



MOKO SMART



Product Specification

H8 Series

Version 1.0



MOKO TECHNOLOGY LTD.

Revision History

Version	Data	Notes	Contributor(s)
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About document

This **product specification** was designed to help users to know the hardware overview and feature instructions of **H8 Series Products**. Through this document, users will be initial to understand the application scenarios, hardware specifications, as well as basic instructions of product.

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1. Overview

This *Product specification* is mainly applicable for MOKO **H8 Series Products**, and mainly contained below parts:

- [Product brief](#)
- [General specifications](#)
- [Basic instructions](#)

For more information about user guidance of product functions and configuration APP, please contact our sales team directly for official document.

2. Product brief

The **H8 Series Products** have two different models, **H8** and **H8C**, which are all compatible with Bluetooth® 5.0 standard and designed to give user ability to send different SOS advertisement alert to gateway node or center control by simply pressing the SOS button. In addition, H8 and H8C all support optional RFID functionality for access control and attendance management, as well as a vibration motor. With these advanced solutions, it can be widely applied in hotel, schools, or hospitals.

The main difference between the H8 and H8C is that the H8C supports magnetic charging, while the H8 uses a replaceable coin cell battery. Additionally, the H8C supports optional vibration motor and alarm event record functions. For detailed specifications, please refer to Section 3.

