown in the red area in the figure below). It is also recommended to excavate or protrude the PCB substrate in the antenna area as shown in the figure below.
- The antenna should be kept away from metal and at least 16 millimeters away from higher components around it;
- The antenna part cannot be covered by a metal shell, and the plastic shell needs to be at least 16 millimeters away from the antenna;

It is recommended to place the module in the following areas of the user board as much as possible to reduce the impact on the antenna and wireless signal. At the same time, please consult technical support personnel to assist in the placement of the module and the layout design of related areas.

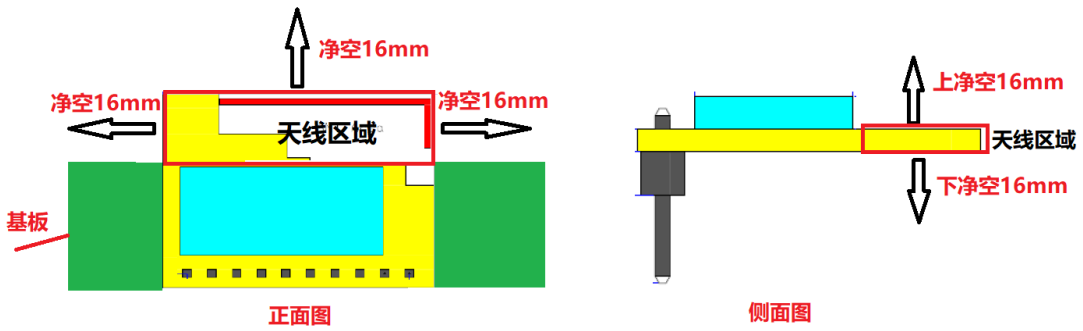


Figure 5. Recommended Placement Area For Module

2.4. External antenna

The module also provides an external antenna interface (with different models of external and internal antennas), which can be selected by the user according to their needs. If an external antenna is used, according to the requirements of IEEE 802.11b/g/n standard, the Wi Fi module needs to be connected to a 2.4G antenna. The parameter requirements for external antennas are detailed in the table, and various specifications of external antennas can also be provided for detailed consultation with sales.

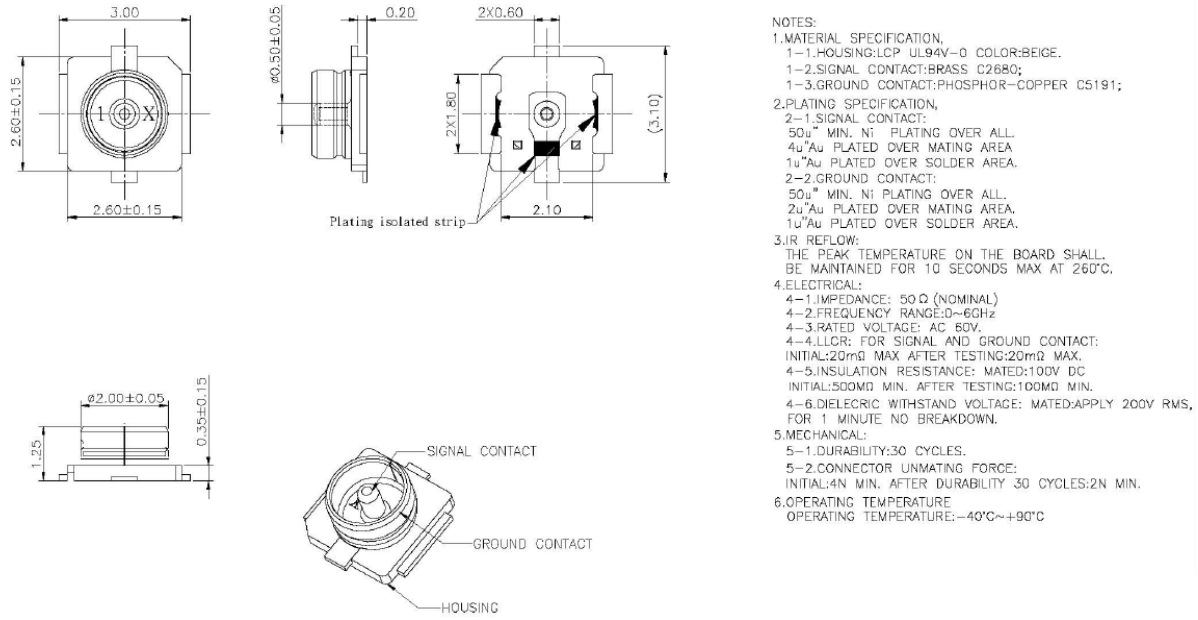


Figure 6. 1st Generation IPEX Pad Size

Table3. Requirements for External Antenna Parameters

Item	Parameter
Frequency Range	2.4~2.5GHz
Impedance	50 Ohm
VSWR	2 (Max)
Return Loss	-10dB (Max)
Connect Type	I-PEX or populate directly

2.5. Product Number

According to customer requirements, Wport-W75-X (2MR) provides different configuration versions, as follows:

