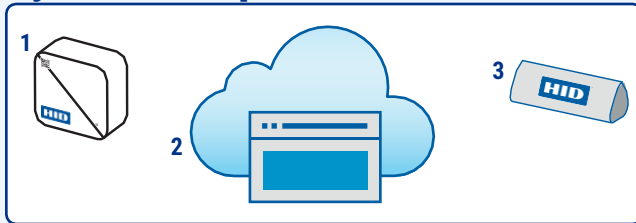# HID® BluFi-UP00
Install Guide

Overview

BluFi-UP are gateways with Universal Power Options:
- DC power supply 9v-24v
- Power Over Ethernet connections.

BluFi devices make it easy and cost efficient to cover an area with BLE to internet connectivity to take advantage of centralized management, realtime condition monitoring, or location services with a fraction of the effort required by alternative technologies.

System components

|	
1	BluFi™ model BluFi-UP00 − Bluetooth to Eithernet/WiFi Gateway.
2	Bluzone − Cloud Fleet Management and Condition Monitoring dashboard.
3	BEEKs™ Bluetooth Low Energy Beacons.

Best practices

- Maximum of 15 – 20 beacons per BluFi for best results
- Maximum 20 – 30 meters from beacon to BluFi for best results (distance will decrease for increased interference/blockages). For RTLS applications, the BEEKS Duress Badge signal must be received by at least three BluFis in the vicinity.

Network troubleshooting

- 2.4 - 5 GHz WiFi & Ethernet
- HTTPS port 443 must be open
- DHCP required
- 1 Mbps upload speed required
- Captive WiFi portals not compatible
- Compatible certificate formats: .pem, .der
- Some networks may require adding the BluFi MAC address to an allow list

Terminology
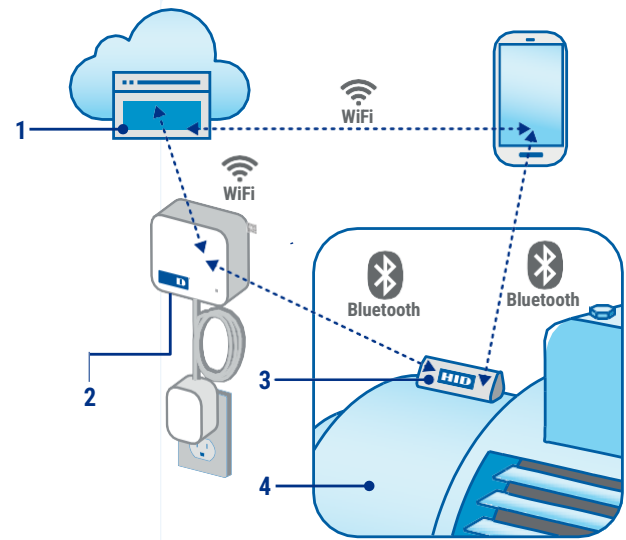
1	Bluzone − Secure cloud-based SaaS to centrally manage BEEKs via BluFi gateways. Additionally, monitor, store and analyze performance data collected from deployed BEEKs fleet.
2	BluFi Gateway − Receives data from BEEKs over Bluetooth and sends to Bluzone Cloud.
3	BEEKs CM − Sends vibration and temperature data to BluFi.
4	Asset − Equipment to be monitored or tracked

Prerequisites

- Set up Bluzone account
- Download Bluzone mobile app
- Additional installation guides are available and can be found at: **https://hid.gl/HID-BluFi-installation**

1. Warning statements and network considerations

To prevent possible electrical shock, fire, or personal injury and for safe operation of the product:

- Read all safety information before you use the product.
- Use the product only as specified, or the protection supplied by the product can be compromised.
- Do not use the product if it operates incorrectly.
- Carefully read all instructions.
- Use this product indoors only.
- No user-serviceable parts inside, do not open.
- Ultimate disposal of this product should be handled according to national laws and regulations.

