深圳市奥金瑞科技有限公司
SHENZHEN OGEMRAY TECHNOLOGY CO.,LTD

GWF-5M02

PRODUCT SPECIFICATION

MODEL: GWF-5M02
VERSION: V1.0
DATE: 2017-06-13

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Historical Releases

Version	Modified Content	Writer	Auditing	date	Department
V1.0	the first version	Jasmine	Ning Qing	2017-06-13	Product dept.

Catalogue

1. Product Basic Information

1.1 Product Introduction

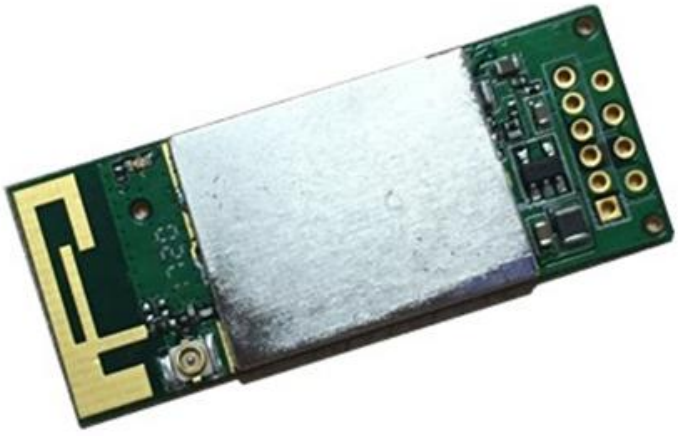
The 5M02 is a low cost and multi-use WLAN module, it adopts the latest 802.11ac technology and fully complies with 802.11a/b/g/n/ac standards.

The 5M02 module designed is to focusing on wireless connection, equipped with 4/6 pin connectors, it supports USB1.0/USB2.0 interface. The module uses high-integration MAC/BBP chip and RF single chip RTL8811AU. These features deliver reliable performance, extensive application and operational excellence.

Built in on-board antenna, developers also can connect 5G or 2.4G antenna. The working frequency range is in 5.8GHz/2.4GHz. Under ideal circumstance, the transmission rate reaches to 433Mbps, users can choose one of frequency to avoid wireless interference and network congestion. It has more stable wireless signal and more smooth running speed.

The module is a broadband network mode, the bandwidth reaches to 80MHz, it is effective for users to avoid network delay. The module can be applied for IP camera, IP STB, GPS, TV, internet broadcast device, etc. It makes network running more fluently for voice, video, online music, internet games to deliver a better experience. 5M02 supports multi advanced encryption mode, which offers safer network environment.

The 5M02 modules have extensive operational compatibility, it supports current mainstream operation system like Windows Vista, XP/7/8/10, Linux, Mac OS; All these remove trouble of compatibility.



GWF-5M02

1.2 Product Features

- Built in on-board antenna, or connect to external antenna via IPEX.
- WPS supports.
- 802.11b: 1, 2, 5.5, 11Mbps
- 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps
- 802.11n: (20MHz) MCS0-7, PHY rate reaches to 72Mbps; (40MHz) MCS0-7, PHY rate reaches to 72Mbps
- 802.11ac: PHY rate reaches to 433Mbps(80MHz)
- Support multiple encryption mode: WFA, WPA, WPA2, Personal, WPS2.0, WAPI.
- Equipped with 4/6 pin connector, support USB2.0/1.1 interface
- Built-in power consumption management function
- Excellent interference resistance ability
- System support: Windows Vista, XP/7/8/10, Linux, Mac OS

***NOTICE**: WLAN communication channel is the communication channel used for IEEE 802.11 (Wi-Fi) wireless network permitted by national laws. It is divided to 2 different independent bands by 802.11 working team. Though each band can be partitioned to several communication channels, every country has its own authority to decide how to use them. You can refer to CHAPTER 5 for detailed information.*

