

# MOTION DETECTOR USER MANUAL

## Introduction

This product 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.

In the Back casing, there is a button that is used to carry out include, exclude, wakeup device or reset factory default settings.

When power is first supplied, the LED will flash on and off alternately at one second intervals within 5 seconds if the detector has not been added a Z-Wave network. Please get familiar with the terms below before starting the operations.

**Manufacture ID: 0x0258**  
**Product ID: 0x0083 (US)**  
**Product ID: 0x1083 (EU)**

## Add Motion Detector to Z-Wave Network

1. Remove the sensor cover.
2. Make sure the sensor is powered.
3. Set Z-Wave controller or Z-Wave gateway into inclusion mode (Refer to the controller or gateway operating manual)
4. Press the button three times within 1.5 second, the device will enter inclusion mode. And the LED will flash on and off alternately five times.

## Remove Motion Detector from Z-Wave Network

1. Remove the device cover.
2. Make sure the sensor is powered.
3. Set Z-Wave controller or Z-Wave gateway into exclusion mode (Refer to the controller or gateway operating manual)
4. Press the button three times within 1.5 second, the device will enter exclusion mode.

## Restore Motion Detector to Factory Default Settings

Reset procedure will delete all information on the Z-Wave network and Z-Wave controller or Z-Wave Gateway, and restore the sensor to factory default settings.

1. Remove the device cover.
2. Make sure the sensor is powered.
3. Press and hold the button for 10 seconds, Led will blink once.
4. Release the button.

## Wakeup Motion Detector

You can press the button once to wake up the device and send wakeup notification to controller. If press successfully, the LED will blink one time.

## Associations (Association Command Class Version 2)

This Sensor supports 4 association groups; each group supports max 4 associated nodes.

This has the effect that when the sensor is triggered, all devices associated with the sensor will receive the relevant reports. Through an association the sensor may control another Z-Wave network device, e.g. a alarm device, wall plug, lamp etc.

Every group can be support to associated 4 devices max.

**GROUP 1** is lifeline service that assigned to Sensor (Motion detector) status – Open/Close. It enables the sensor to send reports and readings to Z-Wave Controller or Z-Wave Gateway whenever the sensor is triggered. This Group Support:

- NOTIFICATION\_REPORT\_V4
- SENSOR\_BINARY\_REPORT\_V2
- SENSOR\_MULTILEVEL\_REPORT\_V7
- BATTERY\_REPORT
- DEVICE\_RESET\_LOCALLY\_NOTIFICATION

**GROUP 2** allows for sending control commands to associated devices such as relay module, lighting, etc. This association group is configured through the advanced parameters no. 2, 3, 5 and 8. This Group Support:

- BASIC\_SET

**GROUP 3** allows for Send Notification to associated devices in this group. This Group Support:

- NOTIFICATION\_REPORT\_V4

**GROUP 4** allows for Send Sensor Binary Report to associated devices in this group. This Group

Support:

SENSOR\_BINARY\_REPORT\_V2

## Advanced Configuration

The following information is for someone that has some experience in setting up a Z-Wave system or someone that has computer software running a Z-Wave controller or Z-Wave Gateway. Please get familiar with software of Z-Wave controller or Z-Wave Gateway before getting started.

### 1. Sensitivity Level Setting

This parameter defines the sensitivity of PIR detector, it is recommended to test the detector with movements from a farthest end of the coverage area at first time of use. If movements cannot be detected sensitively, simply adjust the sensitivity level with this parameter. This Parameter can be configured with the value of 8 through 255, where 8 means high sensitivity and 255 means lowest sensitivity.

**Function:** Sensitivity Level Setting.  
**Parameter Number:** 1.  
**Parameter Size:** 1 Byte.  
**Available Settings:** 8 ~ 255.  
**Default Setting:** 12.

### 2. On/Off Duration

This parameter can be determined how long the associated devices should stay ON status. For instance, this parameter is set to 30(second), the PIR detector will send a BASIC\_SET Command to an associated device with value basic set level if PIR detector is triggered and the associated device will be turned on 30(second) before it is turned off. This Parameter value must be large than Parameter 6#. If user set this parameter to default by Configure CC, the parameter #6 will be set to default value.

