

# 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 2 | September 2016**

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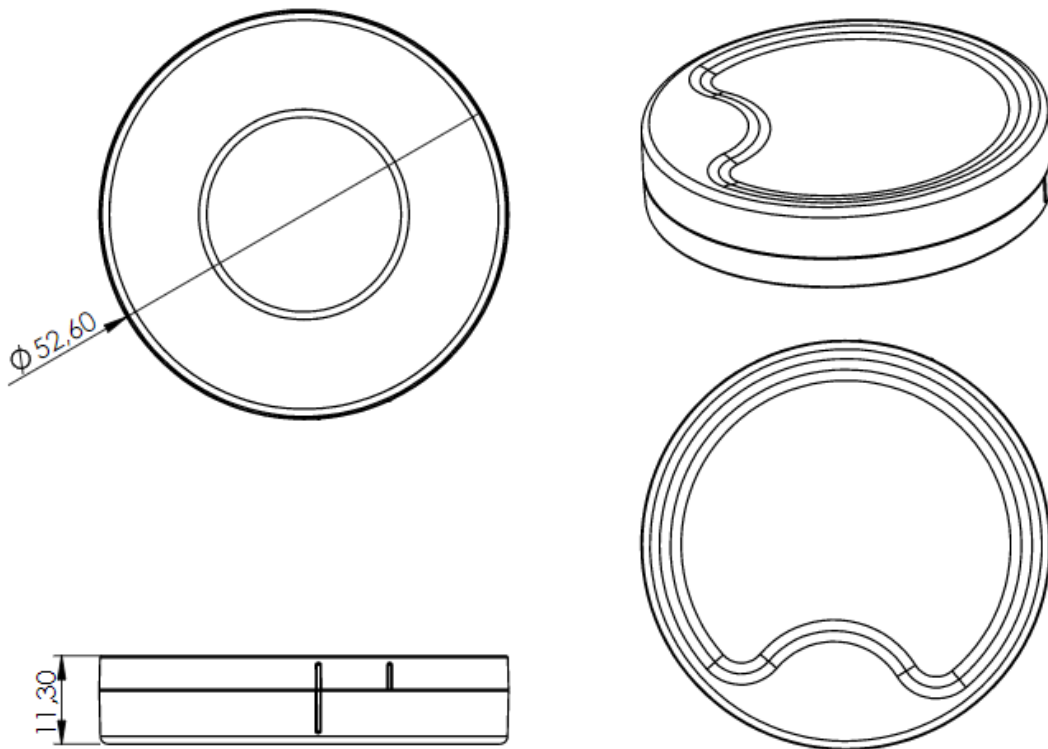
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## 1. Specifications

This section contains electrical, mechanical and software specifications for iBKS105

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

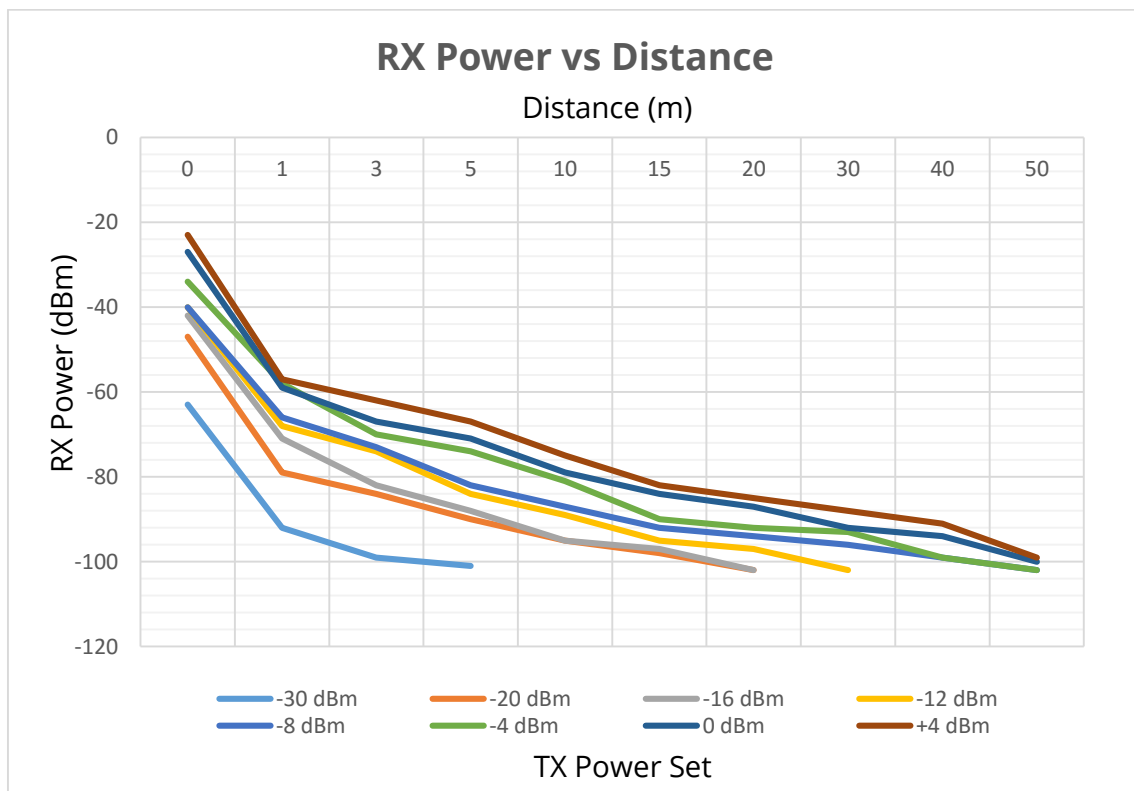
Slots Enabled	Tx Power (dBm)							
	-30	-20	-16	-12	-8	-4	0	+4
 iBeacon	46	46	45	44	43	41	38	31
 UID Eddystone	45	45	44	43	42	40	37	31
 URL Eddystone	45	45	44	43	42	40	37	31
 EID Eddystone	48	48	47	46	45	44	41	34
  TLM Eddystone	39	39	39	38	37	36	33	28
  URL Eddystone	25	24	24	23	22	22	20	16
 UID  TLM Eddystone Eddystone	39	38	38	37	36	35	32	27
 UID  URL Eddystone Eddystone	24	24	24	23	22	21	19	16
 URL  TLM Eddystone Eddystone	39	38	38	37	36	35	32	27
 EID  URL Eddystone Eddystone	25	25	24	24	23	22	20	17
 EID  TLM Eddystone Eddystone	41	41	40	39	39	37	35	30
  URL Eddystone	24	24	24	23	22	21	20	16
 TLM Eddystone								
 UID  URL Eddystone Eddystone	24	24	23	23	22	21	19	16
 TLM Eddystone								
 EID  URL Eddystone Eddystone	25	25	24	24	23	22	20	17
 TLM Eddystone								

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	<ul style="list-style-type: none"><li>☉ Design changed</li><li>☉ Specifications updated</li><li>☉ Added mechanical draws</li><li>☉ Added battery life estimation</li><li>☉ Added RX Power vs Distance</li></ul>
<b>Rev 2</b>	09/2016	<ul style="list-style-type: none"><li>☉ Battery life estimation values updated</li></ul>



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