LW013-SB User Guide

Version 1.0

MOKO TECHNOLOGY LTD.

Content

1 Product Introduction

1.1 Overview

LW013-SB is a smart button used to quickly trigger an alarm or help signal in an emergency. Using advanced battery management technology and good power consumption control, it can achieve ultra-long battery life.

LW013-SB is suitable for security protection, medical assistance, public facilities and other fields. And it can customize three types of alarms for different scenarios.
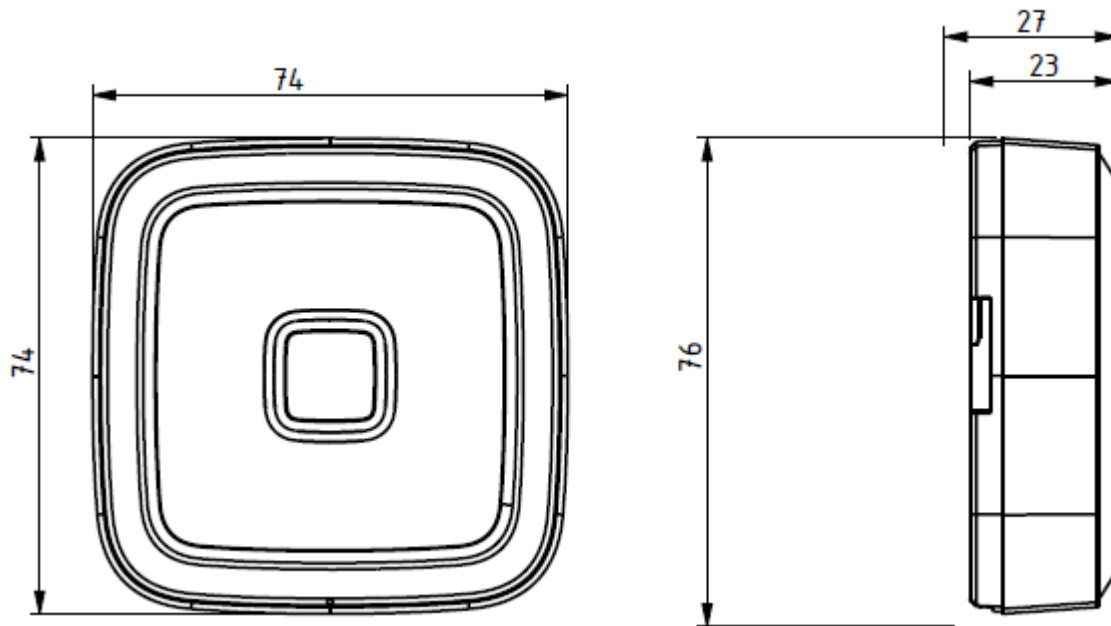
1.2 Key Feature

- ➢ Powerful buzzer
- ➢ Long wireless transmission distance
- ➢ Multiple alarm level can be self-defined
- ➢ IP67 rating
- ➢ Ultra long lifespan

# 2 Product specification

2.1 Appearance

2.2 Dimensions

2.3 LED Indicators

There is 3 LED indicator for LW012-CT to indicator the device status.

Status Type	Status	LED	Button Operation
Power status	Power on	Solid green 3s	/
	Power off	Flash green 3s	/
	Low power	Flash green 500ms every 10s	/
Bluetooth broadcast status	Bluetooth broadcasting	Flash green slowly	/
LoRaWan status	LoRaWAN network connected	Solid white 3s	/
	LoRaWAN connecting	Flash white 1s quickly	/
	Linkcheck	Flash white 3s	/
Alarm status	Alarm is triggered	Flash red quickly	Press the alarm button
	Exit alarm	Solid red 1s, then solid green 1s, then solid blue 1s	/
OTA status	OTA in process	Flash blue slowly	
	OTA success	Solid blue 3s	
	OTA fail	Flash blue quickly 3s	

| Reset status | Factory reset | Flash yellow slowly 5s | |
| Self-inspection status | Self-inspection fail | Solid red | |

