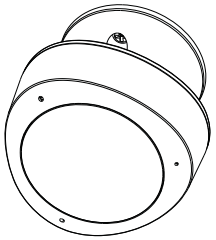


OPERATING MANUAL

MULTISENSOR

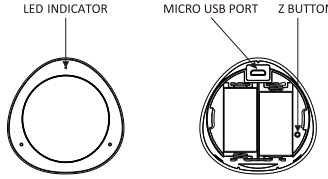
HKZW-MS01-V1.0

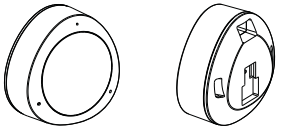
Multisensor is a universal Z-Wave Sensor. Along with detecting motion the device measures the temperature, humidity and luminance . It can communicate with associated Z-Wave devices, such as Gateway, Siren, Smart Switch, etc.
Multisensor can be included and operated in any Z-Wave network with other Z-Wave 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.

The features list:
(1) Z-Wave Plus certified for wide compatibility (500 serials product).
(2) Temperature measurement.
(3) Luminance measurement.
(4) Humidity measurement.
(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. GENERAL INFORMATION ABOUT MULTI SENSOR

1. Product layout



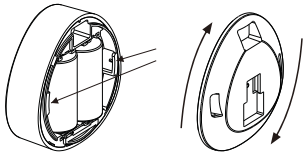


2. Specifications

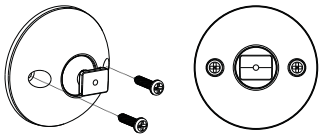
Power Supply:	6V: 2*CR123A or USB
Storage environment:	-40 -70℃
Operational temperature :	0~40˚C
Measured temperature range:	-40 – 126˚C
Temperature measuring accuracy:	0.5˚C(within 0 – 40˚C range)
Measured humidity range:	0 - 100%RH
Measured luminance range:	0 - 65535LUX
Radio protocol:	Z-Wave
Radio frequency:	868.42MHz (EU) 908.42MHz (US) 921.42MHz(ANZ)
Range:	More than 100m outdoors About 30m indoors
Dimensions:	59*59*56mm
Working current:	About 37mA
Standby current:	About 40uA
Recommended installation height:	2m ~ 4m

Ⅱ. INSTALLATION

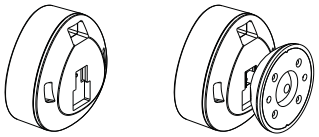
(1) Power on (battery or USB).



(2) Install the sensor's holder in desired location.

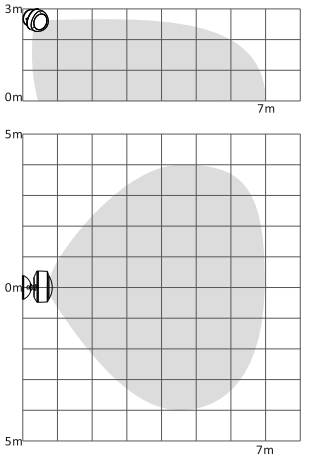


(3) Insert the multi-sensor into its holder.



Ⅲ. DETECTION AREA

Multi Sensor'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 the above-mentioned factors, install the device in another place.



Ⅳ. Z-WAVE NETWORK INCLUSION

Multisensor can be included into the Z-Wave network manually via Z-button.
To include Multisensor into a Z-Wave network please complete following tasks：

(1) Power on the device.
(2) Set the Z-Wave network main controller into learning mode (see Z-Wave network controller operating manual).
(3) Triple click the Z-button
(4) If the inclusion is successful, the LED will blink less than 5 seconds and then keep on for 3 seconds, otherwise the LED will blink 5 seconds and then turn off, in which you need to repeat the process from step 2.

NOTE:
Multisensor can be included as a security device, by pressing and holding the Z-button for 3 seconds instead of clicking, the LED will blink for less than 5 seconds and then keep on for 3 seconds. Otherwise, the LED will blink 5 seconds and then off, in which you need to repeat the process from step 2.

TIP:
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.

Ⅴ. REMOVING FROM Z-WAVE NETWORK

To remove the Multisensor from the Z-Wave network:
(1) Power on the device.
(2) Set the Z-Wave network main controller into removing mode (see Z-Wave controller operating manual).
(3) Triple click the Z-button.
(4) LED indicator will blink till the removing process is completed, than the indicator will keep on for 3 seconds.

Ⅵ. RESED MULTISENSOR

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

(1) Power on the device,
(2) Press and hold the Z button for more than 20 seconds,
(3) If holding time more than 20seconds, 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 another Z-Wave device such as Smart Switch, Smart Dimmer, etc.
Multisensor supports two association groupings.
Multisensor can max associate 5 nodes in each group.

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

Ⅷ. WAKE UP COMMAND CLASS

Wake up interval:
Defining a time period that the Multisensor sends wake up notifications to communicate with the assigned device to update parameters, software or detects battery level, etc.

Available settings: 0-2678400 (0=reports are not sent)
Default setting: 0

Wake up interval set to 0 means the device can wake up only by press the Z button.
This command works only when use battery power supply.

Ⅸ. ADVANCED CONFIGURATION

Multi Sensor offers a wide variety of advanced configuration settings. Below parameters can be accessed from main controllers configuration interface.

