

# BLE & Wi-Fi Gateway Specification

Model: G1

Version: V1.0

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## Overview

G1 is a Bluetooth 5.0 low energy (BLE) to Wi-Fi connectivity gateway without the uses of smartphones or apps. The G1 gateway collects the data from iBeacon, Eddystone, BLE sensor and other BLE devices, and then sends to the local TCP server or remote cloud server by HTTP / MQTT / mbed (ARM) protocol over Wi-Fi / Ethernet / Cellular.

The user is easy to configure the G1 gateway via a very simple web UI.

## Features

### General:

- Input: DC 5.0V, 1A, micro-USB
- Supports 802.3af PoE standard
- Supports firmware upgrade Over-the-Air
- Operating temperature: -25°C to 65°C
- Reads multiple BLE devices in the same time
- Supports TCP/HTTP/MQTT/mbed(ARM)
- Built-in RTC and NTP support
- RGB LED string as the status indicator
- Based on OpenWrt 15.05

### Wi-Fi:

- Up to 150 Mbps PHY data rate
- With 3dBi flexible FPC antenna
- 100 meters range in open space
- 1T1R 2.4GHz frequency band
- IEEE 802.11b/g/n
- Web based UI for configuration
- Connects to the local server or remote cloud

### BLE:

- Bluetooth 5.0 hardware nRF52832
- With a power amplifier
- With 3dBi flexible FPC antenna
- 300 meters range in open space
- Rx sensitivity -108dBm
- Bi-directional (reads data / sends command)


### Other:

- 10/100M Ethernet with PoE
- Optional Cellular (coming soon, Q4/2017)
  - 3G WCDMA
  - 4G LTE

## Outside View



G1- BLE & WiFi Gateway

Sign & Slots	Feature Description
ON/OFF	Power On / Off device
Reset	Reset the device after clicked it
RJ-45	10/100Mbps Ethernet, PoE
	2pcs external USB2.0 slot
IN	Micro-USB, power input (5.0Vdc, 1A)
TF	TF card, Max. 128M

## Electronic Parameters

General Information	
Color	White
Size	150x150x36mm
Battery (inside gateway)	3000mAh, rechargeable (coming soon Q4/2017)
Net Weight	180g (without battery)
Accessory	1x USB cable, mental fixing and screws

Absolute Maximum Rating	
Power supply (Vcc)	Max. 5.5 Volts, DC
Storage temperature	-40°C to 85°C
Voltage ripple	+/- 2%

Operation Condition (Recommendable)	
Operating temperature	-25°C to 65°C
Humidity	Max 95%, Non condensing, relative humidity
Power supply (Vcc)	DC 5.0 (+/- 5%)

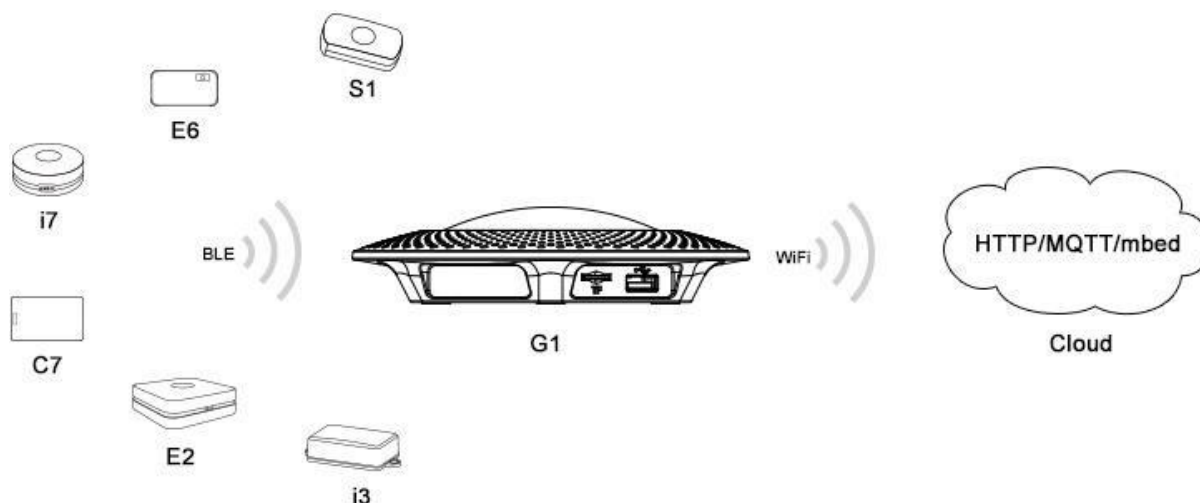
Current Consumption	
Powered by Micro-USB	330mA (LED string and Wi-Fi works in the same time)
	290mA (Wi-Fi only)
Powered by PoE	340mA (LED string and Wi-Fi works in the same time)
	300mA (Wi-Fi only)

