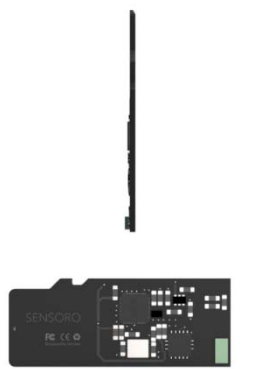# Sensoro Tag User Manual

Outlook

With the craftsman's Spirit of Sensoro and aiming at perfection to the very last detail, Sensoro Tag is designed to pursue the ultimate.

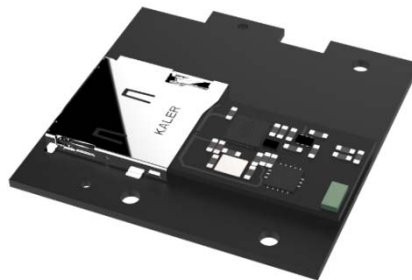It is compatible with MicroSD card connector, which can adapt to variety of DC power supplies with output 2.1V~3.6V flexibly，and is able to add the required functions easily by expanding other peripheral through unused signals of the MicroSD card. Integrated with multiple sensors for more powerful functionality, we also persist in the entire structural aesthetics and more efficient energy utilization. Sensoro Tag，is not only a module，but also a product with Sensoro Spirit.

Tech Specifications

Description	Item
Board Info	
*Layer	4 Layer
*Size	31mm(L)*11mm(W)
*Thickness	0.6mm
*Surface Treatment	Matt black ENIG PCB
Control & Display	
*Control	BLE SOC Chip
*Antenna	2.4G PCB Antenna
*Display	N/A
*Sensor	3 Axis G-Sensor
	Temperature
Basic Info	
*BT	BLE Only
*Operating Voltage	DC 2.1V ~ 3.6V, Typ 3.0V
*Operating Temperature	-25°C ~ 75°C

*Sleep Mode Power Consumption	30uW
*Sleep Mode Current	10uA
*Power Consumption per Broadcast	$7.58 * 10^{-6}$mAh (-8dBm transmitting power)
*Radius Power	-30dBm to +5dBm; applicable for signal coverage optimization
*Transmission Range	Up to 80m
*Broadcast Frequency	Broadcasting time interval: adjustable (100~1285ms)
*Weight	10g
* Resistances	Anti-vibration
*Name	Parameter
*Protocol standard	Bluetooth®4.0 with iBeacon certification
*System Requirements	iOS7.0 / Android 4.3 or above
*Upgrade	Support for Firmware Over-The Air upgrade
*Security	Support Password for Connection
Installation	
*TF Card Socket	Power Supply Interface, Insert Sensoro Tag into theMicroSD card socket powered by the base borad.like Figure 1 below.

Figure 1

Battery Usage Reference(Days)

Note: Variety of DC power sources with output 2.1V~3.6V are supported, which depends on customers' needs.

And the preference data below, is based the button cell battery(CR2477).

Power\ Interval	+5dBm	0dBm	-8dBm	-12dBm	-30dBm
100ms	105	126	138	146	152
152.5ms	156	185	203	215	223
211.25ms	211	249	271	286	297

318.75ms	301	353	382	402	416
417.5ms	378	438	473	497	513
546.25ms	467	538	578	604	622
760ms	596	677	722	752	772
852.5ms	645	729	776	806	827
1022.5ms	727	815	864	895	916
1285ms	836	928	977	1009	1031

Main Features

1. Flexible expandability
   Sensoro Tag can support variety of DC power sources with output 2.1V~3.6V，and add the required functions easily by expanding other peripheral through unused signals of the MicroSD card.
2. Low power consumption
   Employing Bluetooth®4.0(Bluetooth®low energy) Nordic NFR51822 chip, Sensoro Tag consume less power with better performance.

