

# **Instruction Manual**

## **PIR Motion Sensor**

Thank you for your support

- Please read the instruction manual carefully before operating
- Please keep the instruction manual after reading



**Shenzhen Neo Electronics Co., LTD**

## Product Introduction

PIR is a passive infrared detector or physical sensor, the sensor doesn't emit any energy but only passively receive and detect infrared radiation from outside. Under room temperature, all items have radiation. Human beings are warm-blooded animal with stable infrared radiation, are most easily to be detected. That's why we also call it body sensor. PIR send messages via Z-wave network to the Z-Wave main controller. In the Z-Wave network communications, PIR can be connected to any Z-wave main controller, Different countries or areas, the radio frequency is different of the Z-wave network. In the communication between the PIR and Z-wave main controller, PIR can only send messages, not be able to receive messages. When the PIR is triggered, PIR will send message to the Z-wave main controller, and associate devices to work through the Z-Wave main controller. The PIR is battery powered, is small and can be installed easily.

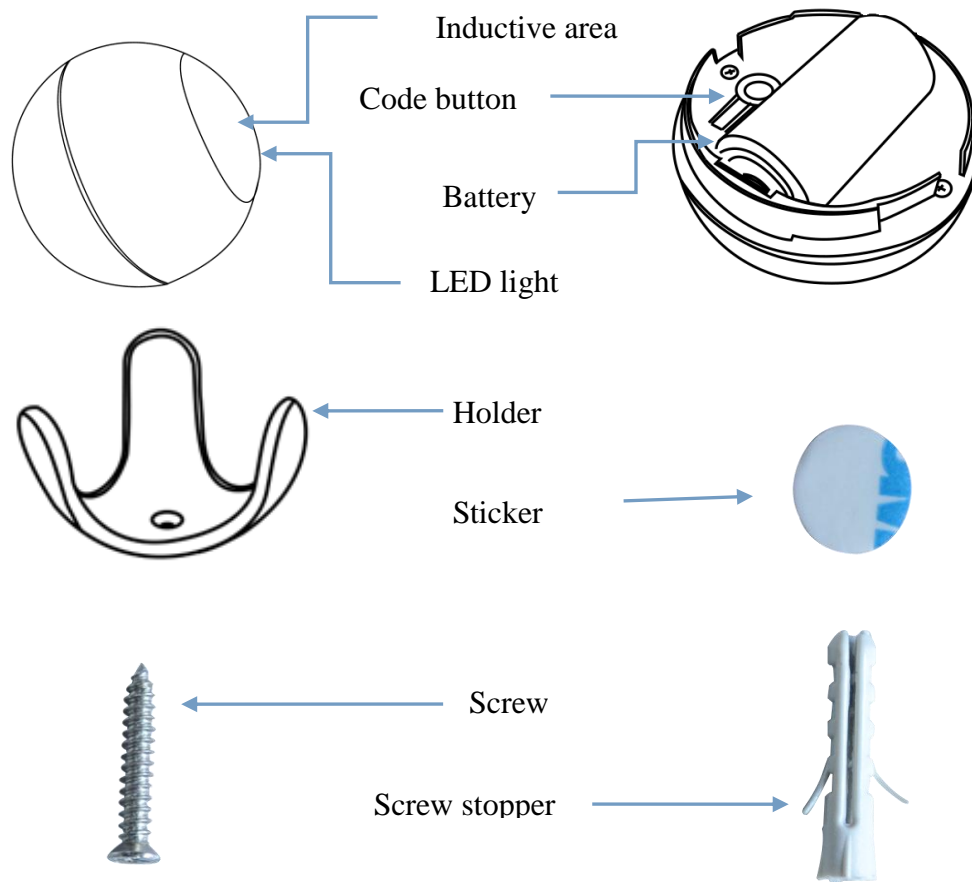
## Technical Parameters

- Power supply: CR123A x 1
- Standby current: 15uA
- Battery life: 7 years
- Radio Protocol: Z-wave
- Radio Frequency: 908.4MHz US
  
- Detection range: 7 meters
- Viewing angle: 90 degree
- Operation temper: 0-40°C
- Storage temperature: 0-60°C
- Size (D x W x H): 45mm x 45mm x 48mm

## Technical Information

- Use passive IR sensor to detect what is moving.
- When the PIR is triggered, LED light flashes in the detection area.
- Easily install with screws or sticker on the wall or the table.
- When there are people or animal that is moving in the PIR detection area, PIR will send alarm messages to the Z-wave main controller.
- Compatible with any Z-Wave main controller.

## Product Configuration



## Product List

- |                      |      |
|----------------------|------|
| ● PIR                | 1pc  |
| ● Holder             | 1pc  |
| ● Battery            | 1pc  |
| ● Screw              | 2pcs |
| ● Screw stopper      | 2pcs |
| ● Sticker            | 1pc  |
| ● Instruction manual | 1pc  |

## Including Sensor (PIR) to Z-Wave Network

The PIR can be included to the Z-wave network by pressing on the code button.