3 Packing List

LW013
Individual packaging

3M adhesive pad
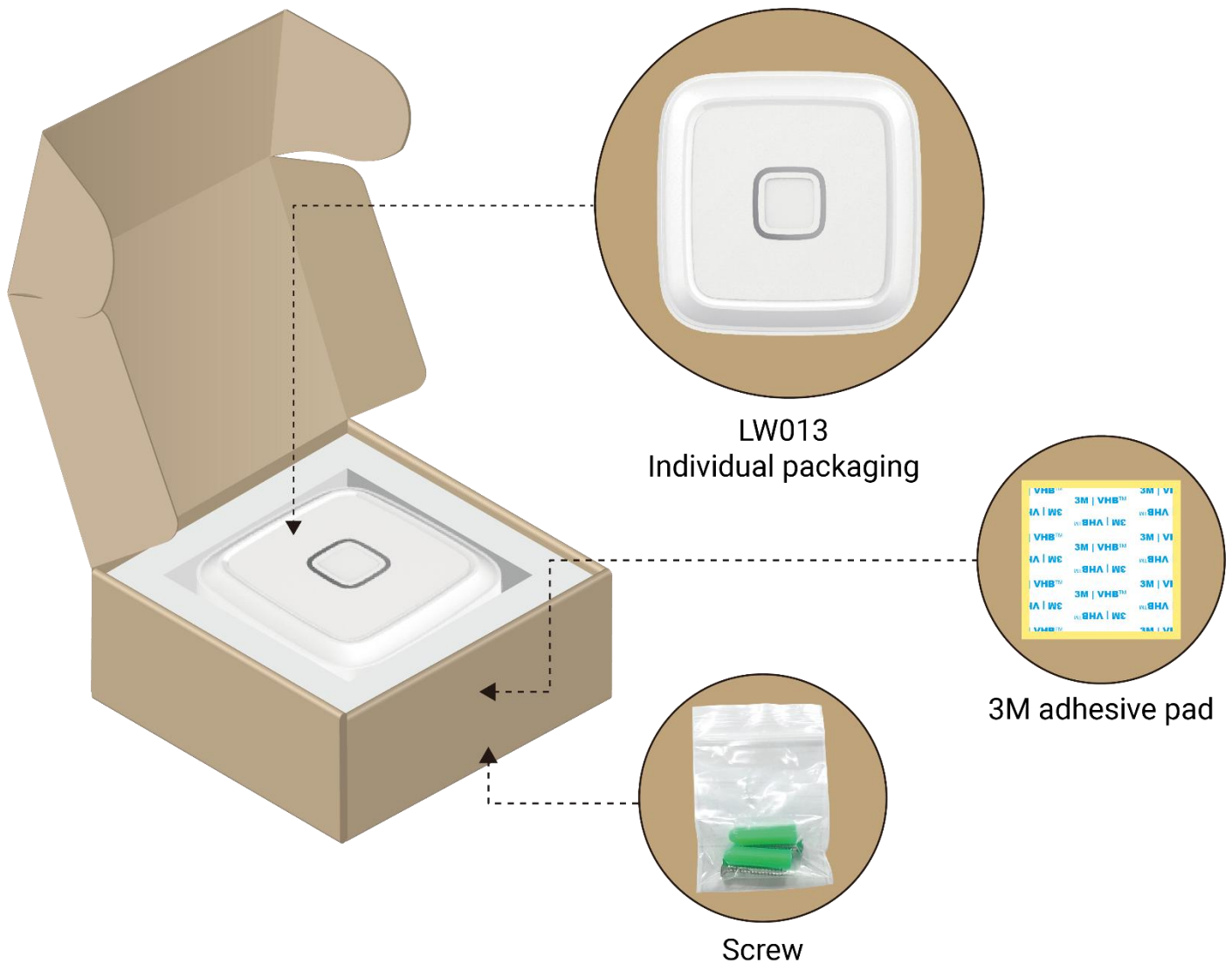
Screw

Standard Packing List

No.	Description	Quantity
1	LW013 individual packing	1
2	Screw	2
3	3M adhesive pad	1

4 Access to the device

4.1 Power On/Off

➢ **Power On:** magnet continuously approach magnetic area for 3s.
➢ **Power Off:** There are 3 ways to power off the device.
◇ 1. Power off the device via MKLoRa APP.
◇ 2. Power off the device via LoRaWAN downlink command.
◇ 3. Power off the device via magnet continuously contact magnetic area for 3s

5.2 Enable Bluetooth Connect Function

The device can make a Bluetooth broadcast and can be connected in the following three cases.