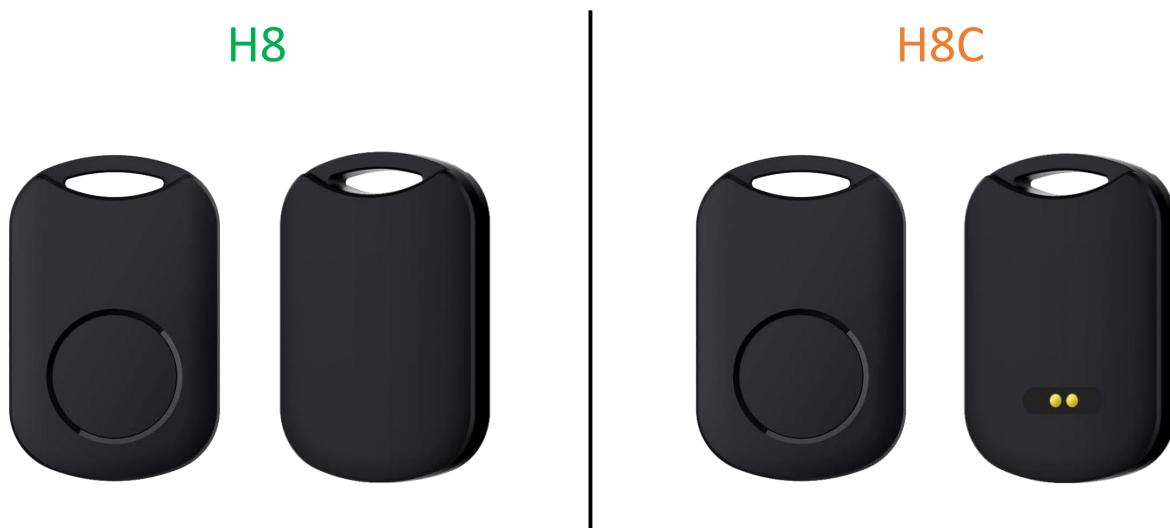


Figure 1: Appearance overview of H8 Series

3. General specifications

3.1 Hardware specifications

General specifications of H8 Series			
Item	Specs	H8	H8C
Physical	Dimensions(L*W*H)	56.0*36.0*7.3mm	56.0*36.0*7.7mm
	IP rated	IP65	IP67
	Color	Black	
	Installation	Lanyard	
	Material	ABS	
Connectivity	Bluetooth	BLE 5.0	
	Maximum Tx power	+4dBm	
	Transmission range*	150m	
Hardware	Chip model	Nordic 52810	Nordic 52832
	Accelerometer Sensor	Optional	
	Buzzer	Yes (65dB)	
	Vibration motor	Not support	Optional
	LED	1*monochromatic red LED	1*RGB LED
	Battery capacity	220mAh	80mAh
	Battery Rechargeable	No	Yes (Charging time is about 50 minutes)
	Battery Replaceable	Yes	Yes
	Lifespan (default settings*)	● Advertising mode*: 15 months ● Long connection mode*: 13 months	● Advertising mode*: 4 months/charge ● Long connection mode*: 3 months/charge
	Operation temperature	-20°C / + 60°C	
Functionality	Vibration motor notification	Not support	Yes
	Alarm event record	Not support	Yes (500 per group)
Regulatory	Certifications	FCC / CE / RoHS / REACH	

Table 1: Hardware specifications of H8 Series

Transmission range*: Tested in the open area and no obstacles in the route.

Advertising mode*: Refers to the configuration of channel parameters for broadcasting in a non-connected state and the parameter settings related to alarm events, which are different from the parameters in long connection mode.

Long connection mode*: Refers to the parameter settings related to alarm events and event monitoring display in a long connection state. To ensure the beacon can be connected, you need to make sure that at least one slot is enabled in Advertising Mode setting, allowing the device to continue broadcasting while in a non-connected state

Default setting*: The H8 Series lifetime estimated based on standard working mode under 25°C conditions.

(0dBm Tx Power | 1000ms ADV interval | No Accelerometer Sensor)

3.2 Lifecycle estimation

Please refer to documents – “**MOKO Beacon_Battery Lifecycle summary**” for more details on battery lifecycle.

3.3 LED functionality

Here we have described the LED response status in some common situations.

Scenarios	LED response status		Response
	LED color H8	LED color H8C	
Power ON	Red	Green	Blinking for 3 seconds
Device full charged	-	Green	Solid (only H8C support)
Device connect	Red	Green	Blinking for 400ms
Power OFF	Red	Red	Solid for 3 seconds
Hardware reset	Red	Red	Solid for 3 seconds and then device reboot
Software reset	Red	Red	Solid for 3 seconds and then device reboot
DFU upgrade	Red	Red	Blinking during DFU upgrade, and solid for 3 seconds after done
Low battery	Red	Red	Blinking twice every 10 seconds
LED notification	Red	Blue	Customized notification mechanism
Remote reminder	Red	Blue	Customized notification mechanism

Table 2: LED response status in various situations

Remark: For **H8C**, The color of the indicator LED corresponding to the function supports switching through the protocol. If you have related requirements, please contact our sales team to get the relevant protocol document.

4. Basic instructions

4.1 How to power ON/OFF device?

Power ON: Long press the Alarm button, hold on for 3 seconds and then LED will **keep blinking** for 3 seconds to indicate device power on status.

Power OFF: The device does not support power-off via the button, but it can be powered off through software. You need to connect to the device via the APP and execute the “Turn off Beacon” operation to finish the software power-off.

4.2 How to check battery status?

You can check the battery status of H8 Series product by single press the alarm button, and refer to below response to understand the battery status:

- **Remaining battery percentage > 60%:** Green LED blinking for 1 time.
- **20 ≥ Remaining battery percentage ≥ 60%:** Blue LED blinking for 1 time.
- **Remaining battery percentage < 20%:** Red LED blinking for 1 time.

4.3 How to restore factory settings?

There have two ways to restore factory settings.

- **Software reset:** Connect with device through configuration APP and then execute “Reset Beacon” operations to finish the software reset.
- **Hardware reset:** Long press the back button for 10s or more, then release button and single press back button again within 2s, then device will proceed on factory reset, along with the LED solid for 3 seconds. At last, Device will reboot and LED start flashing for 3 seconds to indicate the factory reset success.



Figure 2: How to reset H8 Series Products?

Remark:

1. Software reset won't reset connection password.
2. The hardware factory reset feature is disabled by default. If you need this function, you can enable it through the APP.