2 Product Basic Function

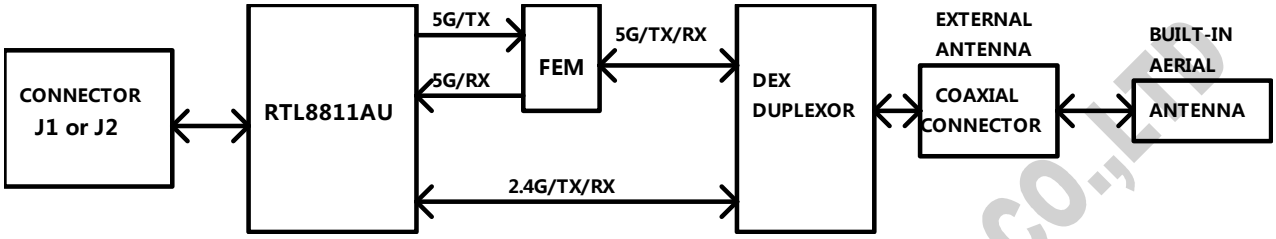
2.1 Brief Specification

Electronic Specification	
Main Chipset	RTL8811AU
Interface	4/6 pin connector, support USB2.0/1.1 interface
Standard	IEEE802.11b/g & 802.11n & 802.11ac (1T1R mode)
Operation Frequency	2412MHz - 2462MHz, 5180MHz - 5240Hz, 5745MHz - 5825MHz,
Antenna	on-board antenna, or connect to external antenna via I-PEX
location hole	3 location holes

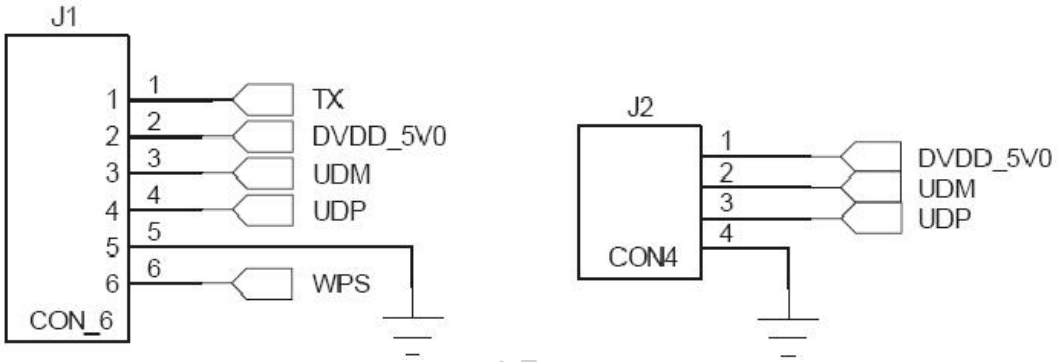
Encryption mode	WFA, WPA, WPA2, Personal, WPS2.0, WAPI.
Typical Transmit Power (feed point to antenna)	802.11b: 17±1 dBm@11Mbps
	802.11g: 15±1 dBm@54Mbps
	802.11n: 15±1 dBm@150Mbps
	802.11ac: 11±1 dBm@433Mbps(AC80)
Receive Sensitivity	802.11b: -80+/-1dBm
	802.11g: -73+/-1dBm
	802.11n: -70+/-1dBm(HT20); -64+/-1dBm(HT40)
	802.11ac: -80+/-1dBm(MCS0); -56+/-1dBm(MCS9) ,(AC80)
Operating Voltage	5V DC+/-5%
Power consumption	TX and RX status: 220mA(max)
	TX status: 220mA(max)
	RX status:180mA(max)
Physical Specification	
module dimension	45.0* 18.1*2.9 mm
location hole size	diameter: 1.0mm
Weight	3.3 g

2.2 Hardware Information

1. Block diagram



2. 4/6 pin connector interface schematic diagram



3. 4/6 pin connector interface definition and function description as below:

