

## **Services Information**

This document contains all the characteristics that are found in a range of our iBeacons and Eddystone Beacons. It is meant to be used by experienced programmers. Some characteristics will only be found on certain models of Beacon - e.g Eddystone Configurations.

### **1. Service 0xFFFF0 (iBeacon)**

Characteristic	Property	Value Length	Function	Write Example
0xFFFF1	Read/Write	2 Byte	Input Password	0x666666
0xFFFF2	Read/Write	16Bytes	Config UUID	0xEBEFD08370A2 47C89837 E7B5634DF524
0xFFFF3	Read/Write	2Bytes	Config Major Value	0x0001
0xFFFF4	Read/Write	2Bytes	Config Minor Value	0x0001
0xFFFF5	Read/Write	1Bytes	Config Power Value	0xCB
0xFFFF6	Read/Write	3Bytes	Config Interval Rate	0x0A
0xFFFF7	Read/Write	2Bytes	Config Mfgr	0x0059
0xFFFF8	Read/Write	3Bytes	Change Password	0x123456

- The default password is 0x666666.
- Broadcast interval is in units of 100 milliseconds, 0x0A is equivalent to  $10 \times 100 \text{ (ms)} = 1 \text{ (s)}$
- When connected the user must connect to port 0xFFFF1 within 1 minute, otherwise the iBeacon will disconnect from your phone

### **2. Service 0xFFD0 (Eddystone)**

Characteristic	Property	Value Length	Function	Write Example
0xFFD1	Read/Write	20 Bytes	The former 20 bytes of UriBeacon data.	0x0303d8fe0d16d 8fe002100 6a61616c656500
0xFFD1	Read/Write	8 Bytes	The latter 8 bytes of UriBeacon data.	0x0000000000000000 000
0xFFD1	Read	1 Byte	The length of UriBeacon data.	0x12

- The data of UriBeacon is 28 bytes at the most. If the data is less than 20 bytes, user only needs to write the data in channel 0xFFD1. If not, user needs to write the former 20 bytes of the data in channel 0xFFD1 and write the latter bytes in channel 0xFFD2.

### **2. Service 0xAA10**

Characteristic	Property	Value Length	Function	Write/Read Example
0xAA11	Read/Notify	6 Bytes	Read acceleration value.	0xFFFFFFFFFFFF
0xAA12	Read/Notify	1 Byte	Detect motion.	0x01
0xAA13	Read/Notify	1 Byte	Detect the position of the device.	0x01
0xAA14	Read/Write	2 Bytes	Composition of the acceleration values, and the read rate of acceleration values.	0xFC0A
0xAA15	Read/Write	2 Bytes	The service handle of broadcast.	0x10AA

## 2. Service 0xFF80

Characteristic	Property	Value Length	Function	Write Example
0x2A90	Read/Write	18 Byte	Config Device Name	0x6A61616C6565

- The value must be converted to a hexadecimal ASCII character.

## 3. Service 0x1804

Characteristic	Property	Value Length	Function	Write Example
0x2A07	Read/Write	1 Byte	Change TX Power	0x01

- Use the table below to find the relationship between the TX Power and the Value to be inputted.

Write Value	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08	0x09
TX Power (dBm)	4	0	-4	-8	-12	-16	-20	-30	-40

## 4. Service 0xFF70

Characteristic	Property	Value Length	Function	Write Example
0x2A80	Read/Write	1 Byte	Configure Beacon State.	0x01:Disable
0x2A81	Read/Write	1 Byte	Configure the broadcast rate.	0x0A
0x2A82	Read/Write	1 Byte	Check the tap-switched mode.	0x01:Enable 0x02:Disable
0x2A83	Read/Write	1 Byte	Set the intensity of motion detection.	0x09(0x01-0x7F)

- The broadcast rate of iBeacon is same with the values under 0xFFFF0->0xFFFF6.
- If the 'Tap-Switch' switch mode is disabled and the iBeacon is not in the connectable mode, you need to reinsert the battery, then user can switch to connectable mode.

**5. Service 0xFF60**

Characteristic	Property	Value Length	Function	Write Example
0x2A70	Read/Write	1 Byte	Control Beacon Audio State	0x01
<ul style="list-style-type: none"> <li>- 0x01: Buzzing when starting or tapped (default).</li> <li>- 0x02: Buzzing when starting, not when tapped.</li> <li>- 0x03: Buzzing when tapped, not when starting.</li> <li>- 0x04: No buzzing when starting or tapped.</li> </ul>				

**6. Service 0x1802**

Characteristic	Property	Value Length	Function	Write Example
0x2A06	Read/Write	1 Byte	Call Beacon	0x01
<ul style="list-style-type: none"> <li>- When input 0x01 to this port, it will buzz.</li> <li>- 0x01: Buzz with a low decibel.</li> <li>- 0x02: Red light on 200ms.</li> <li>- 0x03: Blue light on 200ms.</li> <li>- 0x04: Vibrator on 200ms.</li> <li>- 0x05: The buzzer with high decibel on 200ms.</li> </ul>				

**7. Service 0x180F**

Characteristic	Property	Value Length	Function	Read Example
0x2A19	Read/Notify	1 Byte	Power values and Temperature values.	0x64FFFFFFFF
<ul style="list-style-type: none"> <li>- Read the Temperature values and Battery level.</li> <li>- <code>uint8_t BattLevel = (uint8_t)((0x64FFFFFFFF &amp; 0xFF00000000) &gt;&gt; 32);</code></li> <li>- <code>uint32_t Temp = (uint32_t)( 0x64FFFFFFFF &amp; 0xFFFFFFFF).</code></li> </ul>				

**8. Service 0xFF50**

Characteristic	Property	Value Length	Function	Write Example
0x2A60	Read/Notify	1 Byte	Configure lock time	0x01
<ul style="list-style-type: none"> <li>- This service is a security feature that will lock the iBeacon when the password is entered wrong 10 times, (0 x01 - 0 x14). The unit of lock time is 30 minutes and can go up to 10 hours.</li> </ul>				

**9. Service 0xFF40**

Characteristic	Property	Value Length	Function	Write Example
0x2A50	Read/Notify	1 Byte	Configure the type of get battery level	0x01

- Chose how you would like to view the battery data:
- 0x01: Add the battery information at the end of the broadcast data. User can obtain it by scanning.
- 0x02: Using the highest two Minor values to show the battery, and divide it into 15 levels.
- 0x03: Using the highest two Minor values to show the battery.
- 0x04: Using the UUID, Major. Minor of the Beacon parameters as the key, and broadcasting the key and the battery information to the outside, which can be obtained by scanning. The data is broadcast twice every 50 seconds.
- 0x05: Using the iBeacons own ID as the key, the data can be received by scanning, it is broadcast every 50 seconds.

### **Operation State and Power Consumption**

<b>State</b>	<b>Operation Current (uA)</b>
Sleep Mode	3.6
Configurable Mode	142
Trigger Mode for iBeacon Data	10
Broadcast Mode for iBeacon Data(Default Setting)	22.5
Trigger Mode for UriBeacon Data	10
Broadcast Mode for UriBeacon Data(Default Setting)	14.6
Trigger Mode for AccBeacon Data	10
Broadcast Mode for AccBeacon Data(Default Setting)	446

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