◇ Within the first N minutes after the device is turned back on.
◇ LoRaWAN server sends LoRa command to turn on Bluetooth broadcast for N minutes.

Note: N is the broadcast timeout duration which can be set via MKLoRa APP, the unit is s, can be configured by the user. If the device is successfully connected and then disconnected, the broadcast timeout will be refreshed, and the user can choose to establish Bluetooth connection with the device again within this time.

6 APP Configuration Guide

6.1 Connect to APP

Please download "MKLoRa" APP from app store directly. Please allow Bluetooth to be enabled during the installation process. This APP communicates with the device via Bluetooth, and it only supports above android 4.4 and IOS 9.0 system.
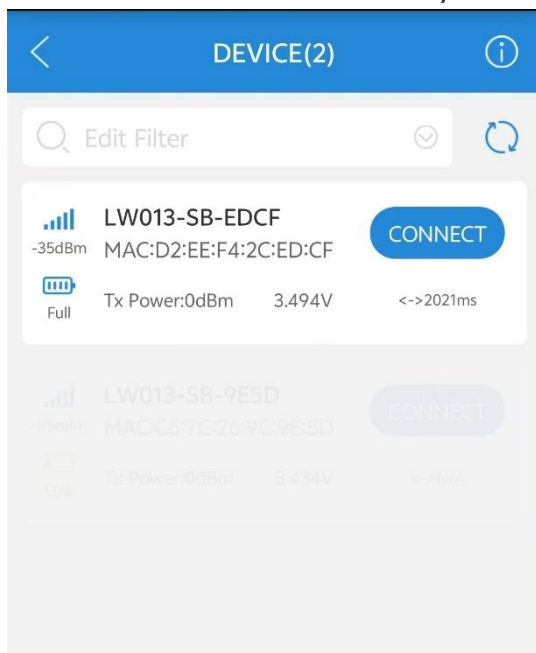
After the device is turned on, the device Bluetooth will start broadcasting. Open the MKLoRa APP and choose LW013-SB, then you can search the LW013-SB device by click the refresh icon. The default broadcast name of the device: LW013-SB -XXXX.
Then click "Connect" button, the default login password is Moko4321.
The Edit Filter at the top can help user filter the keywords and RSSI. RSSI ranges from -127dBm to 0dBm;

6.2 Configure LW013-SB Parameters

6.2.1 LORA Parameters
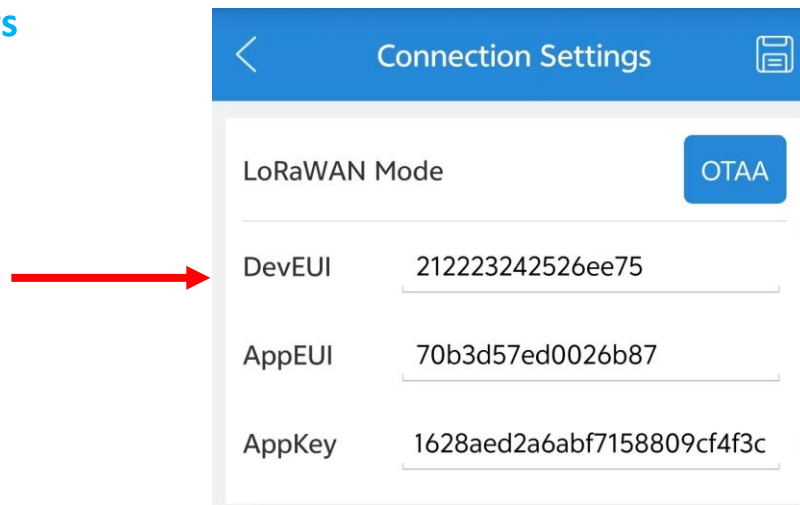
Configure/Read the LoRaWAN mode and
the key parameters, such as DevEUI, AppEUI
and AppKey.
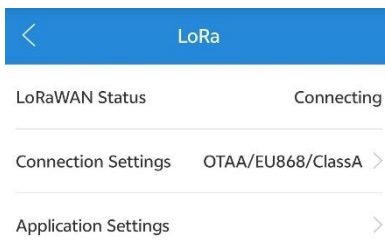
6.2.2 General Parameters

