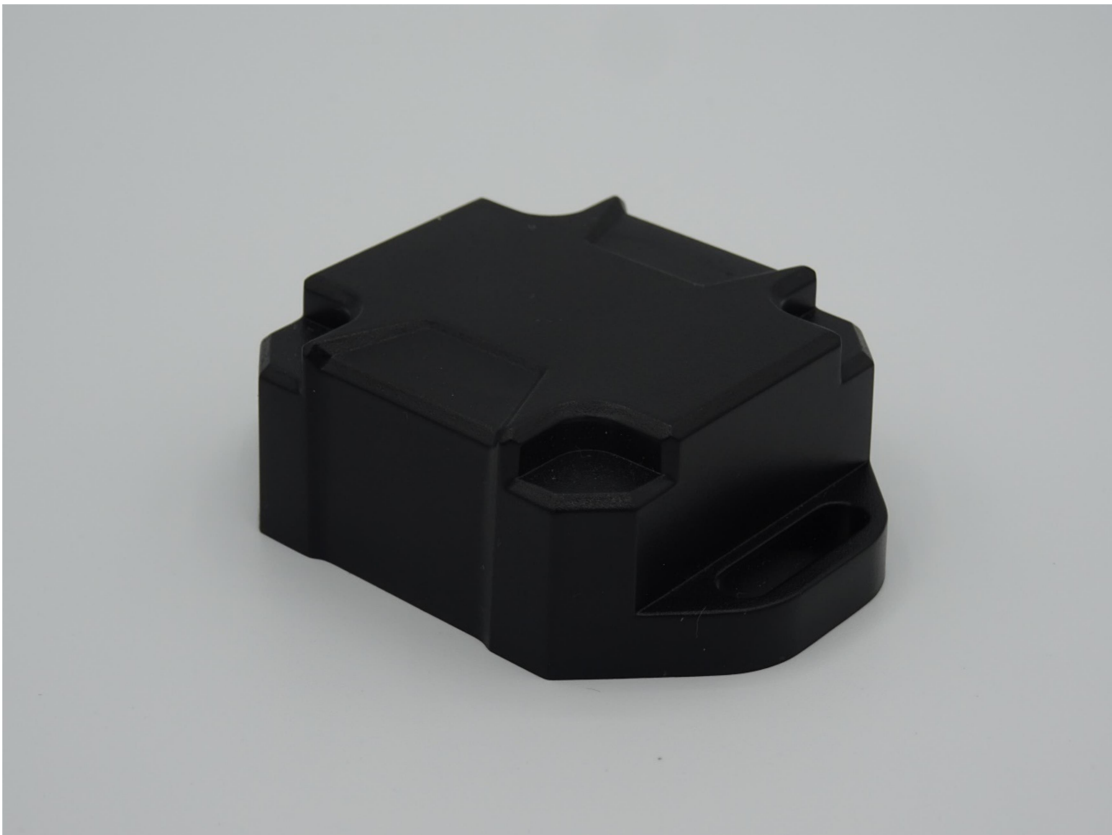


# Aroco AC-BLE-T110 Wireless Beacon User Manual



**Revision: v1.3**

**Updated: 16 Feb 2023**

Amendment History				
Change Number	Revision Description	Pages Affected	Revision Number	Date
	First version	NA	1.0	29 Oct, 2020
	Android APP configuration guide updated		1.1	26 Nov, 2020
	Function Description, Android APP configuration guide updated		1.2	25 Oct, 2021
	Android APP configuration guide updated		1.3	16 Feb, 2023

**Technical support: [bt.support@rodsum.com](mailto:bt.support@rodsum.com)**

# Specification

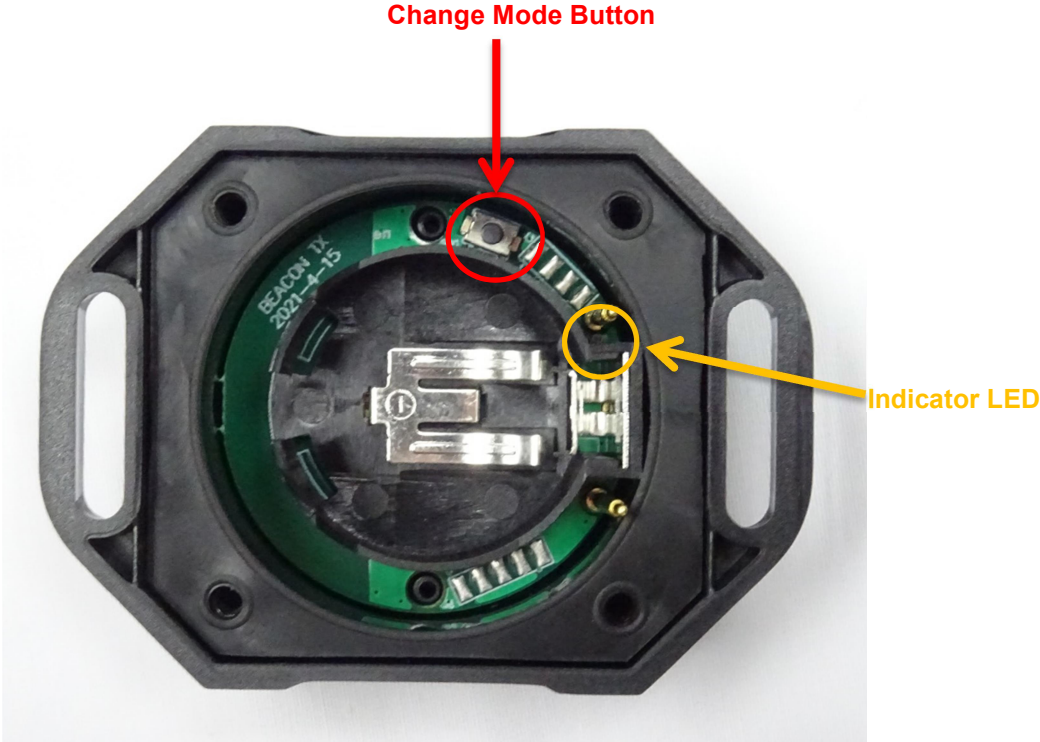
## AC-BLE-T110:

<b>Mechanics Data</b>	
Size	Approx. 60.3 x 43.3 x 21.1 mm
Weight	Approx. 25 grams (without Battery) Approx. 34 grams (with Battery)
Casing	PC/ABS Case
<b>Electrics Data</b>	
Bluetooth Chip	Nordic nRF52840
Frequency	2.4GHz
Memory	256kB Ram, 1MB Flash
BLE Version	Bluetooth 5 compatible iBeacon compatible BT4.2 Advertise Mode supported Long Range (PHY Coded) Mode supported
Input/ Output	1 Digital Input for Magnet Door Switch, Flood Detection 1 Digital Output reserved
Interface	I2C interface for external device
Battery	Non-rechargeable Battery CR2477 (3V 1000mAh)
Life Time	Base on different interval and power setting
Transmission Range	Up to 200m (with Long Range PHY Coded Mode)
<b>Environmental Conditions</b>	
Operating Temperature	-25°C to +75°C
Waterproof Rating	IP68
Material Resistance	UV resistance

## Extended Battery Compartment:

Size	Approx. 81.8 x 61.3 x 36.6 mm
Weight	Approx. 54 grams (without Battery)
Casing	PC/ABS Case
Battery	2 x C-Type 1.5 Batteries Appr. 5000mAh
Waterproof Rating	IP68
Material Resistance	UV resistance

# Function Description



## LED Indicator Status

LED Status	Description
Stay Off	Beacon Power Off
Stay On	Beacon in Configuration Mode, connected with mobile
Flash 1600ms Off 400ms On	Beacon Under Configuring Mode, not connected with any mobile
Flash 4990ms Off 10ms On	Beacon Under normal Advertising Mode

LED Indicator description Table

## Battery Level Reporting

User can enable/ disable the Battery Level Reporting by Aroco Beacon Config APP.

If the function is enabled, the upper 4 bits of **Major** will be covered by Battery Level in advertising data.

It will increase Beacon power consumption.

The Battery Level bits table is shown as below:

Battery Level	Upper Bits value
0	0
1	4096
2	8192
3	12288
4	16384
5	20480
6	24576
7	28672
8	32768
9	36864
10	40960

**Battery Level bits value Table**

## Double Advertise Mode

User can enable/ disable the Double Advertise Mode by Aroco Beacon Config APP.

If the function is enabled, beacon will advertise same data packet twice to increase the data receiving stability.

It will increase Beacon power consumption.

## BT4.2 Advertise Mode

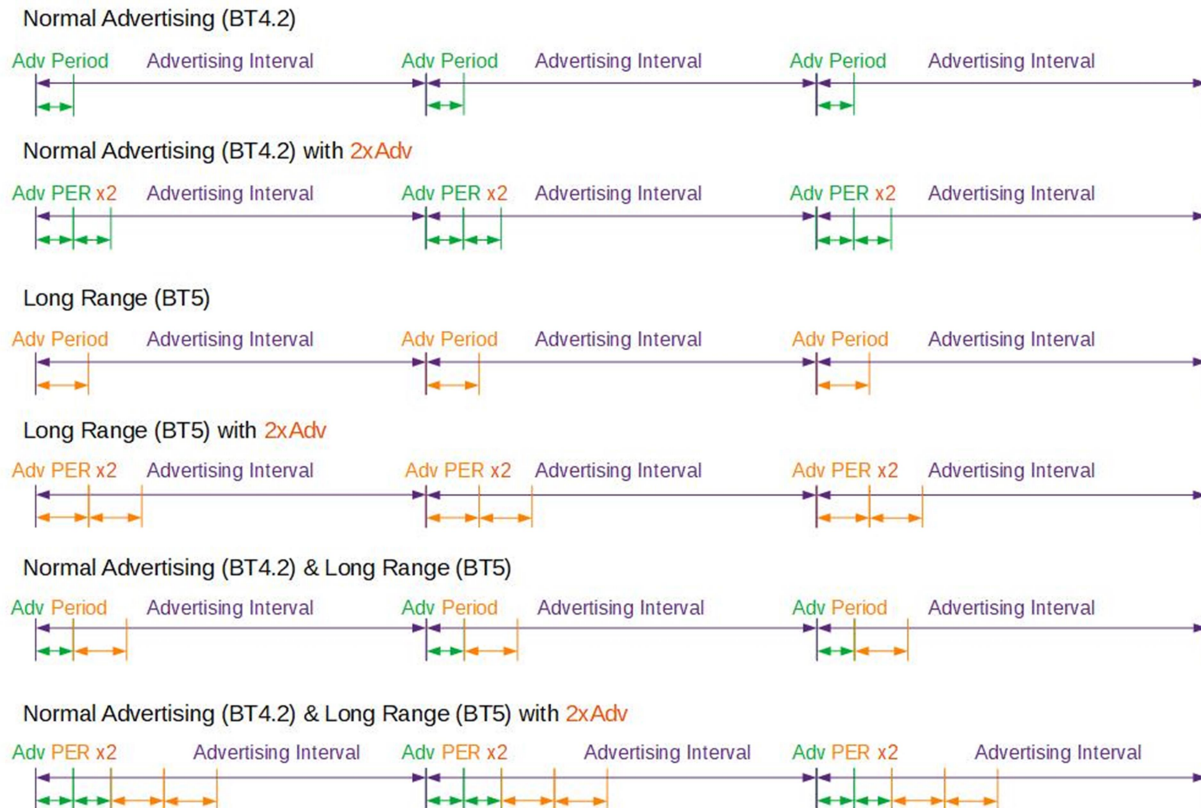
Normal Advertise Mode with Bluetooth 4.2 for around 50 meters transmission range.