Applicable Software	• iBeacon (Apple) • Eddystone (Google) • sBeacon (Bluzone) • Fully open and configurable to 3rd party Beacon protocol
Data output to cloud Security	• 0.1 to 1 Mbit • RSA Private Public, Bluzone (key vault managed), Unique internal key per individual beacon
Warnings	RSA Private Public, Bluzone (key vault managed security)

Network considerations

- BluFi devices are deployed within enterprise grade wireless infrastructures with strict network compliance guidelines. Therefore, these devices may be presented with the following obstacles to connectivity and successful provisioning:
- SSID and Password Accuracy – both the SSID and password that are input into the BluFi template must match the network credentials exactly (case-sensitivity included)
- Wi-Fi Spectrum Compatibility – BluFi Requires 2.4 GHz & 5 GHz
- MAC Address White Listing – Wireless network may require BluFi's WiFi MAC Address be explicitly added to approved devices table.
- Firewall – BluFi's require open internet access to bluzone.io via port 443 to successfully connect and provision device.
- HTTP Proxy – A HTTP proxy may not be used to route/ monitor all outbound internet traffic. Customer networking team will need to whitelist BluFi devices to BYPASS proxy provided direct access to bluzone.io:443

- Certificate Authentication – If a certificate is required, it must be properly formatted and signed. Compatible formats are .pem and .der
- No DHCP - BluFi Gateway will fail to provision when host network requires static IP address and DHCP services are not enabled. Resolution, setup segmented VLAN with DHCP.
- Slow DHCP – BluFi Gateway may fail to provision using a mobile device when host network has slow issuance of IP addresses via DHCP. If time to acquire IP address lease exceeds 30-60 seconds, mobile application will exceed timeout and return failure response. However, BluFi may succeed if left plugged in and successfully gets assigned IP address.
- Slow or Unstable WiFi Network – BluFi may have connectivity issues on overloaded or poor signal WiFi infrastructures. BluFi gateways require a minimum of 2 Mbps "sustained" upload speed to successfully transmit beacon telemetry.
- BluFi Excessive Reconnects – BluFi gateway installed in location that is too far from WiFi access point, within area that contains a RF barrier (metal), and/ or within a WiFi zone with too many overlapping access points.
- Network Throttling – BluFi Gateway has been installed on cellular based internet access point with assigned upload speed and/ or connection limits. Customer may have issues when data plans exceeds subscription levels.
- Captive Portal – Host network requires the use of web page based acceptance of terms and conditions to approve access to internet. (Used in Hotels). BluFi gateways are NOT compatible with captive portals.

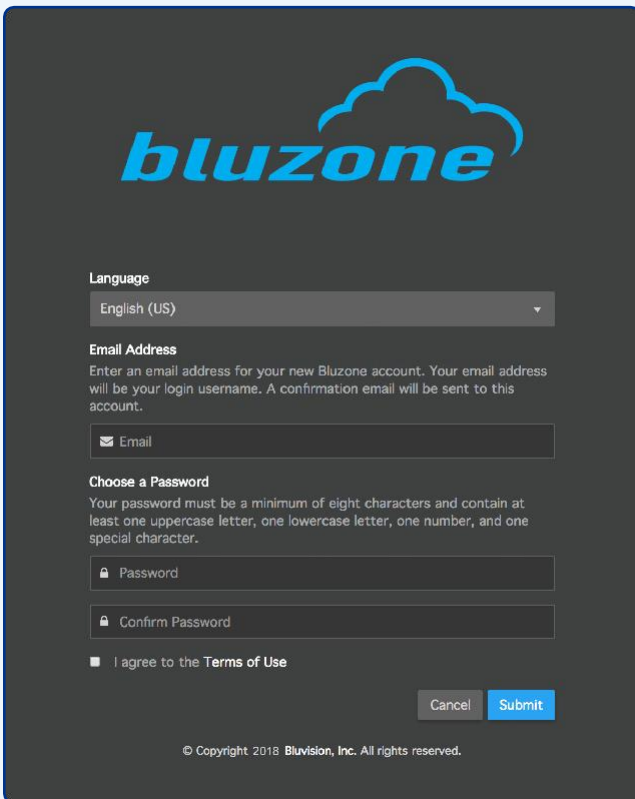| Error Message	Troubleshooting Steps
Bluzone could not establish a connection with Gateway via WIFI. 1. Verify if your Wi-Fi supports 2.4 GHz & 5GHz frequency bands. 2. Set your Wi-Fi router to preferred frequency band. 3. Check your Wi-Fi SSID and Password settings.	Check your Wi-Fi Name/ Network and Network Password/Security Key to verify they are correct. Also check if your Wi-Fi supports and/or is set to the 2.4 GHz 5GHz frequency bands.
The Gateway was unable to connect to the selected Wi-Fi network.	Power cycle the Gateway: 1. Unplug the Gateway from the power outlet, wait for 10 seconds. 2. Plug the Gateway into the power outlet and continue with the setup process.