GENERAL SETTINGS:
Parameter NO. 12 MOTION SENSOR'S SENSITIVITY
The higher the value, the more sensitive the PIR sensor.

0 - Disabled
Available settings: **1-8**
Default setting: **8**
Parameter size: **1 [byte]**

Parameter NO. 13 MOTION SENSOR'S BLIND TIME (INSENSITIVITY)
Period of time through which the PIR sensor is "blind" (insensitive) to motion. After this time period the PIR sensor will be again able to detect motion. The longer the insensitivity period, the longer the battery life. If the sensor is required to detect motion quickly, the time period may be shortened.

Available settings: **3-28800 (seconds)**
Blind time: time (seconds) = value (1-60), time (minutes) = value/60(61-28800)
Default setting: **30(seconds)**
Parameter size: **2 [byte]**

Parameter NO. 14 ENABLE/DISABLE BASIC COMMAND
Multi Sensor can send BASIC ON/OFF COMMAND CLASS to nodes associated with group 2.

0 – Disable.
1 – Enable.
Default setting: **0**
Parameter size: **1 [byte]**

Parameter NO. 15 BASIC COMMAND VALUE
Multi Sensor can reverse the BASIC ON/OFF.

0 – Detecting motion: BASIC ON, motion alarm cancellation: BASIC OFF.
1 – Detecting motion: BASIC OFF, motion alarm cancellation: BASIC ON.
Default setting: **0**
Parameter size: **1 [byte]**

Parameter No.32 LEVEL OF LOW BATTERY
Define a battery level as the "low battery".

Available settings: **10-50 (10- 50%)**
Default setting: **20 (20%)**
Parameter size: **1[byte]**

Parameter No.170 SET 171 – 174 TO DEFAULT SETTING
Available settings: **85**
Parameter size: **1[byte]**

Parameter No.171 BATTERY REPORT INTERVAL
The interval of sending battery report to association device (Group Lifeline). The reports
are sent even if there are no changes in the battery level.

Available settings: **5-2678400** (5-2678400 seconds, 0=reports are not sent)
Default setting: **1800(seconds)**
Parameter size: **4 [byte]**

NOTE:
When use battery power supply, the battery/ temperature/ humidity/luminance (parameter No. 171-174) report interval also depend on wake up interval settings.

Parameter No.172 TEMPERATURE REPORT INTERVAL
The interval of sending temperature report to association device (Group Lifeline). The reports
are sent even if there are no changes in the temperature level.

Available settings: **5-2678400** (5-2678400 seconds, 0=reports are not sent)
Default setting: **1800(seconds)**
Parameter size: **4 [byte]**

Parameter No.173 HUMIDITY REPORT INTERVAL
The interval of sending Humidity report to association device (Group Lifeline). The reports
are sent even if there are no changes in the humidity level.

Available settings: **5-2678400** (5-2678400 seconds, 0=reports are not sent)

Parameter No.174 LUMINANCE REPORT INTERVAL
The interval of sending luminance report to association device (Group Lifeline). The reports
are sent even if there are no changes in the luminance level.

Available settings: **5-2678400** (5-2678400 seconds, 0=reports are not sent)
Default setting: **1800(seconds)**
Parameter size: **4 [byte]**

Parameter No.181 BATTERY REPORT THRESHOLD
The parameter determines the change in battery level resulting in battery report being sent to the main controller.

Available settings: **0 - 255** (1 - 255 %; 0 = reports are not sent)
Default setting: **10** (10%)
Parameter size: **1 [byte]**

Parameter No.182 TEMPERATURE REPORT THRESHOLD
The parameter determines the change in temperature level resulting in temperature report being sent to the main controller.

Available settings: **0 - 255** (Degrees Celsius: 0.1 – 25.5℃, Fahrenheit: 0 = reports are not sent)
Temperature threshold: temperature (Degrees Celsius) = value/10, temperature (Fahrenheit) = value/18.
Default setting: **20** (2℃)
Parameter size: **1 [byte]**

Parameter No.183 HUMITIDY REPORT THRESHOLD
The parameter determines the change in humidity level resulting in humidity report being sent to the main controller.

Available settings: **0 - 255** (1 - 255 %; 0 = reports are not sent)
Default setting: **5** (5%)
Parameter size: **1 [byte]**

Parameter No.184 LUMINANCE REPORT THRESHOLD
The parameter determines the change in luminance level resulting in luminance report being sent to the main controller.

Available settings: **0 - 65535** (0 - 65535 lux; 0 = reports are not sent)
Default setting: **200** (200 lux)
Parameter size: **2 [byte]**

Ⅹ. FCC NOTICE

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, and
(2) This device must accept any interference received, including interference that may cause undesired operation.

FCC Part 15.19 Warning Statement

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, AND (2) THIS DEVICE MUST
ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT
MAY CAUSE UNDESIRED OPERATION.

FCC Part 15.21 Warning Statement

NOTE: THE GRANTEE IS NOT RESPONSIBLE FOR ANY CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE. SUCH MODIFICATIONS COULD VOID THE USER’S AUTHORITY TO OPERATE THE EQUIPMENT.

FCC Part 15.105 Warning Statement

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.
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.