User can choose to advertise data by Normal BT4.2 Advertise Mode, Long Range (PHY Coded) Mode, or both Normal and Long Range Mode by Aroco Beacon Config APP.

## Long Range (PHY Coded) Mode

Advertise Mode with Bluetooth 5 for long range (around 200 meters) transmission range.

It request more transmission time per data and increase Beacon power consumption.



**Advertising Time line in different mode**

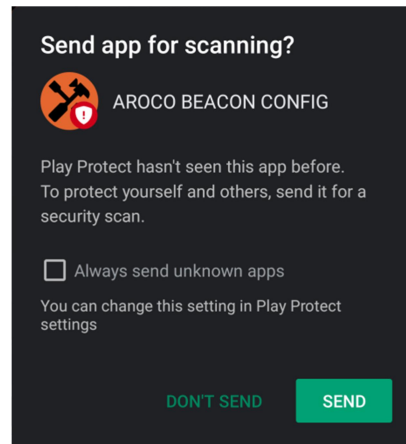
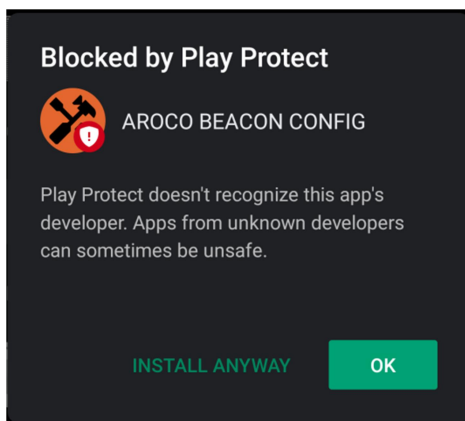
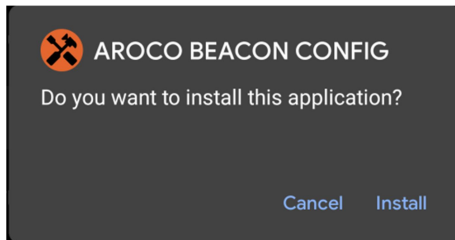
# Software Configuration