2. Initial set up

2.1 Account set up

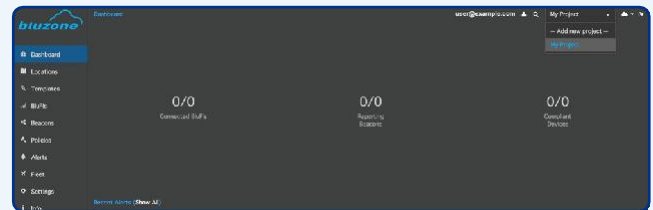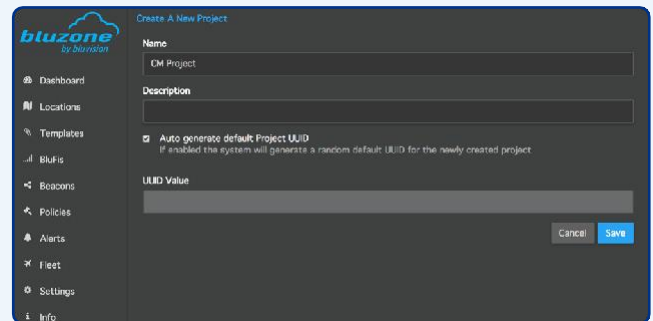1. Visit **bluzone.io** and register a new account. Verify your email by clicking on the link emailed to you.

