

H5-BeaconX Pro Datasheet



MOKO TECHNOLOGY LIMITED

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1. Description

The H5-BeaconX Pro is a portable tag with **RFID**^① and **3-axis accelerometer sensor**^②, which can advertise iBeacon, Eddystone and Sensor datas.

It has a compact and thin structure design, accurate hardware and robust firmware, which can be used for employee attendance, access control, identity identification, location tracking, etc, and can realize remote cloud data management.

All parameters of H5-BeaconX Pro can be modified, and all sensor data can be checked to meet different application requirements. Please check out our BeaconX Pro app, available for iOS and Android.

① 3-axis accelerometer Sensor: STMicroelectronics® LIS3DH. ② RFID: NXP® MIFARE Plus® EV1 2k 7b.

2. Features

Firmware and chipset

- Programmed MOKO standard MkBeaconX firmware;
 - Ultra-low power consumption chipset NORDIC® nRF52 series with 32 bit ARM® Cortex-M4 CPU.
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Compatibility

- Compatible with **Apple iBeacon** and **Google Eddystone**; Compatible
 - with standard Eddystone Configuration GATT Service;
 - Compatible with all Bluetooth® 5.2 devices.
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Replaceable Battery and Battery Level

- High quality replaceable CR3032 coin battery(500mAh);
 - Up to 2 years battery lifetime (at default settings);
 - Easy to get the real-time battery level notification.
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Configurable SLOTS and parameters

- Up to 6 configurable SLOTS;
 - Each SLOT can be set to iBeacon, UID, URL, TLM, Device Info and 3-axis Sensor data;
 - Device Name, Password, Connection Mode, Advertising Interval, Tx Power and 3-axis Sensor Parameters all are configurable;
 - Special Configuration APP (**BeaconX Pro**), available for iOS and Android.
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Flexible sensor function

- 3-axis accelerometer has dynamically user-selectable full scales of $\pm 2g/\pm 4g/\pm 8g/\pm 16g$ and the parameter is configurable ;
 - 3-axis accelerometer is capable of measuring accelerations with output data rates from 1 Hz to 100 Hz and the parameter is configurable;
 - User can get the raw data of the 3-axis sensor sampling data from the device in real time.
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Trigger function

- H5-BeaconX Pro Supports button trigger and motion trigger;
 - Control the device to start advertising all the time, stop advertising, or advertise for a while.
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Transmission Power Levels

- 9 adjustable grades;
 - Transmission power range: -40dBm to +0.71dBm.
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Long Range

- The max. Up to 120m without RFID, up to 80m with RFID.
- The range depends on the physical environment.

Security

- Configurable password (1-16 characters);
- With or without password (Lock/Unlock parameters);
- AES-128-ECB. encrypt.

Connection Mode

- Advertising mode, non-connectable;
- Configuration mode, connectable.

Custom made mounting

- Keychain / neck chain;
- Logo and color customizable;
- **RFID customizable;**
- **NFC customizable;**
- Provided with your own configuration.

OTA and DFU

- Supported upgrade via Over-The-Air;
- Nordic® official Device Firmware Upgrade(DFU);
- Reserved J-Link port on the board for programming.

3. Physical Characteristics

Item	Value	Remarks
Case Color	White	Other colors can be customized
Main Material	ABS	-
Battery Model	CR3032	Coin battery, 1pc, 500mAh
Battery Lifetime	Up to 2 years	At default settings ^② and without selfdischarge factor
Operation Voltage	1.8~3.6V	DC
Waterproof Level	IP65	-
Average Current	23.18uA	At default settings ^③
Transmission Range	120m(+4dBm,With RFID distance up to 80m)	Maximum, in the open space
Antenna	50ohm	Ceramic Antenna

Size	65.38mm×42.98mm×5.7mm	Refer to Dimensions for details
Net Weight	pending upgrade	With battery
Operating Temperature	-25 to +75°C	-
Storage Temperature	-5 to +35°C	-
RFID sensing distance	Under the sensing distance of the card reader, the maximum can reach about 40mm, and the sensing distance of the mobile phone can reach about 5mm.	The distance depends on the model and sense of the reader and the model of the mobile phone.