Function Switch: enable/disable alarm 1

Buzzer when alarm is triggered: can be set as no/normal/alarm

Report interval: alarm payload report interval when alarm is triggered

Exit alarm by button: enable/disable the function to exit alarm by button

Exit alarm type: long press button duration to exit

6.2.4 Device Parameters

Current Time Zone: Selection of the time zone in which the current device is located.
The value ranges from UTC-12 to UTC-12. The default time zone is UTC.

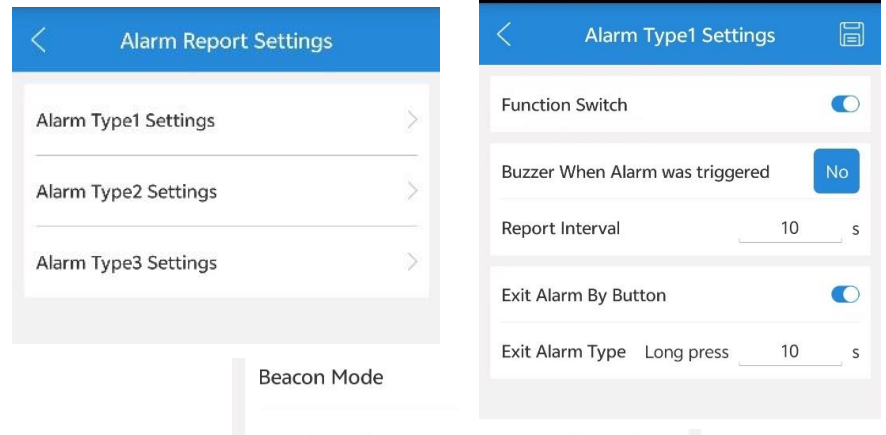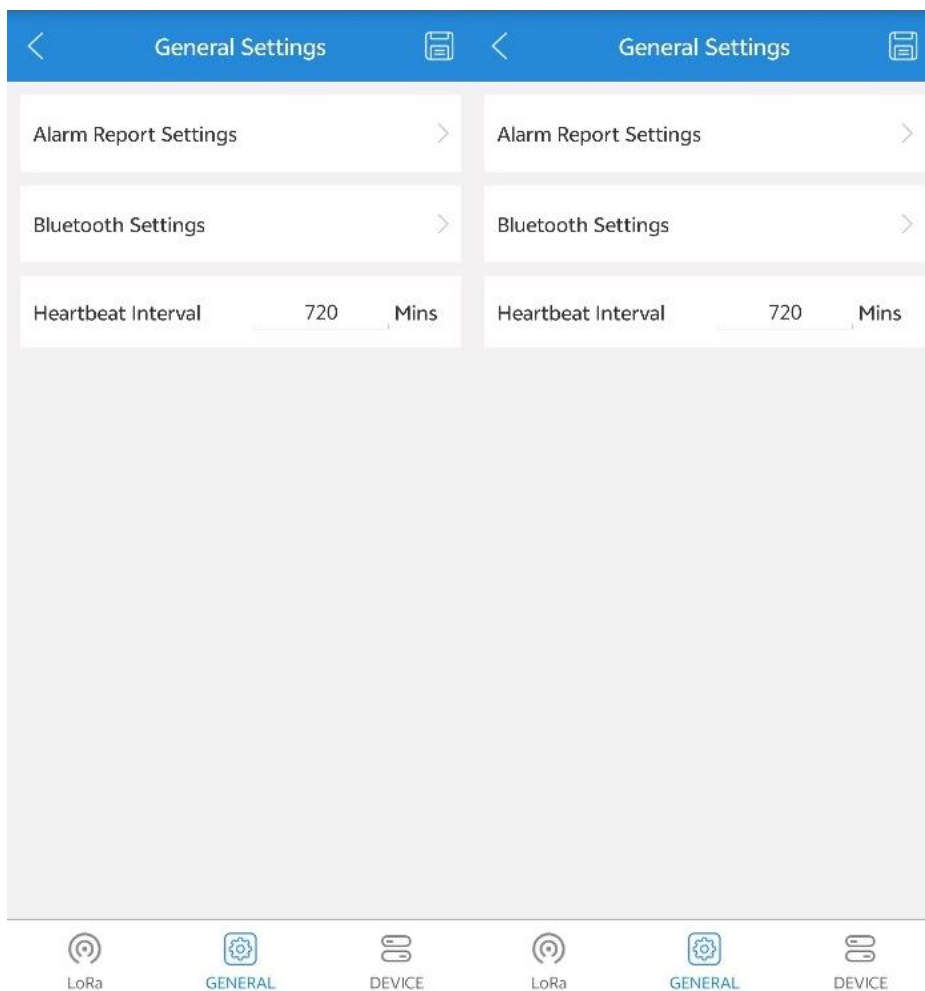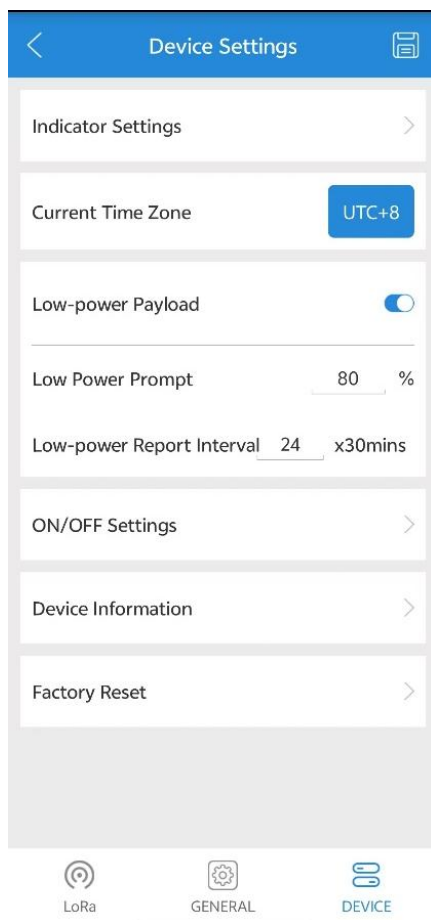**Low Power Prompt:** The default is 80%. It can be set 30~99%