LINE 1: J1-1~J1-6

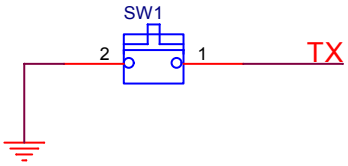
LINE 2: J2-1~J2-4

Pin NO.	4-pin 2.0mm pitch	Description	Remark
J-1	TX	TX enable	Not available temporarily
J-2	DVDD-5V0	USB power	DC 5V+/-0.5V
J-3	UDM	Data-	
J-4	UDP	Data+	
J-5	GND	GND	
J-6	WPS	WPS button outgoing line	3.3V, high level active

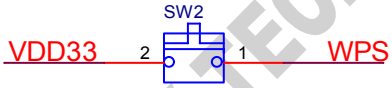
J2-1	DVDD-5V0	USB power	DC 5V+/-0.5V
J2-2	UDM	Data-	
J2-3	UDP	Data+	
J2-4	GND	GND	

When you consider pull-up resistor (pull-down resistor), you need to think about resistor value.

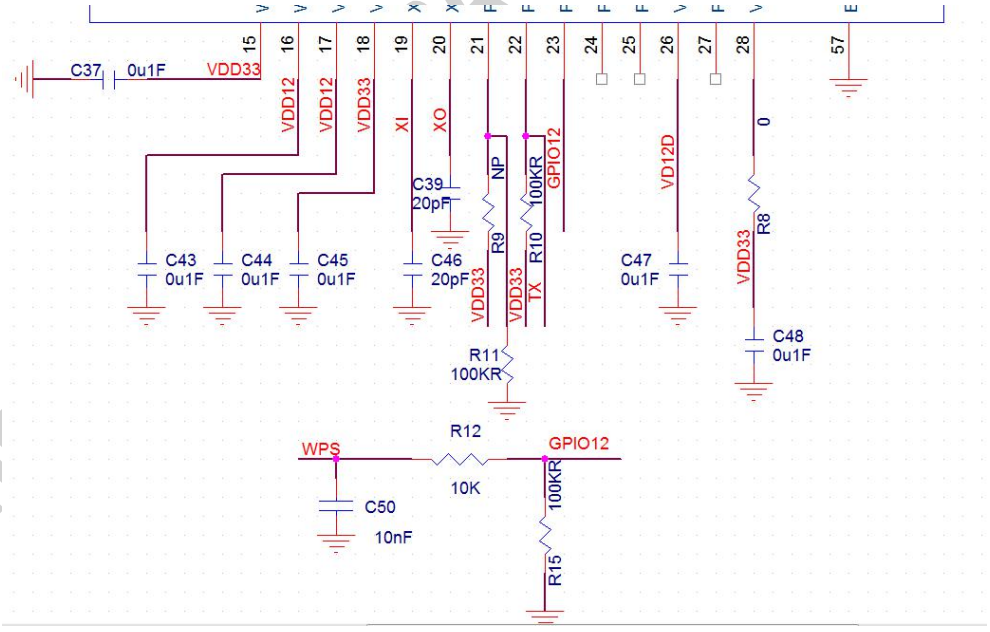
J1-1(TX) connects to GND by pressing SW1 button, it is at 3.3V low level active, now it doesn't support the function temporarily.



J1-6(WPS) connect to 3.3V by pressing WPS button(SW2), it is high level active, the schematic diagram as below.



The following figure us recommended schematic diagram.



2.3 Software Information

The table below is for users to check the available Operation System and its version:

OS	Available	OS Version
Windows	YES	XP
	YES	Win7
	YES	Win8
	YES	Vista
	YES	Win10
Linux	YES	Linux2.6 or above
Android	YES	Android2.6 or above
Mac	YES	10.3-10.10