2.2 Project set up

1. Use the drop-down menu in the top right portion of the screen to create a new project.
2. Go to **Settings** and send a Product Activation request for your use case e.g. RTLS, Status Monitoring or Advanced Condition Monitoring, depending on the SaaS model you have purchased. Your product features will be activated within 24 hours.
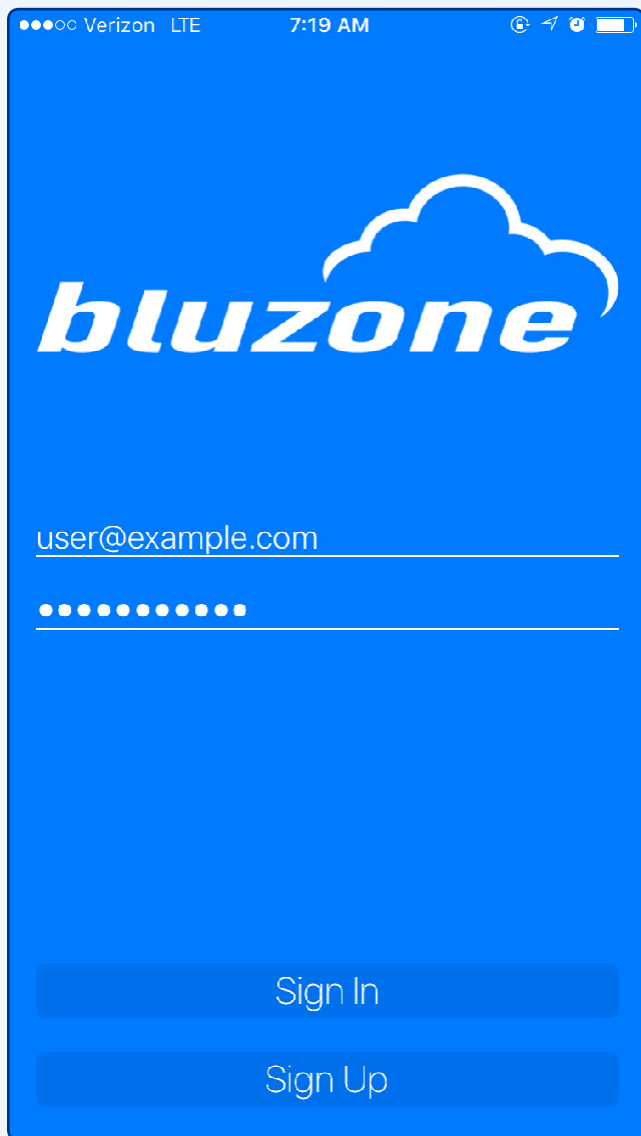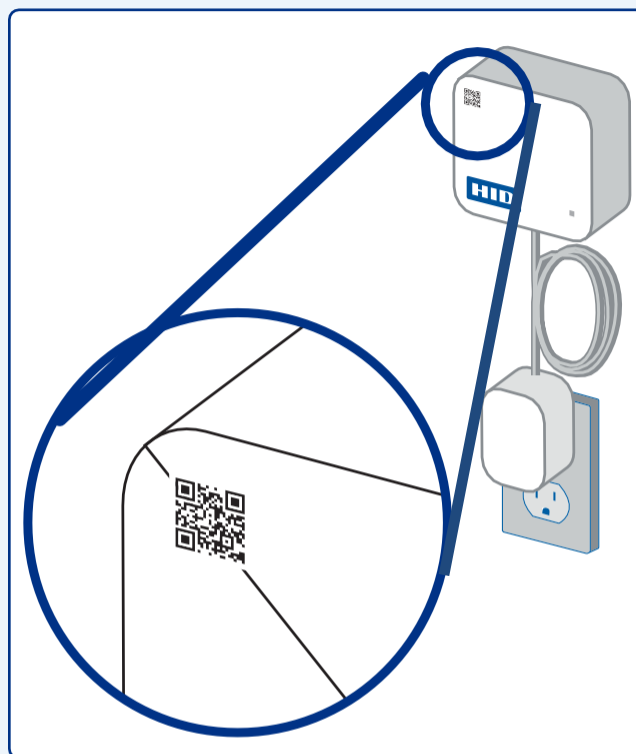
2.3 Bluzone mobile app setup

1. Download the Bluzone mobile app from Google Play or the iOS App Store.
2. Login to your account with Bluzone credentials.

2.4 BluFi provisioning

1. In the Bluzone app, tap **Provision** > **Virtual BluFi** and scan the QR code on the device.

2. Tap **Location** > **Select BluFi** to assign on a map.
3. Tap **BluFi assigned on a map** > **Associate**.
4. Plug the BluFi into a power source for initial setup,
5. In the Bluzone app, tap **Provision** > **BluFi**.
6. Hold the mobile device close to the BluFi and select the device with highest signal strength (swipe down to refresh the list).
7. Follow each step within Bluzone app as instructed to define location and picture of the installation place (optional).
8. When prompted for a Template, create a new Template with your WiFi SSID and password.

For a complete solution, you will also need to setup BEEKS beacons. For more information, see the **BEEKS001 Install Guide**.

3. BEEKs and BluFi installation

3.1 BluFi UP installation

BluFi should be installed within 100ft (30m) of monitored assets (shorter distances are required for environments with obstructions).