**Function:** On/Off Duration Setting  
**Parameter Number:** 2  
**Parameter Size:** 2Byte  
**Available Settings:** 5 ~ 600(second)  
**Default Setting:** 30

### 3. Basic Set Level

Basic Set Command will be sent where contains a value when PIR detector is triggered, the receiver will take it for consideration; for instance, if a lamp module is received the Basic Set Command of which value is decisive as to how bright of dim level of lamp module shall be. This Parameter is used to some associated devices.

**Function:** Basic Set Level  
**Parameter Number:** 3

**Parameter Size:** 1 Byte  
**Available Settings:** 0, 1 ~ 99 or 255  
0 – OFF, Alarm cancelling or turning a device off  
1 ~ 99 or 255 – ON (Binary Switch Device)  
Dim Level (Multilevel Switch Device)  
**Default Setting:** 255

#### 4. PIR Detecting Function Enabled/Disabled

This parameter can be enabled or disabled the PIR detector detecting function.

**Function:** Enabled/Disabled PIR Function  
**Parameter Number:** 4  
**Parameter Size:** 1 Byte  
**Available Settings:** 0 or 255  
0 – Disable PIR Detector Function  
255 – Enable PIR Detector Function  
**Default Setting:** 255

#### 5. Ambient illumination Lux Level

This parameter can be set a lux level value which determines when the light sensor is activated. If the ambient illumination level falls below this value and a person moves across or within the detected area, PIR detector will send a Z-Wave ON command(i.e. BASIC\_SET (value = parameter 3) to an associated device and activate it.

**Function:** Lux Level Set  
**Parameter Number:** 5  
**Parameter Size:** 2 Byte  
**Available Settings:** 0 ~ 1000(Lux)  
**Default Setting:** 100(Lux)

#### 6. Re-trigger Interval Setting

This Parameter can be used to adjust the interval of being re-triggered after the PIR detector has been triggered. This Parameter value must be less than Parameter 2#. If user set this parameter to default by Configure CC, the parameter #2 will be set to default value.

**Function:** Re-trigger Interval Setting.  
**Parameter Number:** 6  
**Parameter Size:** 1 Byte  
**Available Settings:** 1 ~ 8(s)  
**Default Setting:** 8

#### 7. Light Sensor Polling Interval

This Parameter can be set the light sensor measure ambient illumination level interval time.

**NOTE:** This Value Must Be less than Wakeup Interval Time.

**Function:** Light Sensor Polling Interval  
**Parameter Number:** 7  
**Parameter Size:** 2 Byte  
**Available Settings:** 60 ~ 36000(second)  
**Default Setting:** 180(s)

#### 8. Lux Level Function Enable

If this parameter is set to '1', and when Lux level less than the value define by parameter #5, PIR detector will send a BASIC\_SET command frame(i.e. BASIC\_SET (value = parameter 3) to an associated device and activate it. If Lux Level greater than the value define by parameter #5, PIR detector will not send a BASIC\_SET command frame.

**Function:** Lux Level Enable  
**Parameter Number:** 8  
**Parameter Size:** 1 Byte  
**Available Settings:** 0, 1  
**Default Setting:** 0

#### 9. Ambient illumination Lux Level Report

This parameter defines by how much Lux Level must change, in lux, to be reported to the main controller.

**Function:** Lux Level Report  
**Parameter Number:** 9  
**Parameter Size:** 2 Byte  
**Available Settings:** 0 ~ 255(Lux)  
**Default Setting:** 100(Lux)

#### 10. Led Blink Enable

This parameter defines the Led on/off enable. If this parameter is set to '1', the led blink will be enabled, the led will blink once when motion sensor detect a movement. Otherwise, the led will be turned off always.

**Function:** Led Blink Enable  
**Parameter Number:** 10  
**Parameter Size:** 1 Byte  
**Available Settings:** 0, 1  
**Default Setting:** 1

## Notification Command Class

Once the detector detected a movement, it will send NOTIFICATION\_REPORT and SENSOR\_BINARY\_REPORT to the nodes of lifeline to inform there is an intrusion event. When the

movement is stopped, NOTIFICATION\_REPORT and SENSOR\_BINARY\_REPORT will be sent again to the nodes in lifeline.

For compliant to Z-Wave 300 Series, There also realize the Binary Sensor Command Class.

