RODSUMWIRELESS AC-BLE-T110T Aroco Wireless Beacon with Vibration Detection User Manual

Contents

RODSUMWIRELESS AC-BLE-T110T Aroco Wireless Beacon with Vibration Detection

Specification

AC-BLE-T110:

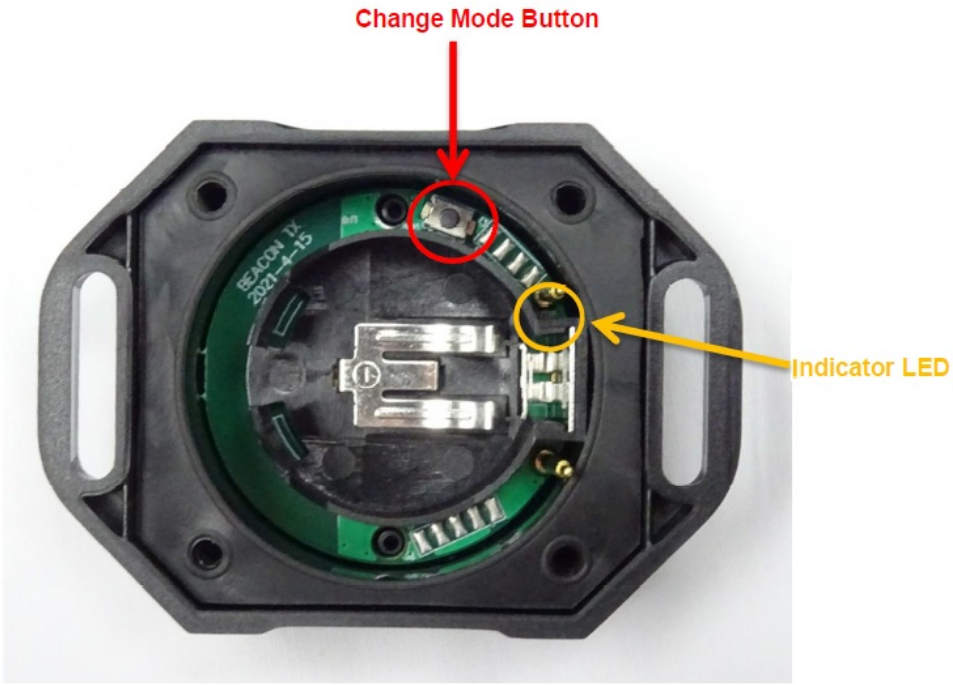
Mechanics Data	
Size	Approx. 60.3 x 43.3 x 21.1 mm
Weight	Approx. 25 grams (without Battery) Approx. 34 grams (with Battery)
Casing	PC/ABS Case
Electrics Data	
Bluetooth Chip	Nordic nRF52840
Frequency	2.4GHz
Memory	256kB Ram, 1MB Flash
BLE Version	Bluetooth 5 compatible iBeacon compatible BT4.2 Advertise Mode supported Long Range (PHY Coded) Mode supported
G-force	Build-in 12-bits 3-Axis Digital Accelerometer

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)
Environmental Conditions	
Operating Temperature	-25°C to +75°C
Waterproof Rating	IP68
Material Resistance	UV resistance

Temperature Probe:

Size	6mm diameter by 50mm long
Casing	Stainless steel tube
Usable temperature range	-55 to 125°C
Accuracy	±0.5°C Accuracy from -10°C to +85°C

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
~10%	4096
~20%	8192
~30%	12288
~40%	16384
~50%	20480
~60%	24576
~70%	28672
~80%	32768
~90%	36864
~100%	40960

Battery Level bits value Table

Double Advertise Mode

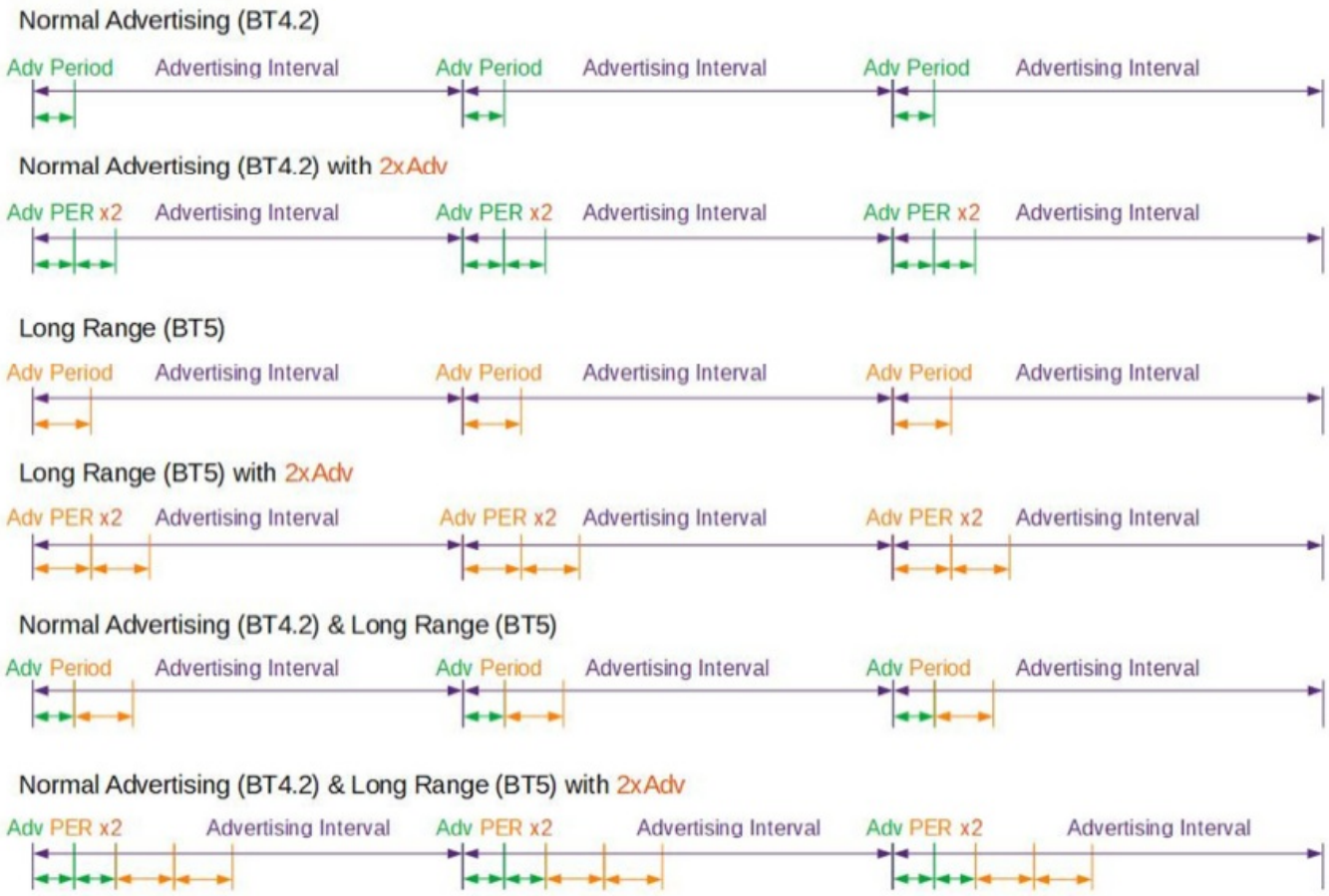
User can enable/ disable the Double Advertise Mode by Aroco Beacon Config APP.
If the function is enabled, beacon will advertise same data packet twice to increase the data receiving stability.
It will increase Beacon power consumption.