• For BluFi **UP**:

BluFi UP

3.1.1 Installation parts

2 Gang Box

BluFi UP

Ceiling

Mounting P2

Mounting P1a

Cover
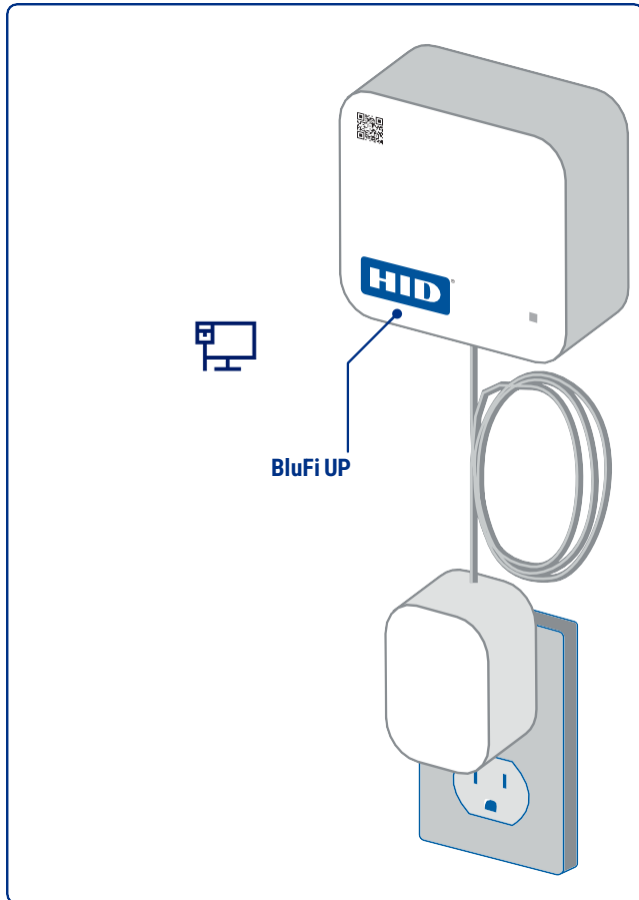
First ensure that the mounting surface is clean and free from debris, remove any dirt using the cloth.

3.2 Install BluFi UP POE

1. Install the 2 Gang Box above the ceiling, facing up, with 9-24v converter inside.
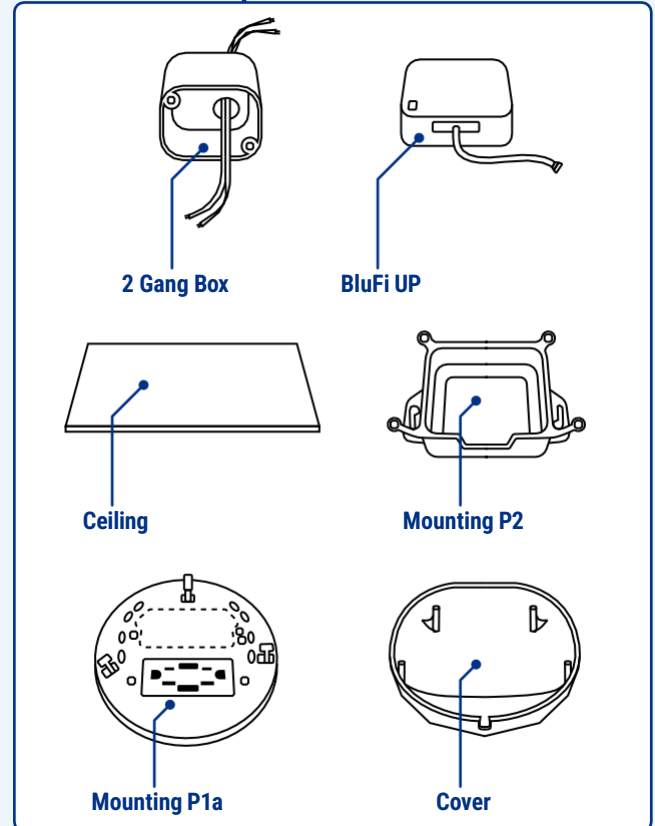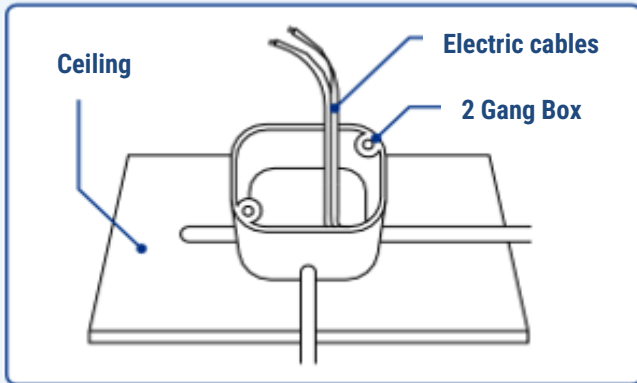

