



MKGW3 BLE to POE Gateway

Product Specification

Version V1.2

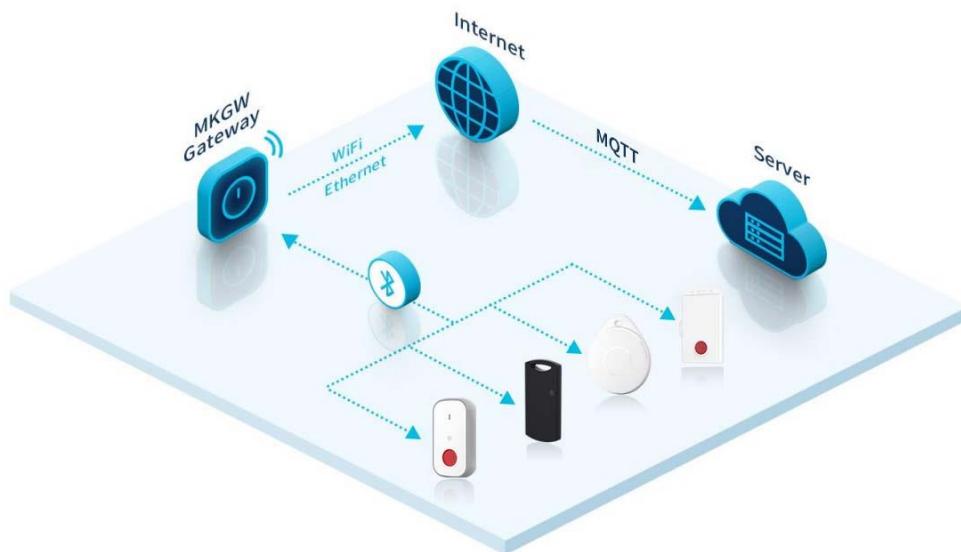
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1. Introduction

MKGW3 is a BLE (Bluetooth Low Energy) to POE (Power over Ethernet) Gateway based on Espressif ESP32 solution. It supports BLE 5.0, 2.4GHZ WIFI and Ethernet, provides wireless and wired methods for network connection, can access to your cloud server via MQTT protocol.

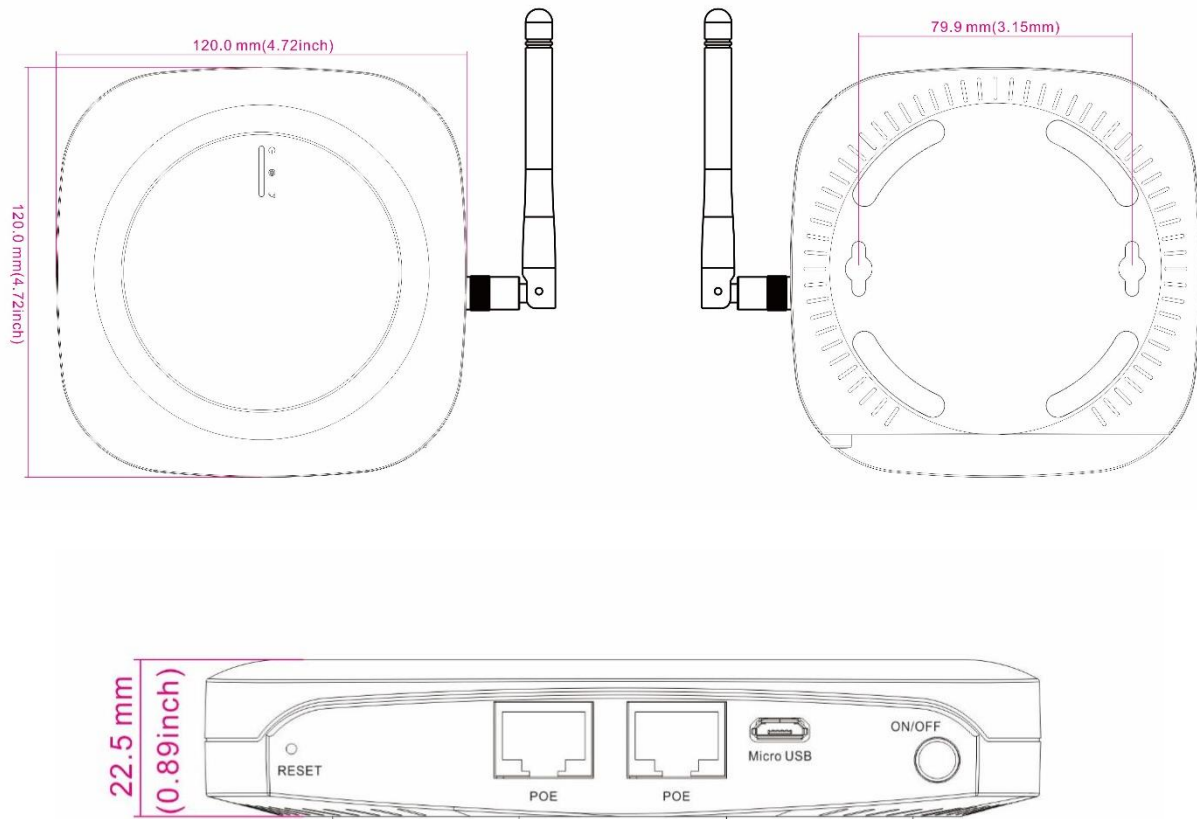
The gateway works as a data bridge between your beacon and cloud server. It collects the advertising data of the nearby beacons, and uploads the Bluetooth data packet to your server through the WIFI or Ethernet. It also supports the downlink communication with Beacon devices, so that users can remotely manage Beacon devices from the cloud. The gateway provides a low-cost and efficient way to realize real time location service, condition monitoring, assets tracking and personal safety management.