## Android App Start up Instruction

1. Download and install the AROCO BEACON CONFIG Android App (version 1.8.03) from following QR Code url:

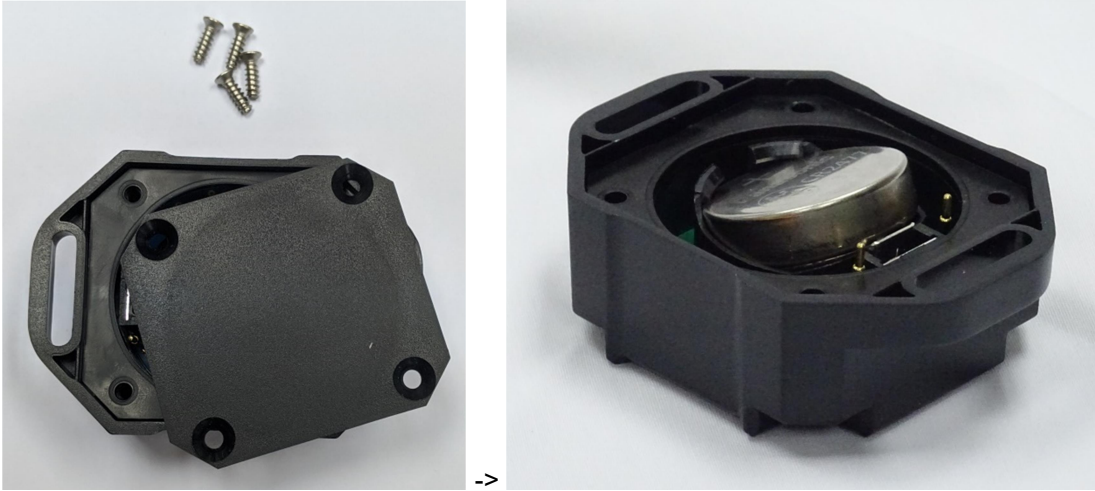


Android version: 7.0 or upper

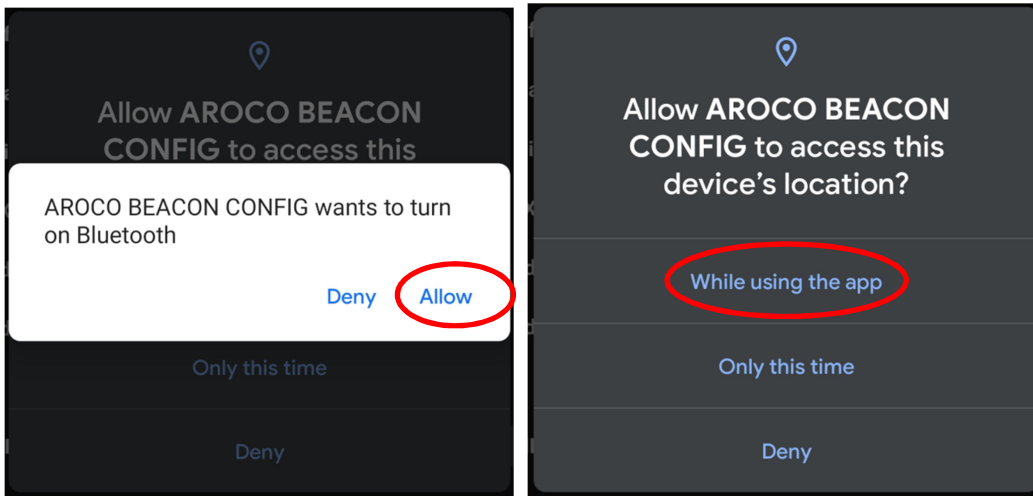


\*Since the app is installed by APK, notice windows might appear while installation. Press **“INSTALL ANYWAY”** and **“DON’T SEND”** to finish the installation process.

2. Unscrew the screw and open the cover. Fill in battery CR2477 to Turn On the Beacon.



3. Start the App. Allow Device's Location permission, Enable Bluetooth and Location.

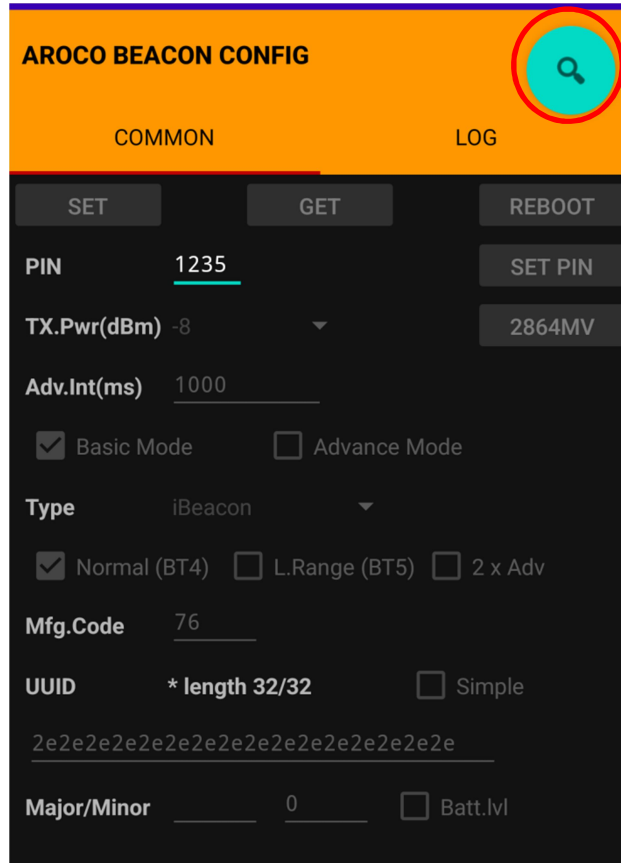




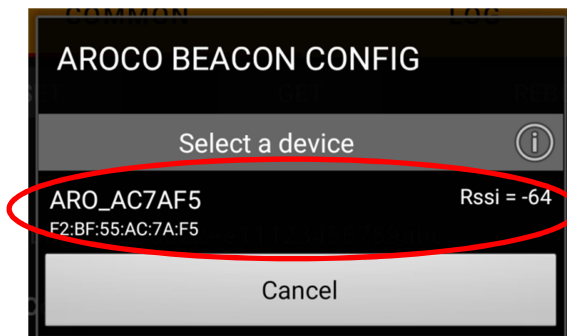
4. Press the Change Mode Button on the Beacon board. Beacon will enter configuring mode

- **Beacon will back to Normal Mode for save energy while no any connection over 60 seconds; or press “Disconnect” Button in Mobile APP, press change mode button after Indicator LED flash.**
- **Press and Hold the Change Mode Button 5 seconds under Normal Mode to restore all above config to default.**