2. Attach the Mounting P1a to the Ceiling (facing up) next to the 2 Gang Box using screws.
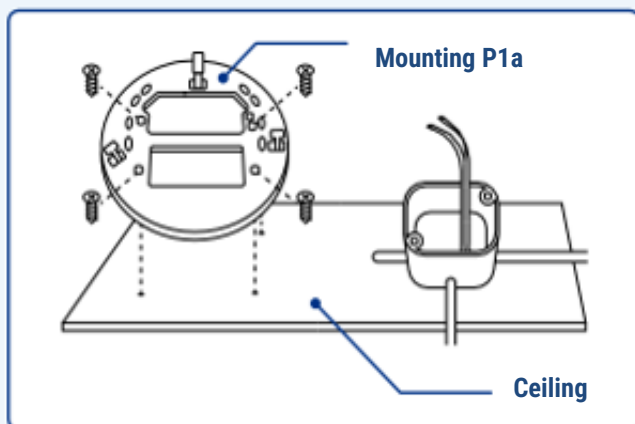
3. Insert the BluFi UP into the Mounting P2.
    Note: Make sure the BluFi UP faces down and the connections align with the Mounting P2 connections gap. The Mounting P2 does not come with a notch for the cable where the connections gap is located. Please cut out the notch in this area using a utility knife.
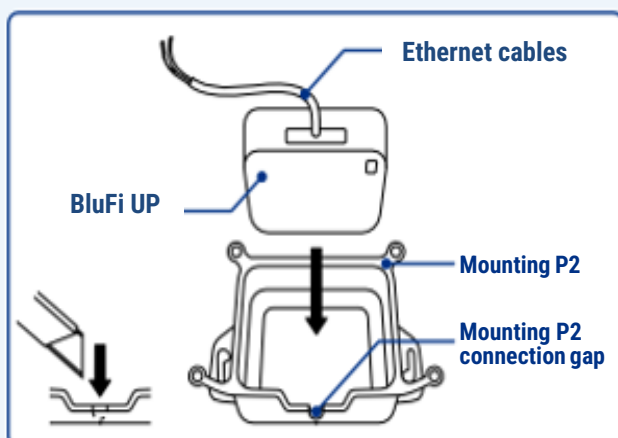
4. When the BluFi DC has been connected, attach the Mounting P2 to the cover using the screws.
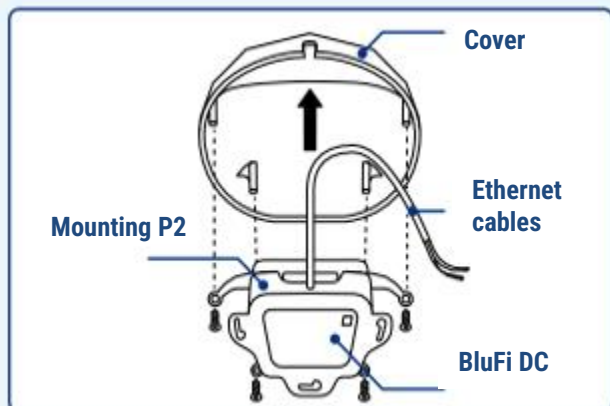
5. Connect BluFi DC cables to the 9-24v Converter in the 2 Gang Box.
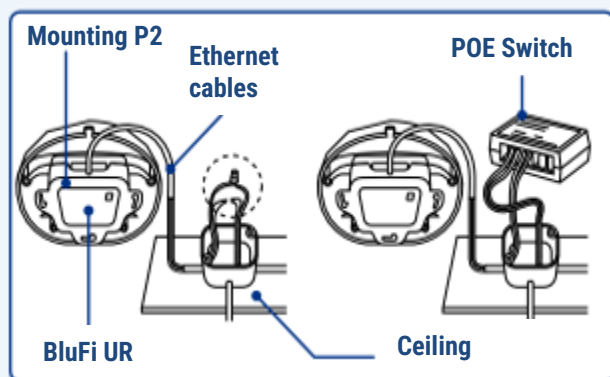
6. When the electric cables are connected, clip on the cover containing the BluFi DC and Mounting P2 with the Mounting P1a..
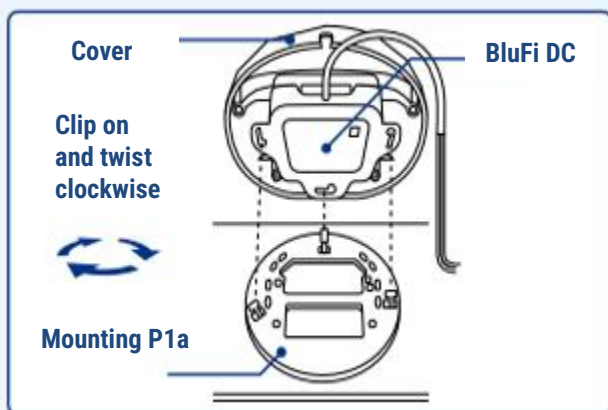
7. The BluFi DC should look like this once the installation process is completed.
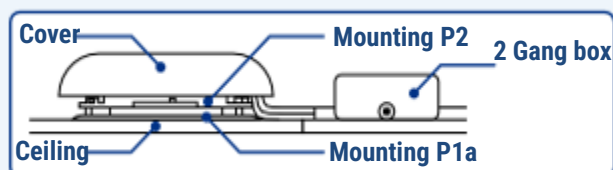
4. Power Options

