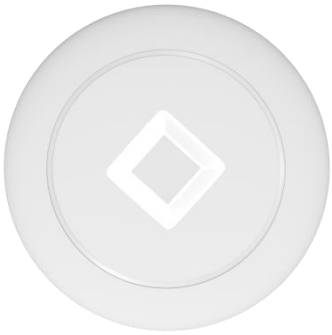
Cover Page

MG4 Smart Rechargeable Gateway Datasheet

Tagline: Less interruption, more flexibility.



Product Overview

MG4 gateway is a rechargeable Bluetooth® WiFi gateway developed by Minew that can be used for data collection and monitoring of Blueooth® LE devices. MG4 carries a replaceable battery and can operate without a power cord. It sends data by WiFi in JSON format and saves data on board when the network is interrupted. MG4 can assist in personnel and asset management to achieve operation optimization, higher efficiency, and lower cost.

Key Features

Equipped with a large-capacity battery to operate without a power cord

The MG4 gateway can be connected to a power cord and is also equipped with a rechargeable 2000 mAh battery that lasts 12 hours to ensure data transmission consistency. With this feature, MG4 can survive most power outages.

Built-in storage to save data when off the network

The MG4 gateway has a built-in memory to store data when the network is interrupted. When disconnected from the network, the gateway will continue to reconnect to the network and store a maximum of 1080 records of data, avoiding data loss during network malfunctions. With this feature, MG4 can survive most network outages.

High throughput and data are filterable

The gateway can collect and upload up to 75 data packets per second. Data filtration, scanning interval, and uploading intervals can be defined by the user to achieve better control of data flow and more accurate data reception for different scenarios.

Broad compatibility and strong security

MG4 is compatible with various Bluetooth devices, and users can set data upload to cloud or local servers through MQTT/ HTTP protocol, moreover, SSL/ TCP security protocol is optional for MQTT. With independent control of data flow, data privacy and security can be ensured.

Flexible installation and easy configuration

The MG4 gateway supports 5V/ 1A power supplies and can be installed by brackets or 3M adhesives on ceilings, walls, or horizontal surfaces. MG4 can be configured and connected to a network by SmartConfig approach with a few simple steps.

Working Principle

The working principle of MG4 gateway

① According to actual needs, choose the appropriate installation method to deploy beacons, sensors, and MG4 gateways.
②Turn on beacons and sensors, supply power to the gateway and configure the gateway parameters through the Gateway Config app.
③ The MG4 gateway scans and collects Bluetooth signals in the environment and uploads them to the specified server through the preselected protocol.
④ The server parses the data and performs related processes, and eventually it can attain goals such as environmental monitoring, asset management, and personnel management with related systems.

Note: Please use SDKs provided by cloud services vendors to do further developments and testings if you need more cloud service features as listed.

Product Specifications

Basic Specifications

Model	MG4
Material	ABS
Color	White
Size (D * H)	Φ110 * 30 mm (without bracket) Φ110 * 32.8 mm (with bracket)
Weight	118 g (with bracket)
Power supply	DC power supply (5 V/ 1 A)
Internet connection	WiFi
Flash	16 MB
Button	1 reset button 1 toggle switch
LED	Power status, server status, OTA upgrade indication
Working environment	Indoor
Operating temperature	-20 ~ 55℃
Firmware upgrade	OTA, LAN upgrade

Bluetooth Specifications	
Bluetooth version	Bluetooth® LE 5.0
Bluetooth band	2.4 GHz, 40 channels (2402~2480MHz)
Bluetooth modulation	GFSK

Bluetooth bandwidths	1 Mbps, 2 Mbps
Receive sensitivity	- 96 dBm @1 Mbps, 30.8% PER - 93 dBm @2 Mbps, 30.8% PER
Received broadcast packets	About 75 packets/ sec [1]
Scan coverage	About 100 meters of covered radius (open environment, please refer to the transmitting equipment for details)

Note: [1] The maximum number of received broadcast packets is 75, 10 packets are used by SSL, 20 by certificates, 10 when QoS is 1, and 10 when QoS is 2, the minimum is 45 packets.