#### **Notification Report Command:**

##### **Event Present:**

**Command Class:** COMMAND\_CLASS\_NOTIFICATION

**Command:** NOTIFICATION\_REPORT

**Notification Type:** NOTIFICATION\_TYPE\_HOME\_SECURITY

**Event:** NOTIFICATION\_EVENT\_HOME\_SECURITY\_MOTION\_DETECTION\_UNKNOWN\_LOCATION

##### **Event Clear:**

**Command Class:** COMMAND\_CLASS\_NOTIFICATION,

**Command:** NOTIFICATION\_REPORT,

**Notification Type:** NOTIFICATION\_TYPE\_HOME\_SECURITY,

**Event:** NOTIFICATION\_EVENT\_HOME\_SECURITY\_NO\_EVENT

#### **Binary Sensor Report Command:**

##### **Event Present:**

**Command Class:** COMMAND\_CLASS\_SENSOR\_BINARY

**Command:** SENSOR\_BINARY\_REPORT

**Sensor Type:** SENSOR\_MOTION

**Value:** 0xFF

##### **Event Clear:**

**Command Class:** COMMAND\_CLASS\_SENSOR\_BINARY

**Command:** SENSOR\_BINARY\_REPORT

**Sensor Type:** SENSOR\_MOTION

**Value:** 0x00

## **Multilevel Sensor**

The Motion Detector supports ambient luminance measurement, the scale is LUX. And the default Multilevel sensor is luminance too.

The settings of luminance sensor measurement are listed in Page 3, Advanced Configuration.

## **Wakeup Command Class**

The motion detector stays in sleep status for the majority of time in order to conserve battery life.

The minimum wakeup interval is 300s

The maximum wakeup interval is 16,777,200s (about 194 days)

Allowable interval among each wakeup interval is 60 second, such as 360, 420, 480...

**Note:** The default value is 12 hours. This value is longer, the battery life is greater.

## Battery Check Command

The users can also enquire the battery status of the motion detector by sending BATTERY\_GET command. Once the motion detector receives the command, it will return BATTERY\_REPORT command. The motion detector will send BATTERY\_LEVEL = 0xFF command to the Z-Wave Controller to inform that the motion detector is in dead battery status, otherwise BATTERY\_LEVEL value range is 0% to 100%.

## Command Classes

This sensor (Motion Detector) supports Command Classes as Below:

- \* COMMAND\_CLASS\_ZWAVEPLUS\_INFO (V2)
- \* COMMAND\_CLASS\_VERSION (V2)
- \* COMMAND\_CLASS\_MANUFACTURER\_SPECIFIC (V2)
- \* COMMAND\_CLASS\_DEVICE\_RESET\_LOCALLY (V1)
- \* COMMAND\_CLASS\_POWERLEVEL (V1)
- \* COMMAND\_CLASS\_BATTERY (V1)
- \* COMMAND\_CLASS\_ASSOCIATION (V2)
- \* COMMAND\_CLASS\_ASSOCIATION\_GRP\_INFO (V1)
- \* COMMAND\_CLASS\_WAKE\_UP (V2)
- \* COMMAND\_CLASS\_NOTIFICATION (V4)
- \* COMMAND\_CLASS\_SENSOR\_BINARY (V2)
- \* COMMAND\_CLASS\_CONFIGURATION (V1)
- \* COMMAND\_CLASS\_SENSOR\_MULTILEVEL (V7)

## LED Color Indicator

LED Color	Led Display Status	Description
Red	Blink 5 Times(1s Interval)	Power on and Not Add in Z-Wave Network
	Blink 5 Times(500ms Interval)	Press Button tripled, Adding siren in a Z-Wave Network or Send Node Info.
	Blink 5 Times(300ms Interval)	Power on and Already Add in a Z-Wave Network
	Blink 1 Time	1, Press the Button Long Time, Reset the Plug to restore default settings; 2, Detect a Movement

## **SPECIFICATIONS**

Battery type:	CR123A (3.0V)
Power Consumption:	0.15W
Max Current:	35mA (In Radio Transmitter Mode)
EU Standards Compliance:	
Radio Protocol:	Z-Wave
Radio Frequency:	EU – 868.4MHz US – 908.4MHz
Valid Range:	Up to 50m outdoors Up to 30m indoors (Depending on terrain and building structure)
Operational Temperature:	0 – 40 °C