Wi-Fi RF Performance	
Wireless	IEEE 802.11b/g/n (single stream)
Network modes	Router, Repeater, Cellular (coming soon, Q4/2017)
Data rate	IEEE 802.11b, 1-11Mbps IEEE 802.11g, 6-54Mbps IEEE 802.11n(2.4GHz), 7.2-72.2 Mbps
Frequency band	2.400 – 2.484 GHz
Number of selectable Sub channels	14 channels
Channel Bandwidth	20 / 40 MHz
Modulation	OFDM, DSSS, DBPSK,DQPSK, CCK , 16 / 64QAM
Maximum receive input level	- 10dBm (with PER < 8% @11 Mbps) - 20dBm (with PER < 10% @54 Mbps) - 20dBm (with PER < 10% @MCS7)
Minimum receive input level	- 87dBm (typ. with PER < 8% @11 Mbps) - 70dBm (typ. with PER < 10% @54 Mbps) - 70dBm (typ. with PER < 10% @MCS7)
Transmit Power	17dBm (typical)@ 802.11b 11.3dBm (typical)@ 802.11g 8.2dBm (typical)@ 802.11n
Carrier Frequency Accuracy	+/- 20ppm (crystal: 16MHz +/-10ppm in 25°C)
Antenna	3dBi flexible FPC antenna
Range	up to 100 meters( in open space)
Security	WPA/WPA2

BLE RF Performance	
Transmission Power	Ranges from -30 to +4dBm
RF Power Accuracy	+/- 4 dB
Receiver Sensibility	-108 dBm @250kbps, 0.1% BER -93 dBm @1Mbps, 0.1 %BER
Maximum Received Signal Strength at <0.1% PER	0dBm
Frequency Deviation	+/-250 kHz @BLE
Antenna	Flexible FPC antenna
Scanning & concurrently process	200 BLE devices per second
Range	up to 300 meters in open space

## Typical Application

- iBeacon / Eddystone / other BLE tag receiver
- BLE sensor reader / receiver
- Asset tracking
- Access control management
- Advertisement promotion
- Indoor location and position
- Industrial automation



S1: Bluetooth temperature & humidity sensor  
 E6: Bluetooth ambient light sensor  
 i7 : Bluetooth accelerometer sensor  
 G1: Bluetooth & WiFi gateway

E2: 300 to 500 meters MaxBeacon  
 i3: Waterproof iBeacon & Eddystone  
 C7: Credit card beacon with RFID/NFC

## Development Documents

Documents	Ver.	Description
BLE_WiFi Gateway_G1_Specs	V1.0	G1 gateway specification
Configuration Guide	V1.0	The guide answered how to configure the G1 via Web UI
Interface Instruction	V1.0	G1 and cloud management platform interface instruction
SDK (cloud platform)	V1.0	The source code of demo dashboard
Schematics & Layout & BOM	V1.0	To whom want to develop own firmware based on G1 gateway

**Notes:** It is subject to any changes without prior notification. MINEW reserves the final right of interpretation.