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IBks10 – Version 2.0

Features

- Bluetooth LE Advertising packets
- Compatible with *Apple® iBeacons* definition
- Compatible with all Bluetooth 4.0 (and above) devices
- Ultra low power
- Up to 2 years life battery with CR2032
- User button feature
- Configurable parameters
  - TX Power
  - Advertising frequency
  - UUID, Major and Minor values
  - Password change
- Password protected ODA firmware upgrade (wireless)
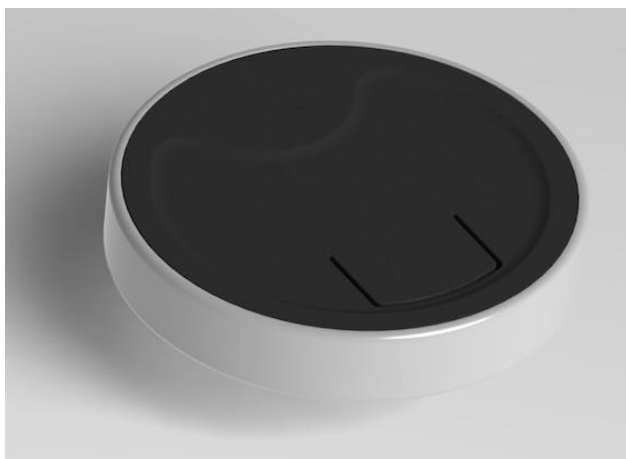
Applications

- Indoor location applications
- Indoor/outdoor tracking
- Bluetooth marketing

Product image

Advertising Packet

iBks series devices start to send the advertising packet as soon as they are powered up with standard 3V CR2032 coin cell. The advertising packet follows the Apple iBeacons standard and has the following structure:

Byte	Value	CONFIGURATION OVER GATT SERVICE 0xFFF0		
		Characteristic UUID	Characteristic value length	Default factory value
0	0x02			
1	0x01			
2	0x1A			
3	0x1A			
4	0xFF	CONSTANT PREAMBLE		
5	0x4C			
6	0x00			
7	0x02			
8	0x15			
9	UUID[0]	0xFFF1	16 bytes	0x53
10	UUID[1]	0xFFF1	16 bytes	0x44
11	UUID[2]	0xFFF1	16 bytes	0x58
12	UUID[3]	0xFFF1	16 bytes	0x30
13	UUID[4]	0xFFF1	16 bytes	0x35
14	UUID[5]	0xFFF1	16 bytes	0x84
15	UUID[6]	0xFFF1	16 bytes	0x11
16	UUID[7]	0xFFF1	16 bytes	0xE3
17	UUID[8]	0xFFF1	16 bytes	0xAA
18	UUID[9]	0xFFF1	16 bytes	0x6E
19	UUID[10]	0xFFF1	16 bytes	0x08
20	UUID[11]	0xFFF1	16 bytes	0x00
21	UUID[12]	0xFFF1	16 bytes	0x20
22	UUID[13]	0xFFF1	16 bytes	0x0C

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Bluetooth Low Energy ® advertising beacon device

23	UUID[14]	0xFFF1	16 bytes	0x9A
24	UUID[15]	0xFFF1	16 bytes	0x66
25	Major[0]	0xFFF2	2 bytes	0x01
26	Major[1]	0xFFF2	2 bytes	0xFF
27	Minor[0]	0xFFF3	2 bytes	0x00
28	Minor[1]	0xFFF3	2bytes	0xEE
29	MeasuredCalPower1m	0xFFF4	1 byte	0xC6
30	batteryLevel + Button state	read Only. bXXXXXXXY, where X bits are Battery level and Y Button status.		

Service UUID 0xFFF0			
Charcteristic UUID	**Length**	**Parameter**	**Comments**
0xFFF1	16 Bytes	UUID	iBeacon protocol
0xFFF2	2 Bytes	Major	iBeacon protocol
0xFFF3	2 Bytes	Minor	iBeacon protocol
0xFFF4	1 Bytes	Measured Cal Power 1m	iBeacon protocol
0xFFF5	2 Bytes	Change adv interval	625us/step from 32 to 16384
0xFFF6	1 Byte	Change TX power	Possible values:
			0: -23 dBm
			1: -6 dBm
			2: + 0 dBm
			3: +4Bm
0xFFF7	1 Byte	Change password	8 bit micro-switch

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Configuration

Set the secret password (default factory value 00000000) in the 8 bit microswitch and press the button to enter in configuration mode, then a GATT service will be available for some time. iBks parameters can be configured by any BLE Central device writing on the following characteristics of the 0xFFF0 service:

Usage

Accordingly to the Apple® iBeacons protocol, iBks10 will advertise the packet with the fixed preamble and the user data as described above. All other platforms can also read this data and process like iOS does it.

Broadcast the button status is interesting for user interaction applications since smartPhone APP can detect the status and how close the user is to the iBks. The applications are limited just by imagination.

iBks also broadcasts the Battery level, so developers can use the smartPhone APP as a battery level tracking tool. If some of them have to be replaced the APP can report to the server.

