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LEEDARSON Multi-Sensor

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Multi-Sensor

Quick Start Guide

1. Product Introduction

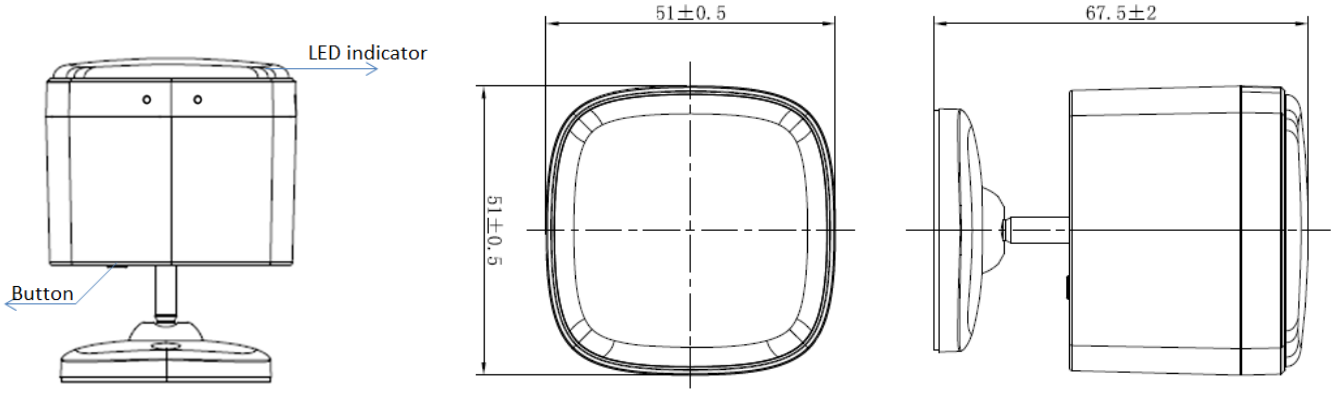
The Multi-sensor is designed for using with scenes in home automation systems, integrate motion, light , temperature and humidity sensors, powered by CR123A battery or MicroUSB cable. The Motion Sensor lets you know when movement is detected in a certain area and can trigger different actions in response to that movement (or lack of movement). It also lets you know the ambient temperature and humidity to trigger different actions to make you more comfort. This sensor integrated Z-Wave communication module to connect with Z-Wave gateway, and this device can be adapted to EU(868.42Mhz) or US(908.42MHz).

If you want your Multi-Sensor 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.

Multi-Sensor 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.

2. Product Appearance

Product appearance and function overview.



① Button:

- Short press reset button into learning mode, then the sensor can inclusion or exclusion from the Z-Wave network.

- Hold the key for 5s to reset the sensor, after reset, Multi-Sensor will send “Device_Reset_Locally” to the main controller and exclude from the Z-Wave network when the Button is released, this procedure will reset the Sensor to factory default.
- Short press button for 3 times then the sensor sending wake up notification to gateway, wake up for 10 seconds.

② LED Indicator: if sensor has not been added to controller, the LED will blink for 5 seconds. The LED will keep on 3 seconds when joined to controller successfully.

3. Specification

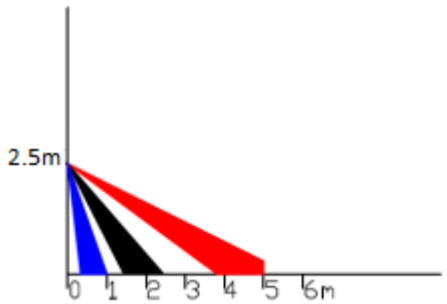
Model Name	7A-SS-AABC-H0
Detection Technology	PIR （Passive Infrared）
Detection Angle	110°±10° with 2.5m mounting height
Detection Distance	5 meters
Temperature Accuracy	±1℃
Humidity Accuracy	±5%
Communication Protocol	Z-Wave
Radio Frequency	908.42MHz (US) 868.42MHz(EU), 868.40MHz,868.42MHz, 869.85MHz 921.42MHz (AU)
Maximum Effective Radiated Power	≤0 dBm
Wireless Range	More than 70m outdoors About 30m indoors (depending on building materials)
Power Source	CR123A 3VDC battery or Micro USB(reserved)
Battery Life	2 years
Mounting	Screws or 3M Tape
Mounting Height	7.22 ft to 9.19 ft (2.2m to 2.8m)，recommend 2.5 meters
Mounting Location	Wall Surface
Operating Temperature	-10°C to + 45°C
Operating Humidity	10%RH to 90%RH
Certifications	CE/FCC,Z-Wave
Dimensions (mm)	51(L)X51(W)X67.5(H)
OTA	Yes