2. Features

- Two ESP32 modules, supports wireless BLE, Wi-Fi and wired Ethernet
- Support IEEE 802.3 af standard POE input and POE output
- Supports WPA2-Enterprise WIFI security, including PEAP/TTLS/TLS EAP methods
- Bluetooth Low Energy supports long range through Coded PHY and advertisement extension
- Real-time scanning and uplink of Beacon data, also supports remote management of Beacon devices on the cloud
- Supports multiple data filters (by RSSI/MAC/BLE name/raw advertisement data) to obtain target beacon easily
- Filter out the duplicate Beacon packet, effectively reduce network and server resources
- Locally decode iBeacon, Eddystone (UID/URL/TLM) and all MOKO beacon raw data
- Upgrade firmware Over-the-Air
- FCC&CE

3. Appearance

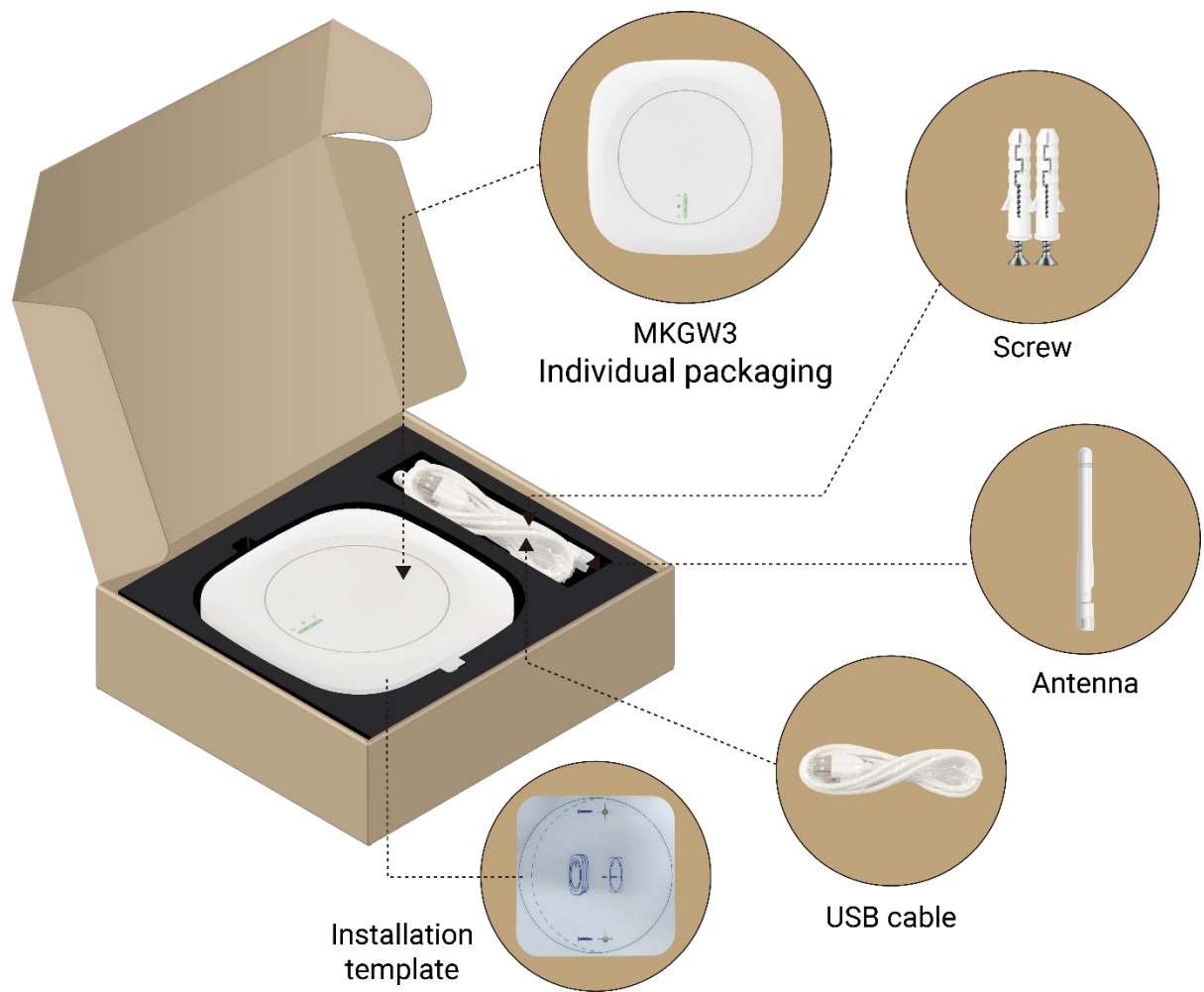


4. Specification

Mechanics	
Material	ABS+PC
Color	White
Dimension (L*W*H)	4.72 x 4.72 x 0.89 inches (120 x 120 x 22.5 mm)
LED indicator	3* intelligent RGB LED
Button	1* power button and 1*reset button
Interfaces	1*Micro USB, 1*POE in, 1*POE out
Antenna	1* external 2.4GHz BLE antenna
Battery	1* 1500 mAH Li-on rechargeable battery (optional)
Installation	Horizontal, hanging on wall or ceiling