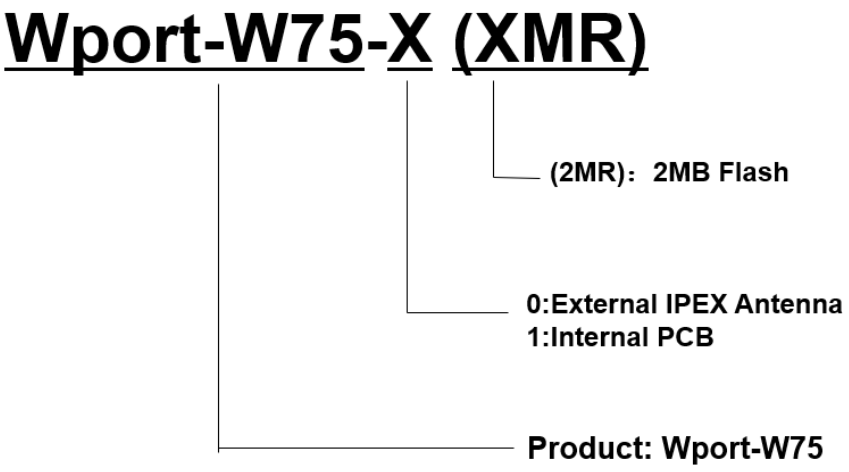


Figure 7. Wport-W75-X(2MR) Product Number Definition

3. NETWORK TOPOLOGY

The SWB1 acquisition rod core uses the Wport W70-X (2MR) module, and the product application architecture is shown in the following figure.

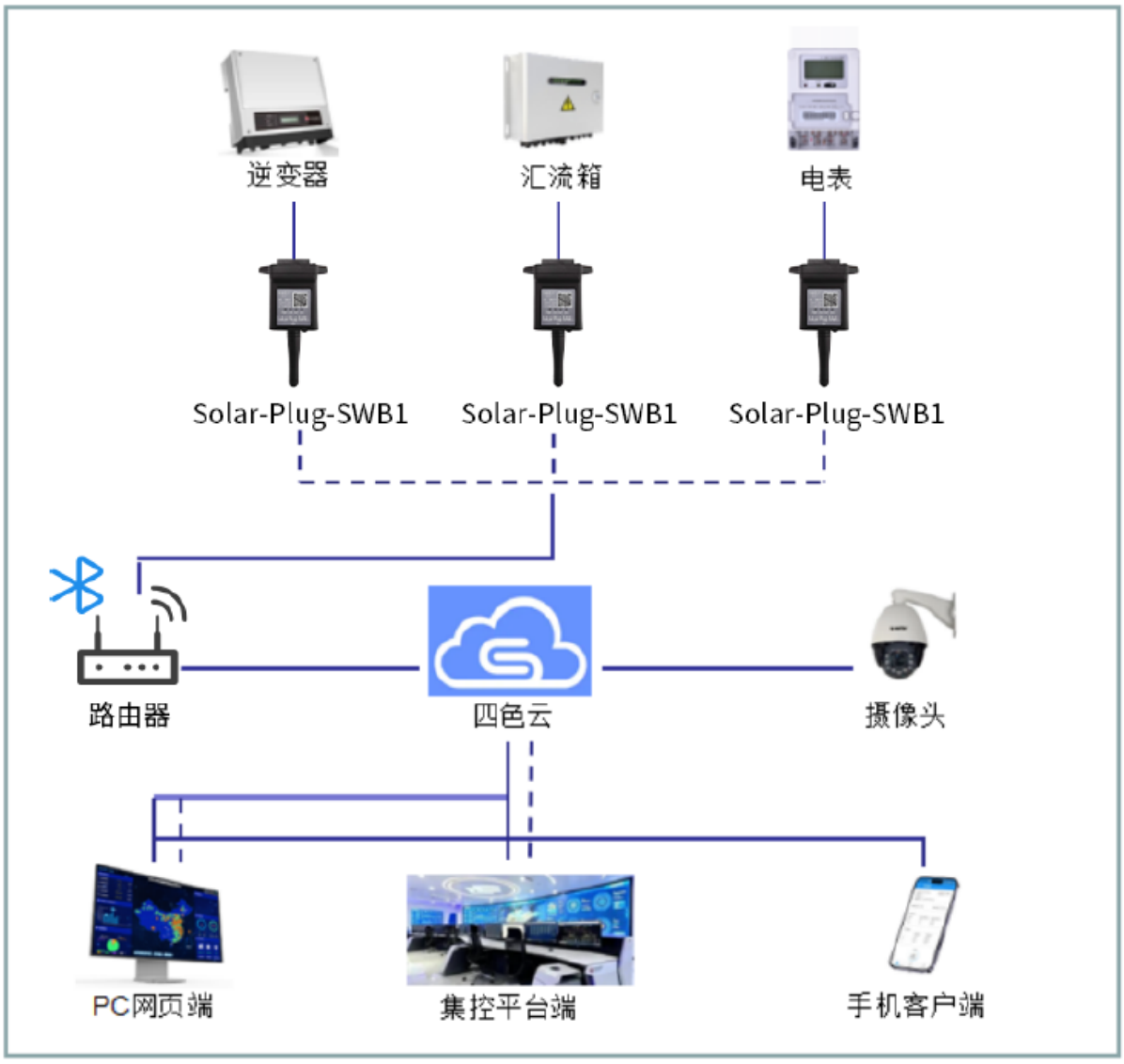


Figure 8. Product Application Architecture Diagram

APPENDIX A: CONTACT INFORMATION

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