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.



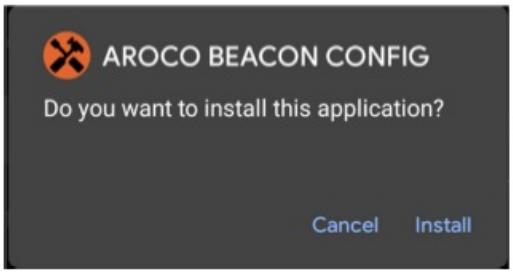
Advertising Time line in different mode

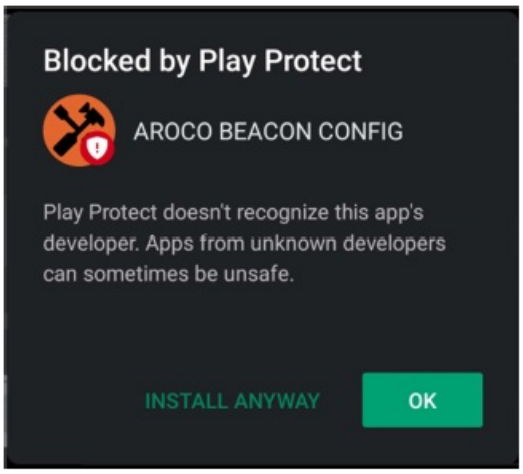
Software Configuration

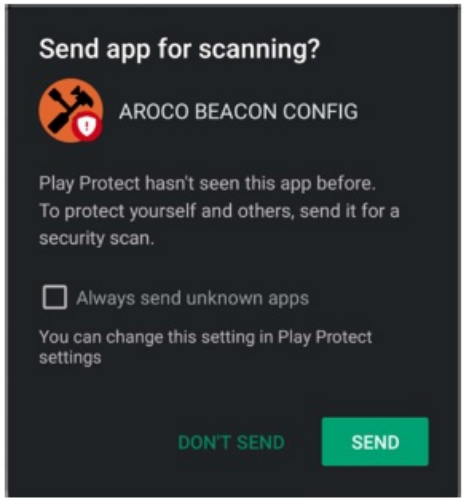
Android App Start up Instruction

1. Download and install the AROCO BEACON CONFIG Android App (version 1.5.05) from following QR Code url:

Android version: 7.0 or upper

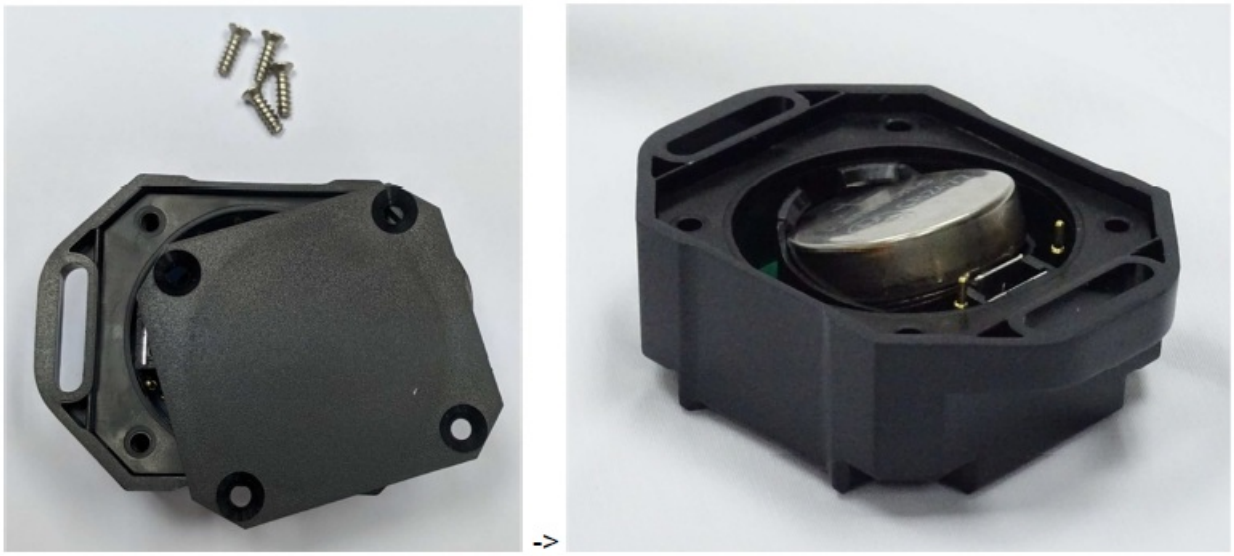




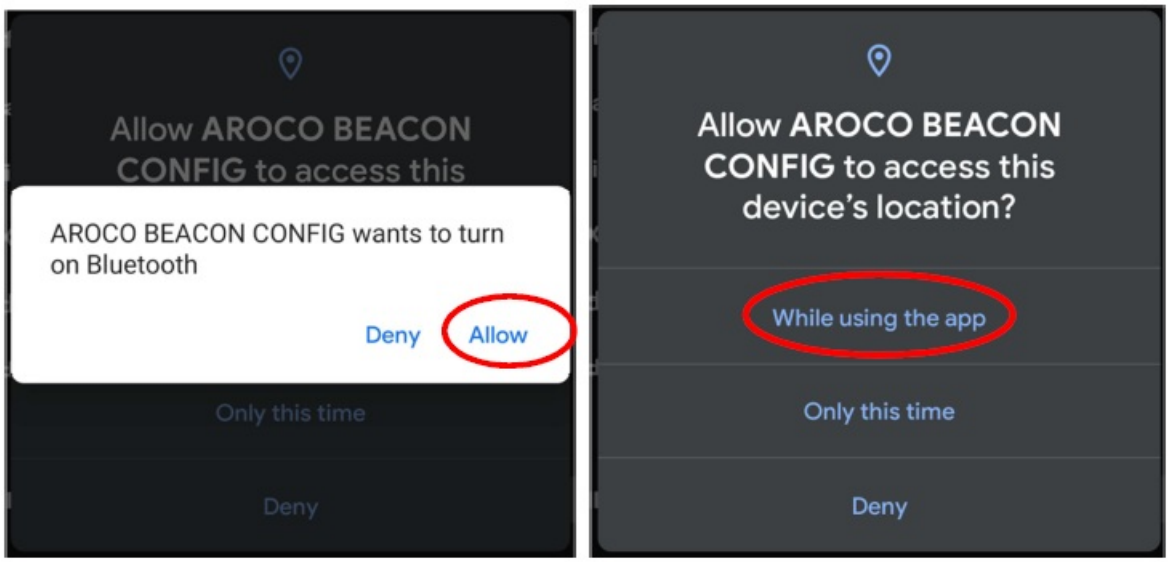


