iBKS105 Datasheet

ABSTRACT

iBKS105 Technical Data

AUDIENCE

This document is primarily focused for engineers or other users with a technical profile

FEATURES

- Advertising **Beacon** Device
- **Bluetooth Low Energy®**
- Full **Eddystone** & **iBeacon** compatible
- 100% Configurable Parameters
- Firmware update **Over The Air** (OTA)
- Waterproof optional kit
- Logo and color customizable (MOQ)
- Provided with your own configuration (MOQ 50 units)
- No tools needed for maintenance
- Additional optional sensors available

Revision 1 | August 2016

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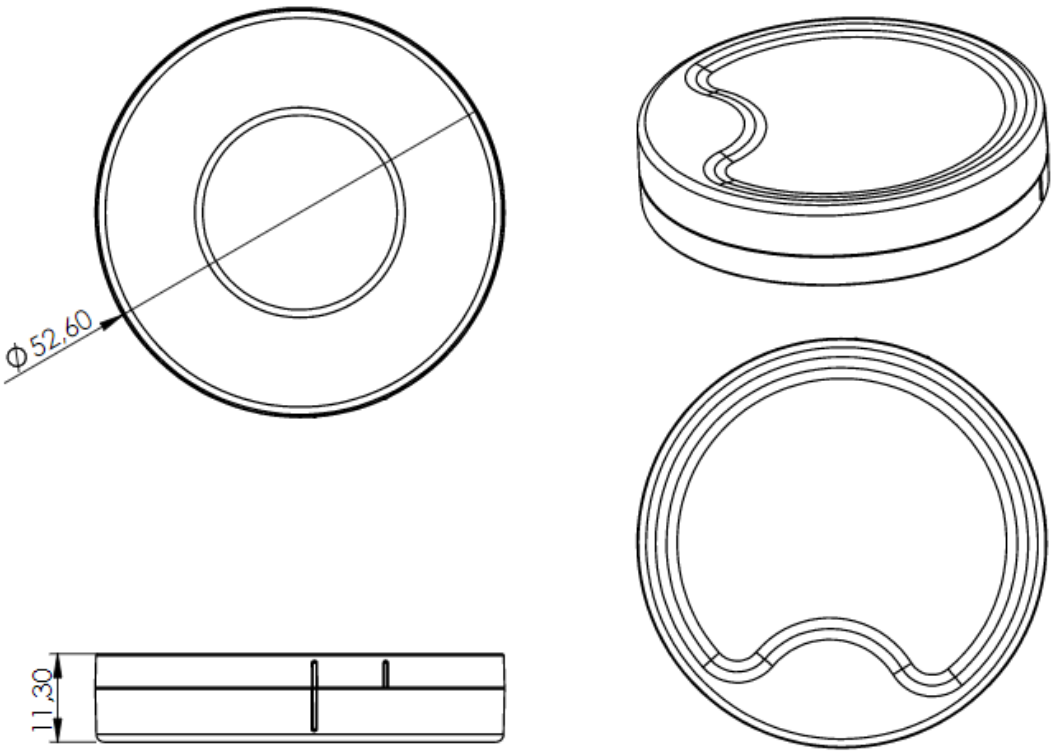
1. Specifications

This section contains electrical, mechanical and software specifications for iBKS105

Dimensions	Ø52.6 x 11.3 mm	**Case material**	ABS
Weight	24g	**Case finish**	Matte white
Core	Nordic nRF51822	**Fixing method**	Double side sticker
Radio Protocol	Bluetooth® Low Energy	**Operating Temperature**	-25 to +60ºC
Distance Range	Up to 50m	**Storage Temperature**	0 to +35ºC
Battery	Coin Cell CR2477 3V – 1000mAh	**Beacon Protocols**	iBeacon Eddystone: UID, URL, TLM & EID
Optional Sensors	Hall Accelerometer	**Firmware Update**	OTA (Over The Air)
Idle Current Consumption	2.4µA	**Certifications**	CE, FCC, Anatel

2. iBKS105 Mechanical Draws



All dimensions in mm

3. Battery Life Estimation

IMPORTANT:

Battery life estimation applies from firmware version EDSTEID V5.2016.06.29.1 onwards.

Notice all values shown in this chapter are just an estimation. Real battery life might differ depending on the environment where the iBKS105 is placed.

3.1 Estimation Scope

In order to estimate the battery life, the following configurable items have been considered:

- Number of slots enabled
- Type of slot: iBeacon or Eddystone (UID, URL, TLM and EID)
- TX power defined for each slot
- Advertising period defined for each slot
- Beacon mode: connectable or non-connectable.

3.2 Common Use Cases

The common use cases shown in the table have been estimated under the following conditions:

- All the slots enabled advertise at the same TX power.
- All the slots enabled, except Eddystone Telemetry (TLM), have the same advertising period: 950ms.
- The advertising period for Eddystone TLM is set to 60s.
- The iBKS is in always non-connectable mode.
- EID Rotation Period (K) is set to 10 which means that every 17 minutes approximately a new ephemeral ID is calculated.

- The Battery Capacity used is 1000mAh.

