

WiFi Network BLE Gateway

User Manual

Model	keywords
JW1401GWV2	BLE Gateway, WiFi network, Powered by 5VDC USB port, Report scanned RAW data to server, Support Internet & local network, Black color.

Bluetooth Low Energy Gateway (JW1401GWV2)** can scan surrounding BLE broadcast packets and report the concerned RAW data packets to a designated server. It supports data collection from Bluetooth beacons, SOS buttons, temperature and humidity sensors, air pressure sensors, vibration sensors, and more. It can also be used for personnel positioning, asset tracking, etc.

Feature

- Support remote firmware upgrade
- Reception sensitivity: -91 dBm
- Peak current: 150 mA
- Uses 2.4GHz Wi-Fi for network connection
- OEM: custom logo printing and label application available



Specification

Compatibility

- Bluetooth version: BLE 4.2, compatible with all BLE 4.0 and higher version Bluetooth devices.
- Battery-free, powered via USB (5V/1A).

OTA and J-Link

- Support over-the-air (OTA) firmware upgrade via Bluetooth.
- Support firmware flashing via J-Link cable.

Parameter Configuration

Gateway password, Wi-Fi router name and password, server IP/URL and MQTT port number, communication protocol: MQTT.

Security

- AES hardware encryption.

Installation method

- Plug into a 5V/1A power adapter. For better signal, position the antenna upward.

Working Mode

- Operating mode: Continuously scans for surrounding Bluetooth devices and reports data to the server.
- Configuration mode: Connects to a mobile phone for configuring operating parameters.

Bluetooth Transmission Power Level

- Default is 0 dBm.

Turn on device

- After plugging in the power, it will automatically start working. Suitable for 5V power adapters (1A or higher current), computer USB ports, etc.

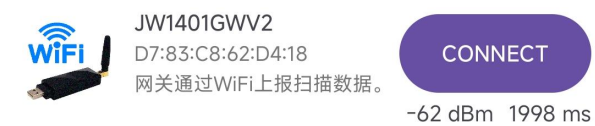
Supporting software

1 Install the Android app "JoywayBeacon" to configure gateway operating parameters and wirelessly update gateway firmware.

Download link: https://www.joyway.cn/download/android_app/JoywayBeacon.apk

Software screen

(1): Search for gateway



复制所有MAC地址

Software screen (2): Configure parameters



Gateway parameters (configurable)

ID	Parameter name	Description
1	Device password	Default password is empty. A password can be set to prevent others from modifying gateway parameters.
2	Wi-Fi name (SSID)	Must be changed to your local Wi-Fi name (only supports 2.4GHz band).
3	Wi-Fi password	Must be changed to your local Wi-Fi password.
4	Server IP/URL	broker.joyway.cn. Can be changed to your own server IP/URL.
5	Server port	1883. Can be changed to the port corresponding to your own server. The default port for MQTT protocol is 1883.
6	Communication protocol	It is recommended to choose MQTT.
7	MQTT username	If the server requires username for login, it must be set.
8	MQTT password	If the server requires password for login, it must be set.
9	MQTT QoS	Communication quality requirement. '1' is recommended.
10	MQTT keep-alive time	60 seconds is recommended.

The following are the broadcast packet filtering conditions. If all conditions are met simultaneously, the raw data of the packet will be reported to the specified server.

11	Bluetooth scan filtering condition (1): RSSI filtering	Broadcast packets with signal strength below this value will be ignored.
12	Bluetooth scan filtering condition (2): MAC address filtering	Filter broadcast packets by MAC address. For example: "XX:XX:XX:XX:XX:AA" means broadcast packets whose MAC address does not end with AA will be ignored. XX indicates no restriction.
13	Bluetooth scan filtering condition (3): Raw data filtering	Filter by specifying part of the raw data of the broadcast packet. For example: expected value "16:05:18", value start position "1" means that if the content of bytes 1 to 3 of the broadcast raw data is not "0x16, 0x05, 0x18", it will be ignored.

Electrical parameters

Item	Value	Remarks
Case color	Black	
Battery	No battery	
Operating Voltage	5V	DC
Operating Current	150mA(Peak)	
Transmission Range	0~65 meters	Effected by the environment.
Antenna	2.4GHz, 50ohm	
Net Weight	26g	
Dimensions	10.5x2.5x5cm	

Package info

Item	PP bag	Paper box
Qty	5 pcs	200 pcs
Net weight	130g	5.2kg
Gross weight	132g	5.5kg
Dimensions	14x9x3cm	430mmx210mmx270mm (3#box)

The following content is secondary development documentation and is for technical personnel only.

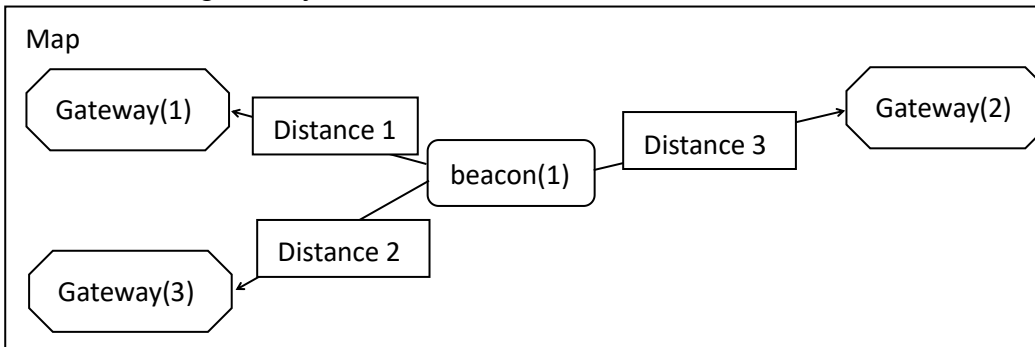
Convert bytes to RSSI value

(C# Example code)

```
int rssiByte = receiveBytes[rssiByteIndex];
int rssiSign = (rssiByte & 0x80) == 0x80 ? (-1) : (1);
int rssiABS = (~rssiByte) & 0x7F;
Int rssiValue = rssiSign * rssiABS;
```

How to achieve indoor positioning using gateways and beacons?

At least three gateways need to be installed to calculate the location of the beacon.**



In the diagram, the three gateways will sequentially scan the beacon signal and report each scanning event to the server. The reported data includes the RSSI value, from which "Distance 1", "Distance 2", and "Distance 3" can be calculated. Since the installation positions of the gateways are fixed, the location of the beacon can be calculated using these distances. The three gateways should not be installed in a straight line; it is best to arrange them in an equilateral triangle to improve positioning accuracy.

Statement

The contents of this document may be updated without prior notice. Please request the corresponding specification sheet for reference before using the product. Shenzhen Joyway Technology Co., Ltd. reserves the right of final interpretation of the contents of this document.

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