*Since the app is installed be APK, notice windows might appear while installation. Press “INSTALL ANYWAY” and “DON’T SEND” to finish the installation process.

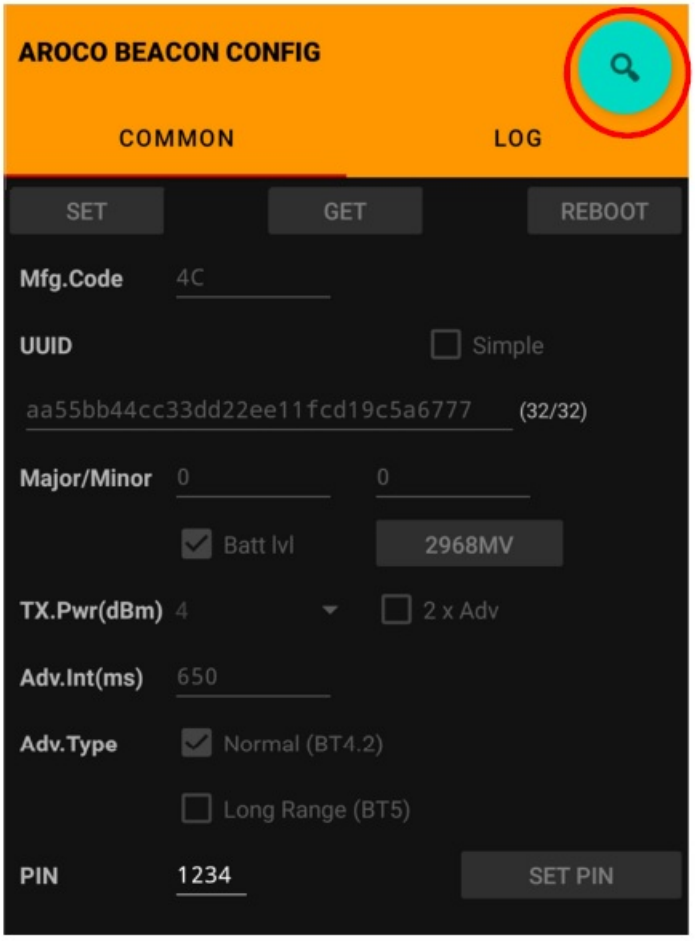
2. Unscrew the screw and open the cover. Fill in battery CR2477 to Turn On the Beacon.



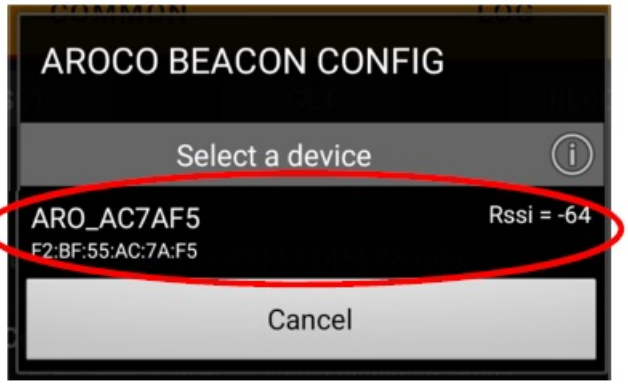
3. Start the App. Allow Device’s Location permission, Enable Bluetooth and Location.



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.