4. Features/Capabilities:

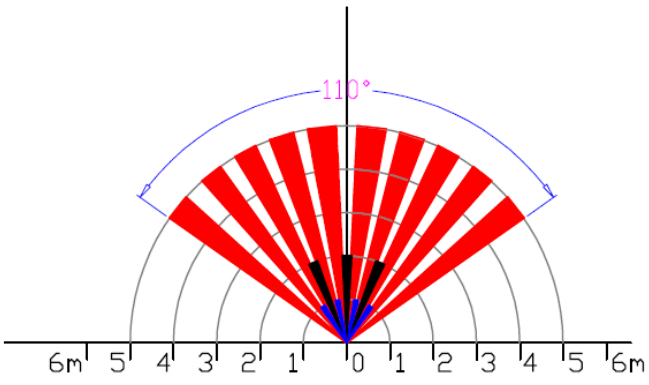
- The LEEDARSON Multi-Sensor is a universal Z-Wave Motion Sensor.
- The LEEDARSON Multi-Sensor detects motion / Luminance intensity/ Temperature/ Humidity.
- The LEEDARSON Multi-Sensor is powered by the batteries or Micro USB reserved.
- The LEEDARSON Multi-Sensor is designed to be mounted on the wall and indoor use only.
- The LEEDARSON Multi-Sensor's Luminance intensity/ Temperature/ Humidity Report time interval can be configured by APP.
- The LEEDARSON Multi-Sensor has detective range 5 meters (max.). .
- The LEEDARSON Multi-Sensor Support low battery alarm function.
- The LEEDARSON Multi-Sensor Support firmware OTA.
- After installation, the direction of detection can be adjusted by universal wheels.

5. Installation Position and Notes

1. Installation position should be chosen at the area which the bass-by will be across, try to make the bass-by in the detection area as below.



Side view



Top view

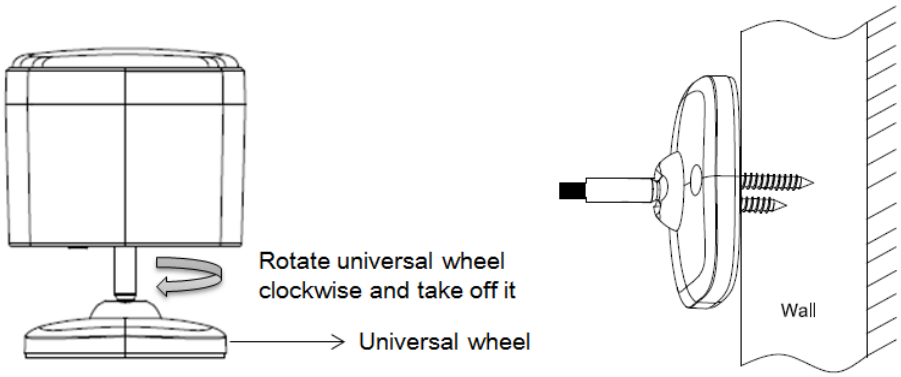
2. Do avoid installation near air-conditioner, electric fans, refrigerators, ovens or other places where temperature easy change.
3. In order not to affect the detecting result, there should be no object in front of the produces lens.

4. Building (such as the wall) will shorten the distance of wireless communication.
5. This device can be mounted on the wall only, it cannot be installed on the ceiling.

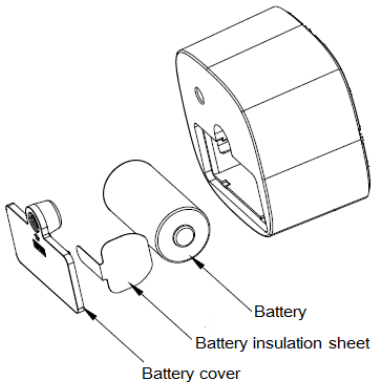
6. Product Installation

Adding the device as accessories, install it according to the diagram below:

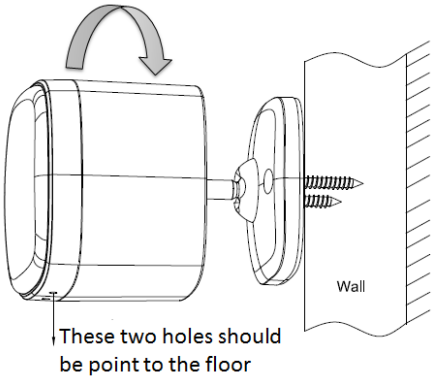
① Choose the installation location on the wall, Rotate universal wheel clockwise and take off it, fix the universal wheels by screw or 3M adhesion tape on the wall.