Low-power Payload: Whether to report heartbeat payload when the battery level is low. The default is off.

Low-power Report Interval: the interval to send low power payload

Factory Reset: User can use the APP to reset the device.

*Note: for more APP configuration details, pls refer to **MKLoRa APP guide**.*

7 Communication Protocol

7.1 Uplink Payload

7.1.1 Heartbeat Payload

Heartbeat Payload will be sent in Port (Fport) 1.

Byte Index	Data Type	Remake
Byte 0~4	Timestamp+timezone	Byte 0~3: timestamp Byte 4: timezone
Byte 5	Temperature	
Byte 6~7	Voltage	Convert to decimal, unit is mV
Byte 8	Firmware version	Bit6~7: major version, 01 means V 1.x.x Bit4~5: sub-version, 02 means V X.2.X Bit0~3: Patch version, 0101 means V X.X.5 Example 1: If the data of FW version is 0x43, it means that the FW version is V1.0.3
Byte 9	Hardware version	Bit4~7: major version

		Bit0~3: patch version Example: If the data of HW version is 0x23, it means that the HW version is V2.3
Byte 10	Event type	0: no event triggered 1: event1 triggered 2: event2 triggered 3: event3 triggered

7.1.2 Alarm Payload (Port 2)

Alarm Payload will be sent in Port 2.

Byte Index	Data Type	Remake
Byte 0~4	Timestamp+timezone	Byte 0~3: timestamp Byte 4: timezone
Byte 5	Temperature	
Byte 6~7	Voltage	Convert to decimal, unit is mV
Byte 8	Event type	1: event1 triggered 2: event2 triggered 3: event3 triggered

7.1.3 Low power Payload (Port 3)

Heartbeat payload will be sent in Port (Fport) 3.

Byte Index	Data Type	Remake
Byte 0~4	Timestamp+timezone	Byte 0~3: timestamp Byte 4: timezone
Byte 5	Temperature	
Byte 6~7	Voltage	Convert to decimal, unit is mV
Byte 8	Percentage of battery consumption	1~99

7.1.4 Shutdown Payload (Port 4)

Lower power Payload will be sent in Port (Fport) 4.

