

# MG3 USB Mini Gateway

## Datasheet

Your Portable Partner for Tags



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Product Overview

MG3 gateway is a plug-and-play Bluetooth Wi-Fi gateway independently developed by Minew, which is used for the detection and data collection of Bluetooth® LE devices. The collected Bluetooth device signals are encapsulated into JSON packets and transmitted through Wi-Fi. Users can monitor and locate Bluetooth devices on the cloud platform to manage personnel, facilities, assets, and environments remotely. A system with MG3 can lower the cost and improve efficiency while maintaining precision hence being deployed in logistics, healthcare, office, and other scenarios.

Key Features

Plug-in and play, quick setup

The MG3 gateway can be set up by our Gateway Configurer App. The LED indicator shows the status of the gateway making the process of setting up as little as one step. Once powered on, the gateway will collect real-time data and upload it to the server while users can manage the console on the back end and analyze the data.

High throughput and data are filterable

The gateway can steadily collect 70 packets of data per second, capable of collecting and uploading data in real time. Scan and upload intervals can be specified to adapt to different scenarios flexibly. Multiple data filtering modes enable users to not only limit the data flow but also avoid duplications, resulting in acquiring the data exactly you want.

Strong compatibility and easy integration

It is compatible with a massive amount of Bluetooth devices. Users can connect to cloud or private cloud servers through MQTT/HTTP protocol to achieve independent control of data flow, thereby ensuring data privacy and security.

Highly secured

Users can choose MQTT with SSL/TLS security protocol to ensure secure data transmission.

Market Applications

|                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |  |  |  |  |
| Smart Healthcare                                                                    | Smart Buildings                                                                     | Smart Warehouses                                                                    | Smart Retailing                                                                       | Smart Venues                                                                          |

Application Cases

Smart Healthcare

The MG3 gateway can be paired with beacons and sensors to provide a full range of services such as medical supply transportation and patient management. Combined with temperature and humidity sensors, it adds a great tool for pharmaceutical cold chain monitoring systems for vaccine storage and transportation by providing real-time to ensure quality. By working magnetic door sensors and infrared corridor sensors, it assists in the role of monitoring quarantine patients or establishing home security systems. Along with Bluetooth beacons, it can keep track of patient location records and medical equipment while guiding patients to their destinations.

Smart Buildings

By working along with beacons and sensors, the MG3 gateway connects people, objects, and the environment in the same building. Combined with temperature, humidity, and air quality sensors, it can provide real-time reports of the environment, which can be further developed to interact with home appliances to improve indoor comfort and save energy. Together with infrared, vibration, door, and other sensors, it can monitor building safety, space occupancy, and utilization rate in a visualized efficient manner. Working together with personnel positioning beacons, it can provide users with functions such as check-in, check-out, indoor navigation, and visitor management. Its geofencing feature allows setting up an access control list to make use of alarms for unauthorized access. When connected with asset tags, it can enable asset management.

Note: The above cases are shown only as references, users can achieve more applications based on their own algorithm familiarity and software development capabilities.

Product Specifications

Basic Specifications

|                     |                                                          |
|---------------------|----------------------------------------------------------|
| Model               | MG3                                                      |
| Material            | ABS                                                      |
| Color               | White                                                    |
| Size (L * W * H)    | 50 mm * 24 mm * 10.5 mm                                  |
| Weight              | 9 g                                                      |
| Power supply        | USB powered (DC 5 V/ 1 A)                                |
| Network connection  | WiFi                                                     |
| Button              | 1 reset button                                           |
| LED                 | Power status, server status, and OTA upgrading indicator |
| Working environment | Indoor                                                   |
| Working temperature | -20°C ~ 55°C                                             |
| Firmware upgrade    | OTA, LAN upgrade                                         |



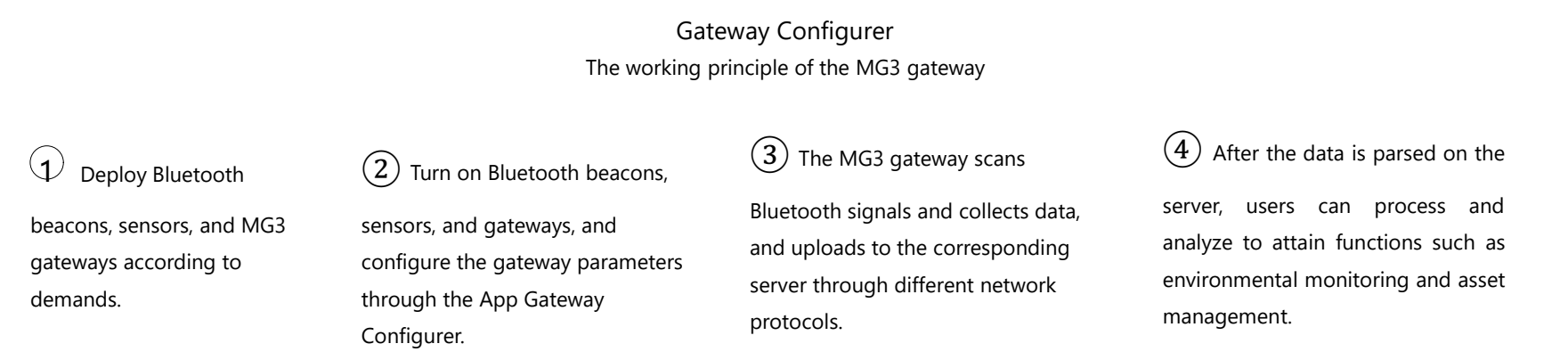
Technical Specifications

| Bluetooth Specifications              |                                                          |
|---------------------------------------|----------------------------------------------------------|
| Bluetooth frequency                   | 2.4 GHz                                                  |
| Bluetooth modulation                  | GFSK                                                     |
| Bluetooth bandwidth                   | 1 Mbps, 2 Mbps                                           |
| Receiving sensitivity                 | -96 dBm @1 Mbps, 30.8% PER<br>-93 dBm @2 Mbps, 30.8% PER |
| Numbers of received broadcast packets | About 70 packets/ second                                 |
| Scan coverage                         | About 70 meters of covered radius (open area)            |