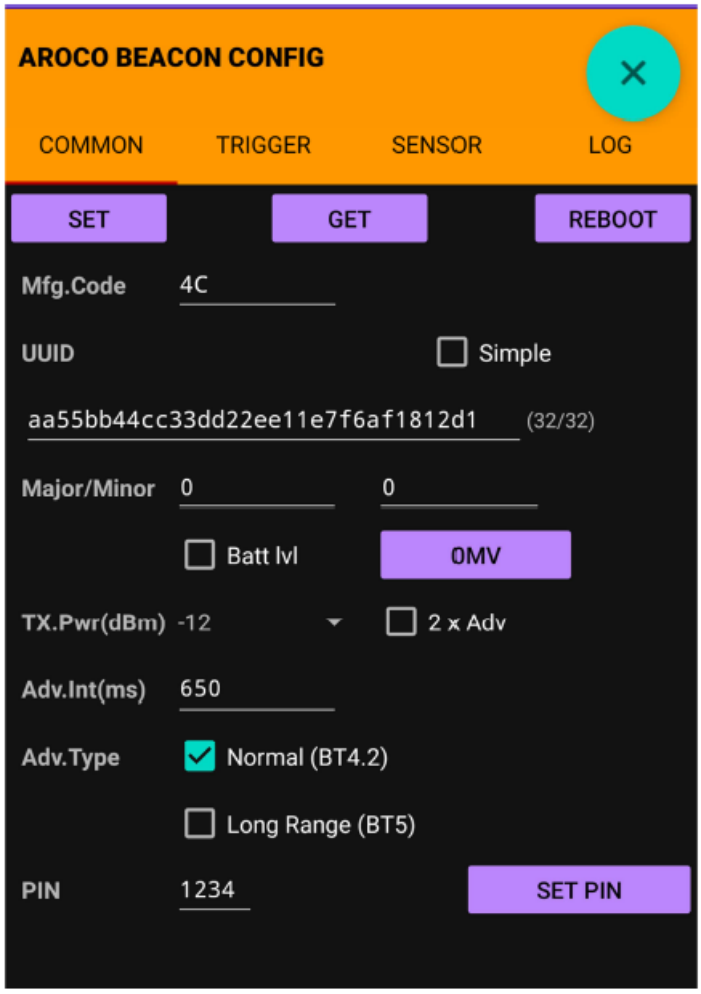


6. Select the Beacon and Tap to connect. All current parameter will be read.



Common Setting Configuration

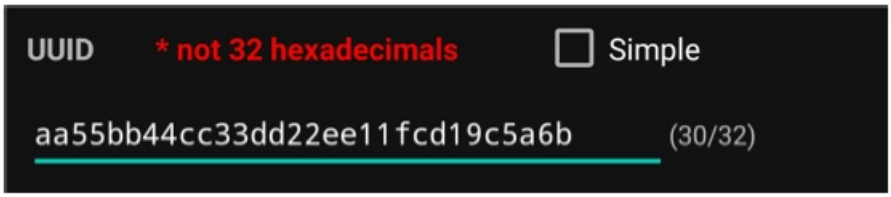
UUID, Manufacturing Code, Major, Minor, Battery Level reporting, TX Power, Advertising Interval, Advertising type and PIN setting can be checked and updated in this Tab page.
All current setting will be shown on the app once the beacon connection is made.
Beacon will advertising with those setting in normal status.



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: 0x004C)

- If new Mfg. Code is empty, the notice will be shown as below when “SET” button pressed. All parameter cannot be updated.

Major: Range 0 to 65535 (Default: 0)

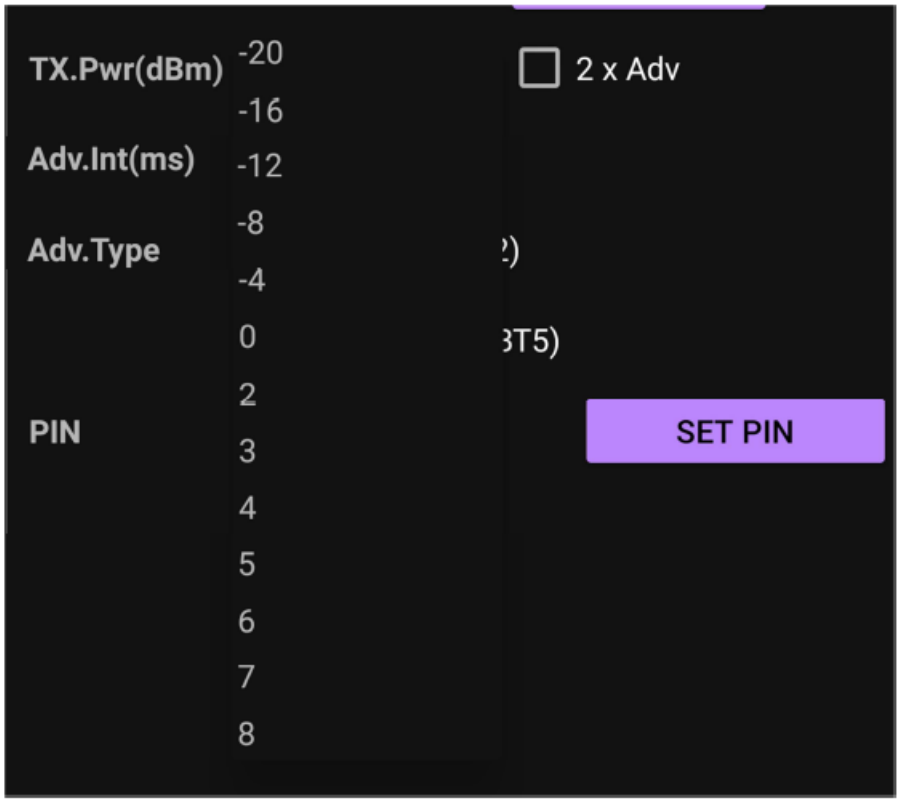
Minor: Range 0 to 65535 (Default: 0)

- 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)



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

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

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

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.