   Equipped with energy-efficient sensors and by using intelligent energy saving solution, a button cell battery will be able to power Sensoro Tag continuously operating for around 2 years.

3. Compatibility
   Software and firmware completely fulfil Apple's iBeacon technical standards and can be applied to systems including:

   iOS 7.0 or above：
   iPhone 4S,iPhone 5, iPhone 5S，iPad 3, iPad mini, iPad air.

   Android 4.3 or above：
   Samsung Galaxy S III, Galaxy S IV, Galaxy Note II, Galaxy Note III and Motorola RAZR, HTC ONE, etc.

Download configuration tool

Scan QR code to get the App from www.sensoro.com

Signal stability and data transmission

1. Transmission reliability and range
   To achieve long-distance data transmission with more stable signals, we have conducted numbers of testing and corresponding modifications. Tag works stable

under complex circumstances. Radius power is adjustable to fit the need, the largest signal coverage of which can be ranged up to 80m with 2826 m2 area.
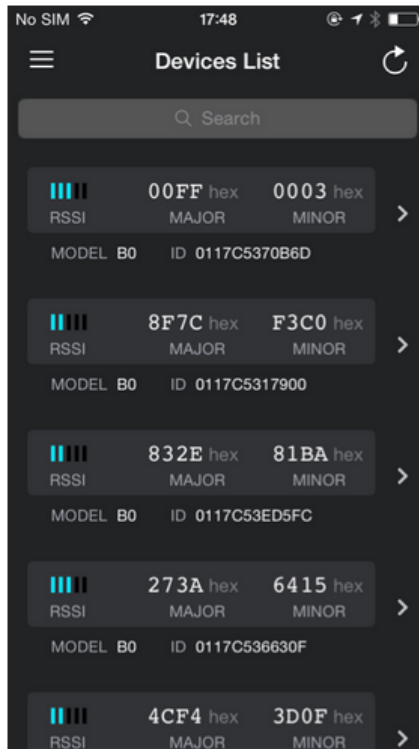
2. Enterprise level device management support
    Manage status of mass volume devices is an essential requirement for an enterprise level deployment. By using our patent technology, you can gather status of each device that deployed in a batch way. Assets management of beacon devices is an easy task now with our solution.

Configuration tool

The configuration tool "Sensoro" is a mobile app designed for developers to check and modify Sensoro Tag's configurations. It is compatible with iOS 7.0 or above (iPhone 4S,iPhone 5, iPhone 5S，iPad 3, iPad mini, iPad air) and Android 4.3 or above (Samsung Galaxy S III, Galaxy S IV, Galaxy Note II, Galaxy Note III and Motorola RAZR, HTC ONE, etc.)

Open up the configuration tool, you will see all the Sensoro Tag Beacons nearby. Each Sensoro Tag's Major, Minor and animated RSSI bar will be shown on the list.
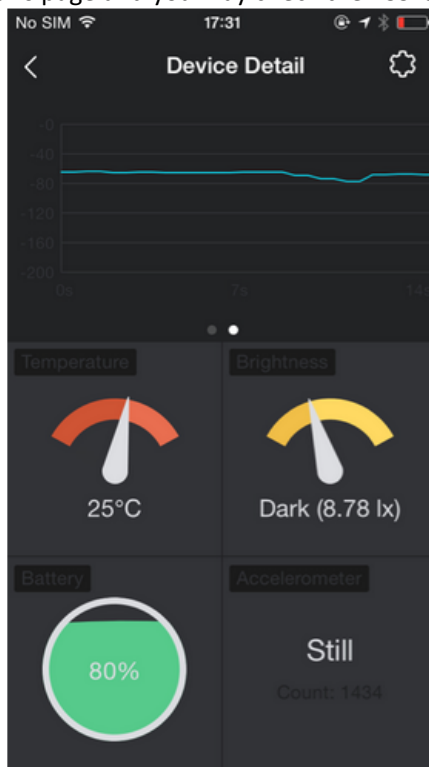

