B.One Motion Sensor Engineering Specification

B.One Motion sensor is a universal Z-Wave Sensor. It can detect motion and communicate with other associated Z-Wave devices, such as Gateway, Siren, Smart Switch, etc.
B.One Motion sensor can be included and operated in any Z-Wave network with other Z-Wave certified devices.
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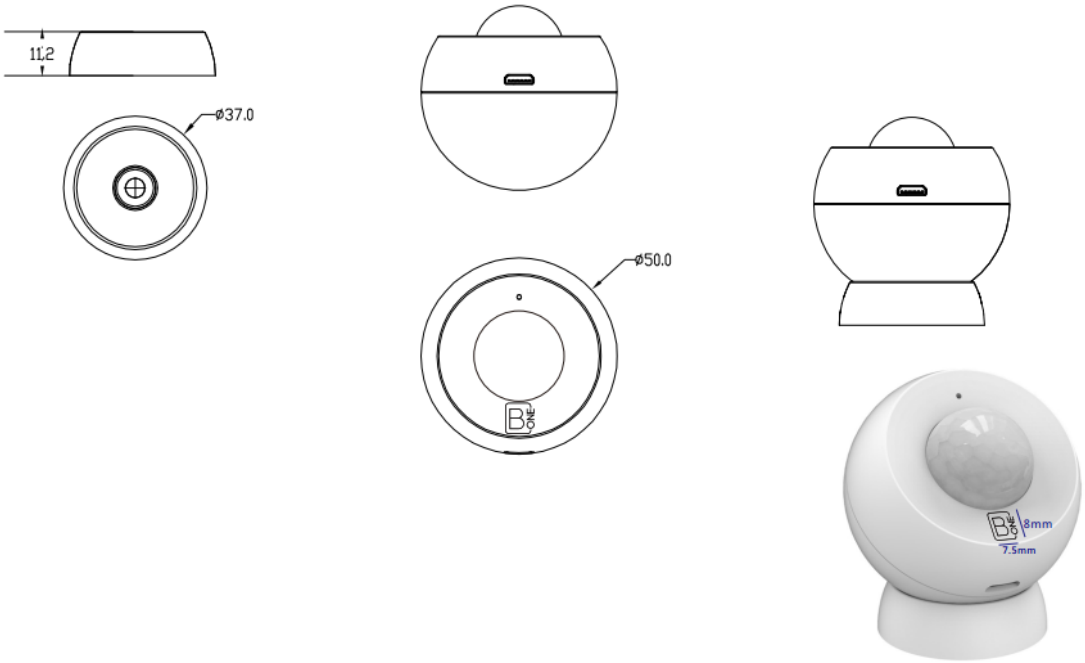
B.One Motion sensor can be included and operated in any Z-Wave network with other Z-Wave certified devices
It can also be included and operated in any Z-Wave network with other Z-Wave certified devices from other manufacturers and/or other applications.

The features list:

1) Z-Wave Plus certified for wide compatibility (500 serials product).
2) Supports security 0 and security 2 protected mode with AES-128 encryption.
3) Motion sensor.
4) Tamper alarm by shock sensor.
5) The battery life is up to 1 year.
6) Low battery alarm.
7) Support firmware OTA.