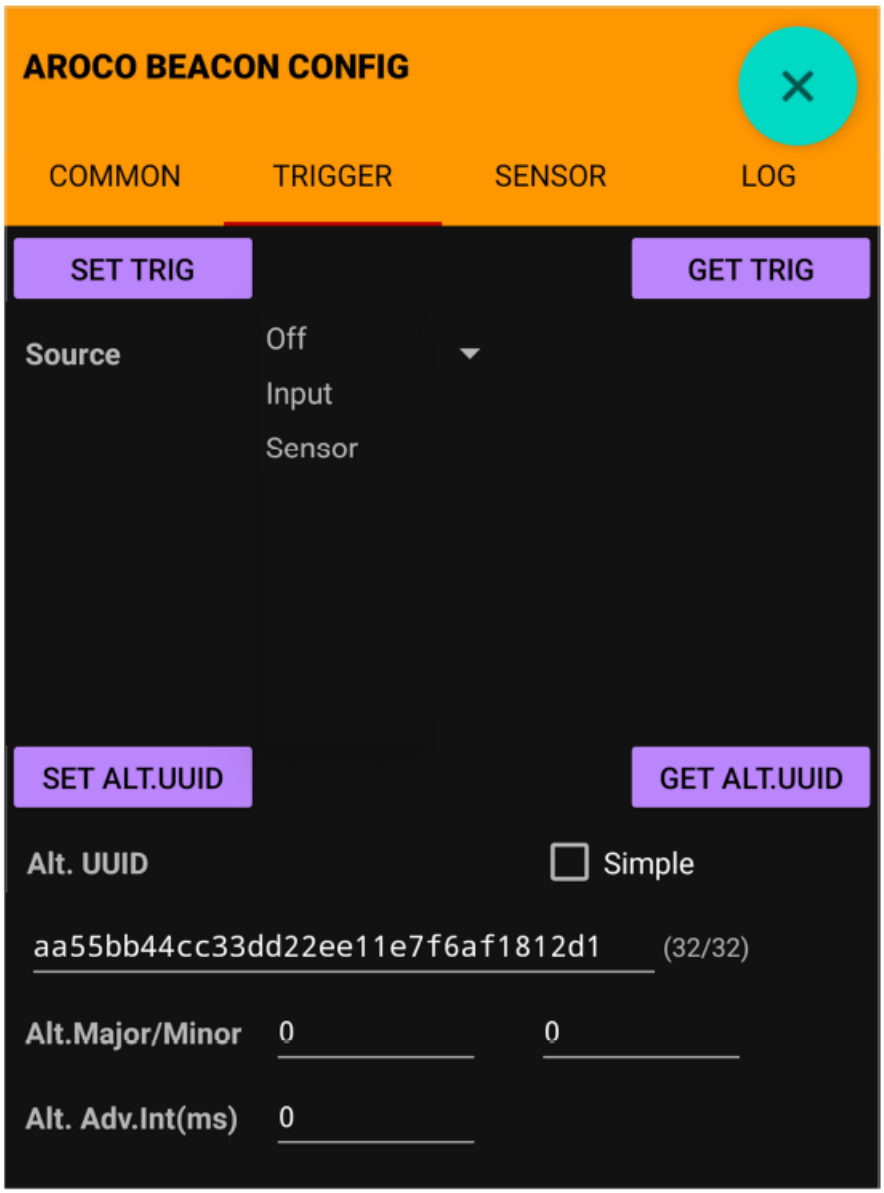
Trigger Setting Configuration

For Input/ Temperature Trigger

Source Type, ON/OFF, Input Debounce Time, Repeat Count, Alternative UUID, Alternative Major, Alternative 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.

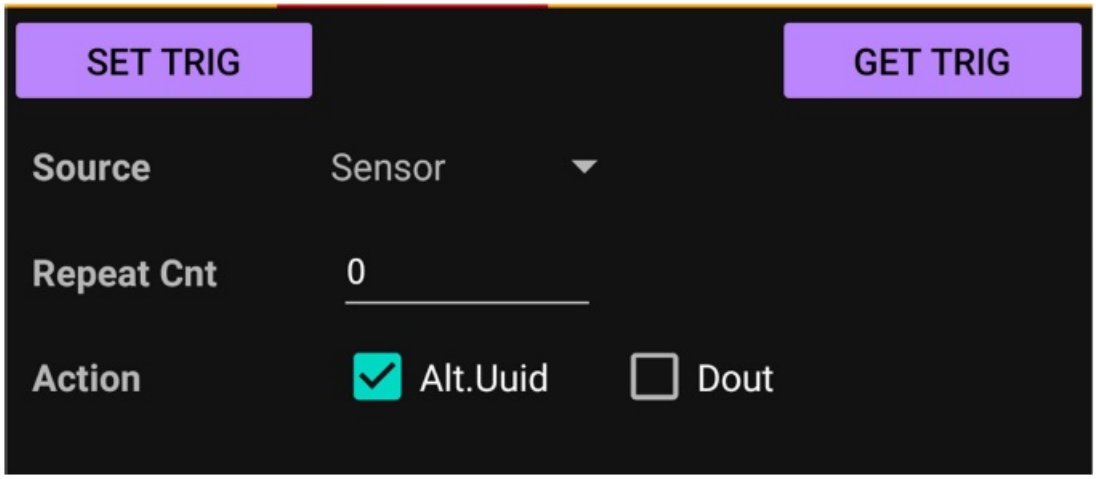
Beacon will trigger the Alarm by advertising with Alternative UUID, Major, Minor and Advertising Interval according those trigger setting.



Source:
Combo Box for Input, Sensor (Temperature Sensor), Off and alarm type selection. Additional setting such as Digital Input Debounce time, repeat count and Action setting will be shown when any sensor type selected.

- Input Alarm is reserved for other Rodsum Wireless Beacon Product.

DIN Deb.(ms): (For Reserved Input Alarm Only)
Repeat Count: Beacon advertise Alternative information times when alarm triggered Range: 0-5000, or 9999
0: Report Alternative information until source Trigger status changed to Off



Action: Tick Box for User choose Action type for Trigger (1 or both action)
Alt. Uuid: Advertising alternative information instead of normal information when alarm triggered
Dout: Reserved for other Rodsum Wireless Beacon Product
If one of parameter out of range, the notice will be shown in RED in that row when “SET TRIG” button pressed. All TRIG parameter cannot be updated.
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.