- 1) Disassemble the PIR main body and insert the battery into the contact sensor. Make sure the device is located within the direct range of the controller.
- 2) Set the controller into the learning mode (see main controller's operating manual).
- 3) Quickly, triple click the code button, LED light will flash red for 5 times.
- 4) PIT will be detected and included in the Z-Wave network.
- 5) Wait for the main controller to configure the PIR.

## Excluding Sensor (PIR) from Z-Wave Network

- 1) Make sure the sensor is connected to power source.
- 2) Set the main controller into the learning mode (see main controller's operating manual).
- 3) Quickly, triple click the code button, LED light will flash red for 5 times.
- 4) Wait for the main controller to delete the sensor.

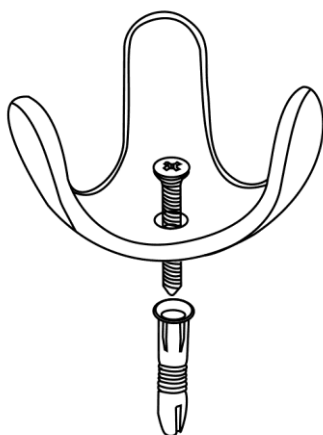
## Installation Steps

- Holder Installation
- Battery Installation
- Fix PIR on the holder

### Holder Installation

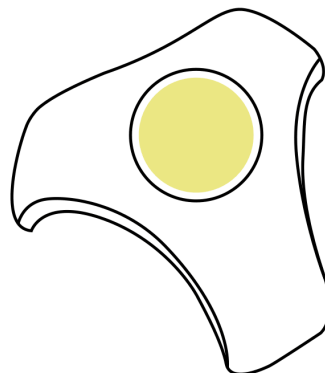
#### Option One

Fix the holder with screws and screw stopper adhesive

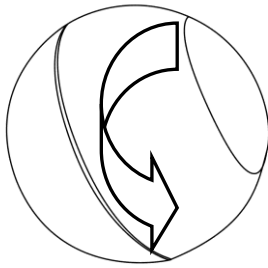


#### Option Two

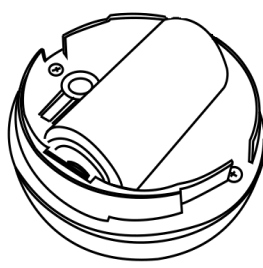
Fix the holder with double-sided adhesive