Ⅰ. GENERAL INFORMATION ABOUT MOTION SENSOR

1. Product layout

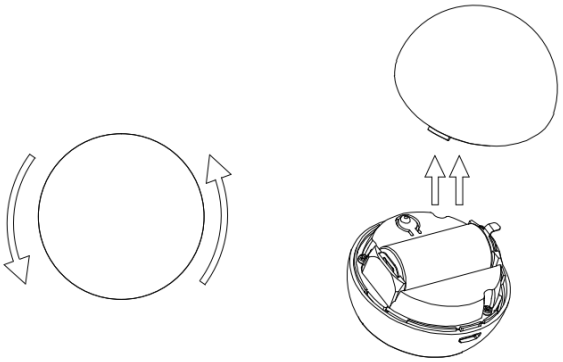


2. Specifications

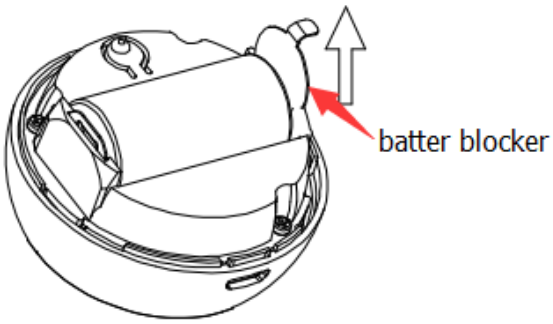
Power Supply:	3V: 1*CR123A or USB
Storage environment:	-40 -70℃
Operational temperature :	0 - 40℃
Radio protocol:	Z-Wave Plus
Radio frequency:	868.42MHz (EU) 908.42MHz (US) 921.42MHz(ANZ) 865.20MHz(IN)
Range:	More than 100m outdoors About 30m indoors
Dimensions:	50mm(Φ)
Working current:	About 50mA
Standby current:	About 55uA
Recommended installation height:	2m ~ 4m

Ⅱ. INSTALLATION

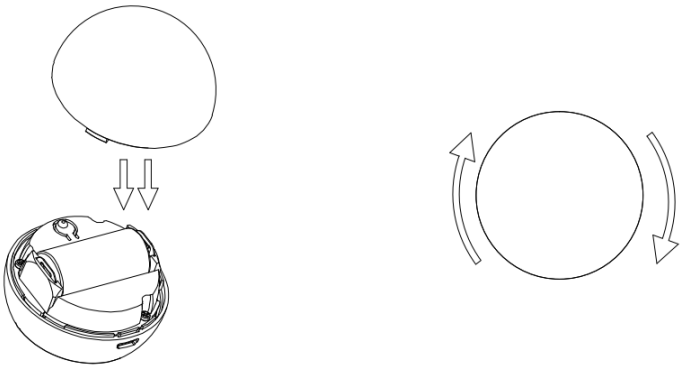
1. Turn the cover counter-clockwise and open it.



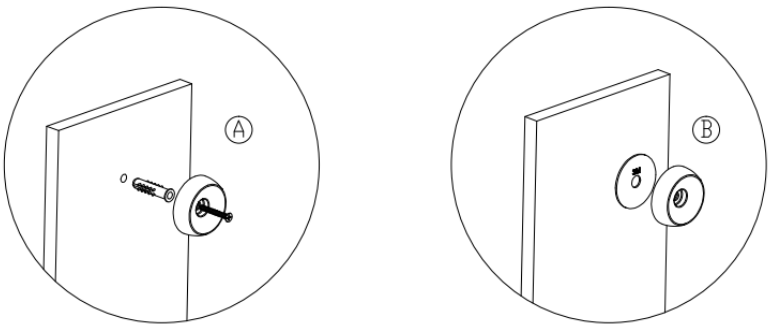
2. Remove the battery blocker.



3. Add the device (see “Adding/removing the device” on page 4).
4. Close the cover and turn it clockwise.



5. Place the sensor to anywhere you want.



Ⅲ. ADDING/REMOVING THE DEVICE

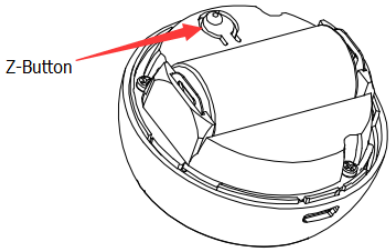
Adding

1) Open the cover.

2) Place the device within the direct range of your Z-Wave controller.

3) Set the main controller in security add mode (see the controller's manual).

4) Click the Z-button once or triple click the Z-button quickly, the LED indicator should blink fast.



5) Wait for the adding process to end.

6) Successful adding will be confirmed by the Z-Wave controller's message.

NOTE

If you want your motion sensor to be a security device that use secure/ encrypted message to communicate in a Z-Wave network, you need to buy a Security Enabled Z-Wave Controller or Gateway ,then refer to the Controller or Gateway's user manual to include it as a secure device .

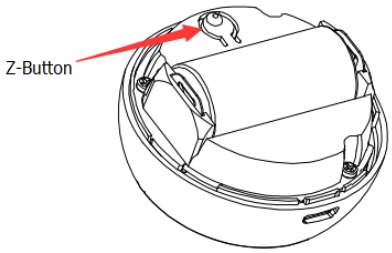
Removing

1) Open the cover.

2) Place the device within the direct range of your Z-Wave controller.

3) Set the main controller remove mode (see the controller's manual).