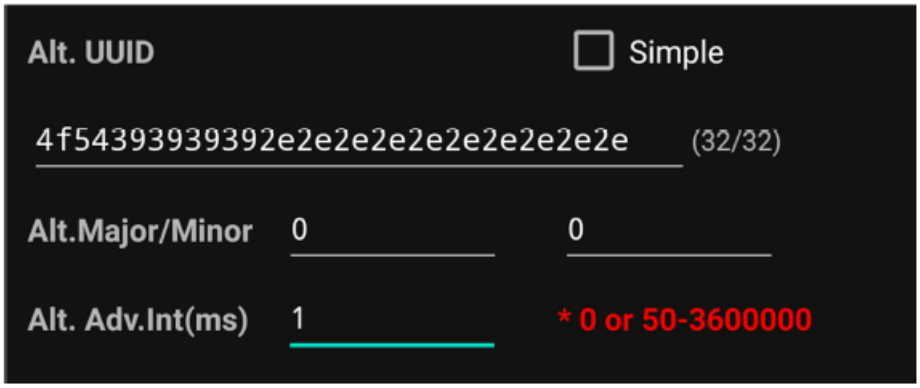
Alternative Information

Include UUID, Major, Minor and Advertising Interval. Beacon will advertise those alternative information instead of normal information when alarm triggered.

Alt. 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)
Alt. Major: Range 0 to 65535 (Default: 0)
Alt. Minor: Range 0 to 65535 (Default: 0)

- Non-hexadecimal content will be blocked when Simple check box is un-ticked
- Simple allowed following characters 0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ-_/,.*

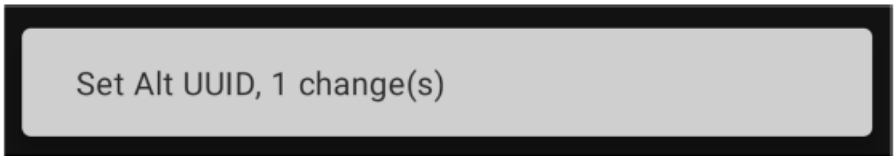
1. If new simple UUID length less than 16 characters, app will fill full stop at the end of new UUID to 16 characters length and updated the parameter when “SET” button pressed.
2. If new UUID length not 32 in non-simple status, the notice will be shown as below when “SET” button pressed. All parameter cannot be updated.
3. Major and Minor parameter fixed to 0 if UUID is in simple



Alt. Adv. Int(ms): Range 0 or 50 to 3600000 (Default: 0)

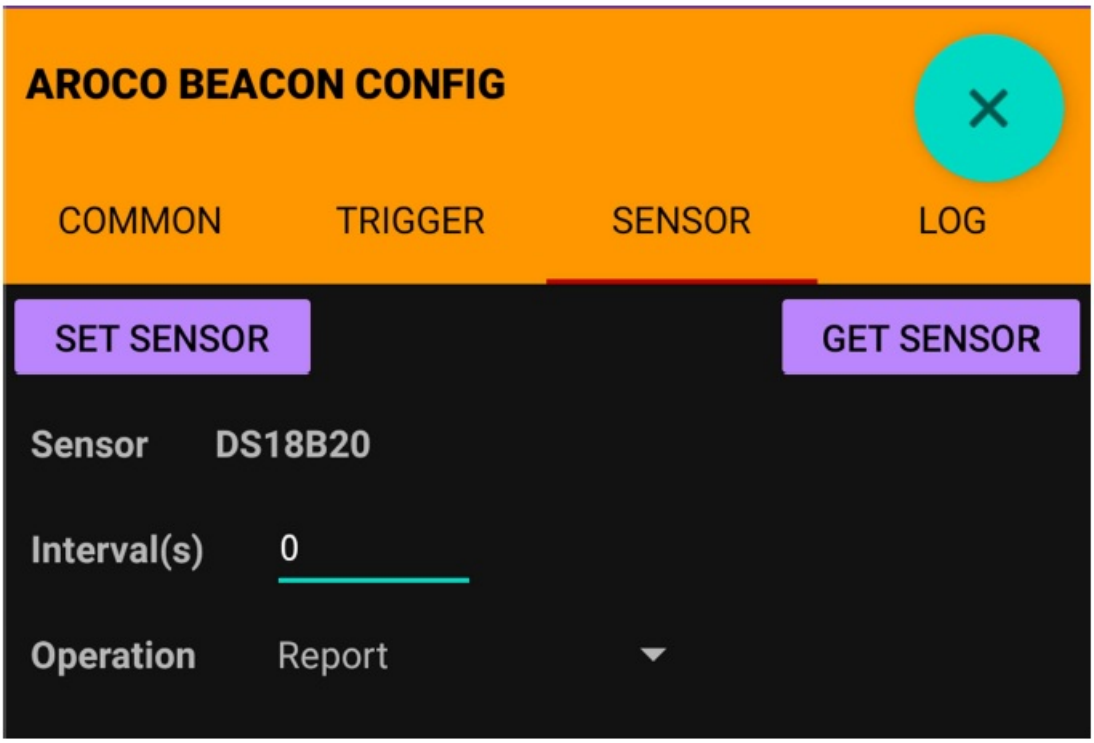
- Alternative Advertising Interval = 0, Beacon will use normal advertising interval setting on Alternative advertising

All current Alternative information setting value will be shown when press the “GET ALT. UUID” button
Text notice box will be shown at the bottom if any Alt UUID CFG updated.
Those notice message will also be shown in the **“LOG”** Tab page.

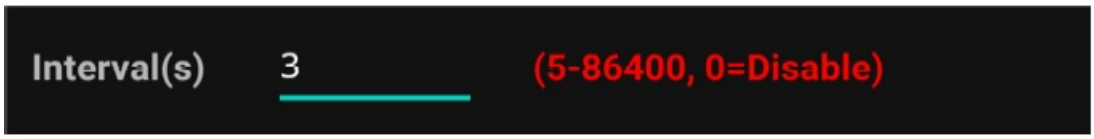


Temperature Sensor Configuration

Sensor Read Interval and Operation 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 follow the reading interval and operation setting to run Temperature Sensor related function



Interval(s): Sensor Reading Interval
Range 0,5 to 86400 (Default: 0 – Disable)
* Power consumption will increase if Reading Interval is shorter