② Take off the battery cover in the back, and draw out the battery insulation sheet, then assembly the battery and battery cover.



③ Assembly the main body to the universal wheels and rotate main body clockwise tightly, then adjust the universal wheel to make sure two holes of the main body are point to floor.



7. Product Usage

Function of Action Button:

7.1 All functions of each trigger:

Trigger	Description
Power On	In the network: 1. The LED turn on 5 seconds then turn off. 2. Send battery report and Wakeup Notification. Not in the network: 1. The LED will turn on 1 second then turn off. 2. Add for inclusion(Smart Start Inclusion): a. Add Multi-Sensor DSK into the primary controller Smart Start Provisioning List (If you don't know how to do this, refer to its manual). b. The Multi-Sensor Power on again. c. The Multi-Sensor will send "Explorer Auto inclusion" frame to start Smart Start Inclusion. d. The Multi-Sensor LED will blink, If the inclusion is successful, then LED will keep on 2 seconds. Otherwise, the Multi-Sensor will repeat the process from step c automatically. Note: The Multi-Sensor included via "SmartStart" inclusion , if failing Z-Wave network inclusion or if an error occurred during S2 bootstrapping, The Multi-Sensor will reset itself to factory default by sending "Device Reset Locally CC" . Quick Response Code (QR Code): The first 16 bytes of the ECDH Public Key and sometimes additional information is encoded into a QR Code graphic. When referred to in this document, "DSK" applies to the Full DSK, the combination of Full DSK and QR Code, or the combination of Pin Code and QR Code. Please refer to the below diagram. the QR code can be found on the bottom of the sensor" or " The DSK may be located on the back of the packaging.

Short press one time (within 1 second)	1. **Send Security Node Info frame.** 2. **Add Multi-Sensor into a Z-Wave network:** a. Let the primary controller go into inclusion mode (If you don't know how to do this, refer to its manual). b. Short Press one time this Z-Button. c. The Multi-Sensor LED will blink, If the inclusion is successful, then LED will keep on 2 seconds. Otherwise, the LED will blink until timeout, in which case you need to repeat the process from step b. 3. **Remove Multi-Sensor from a Z-Wave network:** a. Let the primary controller go into exclusion mode (If you don't know how to do this, refer to its manual). b. Short Press one time this Z-Button. c. The Multi-Sensor LED will keep on, If the remove is successful, then LED will blink 2 seconds. Otherwise, the LED will keep on until timeout, in which case you need to repeat the process from step b. Note: The Multi-Sensor will send "Explorer Auto inclusion" frame to start Smart Start inclusion, When it is removed from a Z-Wave network. Power On event Please refer to "Power On" event.
Short press 3 times (within 1.5 second)	**In the network:** 1、Multi-Sensor will send "wake up notification command" to the nodes which is assigned by "Wake Up Command". 2、LED Keep bright when receive the Wake up no more info notification or if 10 seconds timeout , LED will be turned off. **Not in the network:** NOP
Press and hold 5 seconds	**Reset Multi-Sensor to factory Default:** 1. Press and hold the Z-Button for 5 seconds. 2. If holding time is more than 5 seconds, the LED will blink fast at acceleration. If reset success Multi-Sensor LED will turn off. When the Z-Button is released, it will send "Device Reset Locally Command". Otherwise please repeat step 2. **Note:** 1, This procedure should only be used when the primary controller is inoperable. 2, Reset Multi-Sensor to factory default settings. It will set the Multi-Sensor to not in Z-Wave network state; delete the

	Association setting and restore the Configuration setting to the default.

Caution:

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.

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

Hereby, Corporation declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU

7.2 Low voltage alarm to remind changing battery.

This product has low voltage detection reminder, when the battery voltage is in low status, the detector will give out low battery signal to controller.

7.3 Z-Wave command.

7.3.1 Association Command

Multi-Sensor supports two association groups.