In case you are deploying numbers of Sensoro Tag within certain area, a specific function is designed to help you select the one at hand - simply shake the Sensoro Tag and its information bar will perform a vibrating animation.
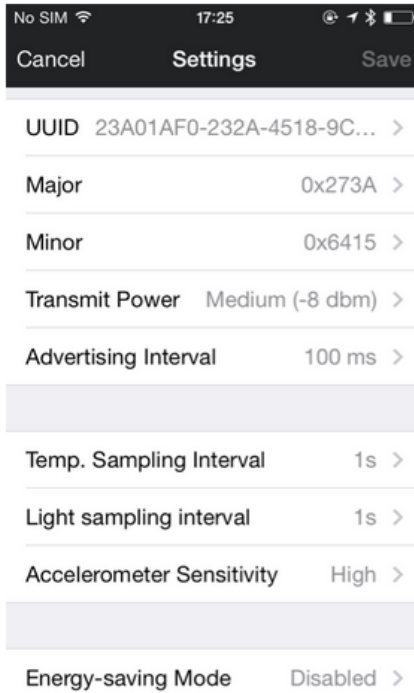
Select one Sensoro Tag's info bar and enter the detail page. Every Sensoro Tag is integrated with a temperature sensor, and an accelerometer. Every sensor's data and the battery status are real-time displayed, which reflect the operation status of specific Sensoro Tag in a visualized and direct manner.

Flip the upper section of this page and you may check the RSSI signal graph accurately.
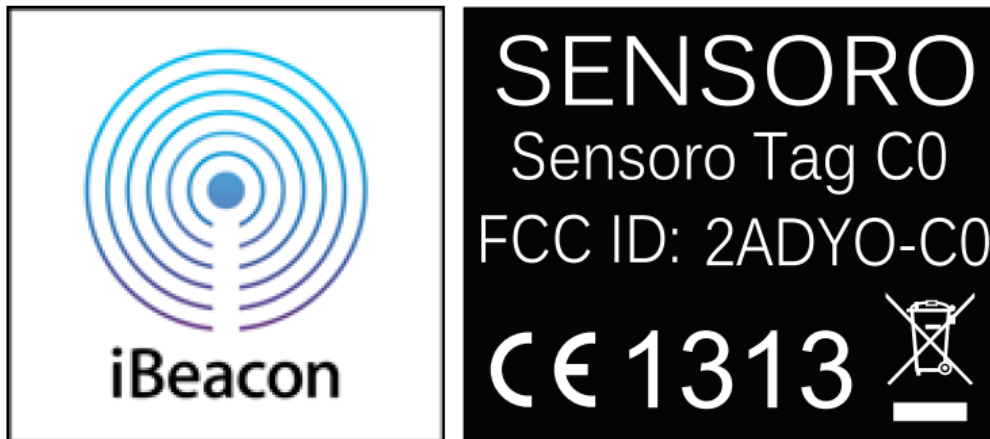

You can access to Sensoro Tag's UUID, Major and Minor through this configuration tool and revise them according to your need. Through this app, you may also setup Sensoro Tag's radius power, broadcasting frequency and even modify the operation parameters of the sensors.

As to security considerations, you may setup password so that only authorized user can access to Sensoro Tag's settings.

Quality Guarantee

Sensoro Tag has been certificated with FCC and CE. FCC certification number: 2ADYO-C0. To ensure the quality, every single device has to pass through testing and must be scrupulously checked for imperfections (Defect detection, frequency spectrum test, power consumption test, stability test, etc.).

Note
Trademark:SENSORO
Product Name:Sensoro Tag
Model No:C0

Manual and Product Labeling Information To the End User

  The end user manual shall include all required regulatory information /warning as shown in this manual. And when this module is installed in the host product, You must include a " Contains FCC ID:2ADYO-C0" in the label of the host product.

FCC Caution:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. 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.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth or an uncontrolled environment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.