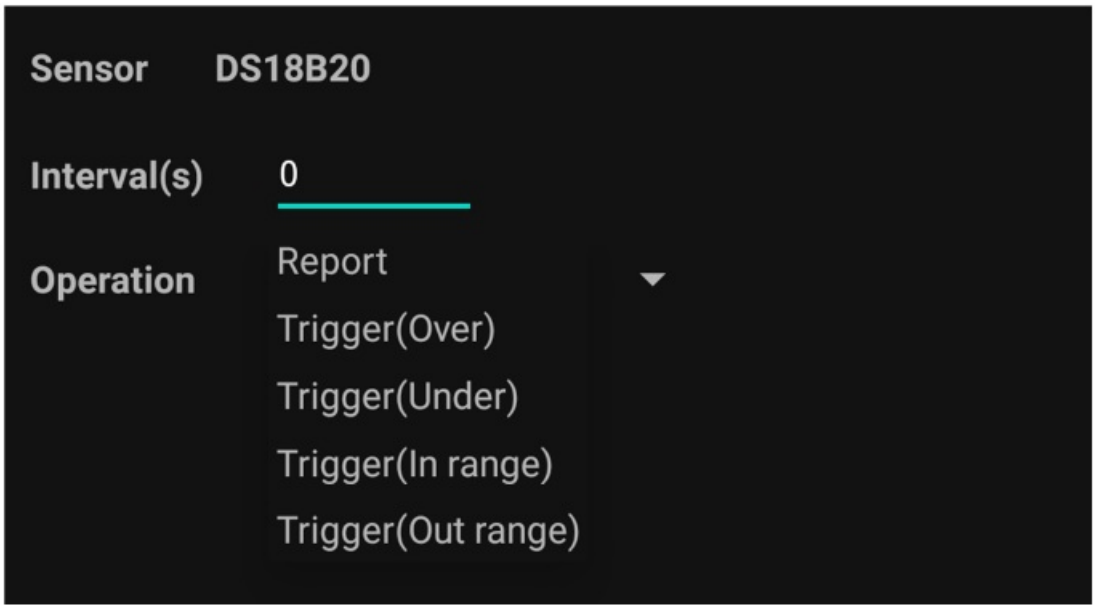


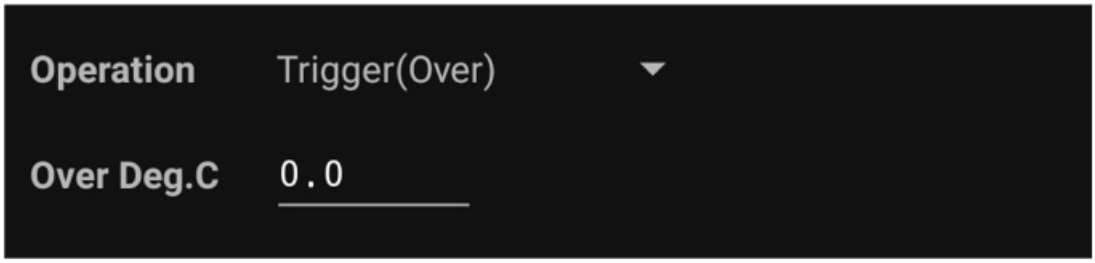
Operation: Beacon will operate following function when the Interval not equal to 0

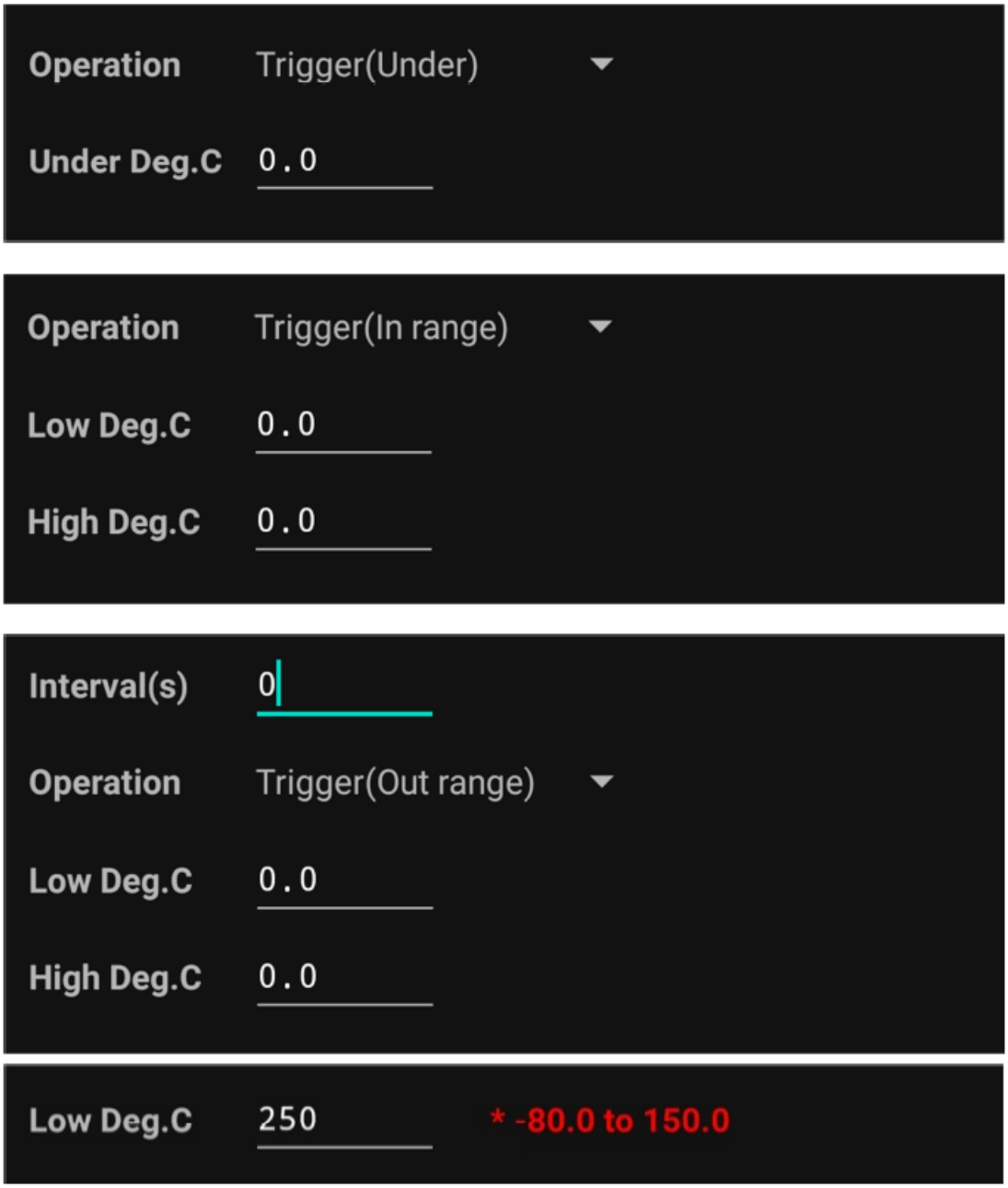
- **Report:** Temperature (Celsius) will be reported with data advertising in Minor For example: current temperature 23.9°C, Data minor is 239 current temperature -4.5°C, Data Minor is 65489 (Bitwise NOT when temperature lower than 0°C)