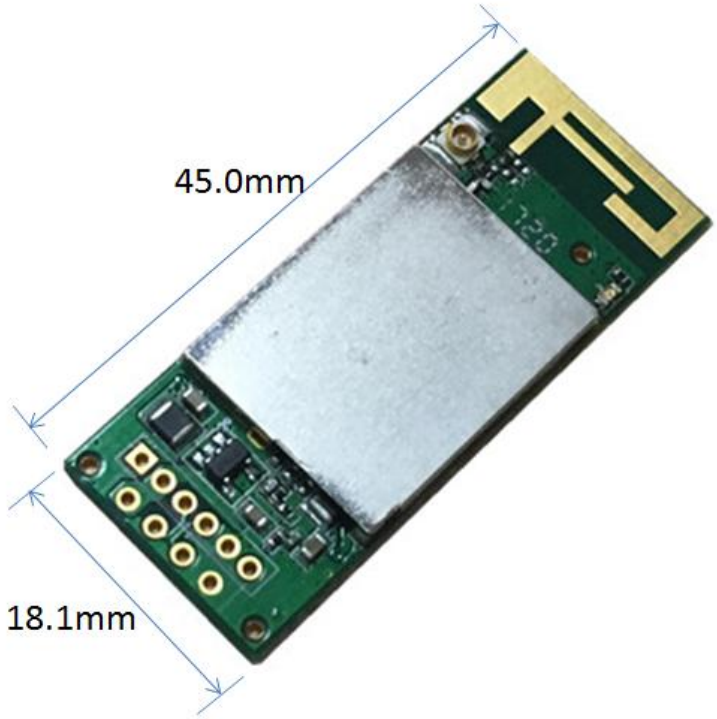
2.4 Mechanical Information

2.4.1 Product Appearance

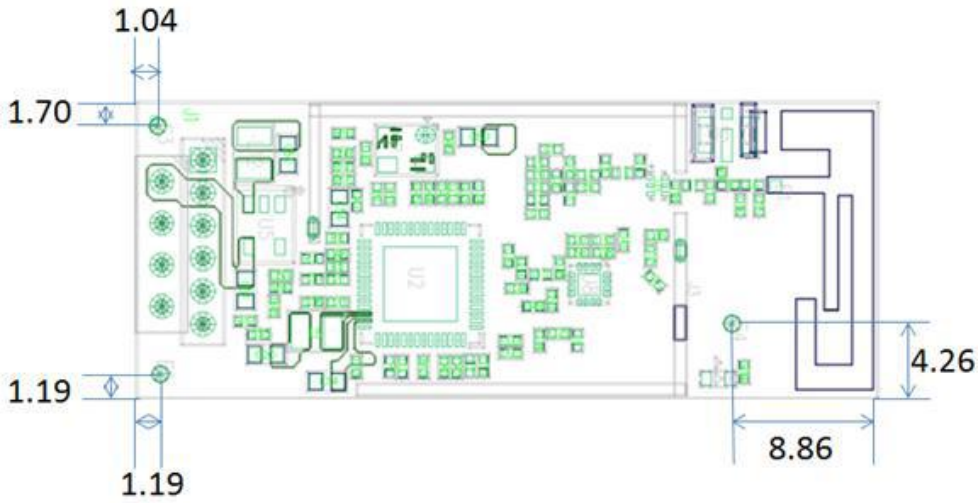
The view of top and bottom layer of GWF-5M02 can be displayed in the following pictures

2.4.2 Product Dimension

The dimension of GWF-5M02 can be referred by following picture:



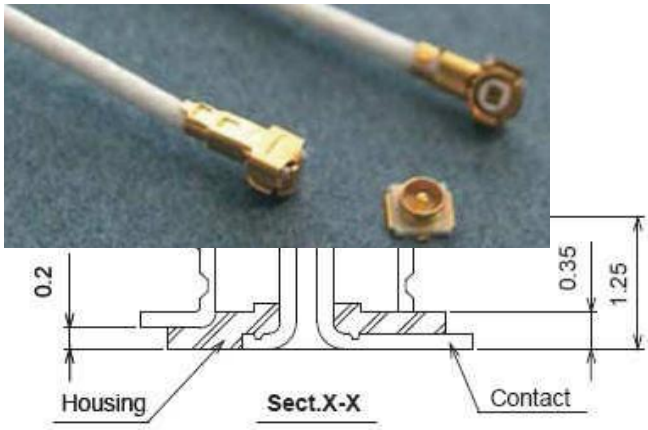
Three location holes position map as below (dimension unit: mm):



2.4.3 RF Signal Input and Output

A. Using external antenna to process signal input and output.

If the I-PEX RF connection is selected, a 50 ohm external antenna connects to the module RF output via



an I-PEX MHF receptacle (RF connector).