The BluFi gateway can be powered either via POE or Via a direct DC supply.

4.1 POE

The PoE can be Powered Via Ethernet, via a IEE 802.3af network switch or alternatively via a POE injector of a rating of 15watts.

4.2 DC

Alternatively the BluFi can be connected to a DC power source, 9 to 24v with a minimum rating of 1.5Watts. The DC supply cable must not exceed 3m Length.

Note: under no circumstances should the BluFi be connected to a power supply with a ratting greater then 99Watts.
The rating of the Power supply is not to exceed the limits of the PS2 standard (99w).

DC external power, Molex connector pin closest to the RJ45 connector is Positive and 2nd pin is negative.

- Red wire (Molex Pin closest to RJ45) is Positive DC power connection
- Grey Wire, 2nd Pin from right is Negative DC power connection.
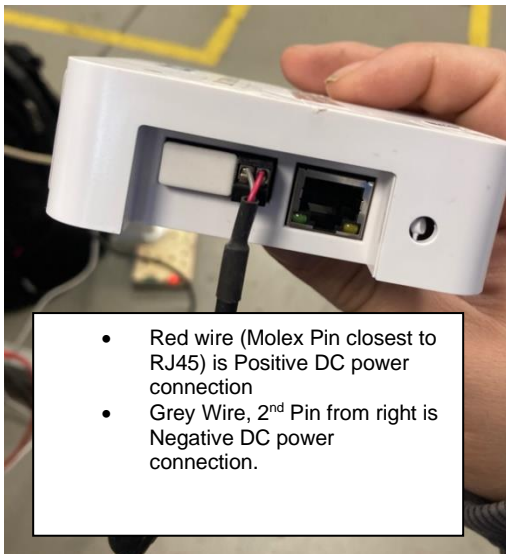
5.Specifications