Environment	
Operating temperature	-30 °C~ 50 °C
Storage temperature	-40 °C~ 60 °C
Humidity	Maximum 95% non-condensing RH

Power	
Micro USB	5V/2A
POE	IEEE 802.3af
MCU	
MCU	ESP32-WROOM-32E
Flash	4M
RAM	512KB SRAM
WiFi	
Band	2.4GHz
Protocol	802.11 b/g/n
Security	OPEN/WEP/WPA_PSK/WPA2_PSK/WPA_WPA2_PSK/WPA2-Enterprise
Bluetooth	
Module	ESP32-C3-MINI-1U
Bluetooth Protocol	BLE 5.0 (support 1M/2M/Coded LE PHY)
Bluetooth Mode	Scanning and advertising
Scanning Range	About 200 meters in an open space
Scanning Rate	340 BLE advertisements/ second
Communication	
Protocol	MQTT V3.1.1
Encryption	SSL/TLS
Format	JSON

5. Packing List



Standard Packing List

No.	Description	Quantity
1	MKGW3 individual packing	1
2	Screw	2
3	2.4GHz antenna	1
4	Micro USB cable	1
5	Installation template	1

Optional Accessory List

SKU	Description	Photo for reference
AP020	Mounting base	

6. Main Function

6.1 Cascade transmitter

The gateway has two POE interfaces. POE in is used for connecting with a power supply/network source (such as the POE switch). POE out is used for connecting the next powered device. It allows to cascade up to 5 gateways together, efficiently simplifying the deployment.