The profile of I-PEX connector is contained in the following picture.

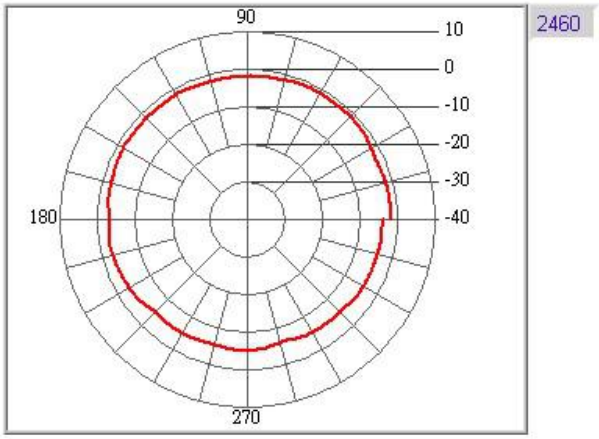
Note:

- *I-PEX interface can be welded to the suitable position in PCBA*
- *When we use external antenna via I-PEX interface, on-board antenna will interrupt signal connection.*

B. Using on-board antenna to process signal input and output.

On-board antenna location is as below, users can process signal input and output directly via on-board antenna, if users think that signal quality can't satisfy requirement, they can use external antenna.

The peak gain is -1dBi; the average gain is -3dBi.



3. Approval and Certification

Certification	Approval
FCC	Pre-scan undergoing
CE	Pre-scan undergoing
ROHS	Pre-scan undergoing

4. Environment Requirements

4.1 Suitable Temperature

Working Temperature: -10℃~+50℃

Storage Temperature: -20℃ ~+85℃

4.2 Suitable Humidity

Working Humidity: 20%~85%

Storage Humidity: 20%～95%

Notice: *To keep the normal service life and ensure the excellent working performance of our device, please use it and store it abide by environment requirements strictly.*

6. Disclaimer

This **SPECIFICATION** document is the guidance of the installation and tentative usage of our products. Before operating the product, please read this data sheet carefully.

We do not provide any guarantee about this data sheet, software or other relevant information. We solemnly state that there is no implied business warranty or commercial contract assurance in the sheet, software or other related information. The data sheet is only for operation guidance and reference; it cannot be used as basis or supplement of any other contract or duty.

FCC Caution: Any changes or modifications not expressly
approved by the party responsible for compliance could void the user's
authority to operate this equipment.
This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions: (1) This device may not
cause harmful interference, and (2) this device must accept any interference
received, including interference that may cause undesired operation.
This device and its antenna(s) must not be co-located or operating in conjunction
with any other antenna or transmitter.
15.105 Information to the user.
(b) For a Class B digital device or peripheral, the instructions furnished the
user shall include the following or similar statement, placed in a prominent
location in the text of the manual:
Note: This equipment has been tested and found to comply
with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.
These limits are designed to provide reasonable protection against harmful
interference in a residential installation. This equipment generates, uses and
can radiate radio frequency energy and, if not installed and used in
accordance with the instructions, may cause harmful interference to radio
communications. However, there is no guarantee that interference will not
occur in a particular installation. If this equipment does cause harmful
interference to radio or television reception, which can be determined by
turning the equipment off and on, the user is encouraged to try to correct the
interference by one or more of the following measures:
—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which
the receiver is connected.
—Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your bo dy.

Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.
This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
The module should not be installed and operated simultaneously with other radios except additional RF exposure was evaluated for simultaneously transmission.
The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination.
The firmware setting is not accessible by the end user.
The final end product must be labelled in a visible area with the following:
“Contains Transmitter Module **YWT-5M02**”