5. Press **Magnifier Icon** button on the App to scan and connect the Beacon.



6. Select the Beacon and Tap to connect. All current parameter will be read.

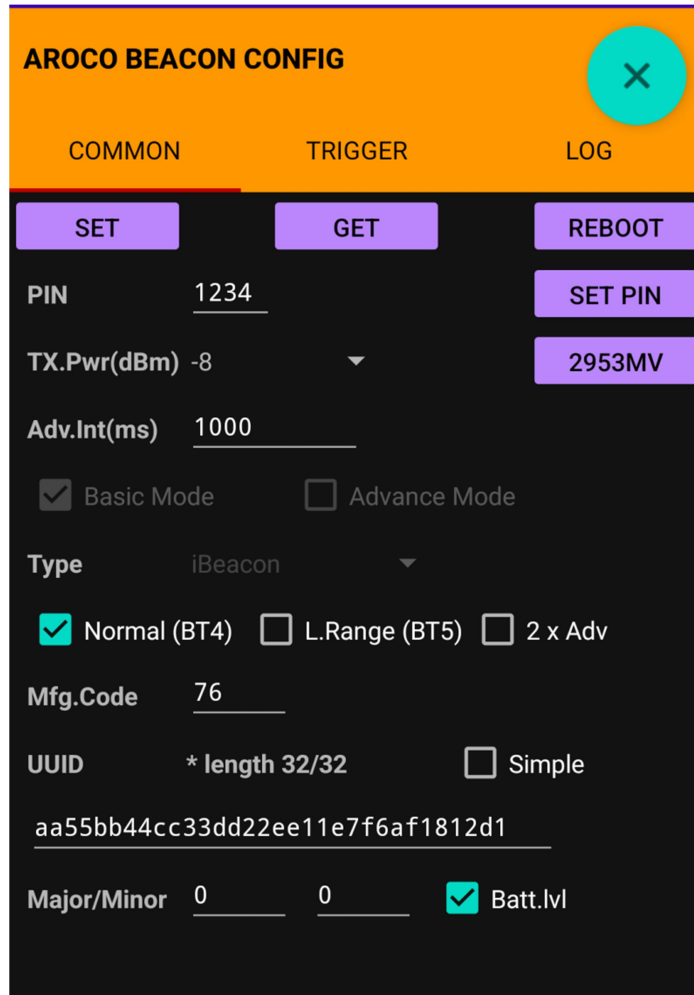


## Common Setting Configuration

UUID, Manufacturing Code, Major, Minor, Battery Level reporting, TX Power, Advertising Interval, Advertising type and PIN setting can be checked and updated in this Tab page.

All current setting will be shown on the app once the beacon connection is made.

Beacon will advertising with those setting in normal status.



**AROCO BEACON CONFIG**

COMMON      TRIGGER      LOG

SET      GET      REBOOT

PIN      1234      SET PIN

TX.Pwr(dBm) -8      2953MV

Adv.Int(ms)      1000

Basic Mode       Advance Mode

Type      iBeacon

Normal (BT4)       L.Range (BT5)       2 x Adv

Mfg.Code      76

UUID      \* length 32/32       Simple

aa55bb44cc33dd22ee11e7f6af1812d1

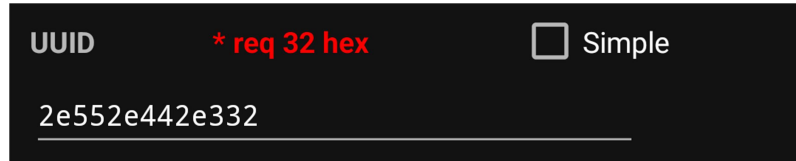
Major/Minor      0      0       Batt.lvl

**UUID:** Simple 16 characters in simple (simple check box ticked) or 16 Bytes hexadecimal UUID data can be changed. (Default UUID: aa55bb44cc33dd22ee11+6 bytes Beacon MAC address)

- Non-hexadecimal content will be blocked when Simple check box is un-ticked
- Simple allowed following characters

**0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ-\_/,\***

- If new simple UUID length less than 16 characters, app will fill full stop at the end of new UUID to 16 characters length and updated the parameter when “SET” button pressed.
- If new UUID length not 32 in non-simple status, the notice will be shown as below when “SET” button pressed. All parameter cannot be updated.



**Manufacturing Code:** 2 Bytes Code data can be changed. Non-hexadecimal content will be blocked. (Default: 76)

- If new Mfg. Code is empty, App will update other parameter when “SET” button pressed without any change of Mfg. Code.
- If only Mfg.Code empty and other parameter remain unchanged, no any response when “SET” button pressed.