Grouping Identifier	Max Nodes	Transmit Content
Group 1	0x05	1. Notification Report. Sensor will send Notification Report when Motion Detection Unknown Location and (Event inactive). 2. Multilevel Sensor Report Sensor will send Multilevel Sensor Report (Temperature, humidity, luminance) interval of 2 hours. 3. Battery Report. Sensor will send Battery Report when the battery level is low and the battery report's value is 0xFF. 4. Device Reset Locally.
Group 2	0x05	Send Basic Set when PIR trigger

7.3.2 Configuration Command Parameters

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

Parameter	Size	Default Value	Description
10 (0x0A)	1	0x0A	Low Battery Power Level of alarm threshold values: the value range are 10~50 for percentage, so the Battery Low Power level can setting **10%~50%**.
12 (0x0c)	1	0x0A	Turn on/off PIR 0x0A indicates the highest sensitivity, 0x00 means off PIR detection function. Valid values: **0x00-0x0A**
13 (0x0d)	2	0x1e	PIR triggers the waiting time value, Valid values: **0x05-0x3BC4**
14 (0x0e)	1	0x00	Whether the BASIC SET command is sent after the PIR is triggered **0 = Unable** **1 = Enable**
15 (0x0f)	1	0	PIR triggers the correspondence between the value of the Basic set and the PIR state, When value is 0x00 PIR triggers Send the basic set command 0xff PIR alarm release send the basic set command 0x00, otherwise PIR triggers send the basic set command 0x00 PIR alarm release send the basic set command 0xff. Valid values:0-1
100 (0x64)	1	NA	Set 101 ~ 104 to default.
101 (0x65)	4	0x1C20	The interval time of sending the temperature reporting. if setting to 0 then the temperature reporting is disabled 1. Valid values: **0x00-0x28DE80** 2. The minimum interval time is 1 minutes. For example, if the value is set to be more than 1 and less than 60, the interval time is 1 minutes, if the value is set to be more than 60 and less than 120, the interval time is 2 minutes.
102 (0x66)	4	0x1C20	The interval time of sending the humidity reporting. if setting to 0 then the humidity reporting is disabled 1. Valid values: **0x00-0x28DE80** 2. The minimum interval time is 1 minutes. For example, if the value is set to be more than 1 and less than 60, the interval time is 1 minutes, if the value is set to be more than 60 and less than 120,

			the interval time is 2 minutes.
103 (0x67)	4	0x1C20	The interval time of sending the luminance reporting. if setting to 0 then the luminance reporting is disabled 1. Valid values: **0x00-0x28DE80** 2. The minimum interval time is 1 minutes. For example, if the value is set to be more than 1 and less than 60, the interval time is 1 minutes, if the value is set to be more than 60 and less than 120, the interval time is 2 minutes.
104 (0x68)	4	0x15180	The interval time of sending the battery level reporting. if setting to 0 then the battery level reporting is disabled 1. Valid values: **0x00-0x28DE80** 2. The minimum interval time is 1 minutes. For example, if the value is set to be more than 1 and less than 60, the interval time is 1 minutes, if the value is set to be more than 60 and less than 120, the interval time is 2 minutes.
110 (0x6E)	1	0	Enable 111 ~ 114 temperature/humidity/luminance/ battery level change reporting. **0 = Unable** **1 = Enable**
111 (0x6F)	2	0x000A	Configuration temperature change threshold. Valid values: **1-500(unit 0.1℃)**
112 (0x70)	1	0x05	Configuration humidity change threshold. Valid values: **1-32(unit %)**
113 (0x71)	2	0x0096	Configuration luminance change threshold. Valid values: **1-65528(unit lx)**
114 (0x72)	1	0x0A	Configuration battery level change threshold. Valid values: **1-100(unit %)**

8. Attention

1. If need to clean the sensor, please use a soft cloth with a little alcohol to wipe it after you cut off the power.
2. This product is just for indoor use.
3. Replace the battery timely on low battery warning to ensure the detector works properly. Please remove the battery and safe keeping, if you don't use this product for a long time.
4. This device can be mounted on the wall only, it cannot be installed on the ceiling.
5. The reference range template of PIR detection is tested at the indoor temperature (the range is 20℃～25℃)，the target of the test is 77kg±10kg weight and 1.71m±0.3m height, the target of the test across movement speed is 4m/s±0.15m/s.
6. In order to prevent the PIR sensor's abnormal fault, please don't mounting and operating sensor in the bellow conditions,

   Firstly, product mounting should prevent installed in the air flow environment such as in front of the door, window, heater, air conditioner and so on.

   Secondly, the PIR detection area should not be shielded by other screen.

   Thirdly, if the operating temperature range is out of the defined range of product specification may result in some product faults, which is not in the technique commitment of manufacturer.

   Fourthly, this product has mot pet immunity function, so when some animals go through in front of the product may trigger PIR function reported.

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS

Dispose of the device separately from household waste at an official collection point. Professional recycling protects people and the environment against potential negative effects.