6.2 Configuration

Pairing mode is used to configure network and MQTT settings for the gateway. If the gateway is configured for the first time, after it is powered up, it will enter pairing mode and Bluetooth advertises with the name of MKGW3 -XXXX (XXXX is the last 2 bytes of the MAC address).

The gateway Bluetooth can be scanned and connected by the MOKO APP. After the APP and gateway Bluetooth are successfully connected, users can send network and MQTT information to the gateway via the APP, and then the gateway will connect to the network and MQTT server.

6.3 Automatic re-connection

If the gateway disconnects from server due to the network issue or power losing, after the network or power supply come back, the gateway will automatically reconnect to the network and server which the gateway is successfully connected before the disconnection.

6.4 Gateway uplink

Gateway scans for nearby BLE devices and upload the BLE data to the cloud.

6.4.1 Scan BLE Devices

The gateway supports to collect iBeacon, Eddystone (UID/TLM/URL) and BLE 4.2, BLE 5.0 advertisements, coded PHY (BLE long range) is also included.

6.4.2 Data Filtering

The gateway supports multiple data filtering methods to help you easily obtain target beacon data:

- Filter by RSSI, MAC address, advertising name and advertising raw data.
- Filter out duplicate data, reduce data uploaded to cloud.

6.4.3 Date Decoding

The gateway can locally decode the scanned Bluetooth advertising data before uploading to server. The users can directly obtain the desirable information on the server.

- Support iBeacon, Eddystone (UID/URL/TLM) raw data decoding.
- Support all MOKO beacon raw data decoding.

6.4.4 Data Upload

The gateway uploads Beacon packets to server through WiFi/Ethernet. The uploading data content is configurable, the users can configure the gateway reporting data to include only what they need, which will effectively save server and network resources.

6.5 Gateway downlink

Gateway connects and communicates with Beacon device. The users can remotely manage Beacon devices by sending command to the gateway from cloud.

The typical application is to use the gateway and MOKO B1/B2 panic button for personal security management solution. In hospital, the staffs wear the panic button, when an emergency happens, the staff presses the SOS button to trigger the alarm message advertising. The gateway transfers the alarm message to cloud, and connect to the panic button to inform that the alarm is received by the management team.

6.6 OTA

The gateway has the ability to upgrade firmware over the air. If MOKOsmart releases a new firmware, MOKOsmart can provide the firmware upgrade file with customers, so that customers can upgrade their gateways by a wireless method.

6.7 Restore to Factory Settings

The gateway is equipped with a button for reset operation. Press the reset button for 5 seconds, the gateway will be reset and restore factory settings, then it will enter pairing mode.

Users can also reset the gateway by sending MQTT commands from the cloud.

7. Development Document


MOKO provides the following documents for customers to test the gateway and develop their own firmware or platform.

File	Description
<i>MKGW3 Product Specification</i>	This document mainly introduces the gateway appearance, specification and firmware functions.
<i>MKGW3 User Manual</i>	This document mainly guide users to configure the gateway with MOKO APP.
<i>MKGW3 Communication Protocol</i>	This document describes the Bluetooth configuration commands and MQTT management commands supported on MKGW3 gateway.
<i>APP SDK</i>	iOS: https://github.com/MKScannerPro/POE_Gateway_iOS.git Android: https://github.com/MKScannerPro/POE_Gateway_Android.git The APP SDK includes the source code of the configuration APP, customers can quickly develop their own APP with it.

8. Revision History

Revision	Description	Editor	Date
V1.0	Initial version	Weiguifen	2023.9.11
V1.1	Add the main function, and update APP SDK.	Weiguifen	2023.12.11
V1.2	Add packing list information	Damon	2024.11.11

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