Multisensor user manual

HKZW-MS08

Multisensor is a universal Z-Wave device. Along with detecting motion the device measures the temperature, humidity and luminance . It can communicate with associated Z-Wave devices, such as Siren, Smart Switch, etc.

Multisensor can be included and operated in any Z-Wave network with other Z-Wave certified devices from other manufacturers and/or other applications. All non-battery operated nodes within the network will act as repeaters regardless of vendor to increase reliability of the network.

Multisensor is also a security Z-Wave device and supports the Over The Air (OTA) feature for the product's firmware upgrade.

If you want your Multisensor to be a security device that use secure/encrypted message to communicate in a Z-Wave network, then a security enabled Z-Wave controller is needed.

The features list:
1) Z-Wave Plus certified for wide compatibility (500 serials product).
2) Measure temperature.
3) Measure luminance
4) Measure humidity.
5) Shock sensor.
6) The battery life is up to 2 years (default settings, motion detecting 20 times per day).
7) Low battery alarm.
8) Support firmware OTA.

## Ⅰ. Familiarize yourself with your Multisensor

1. Multisensor Layout

LED INDICATOR   MICRO USB PORT   Z BUTTON
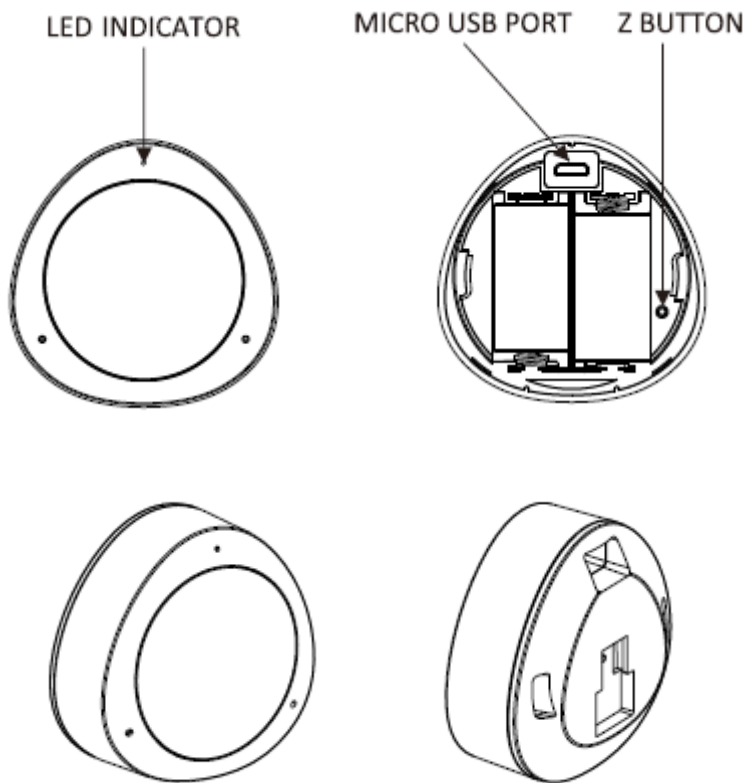
2. Technical specifications

| Power Supply:	USB DC 5V Or CR123A Batteries (2pcs CR123A,3V,1300mAh)
Storage environment:	-40 -70℃
Operational temperature :	-10℃~50℃
Measured temperature range:	-10℃~50℃
Temperature measuring accuracy:	±2℃
Measured humidity range:	20%RH-80%RH
Humidity measuring accuracy:	±8%RH（25℃）
Measured luminance range:	0 lux-30000 lux
LUX measuring accuracy:	±20%(EV=1000lux)
Radio protocol:	Z-Wave

| Radio frequency: | 868.42MHz (EU) |
	908.42MHz (US)
Range:	More than 100m outdoors
	About 30m indoors
Dimensions:	59*59*56mm
Working current:	＜100mA
Standby current:	＜40uA
Recommended installation height:	2m
PIR detection range	Within 8m　（installation height 2m）