- **Trigger(Over):** Trigger will turn On when current temperature over than the preset limit
- **Trigger(Under):** Trigger will turn On when current temperature lower than the preset limit
- **Trigger(In range):** Trigger will turn On when current temperature between the preset upper and lower temperature
- **Trigger(Out range):** Trigger will turn On when current temperature NOT between the preset upper and lower temperature

* Different Trigger Limit will be shown below the operation row after different Operation is chosen
** All Temperature Trigger Limit Range is -80 to +150°C
*** Current temperature will advertising in Minor in all trigger operation too
**** Preset Normal Minor/ Alt. Minor will be replaced by the temperature when sensor is enabled
***** If temperature sensor interval larger than advertising interval, beacon will keep reporting the last temperature value in Minor until the new temperature reading received







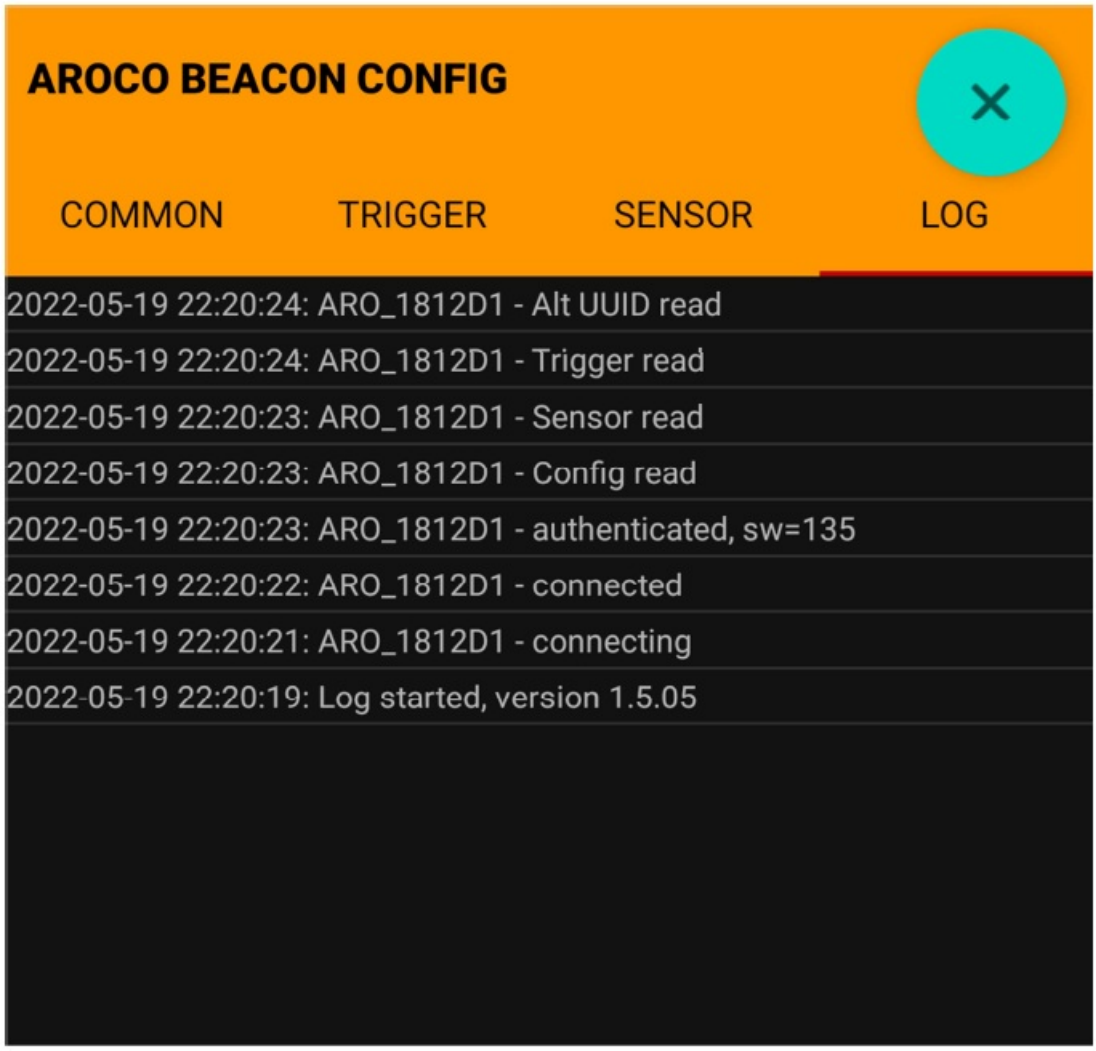
If one of updated parameter out of range, the notice in RED will be shown in that ROW when **"SET SENSOR"** button pressed. No any parameter will be updated individually if any input error notice appear.
Text notice box will be shown at the bottom if any SENSOR config updated.
All current setting value will be shown when press the "GET SENSOR" button
Those notice message will also be shown in the **"LOG"** Tab page.

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.



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Documents / Resources

	RODSUMWIRELESS AC-BLE-T110T Aroco Wireless Beacon with Vibration Detection [pdf] User Manual AC-BLE-T110T, Aroco Wireless Beacon with Vibration Detection, Aroco Wireless Beacon, Wireless Beacon, AC-BLE-T110T, Beacon

References

- IoT | Rodsum Wireless Limited | Hong Kong