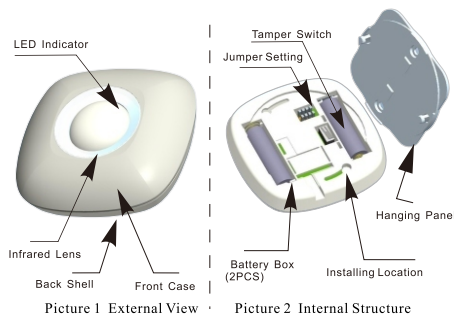


Ceiling Mounted Z-Wave PIR Sensor User Guide

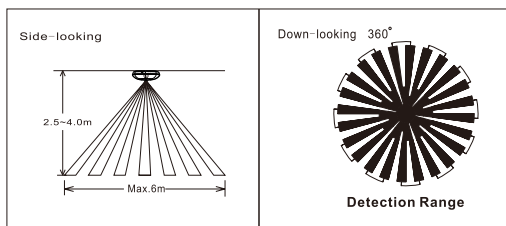
I. Introduction

The Z-Wave sensor is equipped with Z-Wave500 series main control chip. It is a passive infrared intrusion sensor that adopts Energy Integration Logical Processing, Random Dynamic Time Segmentation & Digital Signal Processing Technologies. With precise columnar Fresnel lens, it can increase its energy receiving efficiency and sensitivity without false alarm. In conjunction with advanced software technology, it will make an accurate judgement between real intruder & interference factors that may cause false alarm. Superior ability to detect & prevent false positives. The pulse number is optional, suitable for kinds of residential constructions, preventing false positive & false negative that other ordinary indoor sensors cannot do. Its performance is far beyond other ordinary PIR alarms. Besides, we use large capacity built-in battery & special power saving solution, battery working life is up to 3 years.



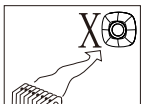
II. Specification

Communication Protocol: Z-Wave Plus
Static Current: 15uA (max)
Transmit Current: 35mA (max)
Transmit Power: 4dBm
Receive Sensitivity: -103dBm
Frequency Band: US / EU
RF Range: Outdoor linear distance $\leq 150\text{m}$
Working Voltage: DC3V 2pcs AA alkaline battery
Infrared Area: 12+12+6
Alarm Indicator: LED status indicator
Output Signal Type: alarm report, tamper report, low battery report, heartbeat report
Working Temperature & Humidity: $-10^{\circ}\text{C} \sim 50^{\circ}\text{C}$, $\leq 95\% \text{RH}$ no condensation
Max Coverage Area: diameter 6m
Installation Height: 2.5m ~ 4m
Dimension: 100*100*33.5mm (L*W*H)



III. Installation

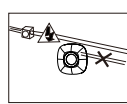
3.1 Attentions



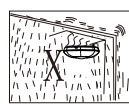
Don't face hot/cold source



Avoid direct sunshine

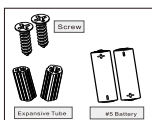


Away from high-voltage cable

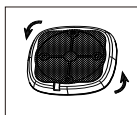


Don't install on the unstable place

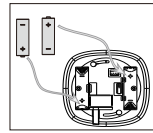
3.2 Installation Guide



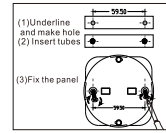
1, Take out screws, expansion tubes and 2 pcs #5 batteries



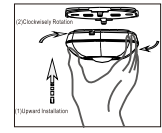
2, Turn over the sensor, anti-clockwise rotate the hanging panel and remove it



3, Insert batteries in right polarity.



4, Make location holes, insert expansion tubes, then put screws into the holes and fix the panel on the wall



5, Hold the sensor, and fix it by clockwise rotation

3.3 DIP Switch Description

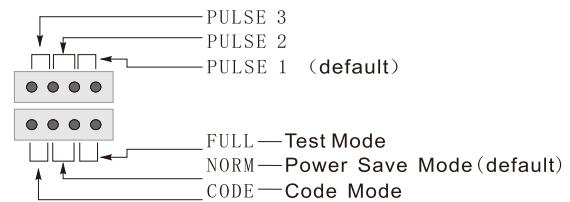
The PIR sensor can be set 3 types of operation modes as below:

Test Mode: alarm will only be triggered again with above 5s interval after its first alarm.