4.4 How to parse button trigger event?

Before reading this chapter, it is recommended to contact our sales team to obtain the document -- **"MOKO BUTTON APP User manual V1.2"** for a detailed understanding of the broadcast formats supported by the device and the meaning of various channel configuration parameters supported by the device.

➤ Advertising mode

If you want to parse the button trigger events in the advertising mode, it is recommended to enable the channel's **"Alarm mode"** and **"Stay advertising before trigger"** function. This allows the device to broadcast both before and after a button event occurs. To distinguish whether the button event has occurred, **you can determine it through the relevant bytes in the broadcast format**. The methods for determining different broadcast types are as follows:

- **Alarm info:** Bit1 of the Byte8 in the Alarm info frame in the broadcast format.

Byte offset	Field	Example Value	Description
0	Data length	0x02	ADV length of "Flags" content
1	Data type	0x01	ADV type: Flags
2	Advertising type	0x06	BR/EDR not supported / LE general discoverable mode
3	Data length	0x0C	ADV length of "Service Data" content
4	Data type	0x16	ADV type: Service Data
05-06	16bit Service UUID	0xE0 FE	MOKO-Defined UUIDs (little endian)
7	Frame type	0x21	MOKO-Defined advertisement frame type; 0x20: "Single press mode" advertisement 0x21: "Double press mode" advertisement 0x22: "Long press mode" advertisement 0x23: "Abnormal inactivity mode" advertisement 0x24 – 0x3F: RFU
8	Status flag	0x01	Bit 0: Password verification status. 0:Password verification disabled; 1: Password verification enabled Bit 1: Trigger status of alarm mode. 0: Alarm not be triggered. 1: Alarm be triggered. Bit 2 - Bit 7: Reserved for future use.

- **iBeacon:** The broadcast parameters after the trigger will automatically increment the first byte of the iBeacon UUID parameter you configured by 1.

iBeacon parameters		Before the button trigger event occurs	After the button trigger event occurs
UUID	01 BBCCDD-AABB-CCDD-AABB-CCDDAABBCCDD	01 BBCCDD-AABB-CCDD-AABB-CCDDAABBCCDD	02 BBCCDD-AABB-CCDD-AABB-CCDDAABBCCDD
Major	1	1	1
Minor	1	1	1

- **Eddystone-UID:** After the button trigger event, the last two bytes of the Eddystone-UID broadcast frame will be **0x00 01**. Before the button trigger event, the last two bytes of the Eddystone-UID broadcast frame is **0x00 00**.

Byte offset	Field	Example Value	Description
0	Data length	0x02	AD length of Flags content
1	Data type	0x01	AD type: Flags
2	Advertising type	0x06	BR/EDR not supported / LE general discoverable mode
3	Data length	0x03	AD length of Complete List content
4	Data type	0x03	AD type: Complete List of 16-bit Service Class UUIDs
05-06	Service UUID	0xAA FE	Google Eddystone UUIDs
7	Data length	0x17	AD length of Service Data content
8	Data Type	0x16	AD type: Service Data
09-10	Service UUID	0xAA FE	Google Eddystone UUIDs
11	Frame type	0x00	Google Eddystone frame type, 0x00: UID
12	RSSI@0m	0x00	Calibrated Tx power at 0 m, defined by user
13-22	Namespace ID	0x01 02 03 04 05 06 07 08 09 0A	10-bytes Namespace ID, defined by user
23-28	Instance ID	0x10 20 30 40 50 60	6-bytes Instance ID, defined by user
29-30	RFU	0x00 00	2-bytes reserved for future use, must be 0x00 00

➤ **Long connection mode**

When the host device (such as a smartphone or gateway) maintains a long connection with the H8 Series device, you can monitor button events in real-time and get button event history record through the service characteristics of the H8 Series device. For the detailed communication protocol, please contact our sales team to obtain the relevant protocol documentation.

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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.

RF warning statement:

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

Contact

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