BluFi Gateway model BluFi-UP00	
Available configurations	BluFi-UP
Operating temperature	-4° to +158° F (-20° to +65° C)
Storage temperature	-4° to +158° F (-20° to +70° C)
Bluetooth standard protocol	Bluetooth Low Energy 4.2
BLE frequency band	2400-2483.5 MHz and 5.15 GHz to 5.85 GHz.
BLE max. output power	+5 dBm (<10 mW)
BLE modulation	GFSK
Antenna	Internal, 0 dBi, Directional
WiFi	802.11 a/b/g/n 1x1 WiFi (dual band 2.4GHz & 5GHz) 802.11a 13.0dBm +/-2.0dBm 802.11b 17.0dBm +/-2.0dBm 802.11g 13.0dBm +/-2.0dBm 802.11n(5GHz) 12.0dBm +/-2.0dBm (20/40MHz channels) 802.11n(2.4GHz) 12.0dBm +/-2.0dBm (20MHz channels)
Frequency band	2400-2483.5 MHz
Max. power output	<20dBm
Modulation	DSSS, OFDM
Mode of operation	Duplex
Part number	BVBFPOEUP
Dimensions	3.7" X 3.5" X 1.3" (94.1mm X 90.1mm X 32.2mm)
Weight	5.82 oz (165 g)
Housing material	Polycarbonate and ABS
Power Over Ethernet	IEEE 802.3af
DC power input	9-24v DC, recommended power supply rating 1.5 Watts
Battery type	Not applicable
Battery life	Not applicable
Power consumption	9 mA when TX | 1.2 µA on sleep
Flame resistance	Not applicable

5.1 HID contact details

HID Global Corporation can be contacted on the details below:-

Matthieu Behroozi
HID Global Corporation
600 Corporate Drive
Suite 410
Fort Lauderdale
FL 33334
(516)887-8885

matthieu.behroozi@hidglobal.com

5.2 Maintenance

The BluFi gateway is a sealed unit and requires no maintenance during its life span.

5.3 Cleaning

The BluFi gateway can be cleaned using water applied to a cloth.

Please ensure that device is disconnected from power before cleaning.

Solvents and Oils should not be used for cleaning the BluFi gateway.

5.4 End of life

At the end of its functional life the BluFi gateway must be disposed of in a suitable local recycling facility and in accordance with any local laws pertaining to the recycling of waste electronic equipment. The BluFi gateway consists of an ABS and Aluminium housing with it are electronic components. It contains no substances banned by the European Union's Restriction of Hazardous Substances (RoHS) directive.

5.5 Environmental

The BluFi gateway has an operational temperature range of -20 to +55 Degrees Celsius.

5.6 FCC Statement

This device complies with Part 15 of FCC Rules and standard(s).
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.

5.7 FCC WARNING

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
The test limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

5.8 RF Exposure

The BluFi gateway is not designed to be worn by personnel it should be wall or ceiling mounted as per the details in this manual.
The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20cm from all persons.

6. Regulatory information

SRD Model: BluFi-UP00

RF Specifications

Standard protocol	BLE 4.2
Frequency band	2400-2483.5 MHz and 5.15 GHz to 5.85 GHz
No of RF channels	40
RF output power	<10 dBm
Modulation	GFSK
Antenna	PCB, 0 dBi

Standard protocol	WiFi 802.11 a/b/g/n
RF output power	<20 dBm
Modulation	DSSS, OFDM
Antenna	PCB Antenna, 0 dBi
Power	POE-RJ45 57V or 9-24VDC external PS

Communication Regulation

The following is a list that applies:

US FCC – United States Compliance
FCC ID: 2BCL8BVBFPOEUP
Contains FCC ID: VPYLB1GC

Canada
IC: 24824-BVBFPOEUP

.
UK Compliance
CE