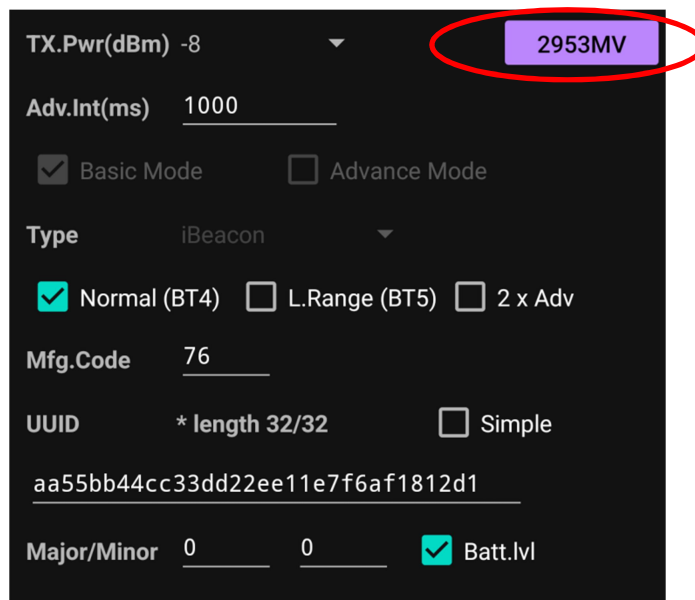
**Major:** Range 0 to 65535 (Default: 0)

**Minor:** Range 0 to 65535 (Default: 0)

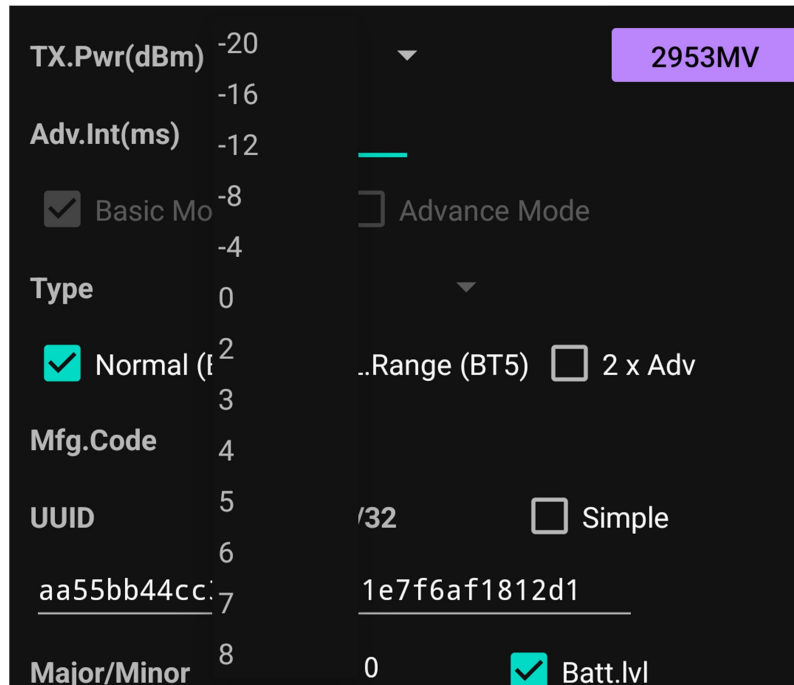
- Major and Minor fixed to 0 if UUID is in simple

**Battery Level (Batt. lvl):** Tick box for choose the data advertising of Beacon Battery Level; Click Button to show the current Battery Level in mV

- Battery Level reporting will cover the upper 4 bits of Major



TX Power (dBm): Combo Box choice include -20, -16, -12, -8, -4, 0, 2, 3, 4, 5, 6, 7, 8 (Default: -12)



The screenshot shows a configuration menu with the following settings:

- TX.Pwr(dBm)**: -20 (dropdown menu)
- Adv.Int(ms)**: -12 (text input)
- Basic Mode**:  (checkbox)
- Advance Mode**:  (checkbox)
- Type**: 0 (dropdown menu)
- Normal (BT4.2)**:  (checkbox)
- ..Range (BT5)**:  (checkbox)
- 2 x Adv**:  (checkbox)
- Mfg.Code**: 4 (text input)
- UUID**: 5 (text input)
- 32**:  (checkbox)
- Simple**:  (checkbox)
- aa55bb44cc**: 7 (text input)
- 1e7f6af1812d1**: (text input)
- Major/Minor**: 8 (text input)
- 0**: (text input)
- Batt.lvl**:  (checkbox)

**Advertising Interval (ms)**: Range 50-3600000. (Default: 650)

- If new Adv. Interval is empty, less than 50 or over 3600000, the notice will be shown as below when “SET” button pressed. All parameter cannot be updated.



The screenshot shows the Adv.Int(ms) field with the value 10. A red error message is displayed: \* 50-3600000.

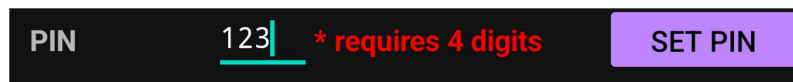
**2 x Adv**: Tick box for data advertising by Double Advertisement

**Advertising Type**: Tick Box to choice Normal Type (BT4.2) **or/ and** Long Range Type (BT5) (Default: Normal (BT4.2) Type only)

- Tick both box for choose the both type
- Power consumption will increase if BT5 Type or both type is chosen

**PIN**: 4 digits PIN (Alphabet or number) for Login when every connection create (Default: 1234)

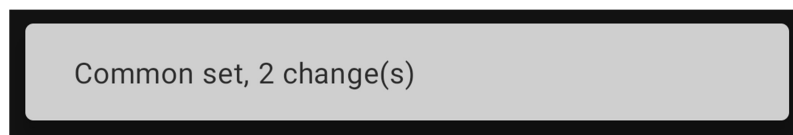
- If new PIN length not 4, the notice will be shown as below when “SET PIN” button pressed. PIN cannot be updated.