Power Save Mode: alarm will only be triggered again with above 3min interval after its first alarm.

Code Mode: without any function.

Jumper Setting



Following are 3 types of pulse options:

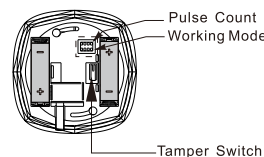
PULSE 1: The Sensor alarms when it detects one pulse.

PULSE 2: The Sensor alarms when it detects two pulses.

PULSE 3: The Sensor alarms when it detects three pulses.

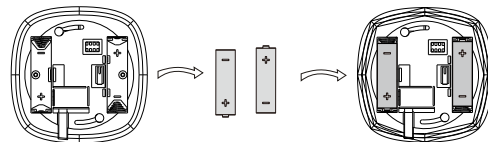
The higher the pulse count is, the lower the sensitivity will be, but high pulse count can reduce false alarm.

As the diagram below:



3.4 Battery Replacement:

When in low voltage status, Sensor will send signal to the alarm control, then the user should replace the battery in time. Remove the cover, and insert new batteries in right polarity. (As the picture below)

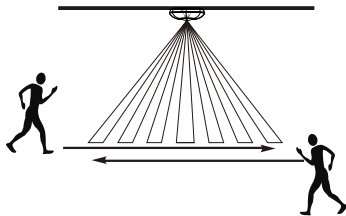


IV: Walking Test in Detection Area

1. Set the Sensor to Test Mode to perform walking test. Pulse count can be set by PULSE 1, 2, 3.

2. Walk breadthwise from any direction at the remote detection coverage at the speed of 0.75m/s, then the LED indicator blinks for few seconds and alarm triggered. (as the picture below)

3. Test in another direction to confirm the two boundaries of detection.
4. The center of detection zone should not incline upward. If the detection distance is not good enough, please adjust the installation location.
5. Perform the walk test again as above mentioned after adjusting Sensor's position.
6. When the Sensor passed the walking test, please adjust the Test Mode to Power Save Mode.



V. Operation Description

1. Add & Remove

Add : enter the INCLUSION MODE of gateway, and press the tamper switch 3 times within 1.5s, then the PIR sensor will stay in enrollment state until successfully enrolled into network or enrollment time out after 30s.

Remove: enter the EXCLUSION MODE of gateway, and press the tamper switch 3 times within 1.5s, then the PIR sensor will be removed after a period of time.

2. Association Groups Description

The Sensor has 2 associations groups, Group 1 is Lifeline, support 1 device only, Group 2 can support 2 devices.
It will send "NOTIFICATION_REPORT" to the device in Lifeline group when the PIR sensor is triggered / recovered, tamper switch is triggered / recovered.
When in low battery status, PIR sensor will send "BATTERY_REPORT" to Lifeline group device periodically.
The PIR sensor will send "DEVICE_RESET_LOCALLY_NOTIFICATION" to Lifeline group device when the device recovers to factory settings.
When the PIR sensor is triggered, it will send "BASIC SET" command to control these devices in Group2.

3. Restore Factory Settings

Press the tamper switch for 6 times within 2.5 seconds to restore factory settings.

4. Wake-up Operation

a) Manual Wake-up

Quickly press tamper switch once, the PIR sensor will automatically send wake-up information, and there will be 10s after wake-up to receive gateway setting information.

b) Automatic Wake-up

Default time of automatic wake-up is 24 hours, and there will be 10s after wake-up to receive gateway setting information, the max automatic report time = 24 hours, minimum=30min.

5. Lifeline Group

a) When an alarm is triggered or eliminated, it will send "Binary Sensor Report" and "Notification Report" commands to the device under Lifeline group.

