

BLE & WiFi/ ETH Gateway Specification

Model: G1-C-ADVANCED

Version: V4.0.4

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Preface

This specification applies to G1-C-ADVANCED gateway.

Revision	Date	Author	Description
V4.0.4	2021.08.01	Hobart	<ol style="list-style-type: none">1. Support repeater feature.2. Support troubleshooting at WEBUI's side.3. Support upload file at browser's side.4. Added option configuration to control whether empty data is uploaded.5. Add a field `wan_ip` to the configuration information obtained by the remote control command getConfig.6. Delete the Automatic Reboot and Timing Reboot modules.

1. Overview

G1 is a Bluetooth 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 server or remote cloud server by HTTP / MQTT/ TCP protocol over Wi-Fi / Ethernet. The subsequent version G1 Gateway will also implement the connection with BLE devices. This product is a science fiction with a color lamp ring on the top. It can be fixed by sticker or screw thread.



Outside View



Internal Structure

2. Features

General:

- Supports input with DC 5.0V, 1A, micro-USB. Due to different national standards, this product cannot provide a unified adapter and needs to be purchased by itself
- Supports 10/100 Ethernet with 802.3af PoE
- Supports firmware upgrade Over-the-Air
- Supports HTTP(support SSL/TLS)/MQTT(support SSL/TLS and Proxy)/TCP
- Operating temperature: -25°C to 65°C

WIFI:

- Wifi module based on the Mediatek's MT7628/MT7688 575MHz 32-bit Application Processor
- 1T1R/2T2R 2.4 GHz with 150/300 Mbps PHY data rate,802.11b/g/n WiFi
- Two USB 2.0 Host Connectors and one TF Card slot
- 128 Mbyte 16-bit DDR2 RAM
- 16 Mbyte SPI NOR Flash
- RGB LED strip as the status indicator
- OpenWrt, Linux distribution for embedded devices.

BLE:

- BLE module based on the Nordic's nRF52832 with ARM® Cortex®-M4 64MHz 32-bit processor
- BLE module have built-in power amplifier chip,make scanning BLE more sensitive
- At least Bluetooth 4.0(Only Bluetooth Low Energy)

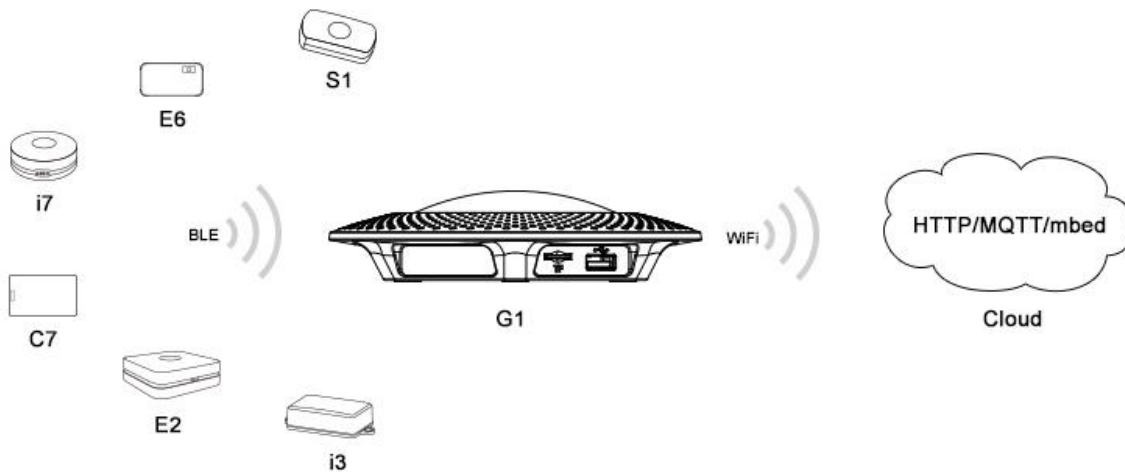
Difference between G1-B/G1-C:

Field	G1-B(stop production)	G1-C(available)
CPU	mt7688(wifi) - nrf52832(BLE)	mt7628(wifi) - nrf52832(BLE)
Wifi	1T1R 2.4GHz with 150Mbps	2T2R 2.4GHz with 300Mbps
concurrent scan	100+ packets per second	200+ packets per second

3. 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

4. Outside View



G1-B/C

Sign & Slots	Feature Description
ON/OFF	Power On / Off device
Reset	Factory reset or close/open AP or hide/unhide AP
RJ-45	10/100Mbps Ethernet, 802.3af PoE
USB	2pcs external USB2.0 slot
IN	Micro-USB, power input (5.0V DC, 1A)
TF	TF card slot

The meaning of the top LED Strip Lights status is as follows:

Status	Description
Static LED Strip Lights	Indicates that the gateway is starting
Dynamic white light rotation	Indicates that the gateway has been started
Dynamic LED Strip Lights rotation(Configurable)	Indicates that the gateway is not connected to the server can be configured as a single color of red, yellow and white and adjust the brightness
Dynamic breathing lights	Indicates that the gateway is already connected to the server (Note: The gateway is in the dynamic breathing lights by default, it can step into the energy-saving mode on minute after extinction of lights, you also can set up bright mode in the configuration page if rich enough)
LED Strip Lights go out	Indicates that the gateway is not power or in energy-saving mode
Fast green flash(introduced since v2.0.0)	<ol style="list-style-type: none"> 1. Indicates that the U disk has been identified to gateway; 2. It will be displayed when the U disk is inserted for the first time or when the U disk is detected on the boot; 3. If you do not see the green flashing state within 15 seconds after inserting the U disk, it may be due to poor contact, please change another USB port and check whether the USB device is damaged.
Fast yellow flash(introduced since v2.0.0)	<ol style="list-style-type: none"> 1. Indicates that the gateway is reading or writing data to U disk; 2. When the gateway reads and writes data to the U disk, it will display; 3. Do not force the U disk to be unplugged when the yellow flash is displayed. Such behavior may damage the file system of the U disk.

5. Electronic Parameters

General Information	
Color	White
Size	150x150x36mm
Net Weight	180g
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	290mA (Wi-Fi only)
	330mA (LED strip and Wi-Fi works in the same time)
Powered by PoE	300mA (Wi-Fi only)
	340mA (LED strip and Wi-Fi works in the same time)

Wi-Fi RF Performance	
Wireless	IEEE 802.11b/g/n (single stream)
Network modes	Router, Repeater
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 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 90 meters(in open space)
Security	WPA / WPA2 PSK

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 packets per second
Range	up to 300 meters in open space

<END>