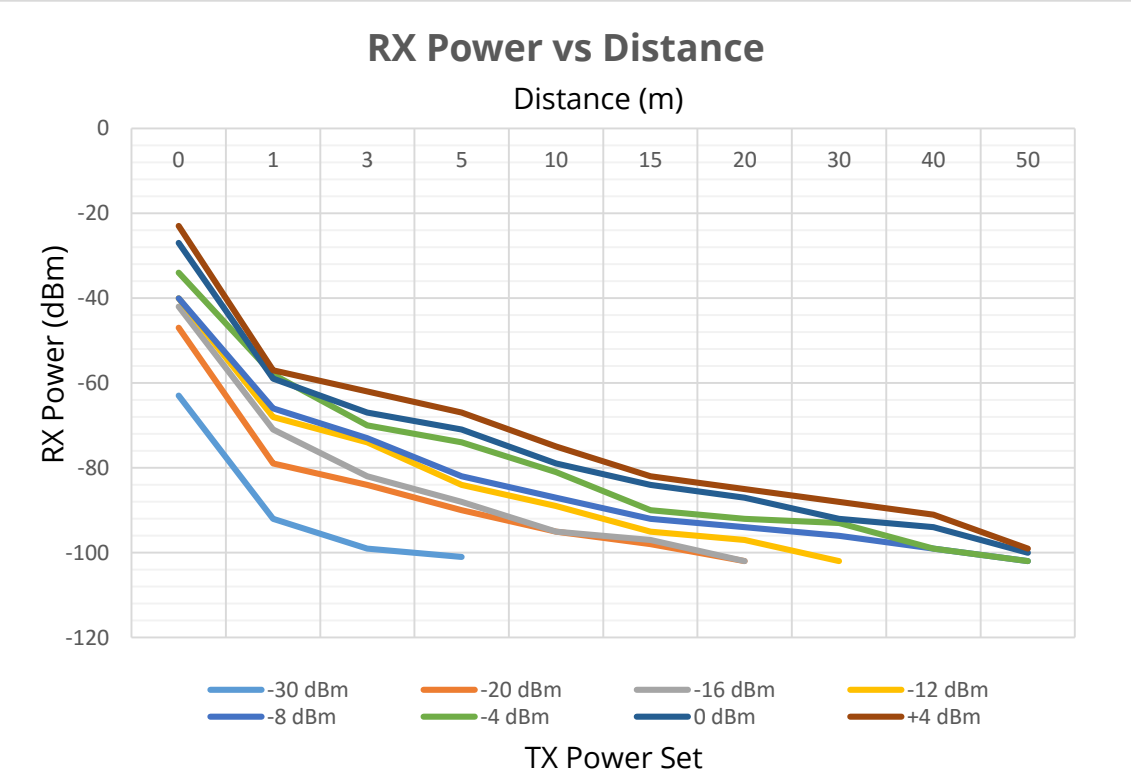
Slots Enabled	Tx Power (dBm)							
	-30	-20	-16	-12	-8	-4	0	+4
iBeacon	78	77	75	73	69	65	58	45
UID Eddystone	76	75	73	70	67	63	56	43
URL Eddystone	76	75	73	70	67	63	56	43
EID Eddystone	82	81	79	77	73	69	62	49
iBeacon TLM Eddystone	61	60	59	57	55	53	48	38
iBeacon URL Eddystone	32	32	31	30	29	27	25	19
UID Eddystone TLM Eddystone	59	59	57	56	54	51	46	37
UID Eddystone URL Eddystone	32	31	31	30	28	27	24	19
URL Eddystone TLM Eddystone	59	59	57	56	54	51	46	37
EID Eddystone URL Eddystone	33	32	32	31	29	28	25	20
EID Eddystone TLM Eddystone	63	62	61	60	58	55	50	41
iBeacon URL Eddystone TLM Eddystone	32	31	31	30	29	27	24	19
UID Eddystone URL Eddystone TLM Eddystone	31	31	30	29	28	27	24	19
EID Eddystone URL Eddystone TLM Eddystone	32	32	31	30	29	28	25	20

Notes: Battery Life in months. Battery Capacity: 1000mAh

4. RX Power (dBm) vs Distance

The following table and graph show the RX power received (dBm) in comparison with distance (m) for all configurable TX powers.

Distance (m)	TX Power (dBm)							
	-30	-20	-16	-12	-8	-4	0	+4
0	-63	-47	-42	-40	-40	-34	-27	-23
1	-92	-79	-71	-68	-66	-58	-59	-57
3	-99	-84	-82	-74	-73	-70	-67	-62
5	-101	-90	-88	-84	-82	-74	-71	-67
10		-95	-95	-89	-87	-81	-79	-75
15		-98	-97	-95	-92	-90	-84	-82
20		-102	-102	-97	-94	-92	-87	-85
30				-102	-96	-93	-92	-88
40					-99	-99	-94	-91
50					-102	-102	-100	-99



IMPORTANT:

This chapter applies from firmware version EDSTEID V5.2016.06.29.1 onwards.

Notice all values shown in this chapter have been tested in an open field of a city. Depending on the environment where the iBKS105 is placed these values might differ.

Revision History

The following revision history table summarizes changes contained in this document.

Revision Number	Revision Date	Description of Changes
Rev 0	10/2015	Initial Release
Rev 1	08/2016	• Design changed • Specifications updated • Added mechanical draws • Added battery life estimation • Added RX Power vs Distance

Bluetooth® SMART iBeacon Eddystone

accent systems

www.accent-systems.com

Accent Systems

Office
Avda. Francesc Macia 46-50, 7th Floor
08208 Sabadell
Barcelona - Spain

Factory
Terra Alta, 1-3 (Pol. Ind. Can Carner)
08211 Castellar del Vallès
Barcelona - Spain