- **Ⅱ. Installation**

（1）Power on (battery or USB)
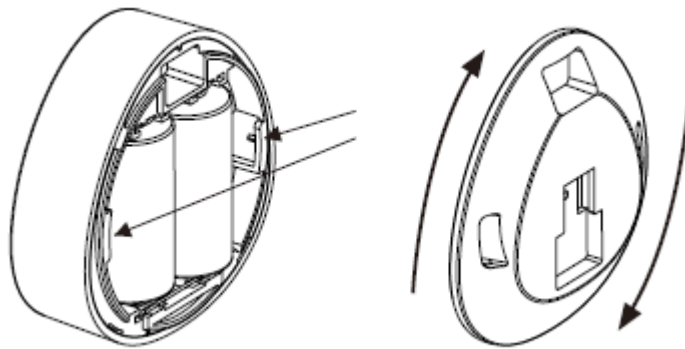
（2）Install the sensor in a desired position using screws or 3M tape
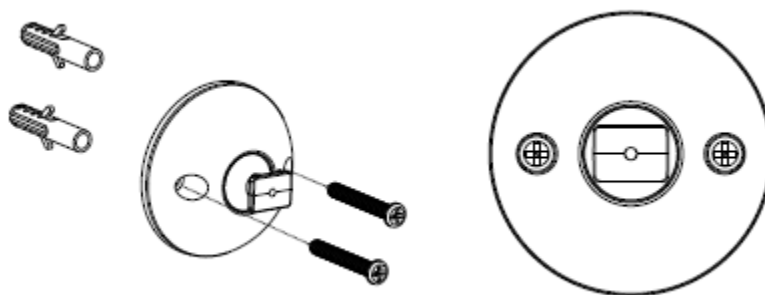
（3）Insert the Multisensor in it's holder
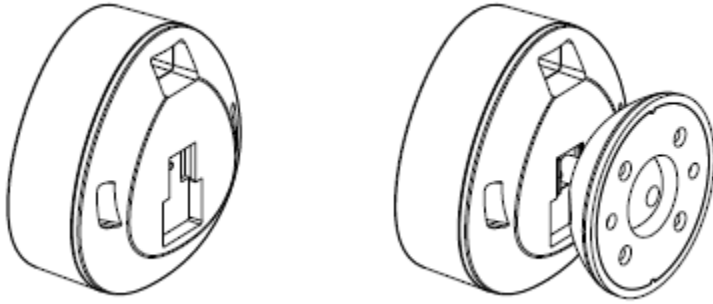
Ⅲ. DETECTION AREA

Multisensor's motion detection area is shown below. Actual range of the sensor can be influenced by environment conditions. Should false motion alarms be reported, check for any moving objects within the sensor's detection area, such as trees blowing in the wind, cars passing by, windmills. False motion alarms may be caused by moving masses of air and heat as well. If the device keeps on reporting false alarms, despite eliminating all of above mentioned factors, install the device in another place.
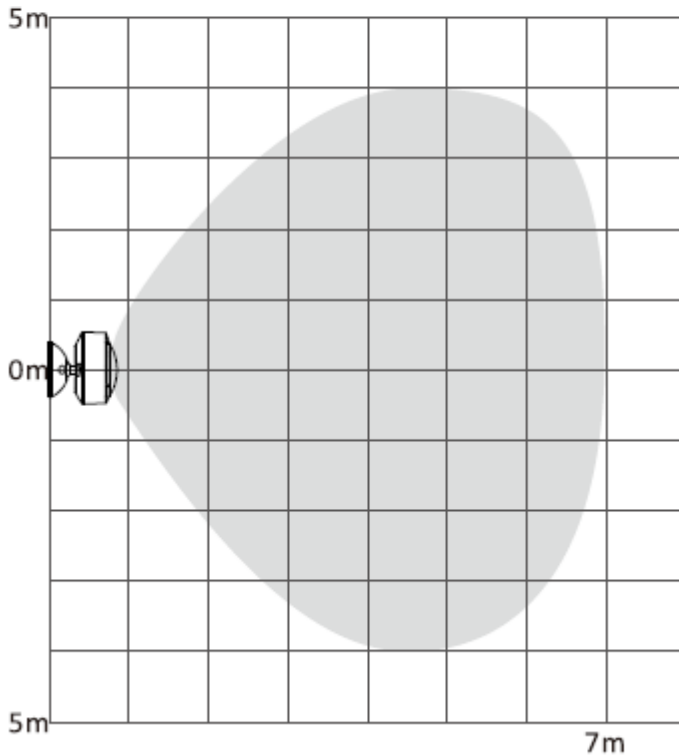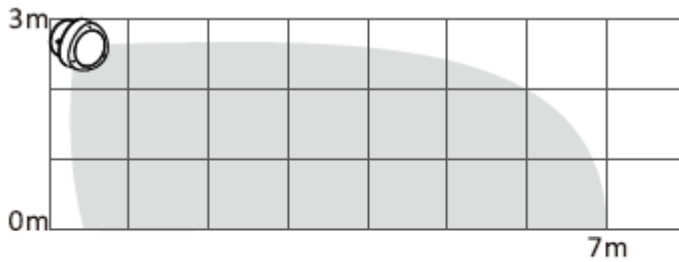
IV. Inclusion to Z-Wave network

The sensor can be added to the Z-Wave network by following steps:

（1）Power on the device by USB or batteries.

（2）Set z-Wave gateway/hub to learning mode (see Z-Wave gateway/hub Operation Manual)

（3）Triple click the device's Z-Wave button

（4）The LED indicator of the sensor will keep flashing quickly. If the inclusion is successfully connected, the LED light will be off. Otherwise, after a timeout of 30 seconds, it will be flashing slowly (enter the SmartStart function) and please repeat the operation of step (2) to include to the network.