WiFi Specifications

WiFi parameters		
WiFi protocols		IEEE 802.11 b/g/n
WiFi band		2.4 GHz, 11 channels (2412~2462MHz)
Transmitting power (typical)		802.11b, 1 Mbps @20.5 dBm 802.11b, 11 Mbps @20.5 dBm 802.11g, 6 Mbps @20.0 dBm 802.11g, 54 Mbps @18.0 dBm 802.11n, HT 20, MCS 0 @19.0 dBm 802.11n, HT 20, MCS 7 @17.5 dBm 802.11n, HT 40, MCS 0 @18.5 dBm 802.11n, HT 40, MCS 7 @17.0 dBm
Data rate	**20 MHz**	11b: 1, 2, 5.5, and 11 Mbps 11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 11n: MCS 0-7, 72.2 Mbps (Max)
	40 MHz	11n: MCS 0-7, 15 Mbps (Max)
Transmission rate		1T1R 150 Mbps
Receive sensitivity (typical)		802.11b, 1 Mbps: –98.0 dBm 802.11b, 2 Mbps: –96.0 dBm 802.11b, 5.5 Mbps: –93.0 dBm 802.11b, 11 Mbps: –88.6 dBm 802.11g, 6 Mbps: –92.8 dBm 802.11g, 9 Mbps: –91.8 dBm 802.11g, 12 Mbps: –90.8 dBm 802.11g, 18 Mbps: –88.4 dBm 802.11g, 24 Mbps: –85.4 dBm 802.11g, 36 Mbps: –82.0 dBm 802.11g, 48 Mbps: –77.8 dBm 802.11g, 54 Mbps: –76.2 dBm 802.11n, HT 20, MCS 0: -92.6 dBm 802.11n, HT 20, MCS 1: -90.6 dBm 802.11n, HT 20, MCS 2: -88.0 dBm

	802.11n, HT 20, MCS 3: -84.8 dBm 802.11n, HT 20, MCS 4: -81.6 dBm 802.11n, HT 20, MCS 5: -77.4 dBm 802.11n, HT 20, MCS 6: -75.6 dBm 802.11n, HT 20, MCS 7: -74.4 dBm 802.11n, HT 40, MCS 0: -90.0 dBm 802.11n, HT 40, MCS 1: -87.6 dBm 802.11n, HT 40, MCS 2: -84.8 dBm 802.11n, HT 40, MCS 3: -81.8 dBm 802.11n, HT 40, MCS 4: -78.4 dBm 802.11n, HT 40, MCS 5: -74.2 dBm 802.11n, HT 40, MCS 6: -72.6 dBm 802.11n, HT 40, MCS 7: -71.2 dBm
Modulation	BPSK/ QPSK/ 16QAM/ 64QAM/ DBPSK/ DQPSK/ CCK
Network protocols	MQTT (SSL/ TCP), HTTP (HTTP/ HTTPS)
Wireless encryption	WPA-PSK/ WPA2-PSK, TKIP

Software Support

The MG4 gateway is equipped 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.

The gateway firmware SDK is provided to help users quickly develop their own projects.

Precautions

- After restoring the factory settings, the previous configuration information will be lost, please operate with caution.
- When there is no network at power-on, the gateway does not do any uploading.
- If the gateway has not been configured for a long time after it is powered on, it is recommended to restart the gateway to reconfigure the network. Otherwise, it may lead to network configuration failure and data loss.
- The gateway and the phone must be under the same 2.4 GHz WiFi network when pairing up. Once paired up, when changing settings, there is no specific requirement for the frequency.
- If the app prompts that the network configuration has timed out many times, it is recommended to reduce the distance between the gateway, the phone, 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.
- The stored historical data will be erased after the battery is completely drained.
- For better signal reception, avoid corners, metal, glass shields, and other obstructions when installing.
- Do not use the gateway in a humid environment or outdoors. If the temperature exceeds the designed limit, the product may be damaged.
- Avoid humid conditions or outdoors. High temperatures could cause irreversible damage.
- 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.

Installations

Double-sided tape installation method

Application material: ceramic, glass/epoxy, acrylic, PBT, ABS, PC, rigid PVC, and other material surfaces. It is

not recommended to use the default double-sided tape on walls (such as cement, gypsum board, etc.) with gray texture, incomplete drying, aging, and dampness, as there is a risk of falling off; you can choose 3M double-sided foam tape or nail-free glue, etc. to install. It is not recommended to install the gateway on a metal layer, as it may be interfered with by the signal, resulting in data loss.

Paste requirements: Clean the paste surface and ensure that the paste surface is dry and dust-free.

Note: In order to obtain a better paste effect, it is recommended to paste the 3M on the gateway first, press the device for one or two seconds and repeat it several times, and let the device with double-sided tape stand for 24 hours before installing it in the use environment. If you need to use it in a low-temperature environment, please use a hair dryer to slightly heat the sticking surface before sticking to increase the stickiness.

Bracket installation method

The product comes with a bracket that can be installed on walls or ceilings by screws.

Application material: The screw should be installed on a solid surface, such as a wall, where it is not easy to loosen. It is not recommended to install the gateway on a metal layer, as it may be interfered with by the signal, resulting in data loss.

Detailed steps:

① Drill screw holes on the surface to be installed.

② Insert the green expansion plug into the surface hole.

③ Insert screws into the expansion plug through the mounting bracket, so that the mounting bracket and the gateway can be firmly installed.

④ Align the MG4 gateway with the mounting bracket, rotate and insert it into the bracket.

Please contact our sales team if you have any questions about the installation environment.

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).

Declarations

Statement of Rights:

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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 warning:

Any 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

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