- If PIN value incorrect, the notice will be shown at the bottom as below when connecting the beacon. Those notice message will also be shown in the “LOG” Tab page.



Text notice box will be shown at the bottom if any CFG updated. Those notice message will also be shown in the “LOG” Tab page.



\* CONFIG APP will updated all the above parameter to Beacon by press “SET” Button. No any parameter will be updated individually if any input error notice appear.

**GET:** All current setting value will be shown on this page when press the “GET” button

**REBOOT:** Request beacon reboot when press the “REBOOT” button.

Connection between beacon and mobile will be lost. Beacon will start will Normal mode after reboot.



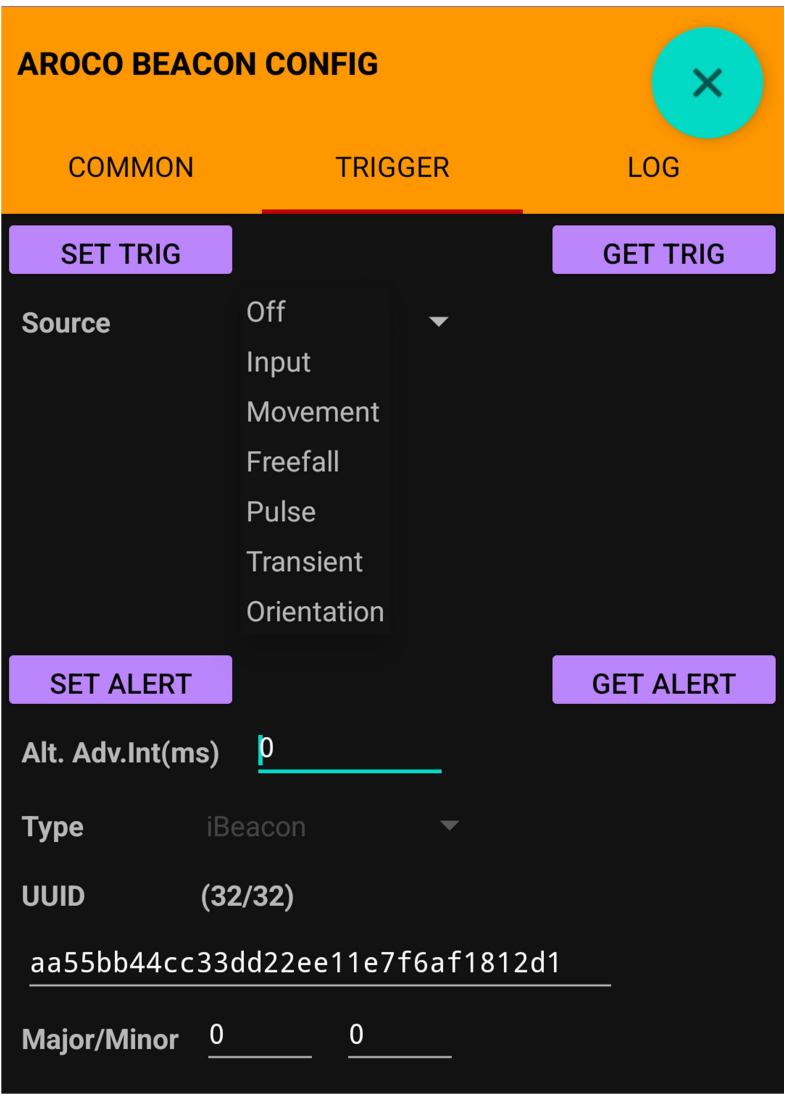
# Trigger Setting Configuration

**For model with Digital Input device (e.g. T110F Flood Detection, T110S Door Switch)**

Input Sensor ON/OFF, Input Debounce Time, Input Type, Action, Alternative UUID, Major, Minor and Alternative Advertising Interval setting will be shown, can be checked and updated.

All current setting value will be shown on the app once the beacon connection is made.

Beacon will trigger the Alert by advertising with Alternative UUID, Major, Minor and Advertising Interval according those trigger setting.




\*Source "Movement, Freefall, Pulse, Transient, Orientation" only available on T110G (with G-force Sensor)

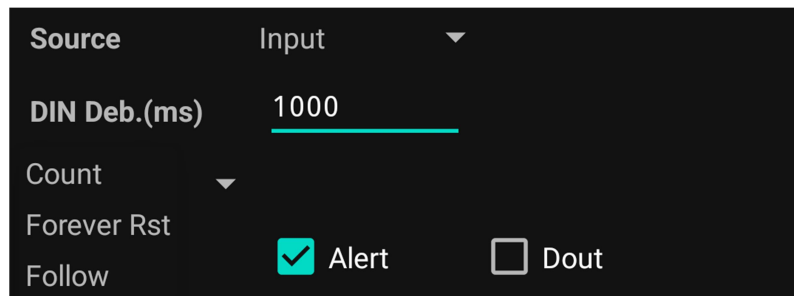
**Source:** Combo Box for **Input** function Off or On selection. DIN Deb.(ms), Action Tick box setting will be shown when selected **Input**.