4) Triple click the Z-button quickly, the LED indicator should blink fast.



5) Wait for the removing process to end.

6) Successful adding will be confirmed by the Z-Wave controller's message.

Ⅳ. Functions of each trigger

Function of Action Button:

B.One Motion Sensor is not in the Z-Wave network:

Trigger	Description
Short press 1 time	1. Led will blink fast.

(within 1 second)	
Short press 3 time (within 1 second)	The same as “Short press 1 time”
Press and hold for 1-3 seconds	Led keeps on when holding the Z-Button, turn off when Z-Button is released.
Press and hold for more than 3 seconds	1. Led blink fast then turn off;

B.One Motion Sensor is in the Z-Wave network:

Trigger	Description
Short press one time (within 1 second)	Led will keep on for 1 seconds
Short press 3 time (within 1 second)	1. Led will blink fast; 2. **Remove for exclusion;**
Press and hold for 1-3 seconds	Led keeps on when holding the Z-Button, turn off when Z-Button is released.
Press and hold for 3-20 seconds	1. LED will blink fast. 2. **Motion Sensor** will send “wake up notification command” to the nodes which is assigned by “Wake Up Command”. 3. **Motion Sensor** will enable/disable “awaking for 5 minutes function”.
Press and hold more than 20 seconds	**Reset Motion Sensor** Triggering this action, led will keep on until the Z-Button is released; **Motion Sensor** will send “Device_Reset_Locally” to the main controller and exclude from the Z-Wave network when the Z-Button is released, this procedure will reset the Sensor to factory default.

Ⅴ. Features of B.One Motion sensor in Z-Wave network

B.One Motion Sensor can be included into a Z-Wave network as a non-security or security device.

1. Node info frame

Network	Node Info		Security Command Supported Report
non-security	COMMAND_CLASS_ZWAVEPLUS_INFO	V2	—————
	COMMAND_CLASS_VERSION	V2	
	COMMAND_CLASS_MANUFACTURER_SPECIFIC	V2	
	COMMAND_CLASS_NOTIFICATION	V5	
	COMMAND_CLASS_ASSOCIATION_GRP_INFO	V1	
	COMMAND_CLASS_ASSOCIATION	V2	
	COMMAND_CLASS_BATTERY	V1	
	COMMAND_CLASS_WAKE_UP	V2	
	COMMAND_CLASS_POWERLEVEL	V1	

	COMMAND_CLASS_CONFIGURATION	V1		
	COMMAND_CLASS_SECURITY	V1		
	COMMAND_CLASS_SECURITY_2	V1		
	COMMAND_CLASS_TRANSPORT_SERVICE	V2		
	COMMAND_CLASS_SUPERVISION	V1		
	COMMAND_CLASS_FIRMWARE_UPDATE_MD	V3		
	COMMAND_CLASS_DEVICE_RESET_LOCALLY	V1		
security	COMMAND_CLASS_ZWAVEPLUS_INFO	V2	COMMAND_CLASS_VERSION	V2
	COMMAND_CLASS_SECURITY	V1	COMMAND_CLASS_MANUFACTURER_SPECIFIC	V2
	COMMAND_CLASS_SECURITY_2	V1	COMMAND_CLASS_NOTIFICATION	V5
	COMMAND_CLASS_TRANSPORT_SERVICE	V2	COMMAND_CLASS_ASSOCIATION_GRP_INFO	V1
	COMMAND_CLASS_SUPERVISION	V1	COMMAND_CLASS_DEVICE_RESET_LOCALLY	V1
			COMMAND_CLASS_ASSOCIATION	V2
			COMMAND_CLASS_BATTERY	V1
			COMMAND_CLASS_WAKE_UP	V2
			COMMAND_CLASS_POWERLEVEL	V1
			COMMAND_CLASS_CONFIGURATION	V1
			COMMAND_CLASS_SUPERVISION	V1
			COMMAND_CLASS_FIRMWARE_UPDATE_MD	V3

Ⅵ. Note for special command

1.1 Association Command

B.One Motion Sensor supports two association groups.

Association allows Motion sensor to control another Z-Wave device such as Smart Switch, Smart Dimmer, etc.

Motion sensor can max associate 5 nodes in each group.

Group 1 reports the motion detection and battery level.

Group 2 is assigned to send BASIC SET command.