| WiFi Specifications             |        |                                                                                                      |
|---------------------------------|--------|------------------------------------------------------------------------------------------------------|
| WiFi protocols                  |        | IEEE 802.11 b/g/n                                                                                    |
| WiFi frequencies                |        | 2.4-2.4835 GHz                                                                                       |
| Data transfer speed             | 20 MHz | 11b: 1, 2, 5.5 and 11 Mbps<br>11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps<br>11n: MCS0-7, 72.2 Mbps (Max) |
|                                 | 40 MHz | 11n: MCS0-7, 15Mbps (Max)                                                                            |
| Transfer speed                  |        | 1T1R 150 Mbps                                                                                        |
| Receiving sensitivity (typical) |        | 802.11b, 1 Mbps: -98.0 dBm                                                                           |

|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                  | 802.11b, 2 Mbps: -96.0 dBm<br>802.11b, 5.5 Mbps: -93.0 dBm<br>802.11b, 11 Mbps: -88.6 dBm<br>802.11g, 6 Mbps: -92.8 dBm<br>802.11g, 9 Mbps: -91.8 dBm<br>802.11g, 12 Mbps: -90.8 dBm<br>802.11g, 18 Mbps: -88.4 dBm<br>802.11g, 24 Mbps: -85.4 dBm<br>802.11g, 36 Mbps: -82.0 dBm<br>802.11g, 48 Mbps: -77.8 dBm<br>802.11g, 54 Mbps: -76.2 dBm<br>802.11n, HT20, MCS0 : -92.6 dBm<br>802.11n, HT20, MCS1: -90.6 dBm<br>802.11n, HT20, MCS2: -88.0 dBm<br>802.11n, HT20, MCS3: -84.8 dBm<br>802.11n, HT20, MCS4: -81.6 dBm<br>802.11n, HT20, MCS5: -77.4 dBm<br>802.11n, HT20, MCS6: -75.6 dBm<br>802.11n, HT20, MCS: -74.4 dBm<br>802.11n, HT40, MCS0: -90.0 dBm<br>802.11n, HT40, MCS1: -87.6 dBm<br>802.11n, HT40, MCS2: -84.8 dBm<br>802.11n, HT40, MCS3: -81.8 dBm<br>802.11n, HT40, MCS4: -78.4 dBm<br>802.11n, HT40, MCS5: -74.2 dBm<br>802.11n, HT40, MCS6: -72.6 dBm<br>802.11n, HT40, MCS7: -71.2 dBm |
| Modulation mode  | BPSK/QPSK/16QAM/64QAM/DBPSK/DQPSK/CCK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Network protocol | MQTT (SSL/ TCP)/ HTTP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

Working Principle



Software Support

The MG3 gateway is paired with Minew's TagCloud IoT service by default for data display. TagCloud's API interface is available to help users to construct cloud platforms for different industries to launch the project quicker. The gateway firmware SDK is provided to help users quickly implement custom development to meet different needs.

Precautions

- After restoring the factory settings, the previous configuration will be lost, please operate with caution.
- If the App prompts that the network configuration has timed out many times, it is recommended to shorten the distance between the gateway, the phone with the App, and the router and try again. It is not recommended for multiple mobile phones to configure the same gateway, which may lead to slower configuration.
- To ensure accuracy while scanning, try to avoid corners, metal, glass shields, or other obstructions when install.
- Do not use the gateway in a humid area or outdoors. If the temperature exceeds the designed limit, the product may be damaged.
- Please avoid exposing the product to direct sunlight for an extended period which could lead to fading.
- To configure the gateway, please contact our sales team for the instruction manual.

Quality Assurance

The factory has already obtained the certification of ISO9001 Quality System. Each product has been strictly tested (tests include transmission power, sensitivity, power

consumption, stability, aging, etc.).  
Warranty Period: 12 months from the date of shipping (Battery and other accessories excluded).

Declaration

Statement of Rights:

The contents of this manual belong to the Manufacturer of Minew Technologies Co., LTD, Shenzhen, and are protected by Chinese laws and applicable international conventions related to copyright laws. The contents can be revised by the company according to the technological development without prior notice. Anyone, companies, or organizations cannot modify the contents and cite the contents of this manual without Minew's permission, otherwise, Violators will be held accountable according to law.

Disclaimer:

Minew team reserves the right to the final explanation of the document and product differences. The Minew group is not responsible for liability of property or personal injury with the wrong operation if users develop related products without checking the technical specifications of this manual.

FCC Requirement

changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the 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.

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.

To maintain compliance with FCC’s RF Exposure guidelines, This equipment should be installed and operated with minimum distance between 20cm the radiator your body: Use only the supplied antenna.

Contact information

SHENZHEN MINEW TECHNOLOGIES CO., LTD.

- +86 (755) 2103 8160
- www.minew.com
- info@minew.com
- www.minewstore.com
- No.8, Qinglong Road, Longhua District, Shenzhen, China