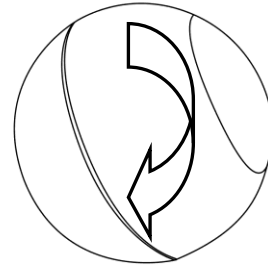
## Battery Installation



Open the PIR

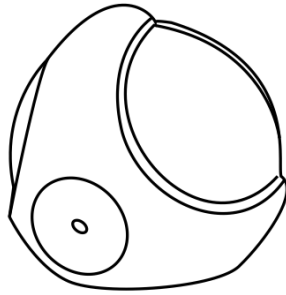


Install the battery



Close the PIR

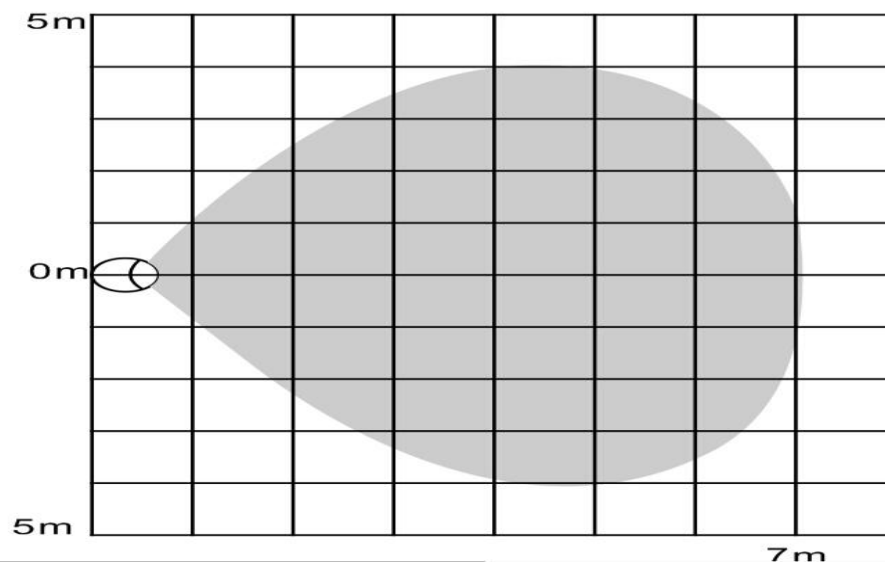
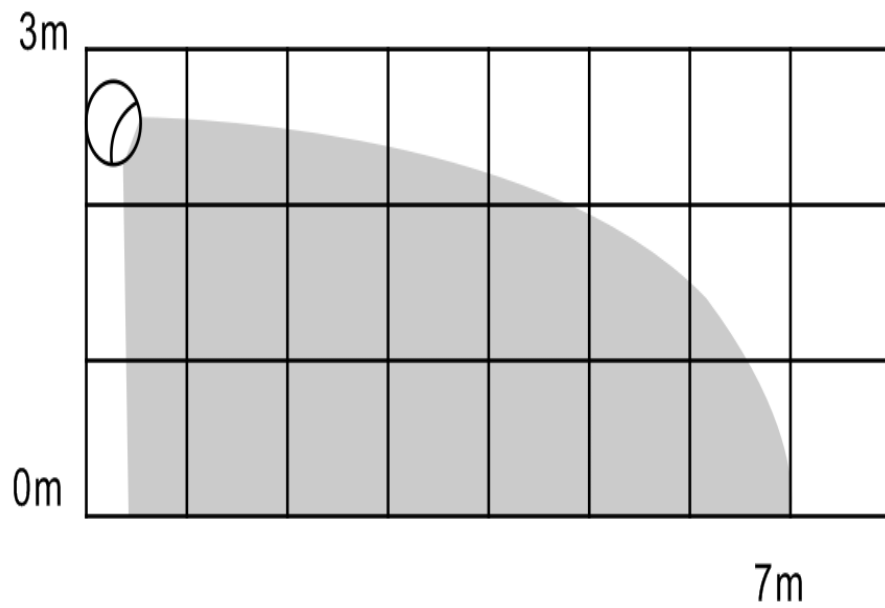
## Fix PIR on the Holder



## Detection range and Working conditions

PIR has to be installed in a corner of the room or perpendicularly to the doors. Actual detection range of the sensor can be influenced by environment conditions. Should false 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.

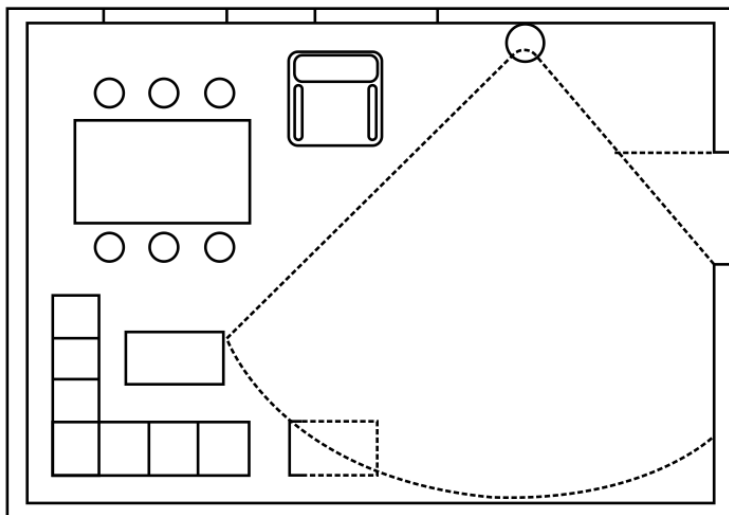
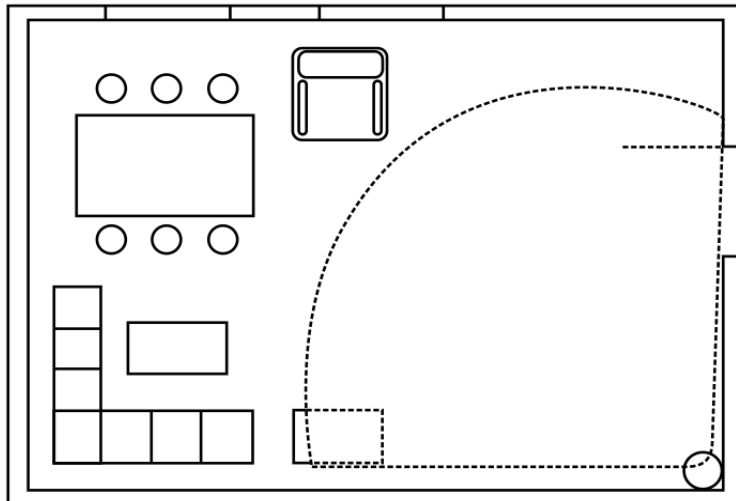
Detection range of PIR shown in the following picture



### Working condition

If there is someone moving within the detection area, alarm triggered, and LED lights flash in the inductive area at the same time.