Grouping Identifier	Max Nodes	Send Commands
Group 1	0x05	1. Notification Report. Sensor will send Notification Report to the associated nodes when **Motion Sensor** is removed or/and PIR is triggered. 2. Battery Report. **Motion Sensor** will send Battery Report when the battery level is low and the battery report's value is 0xFF. 3. Device Reset Locally Notification.
Group 2	0x05	1. Basic Set. **Motion Sensor** will send Basic Set to associated nodes when the PIR is triggered.

1.2 Basic Command

B.One Motion Sensor will send Basic Set to associated nodes when the PIR is triggered.

1.3Notification command parameters

parameters	Value
Supported Notification Type	Home Security (07)
Supported Event	Motion Detection Unknown Location (08) Tampering Product covering removed (03)

a. When the PIR is triggered, send Motion Detection Unknown Location (08);

b. When PIR is released, send Previous Events cleared (00), Parameter 1 for Motion Detection Unknown Location (08)

c. When there is vibration / movement, send Tampering Product covering removed (03);

d. When there is vibration / movement, send Tampering Product covering removed (03);

e. Notification has a switch to Notification Status, and when it is 0xFF, there will be a Notification Report. When it is 0, there will be no Notification Report.

Ⅶ.ADVANCED CONFIGURATION

B.One Motion sensor offers a wide variety of advanced configuration settings. Below parameters can be accessed from main controllers configuration interface.

Parameter NO. 12 MOTION SENSOR'S SENSITIVITY

The higher the value, the more sensitive the PIR sensor.

0 – Disabled motion detection

Available settings: **1-8**

Default setting: **8**

Parameter size: **1 [byte]**

Parameter No.14 ENABLE/DISABLE BASIC SET COMMAND

Motion sensor can send BASIC SET command to nodes associated with group 2 when motion is triggered.

0 – Disable.

1 – Enable.

Default setting: **0**

Parameter size: **1 [byte]**

Parameter No.15 VALUE OF THE BASIC SET

B.One Motion Sensor can reverse its value of BASIC SET when motion is triggered.

0 –Send BASIC SET VALUE = 255 to nodes associated with group 2 when motion alarm is triggered.

Send BASIC SET VALUE = 0 to nodes associated with group 2 when motion alarm is canceled.

1 –Send BASIC SET VALUE = 0 to nodes associated with group 2 when motion alarm is triggered.

Send BASIC SET VALUE = 255 to nodes associated with group 2 when motion alarm is canceled.

Default setting: **0**
Parameter size: **1[byte]**

Parameter No.18 MOTION ALARM CANCELLATION DELAY
Motion alarm will be cancelled in the main controller after 3 seconds, the alarm cancellation can be delay by this parameter. Any motion detected during the cancellation delay time countdown will result in the countdown being restarted.

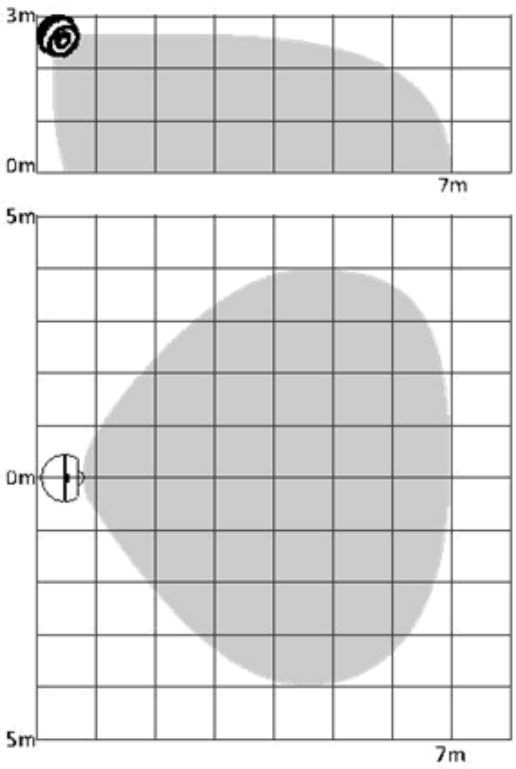
Available settings: **0-65535 (seconds)**
Default setting: **0 (seconds)**
Parameter size: **2[byte]**

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]**

Ⅷ.DETECTION AREA

B.One Motion 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.



Ⅸ.RESETTING

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

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.

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.