When alarm is triggered:

Sensor Binary Report, Type = 0x0C, Event=0xFF

Notification Report, Type = 0x07, Event = 0x08

When alarm is eliminated:

Sensor Binary Report, Type = 0x0C, Event=0x00

Notification Report, Type = 0x07, Event = 0x00

b) When tamper switch is triggered or recovered, the PIR sensor will send "Sensor Binary Report" and "Notification Report" command to the device under Lifeline group.

Tamper Triggered:

Sensor Binary Report, Type = 0x08, Event=0xFF

Notification Report, Type = 0x07, Event = 0x03

Tamper recover (press tamper switch for 0.5s):

Sensor Binary Report, Type = 0x08, Event=0x00

Notification Report, Type = 0x07, Event = 0x00

c) Battery Report

When the PIR sensor is wake-up from sleep mode, it will check its battery status; once low battery, it will send Battery Report command to the device under Lifeline group every hour.

Battery Report, Battery Level = 0xFF

6. Association Group2

If there is any device under Association Group2, the PIR sensor will send "BASIC SET" command to control those devices when the PIR sensor is triggered. For example: when the PIR sensor is triggered, it sends adjustable parameter "BASIC SET" command to a lamp under Group2, you can adjust the lamp's luminance through the parameters of this command;

if the set light-up time out (see the Configuration Description), the Sensor will send "BASIC SET=0x00 " command to turn off the lamp.

When sensor is triggered:

[Command Class Basic,Basic Set,Value = 0xFF(default 0xFF, configurable, see the Configuration Description)]

When light-up time out:

[Command Class Basic,Basic Set,Value = 0x00]

7.Configuration Description

a) "Basic Set" configuration

If there is any device under Association Group2, the PIR sensor will send "Basic Set = value" command to control that device when the PIR sensor is triggered. "Value" configuration rule is as below:

Function	Parameter	Byte	Range	Default
Basic Set Level	1	1	1-100 or 0xFF(-1)	0xFF(-1)

b) Turn Off Light Time Configuration

If there is any device under Association Group2, the PIR sensor will send "Basic Set = value" command to Group2, and send "Basic Set = 0x00" command to turn-off light after "5 x t" seconds, "t" configuration rule is as below:

Function	Parameter	Byte	Range	Default
Turn Off Light Time	2	1	1-24	4

c) PIR Sensor Alarm Elimination Time Configuration

Min set time is 5s. If the configuration is 1, that means it will eliminate alarm after "5 x t"seconds, "t" configuration rule is as below:

Function	Parameter	Byte	Range	Default
Alarm Elimination Time	3	1	1-24	4

Z-Wave Supportive Commands

Generic Device Class 0x07 - GENERIC_TYPE_SENSOR_NOTIFICATION
Specific Device Class 0x01 - SPECIFIC_TYPE_NOTIFICATION_SENSOR

Supported Command Classes:

0x5E - COMMAND_CLASS_ZWAVEPLUS_INFO_V2
0x30 - COMMAND_CLASS_SENSOR_BINARY
0x84 - COMMAND_CLASS_WAKE_UP_V2
0x80 - COMMAND_CLASS_BATTERY
0x86 - COMMAND_CLASS_VERSION_V2
0x72 - COMMAND_CLASS_MANUFACTURER_SPECIFIC_V2
0x71 - COMMAND_CLASS_NOTIFICATION_V4
0x70 - COMMAND_CLASS_CONFIGURATION
0x85 - COMMAND_CLASS_ASSOCIATION_V2
0x59 - COMMAND_CLASS_ASSOCIATION_GRP_INFO_V2
0x73 - COMMAND_CLASS_POWERLEVEL
0x5A - COMMAND_CLASS_DEVICE_RESET_LOCALLY

Controlled Command classes:

0x20 - COMMAND_CLASS_BASIC

VI. Statement

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 .

Company : Shenzhen Kaipule Technology Co.,Ltd

Tel : 0755-81781668

Address : Floor 4, No.2, Chunhui industrial area, Tongsheng community, Dalang street, Longhua district, Shenzhen city,China.