!	**Tips:** If you want the multi- sensor to be a secure device that can communicate on a Z-Wave network using secure/encrypted messages, then enabling a secure Z-Wave controller is necessary

V. Exclusion from Z-Wave network

The sensor can be excluded from the Z-Wave network by following steps:
（1）Power on the device
（2）Set z-Wave gateway/hub to exclusion mode (see Z-Wave gateway/hub Operation Manual)
（3）Triple click the device's Z-Wave button
（4）The LED indicator of the sensor will keep flashing quickly. If the exclusion is succeeded, the LED light will be flashing slowly (enter the SmartStart function). Otherwise, after a timeout of 30 seconds, it will be off and please repeat the operation of step (2) to include to the network.

Ⅵ. RESET THE DEVICE

Reset procedure clears the Multisensor's memory, including Z-Wave network controller information. To reset the Multisensor:

（1）Power on the device,
（2）press and hold the Z button for more than 20 seconds
（3）If holding time more than 20 seconds, the LED indicator will keep on for 2 seconds, which means resetting is complete.
（4）The reset feature works only when the device has been included into a Z-Wave network.

⚠ **Note:**
Use this procedure only in the event that the network primary controller is missing or otherwise inoperable.

Ⅶ. ASSOCIATIONS

Association allows Multisensor to control other Z-Wave device such us Smart Switch, dimmer,etc.
Multisensor supports two association groups.
Multisensor can max associate 5 nodes in each group.

Group 1 reports the conditions of the Multisensor, battery level, temperature, humidity, luminance and motion detection.
Group 2 is assigned to the Multisensor sends BASIC SET command.

If the product is within the network, press and hold Z-Wave button for more than 3 seconds，it will broadcast Wake Up Notification when release the button, it will report that the product is waked up.

Using Wake up interval set command to set the automatic wake up time. When it's set to 0~3599，the product will keep sleeping. It will only wake up when there is a motion or vibration or to press the button；When it's set to 3600~7199，it will wake up for 3600 seconds; When it's set to 7200~10799 seconds, It will wake up for 7200 seconds.

Wake Up Interval Capabilities Report CC
Default Wake Up Interval Seconds = 21600 seconds
Wake Up Interval Step Seconds = 60 seconds
Minimum Wake Up Interval Seconds = 0 seconds
Maximum Wake Up Interval Seconds = 3600x24 seconds，namely 24h
Default Wake Up Interval Seconds = 14400 seconds
Wake Up Interval Step Seconds = 3600 seconds
Default setting: 0

NOTE：
The Wake up command and sleep mode of the device are only valid when powered by battery, but invalid when powered by USB.

Ⅸ. Advance configuration

Multisensor offers a wide variety of advanced configuration settings. Parameters below can be accessed from main controllers configuration interface.

parameter DEC / HEX	number of bytes	Default Values	Description
12 (0x0C)	1	6	PIR Sensitivity configuration 0 － turn off PIR notification 1~8 － turn on PIR notification ，Corresponding to PIR sensitivity, there are 8 levels, 1 indicates the lowest sensitivity and 8 indicates the highest sensitivity.

13 (0x0D)	2	30	(1) Wait time for clearing the PIR triggered (default 30 seconds) If there is no trigger during this time, it will send Notification （Notification Type is Home Security，Event is 0，Parameter 1 is Motion Detection Unknown Location）to its associated node. (2) effective value：10～3600 s
14 (0x0E)	1	1	When the PIR is triggered，send basic command or not。 0 － Don't send 1 － Send Basic Set command 。
15 （0x0F）	1	0	When PIR is triggered , send Basic Set： 0 － When PIR is triggered, send 0xFF；no PIR triggered，send 0x00. 1 － When PIR is triggered, send 0x00；no PIR triggered ,send 0xFF.
16(0x10)	1	1	When PIR is triggered, send" Binary Sensor Report" or not (Sensor Type：Motion)。 0 – don't send 1 – send
18(0x12)	1	2	The default unit for temperature report。 1- degrees Celsius 2- Fahrenheit
19 （0x13）	1	1	When motion is detected, the indicator light on or off. 0 – turn off 1 – turn on
32 (0x20)	1	10	Low battery alarm value, Unit is percent，when battery power is less than this value，Battery Report 0xff effective value：10~50
172 (0xAC)	2	4 H (240 minutes)	Interval time of automatic report of battery power, Temperature, Humidity and Light (unit: hour) Effective value: 0x0001～0x02E8(1～744 hours) (31days=31*24= 744)　;
182 (0xB6)	1	5	Threshold value to enable battery power report when the battery's changed value exceeds the threshold set. effective value：0~50% (0x00～0x32)； 0:this threshold value doesn't work; 1-5: 5%， 6-10: 10%，etc.

183 (0xB7)	2	1	Temperature sensor value change threshold （1）Unit F as default，threshold value=Value. Effective value:1F～144F（0x0001~0x0090.）
184 (0xB8)	1	5(%)	Humidity sensor value change threshold effective value： 0～80%(0x00～0x50) ；when it is set to be 0，this threshold value doesn't work
185 (0xB9)	2	50 (lux)	Light sensor value change threshold effective value： 0～30000lux (0x0000～0x7530)；when it is set to be 0，this threshold value doesn't work

FCC NOTICE (for USA)

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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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:

To maintain compliance with FCC's RF exposure guidelines, this equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body