Dimensions (in mm)

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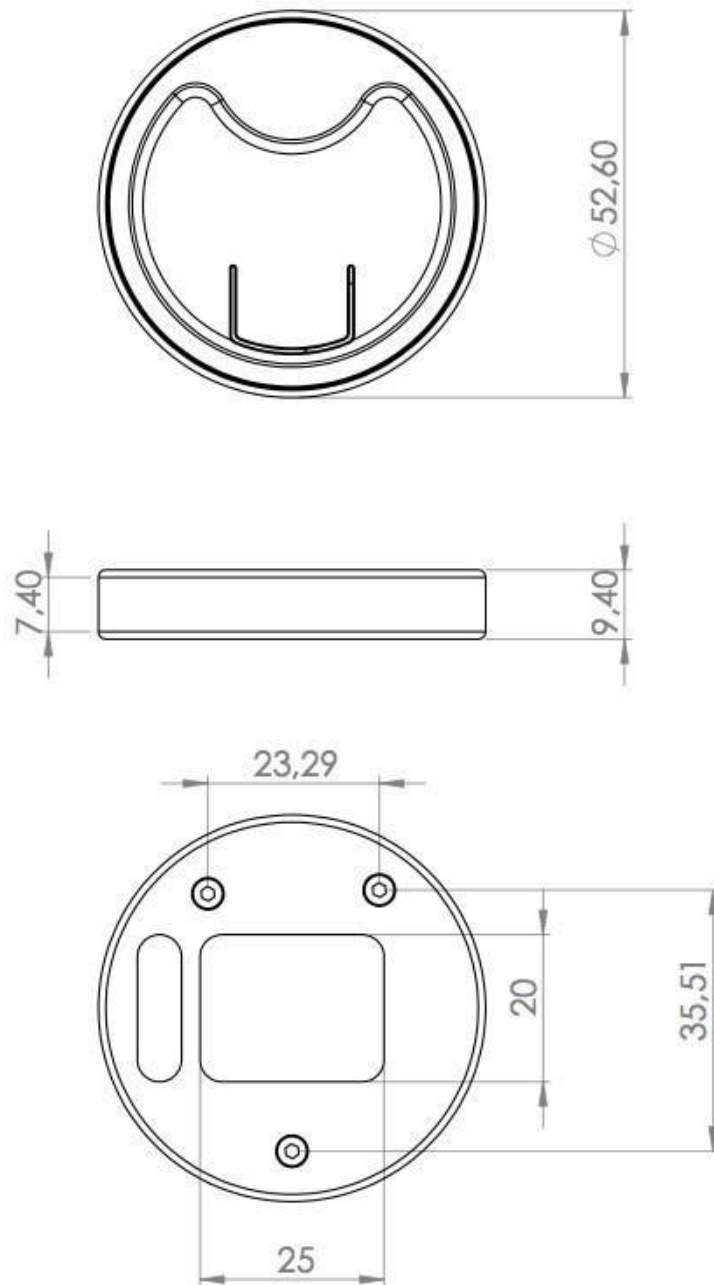
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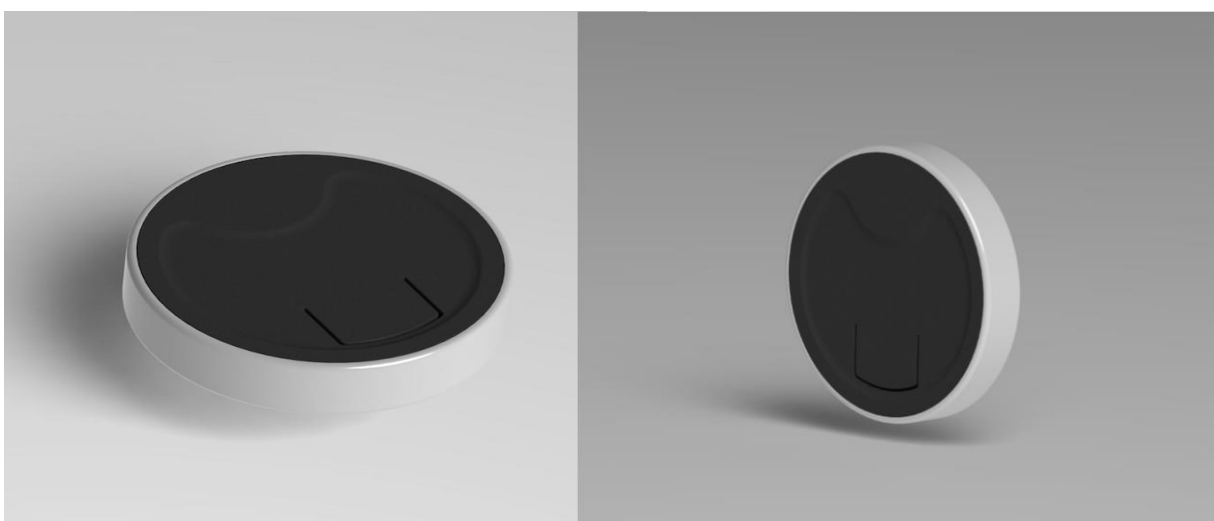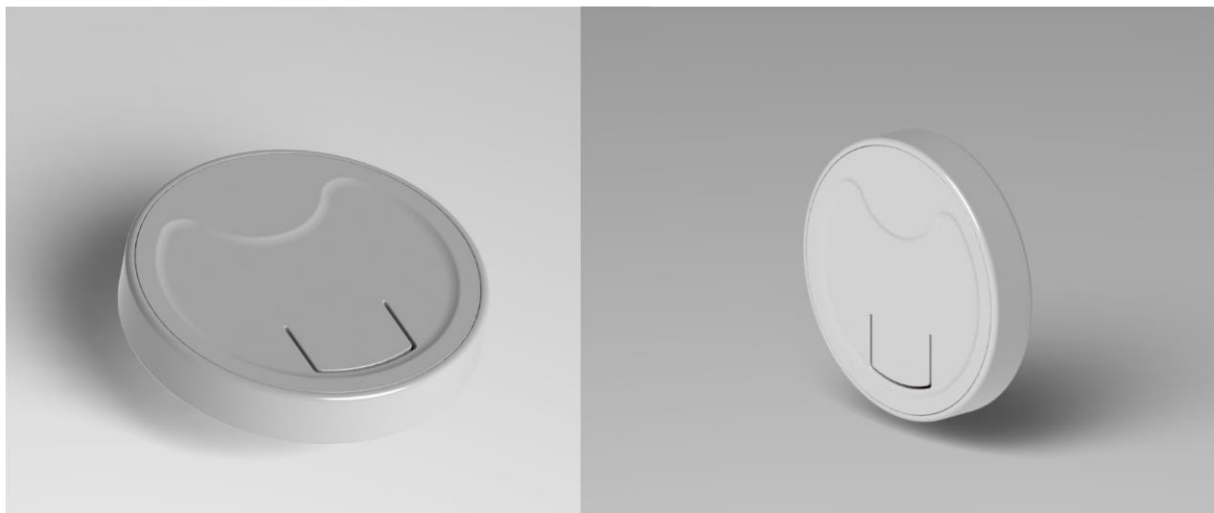
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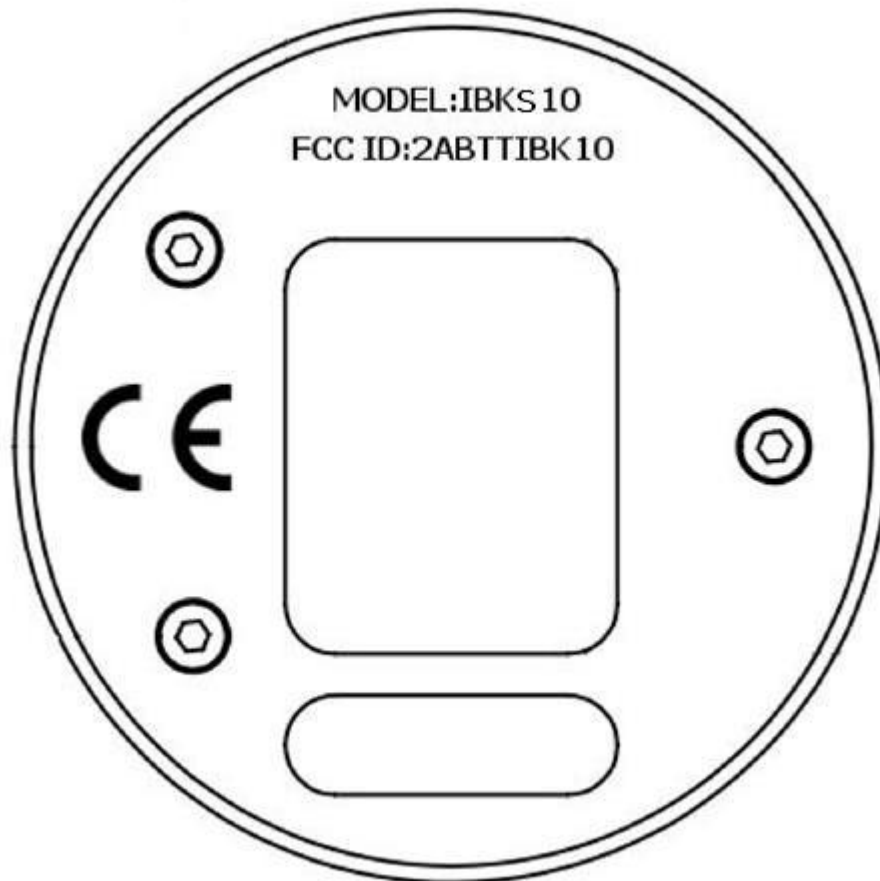
1. FCC Caution:

"Changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment."   2. FCC Statement:

 "This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide   reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help."

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.