**DIN Deb.(ms):** Digital Input trigger debounce time

Range: 100-60000



**Input Type:** Combo box for different Input status handling. **Count**, **Forever Rst**, **Follow** option can be chosen



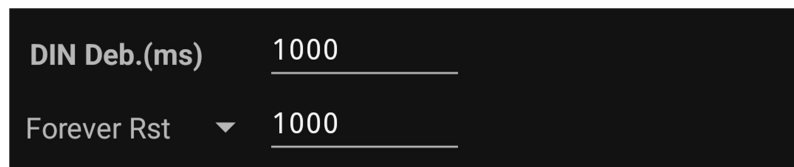
**Count:** Beacon repeat advertising Alternative information or/and trigger Dout by parameter times

Range: 1-5000



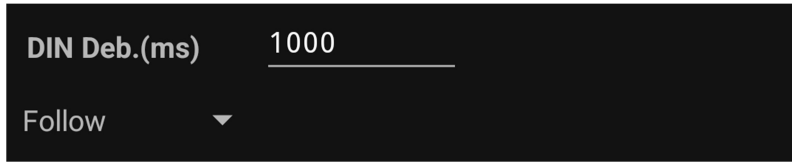
**Forever Rst:** Beacon will keep advertise alternative information or/and trigger Dout instead of advertise normal information until the Digital Input trigger over the **Off** debounce time or beacon reboot.

Input Off Debounce Time Range: 0-30000



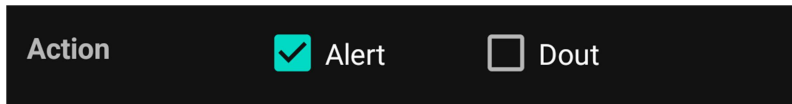


**Follow:** Beacon will advertise normal/ alternative information or/ and trigger Dout follow by the Digital Input status.



- Digital Input Off – Report Normal information
- Digital Input On – Report the alternative information or/ and trigger Dout

**Action:** Beacon Input triggered action tickbox.



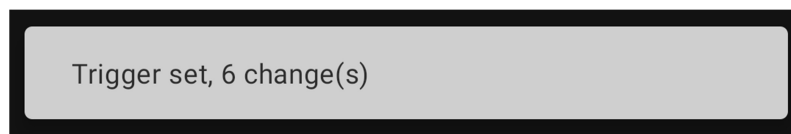
- Alert – Advertise alternative information
- Dout – Trigger Digital Output (for other Beacon model)

All current TRIG setting value will be updated by press the “SET TRIG” button

All current TRIG setting value will be shown when press the “GET TRIG” button

Text notice box will be shown at the bottom if any TRIG CFG updated.

Those notice message will also be shown in the “LOG” Tab page.



- **For T110F Flood Detection, T110S Door Switch, we suggest to set Input “Follow”, DIN Deb. “1000ms”, and Action “Alert”, advertise alternative information to indicate the different status.**

**Alert Information:** Include Alt. Adv.Int(ms), UUID, Major and Minor. Beacon will advertise those alternative information instead of normal information when Input triggered and Alert action On.

**Alt. Adv.Int(ms):** Alert status alternative information advertising interval

Range 0 or 50-3600000. (Default: 0)

- If new Alt.Adv.Int(ms) is less than 50 or over 3600000, the notice will be shown as below when “SET ALERT” button pressed. All parameter cannot be updated.

- If new Alt.Adv.Int(ms) is 0, normal advertising interval parameter will be used for Alternative advertising.

Alt. Adv.Int(ms) 5 \* 0 or 50-360000

**UUID:** Simple 16 characters in simple (simple check box ticked) or 16 Bytes hexadecimal UUID data can be changed. (Default alt. UUID: aa55bb44cc33dd22ee11+6 bytes Beacon MAC address)

**Major:** Range 0 to 65535 (Default: 0)

**Minor:** Range 0 to 65535 (Default: 0)

- Non-hexadecimal content will be blocked when Simple check box is un-ticked
- Simple allowed following characters  
**0123456789ABCDEFGHIJKLMNPOQRSTUVWXYZ-\_/,\***
- If new simple UUID length less than 16 characters, app will fill full stop at the end of new UUID to 16 characters length and updated the parameter when "SET ALERT" button pressed.
- If new UUID length not 32 in non-simple status, no any response when "SET ALERT" button pressed. All Alert parameter cannot be updated.

Type iBeacon

UUID (32/32)  
aa55bb44cc33dd22ee11e7f6af1812d1

Major/Minor 0 0

- Major and Minor fixed to 0 if UUID is in simple

All current Alternative information setting value will be shown when press the "GET ALERT" button

Text notice box will be shown at the bottom if any Alert CFG updated. Those notice message will also be shown in the "LOG" Tab page.

Alert set, 1 change(s)

## Finish Configuration

Please go to "COMMON" tab page and press "REBOOT" button when every setting is updated. Beacon will reboot immediately, disconnect with mobile APP, and ready to start the beacon normal operation.

## Log

All activity will be logged with time and shown on this log tab page.