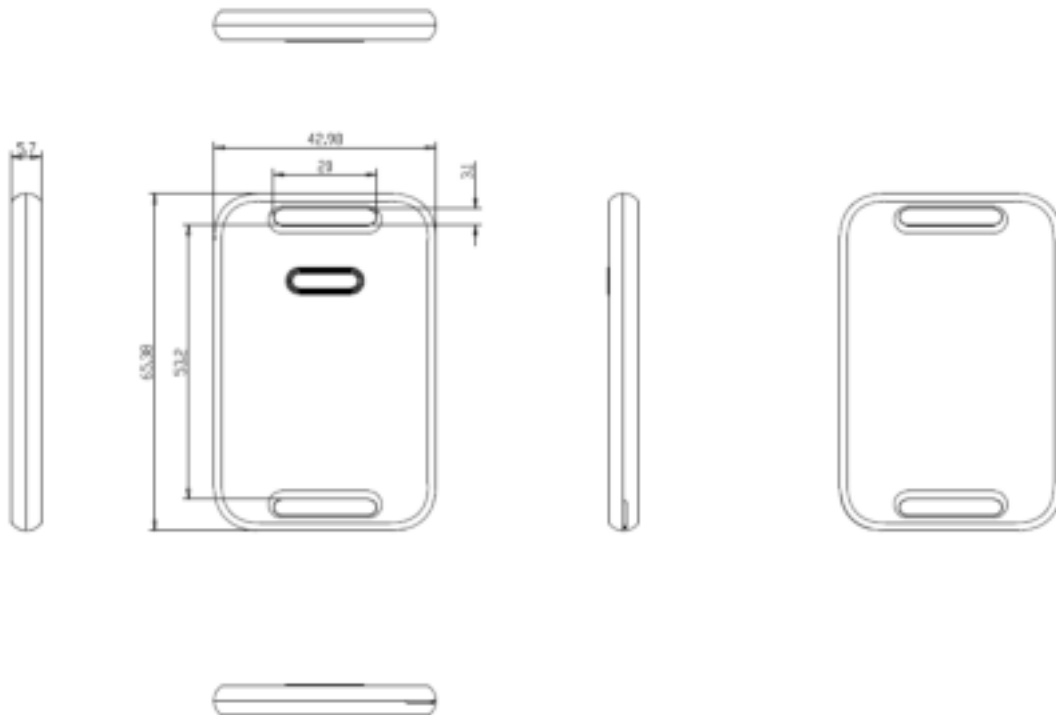
②③ Default setting: 1 Active SLOT(Device Info), 0dBm TX power and 1000ms Advertising Interval.

4. Configurable Parameters

Item	Value	Default Setting	Range and Remarks
iBeacon	UUID	-	16bytes
	Major	-	0~65535
	Minor	-	0~65535
UID	Namespace	-	10bytes
	Instance ID	-	6bytes
URL	Encoded Scheme Prefix	-	4types: http://www. https://www. http:// https://
	Encoded URL	-	2-17 bytes
TLM	-	-	TLM shows only one in the broadcast.
Device Name	-	BeaconX Pro	Up to 20 characters
Advertising Interval	-	1000ms	100~10000ms, Unit:100ms
Tx Power	-	0dBm	-40dBm to 0.71dBm, 9 adjustable grades
Password	-	Moko4321	1-16 characters or NO password
Connection Mode	-	Connectable	Connectable/Unconnectable
Trigger	1.Button double tap	-	Always advertise
			Start advertising for a while (1~65535s)
			Stop advertising for a while (1~65535s)
	2.Button triple tap	-	Always advertise
			Start advertising for a while (1~65535s)
			Stop advertising for a while (1~65535s)
	3.Device moves	-	Always advertise
			Start advertising after a static period time (1~65535s)

			Stop advertising after a static period time (1~65535s)
3-axis accelerometer Sensor	Scale	±2g	±2g, ±4g, ±8g, ±16g
	Output data rate	10 Hz	1 Hz, 10 Hz, 25 Hz, 50 Hz, 100 Hz
	Sensitivity	7	7 to 255

5. Dimensions



**All units is mm **

6.FCC STATEMENT

1. 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. (2) This device must accept any interference received, including interference that may cause undesired operation.
2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: 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: 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.

FCC Radiation Exposure Statement This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 5mm between the radiator & your body

7. Technical support

Item	File Name	Link
Configure APP for IOS&Android	BeaconX Pro	--
User Manual	BeaconX Pro User Manual	http://doc.mokotechnology.com/index.php?s=/page/56
SDK for Android APP	--	https://github.com/BeaconX-Pro/Android-SDK
SDK for iOS APP	--	https://github.com/BeaconX-Pro/iOS-SDK
Power Consumption Test	--	http://doc.mokotechnology.com/index.php?s=/page/85
NXP®MIFARE Plus® EV1	Datasheet	https://www.nxp.com.cn/docs/en/data-sheet/MF1P_H_X1Y1_SDS.pdf
NXP®MIFARE Plus® EV1	--	https://www.mifare.net/zh/%E4%BA%A7%E5%93%81/%E8%8A%AF%E7%89%87%E5%8D%A1ic/mifare-plus%E7%B3%BB%E5%88%97/mifare-plus-ev1/

8. Declaration

The contents of this datasheet are subject to change without prior notice for further improvement. MOKO team reserves all the rights for the final explanation. Please contact MOKO sales team or visit <https://www.mokosmart.com> to get more related information if needed.

9. Contact Information

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Revision History

Revision	Description	Approved	Date
V1.0	Initial Release	Hannah	2020.07