Byte Index	Data Type	Remake
Byte 0~4	Timestamp+timezone	Byte 0~3: timestamp Byte 4: timezone
Byte 5	Temperature	
Byte 6~7	Voltage	Convert to decimal, unit is mV

Byte 8	Shutdown type	0： turn off via APP
		1: turn off via downlink command
		2: turn off via magnetic

7.1.5 Event Payload (Port 5)

Event Payload will be sent in Port 5.

Byte Index	Data Type	Remake
Byte 0~4	Timestamp+timezone	Byte 0~3: timestamp Byte 4: timezone
Byte 5	Temperature	
Byte 6~7	Voltage	Convert to decimal, unit is mV
Byte 8	Event type	0: downlink trigger

7.1.6 Power Consumption Payload (Port 6)

GPS extreme Payload will be sent in Port 6.

Byte Index	Data Type	Remake
Byte 0~3	device working time	Convert to decimal, the unit is second
Byte 4~7	Bluetooth broadcast times	Convert to decimal
Byte 8~11	red LED working time	Convert to decimal, the unit is second
Byte 12~15	green LED working time	Convert to decimal, the unit is second
Byte 16~19	blue LED working time	Convert to decimal, the unit is second
Byte 20~23	buzzer working in normal mode time	Convert to decimal, the unit is second
Byte 24~27	buzzer working in alarm mode time	Convert to decimal, the unit is second
Byte 28~31	event 1 trigger times	Convert to decimal
Byte 32~35	event 1 payload report times	Convert to decimal
Byte 36~39	event 2 trigger times	Convert to decimal
Byte 40~43	event 2 payload report times	Convert to decimal
Byte 44~47	event 2 trigger	Convert to decimal

	times		
Byte 48~51	event 2 payload report times	Convert to decimal	
Byte 52~55	LoRaWan uplink times	Convert to decimal	
Byte 56~59	LoRaWan send and receive power consumption	Convert to decimal, unit is mAS	
Byte 60~63	total power consumption	Convert to decimal, unit is mAH	

7.2 Downlink Command

LW013-SB supports to configure the device via downlink commands. Application port is 10 by default

7.2.1 Payload Format

The content of the downlink command consists of four parts: HEAD, CMD, LEN and DATA

Byte Index	Type	Content	Description
Byte 0	HEAD	0x00/01/02	00: control command 01: read parameters 02: write parameters
Byte 1-2	CMD	0x0000 ~ 0x00FF	Message ID. Each parameter has a unique ID
Byte 3	LEN	0x00 ~ 0XF0	The length of Command Data 0x00 means the "DATA" part is empty.
Byte 4 – XX	DATA	Maximum 240 bytes	Command Data The Command Data is available only if the instruction type is 0x01. Other instruction types don't have this part.

7.2.2 Common Downlink Command

HEAD	CMD	LEN	Description
00/01/02	00	/	Turn off the device
	11	/	Reboot the device
	06	/	Factory reset the device

08	/	Exit alarm status
09	/	Enter event 1 alarm status
0A	/	Enter event 2 alarm status
0B	/	Enter event 3 alarm status
00 22	2	Report interval of heartbeat payload
06 01	1	Event 1 buzzer switch
06 03	2	Event 1 report interval

Example:

1. Turn off the device

00 00	
HEAD	**CMD**
00	00

2. Set heartbeat interval as 100mins:

02 00 22 02 00 64			
HEAD	**CMD**	**LEN**	**DATA**
02	00 22	02	0064=>100s

3. Set event 1 buzzer switch as alarm mode

02 06 01 01 02			
HEAD	**CMD**	**LEN**	**DATA**
02	06 01	01	02=>alarm

4. Set event 1 report interval as 10s

02 06 03 02 00 0A			
HEAD	**CMD**	**LEN**	**DATA**
02	06 03	02	00 0A=>10s

*Note: For more downlink command, user can refer to **LW013-SB Downlink Command v1.0***

8 Revision History

Version	Description	Editor	Date
1.0	Initial version	Damon	2025-4-17

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.

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