Work schematic diagram of PIR shown in the following picture



## Tips

- Make sure the PIR is in the Gateway's network.
- PIR is recommended to be fixed at the height of 2.0-2.2 meters off the ground.
- When install PIR, please keep it far away from the place where the air temperature changed sensitively, e.g., the neighborhood of air conditioners, refrigerators, stoves and so on.
- Furniture, large bonsai or other spacers shouldn't be placed within the PIR's detection area.
- When installing the PIR, please avoid stairs、elevators and other obstructions within the PIR's detection area.
- After installation of the PIR, please test whether the PIR works properly or not, if there is false alarm from PIR, please change the location of the PIR.
- Association allows for direct communication between Z-Wave network devices.

Main controller does not take part in such communication. Using this mechanism, PIR may communicate with other devices even when the main controller is damaged.

## **The status of LED**

1. when the PIR is triggered, LED light flashes red for 2 times.
2. When the PIR installs battery, LED light will flash red for 2 times.
3. Quickly, triple click the code button ,add the PIR to the Z-WAVE network or delete PIR from Z-WAVE network , LED light flashes red for 5 times.
4. Press on the code button for 10 seconds, the PIR to restore factory settings, LED light flashes for 1 times.
5. In the normal condition, the LED light keeps being out.

## **Associations**

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. the alarm device, wall plug, lamp etc.

This Sensor supports two association groups.

**Association group 1** is assigned the status of the device status - send the BASIC SET control frame to the associated to the associated devices having detected motion.

**Association group 2** reports relay's status to just one device, Z-Wave network's main controller by default. It's not recommended to modify settings of this association group.

## **NOTE**

Association allows for direct communication between Z-Wave network devices. Main controller does not take part in such communication.



## **Restore the Sensor (PIR 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 connected to power source.
3. Press the reset button for 10 seconds, LED will flash.
4. Release the button.

### **NOTE**

When the PIR is being restored factory settings, please make sure power source is connected.

## **Battery Usage Tips**

Battery life of the contact sensor is approximately 2years at factory default settings. The current battery level is displayed in the gateway. Red battery icon means the battery needs replaced. In order to avoid tamper detection, while replacing the battery, please disconnect the association of the contact sensor with other devices.

### **Note**

Contact sensor is battery powered. Using batteries other than specified may result in explosion. Dispose of properly, please observe environmental protection rules.

## **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 1 through 4, where 1 means high sensitivity and 4 means lowest sensitivity.

**Function:** Sensitivity Level Setting.

**Parameter Number:** 1.

**Parameter Size:** 1 Byte.

**Available Settings:** 1 - 4.

**Default Setting: 2.**

## 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#.

**Function:** On/Off Duration Setting

**Parameter Number:** 2

**Parameter Size:** 2 Byte

**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:** 99

## 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 (Not Complete, Reserved)

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. No report will be sent during this interval if a movement is presented. This Parameter value must be less than Parameter 2#.

**Function:** Re-trigger Interval Setting.

**Parameter Number :** 6

**Parameter Size:** 1 Byte

**Available Settings:** 5 ~ 120(s)

**Default Setting:** 10

#### 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:** 600(s)

#### 8. Reserved

#### 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 - 1000(Lux)

**Default Setting:** 100(Lux)

#### 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)

## Guarantee

1. The Guarantee is provided by Shenzhen NEO Electronics Co., Ltd (hereinafter “Manufacture” )
2. The Manufacturer is responsible for equipment malfunction resulting from physical defects (manufacturing or material) of the device for 12 months from the date of its purchasing.
3. During the Guarantee period, the Manufacturer shall remove any defects, free of charge, by repairing or replacing.
4. In special cases, when the device cannot be replaced with the device of the same type (e.g. the device is no longer available in the commercial offer), the Manufacturer may replace it with a different device having technical parameters similar to the faulty one. Such activity shall be considered as fulfilling the obligations of the Manufacturer. The Manufacturer shall not refund money paid for the device.
5. The guarantee shall not cover:
  - mechanical damages (cracks, fractures, cuts, abrasions, physical deformations caused by impact, falling or dropping the device or other object, improper use or not observing the operating manual);
  - damages resulting from external causes, e.g.: flood, storm, fire, lightning, natural disasters, earthquakes, war, civil disturbance, force majeure, unforeseen accidents, theft, water damage, liquid leakage ,battery spill, weather conditions, sunlight, sand, moisture, high or low temperature, air pollution
  - damages caused by malfunctioning software, attack of a computer virus, or by failure to update the software as recommended by the Manufacturer;

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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.

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

(1) This device may not cause interference; and

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

Cet appareil est conforme aux CNR exemptes de licence d'Industrie Canada . Son fonctionnement est soumis aux deux conditions suivantes :

( 1 ) Ce dispositif ne peut causer d'interférences ; et

( 2 ) Ce dispositif doit accepter toute interférence , y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.