

# Motion Sensor PSP05



**PSP05-A**



**PSP05-B**



**PSP05-C**



**PSP05-D**



The motion sensor PSP05 has PIR function, based on Z-Wave™ technology.

This device is a Security Enabled Z-Wave Plus Product. Z-Wave™ is a wireless communication protocol designed for home automation, specifically to remotely control applications in residential and light commercial environments. The technology uses a low-power RF radio embedded or retrofitted into home electronics devices and systems, such as lighting, home access control, entertainment systems and household appliances.

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.

The device adopt the Z-Wave™ 500 series chip, when your Z-Wave™ network system is all made by Z-Wave™ 500 series devices. The network system will have the advantages as below.

- Concurrent multi-channel support reduces external interference.
- Better RF range, improve about 10 meters in indoor.
- Support 100 Kbps transmit speed, speed up communication.

## CAUTION

- replacement of a battery with an incorrect type that can defeat a safeguard (for example, in the case of some lithium battery types);
- disposal of a battery into fire or a hot oven, or mechanically crushing or cutting of a battery, that can result in an explosion;
- leaving a battery in an extremely high temperature surrounding environment that can result in an explosion or the leakage of flammable liquid or gas;
- a battery subjected to extremely low air pressure that may result in an explosion or the leakage of flammable liquid or gas

The marking information is located at the bottom of the apparatus.

## Specification

Rated	DC3V (CR123A)
RF distance	Min. 40M indoor, 100M outdoor line of sight,
Frequency Range	868.40 MHz, 869.85 MHz (EU) 908.40 MHz, 916.00 MHz (US) 920.9MHz, 921.7MHz, 923.1MHz (TW/KR/Thai/SG)
RF Maximum Power	+5dBm
Dimension	89*83*62
Weight	91.4g (PSP05-A), 96.0g (PSP05-D)
IP classification	IPX4 (PSP05-A or PSP05-D)
Location	Indoor or outdoor
Operation temperature	-10 to 40° C
Humidity	85%RH max
FCC ID	RHHPSP05
Marking	CE/NCC

✧ Specifications are subject to change and improvement without notice.

## Function Compare A/B/C/D

Model	Description
PSP05-A	Wall mount
PSP05-B	Ceiling mount with Square shape
PSP05-C	Ceiling mount with Round shape
PSP05-D	Wall mount with lens cover

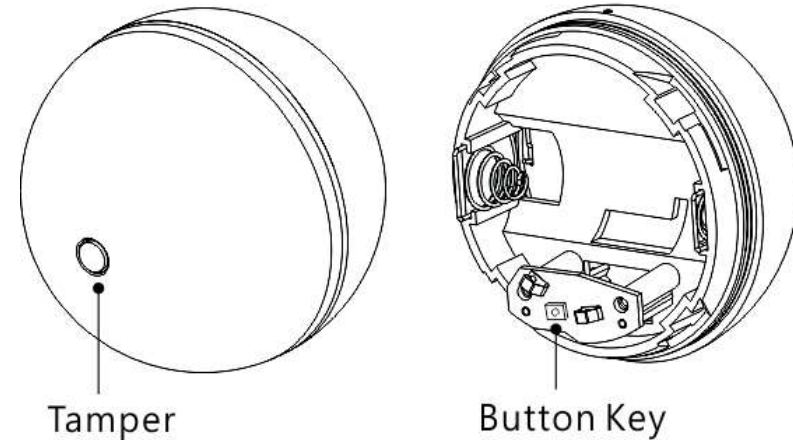
## Troubleshooting

Symptom	Cause of Failure	Recommendation
The device can not join to Z-Wave™ network	The device may in a Z-Wave™ network.	Exclude the device then include again.

For Instruction to [http:// www.philio-tech.com](http://www.philio-tech.com)



## overview



## Add to/Remove from Z-Wave™ Network

There are two keys in the device, one is tamper key, another is a button. Button can add, remove, reset or association from Z-Wave™ network.

In the first time, add the device into the Z-Wave™ network. First, make sure the primary controller is in the add mode. And then power on the device, just take out the insulation Mylar in the back side of the device. The device will auto start the NWI (Network Wide Inclusion) mode. And it should be included in 5 seconds. You will see the LED light ON one second.

**Notice:** Including a node ID allocated by Z-Wave™ Controller means “**Add**” or “**Inclusion**”. Excluding a node ID allocated by Z-Wave™ Controller means “**Remove**” or “**Exclusion**”.

Function	Description
Add	<ol style="list-style-type: none"> <li>1. Have Z-Wave™ Controller entered inclusion mode.</li> <li>2. Pressing button or tamper key thrice to enter the inclusion mode.</li> <li>3. After add successful, the device will wake to receive the setting command from Z-Wave™ Controller about 20 seconds.</li> </ol>
Remove	<ol style="list-style-type: none"> <li>1. Have Z-Wave™ Controller entered exclusion mode.</li> <li>2. Pressing button or tamper key thrice to enter the exclusion mode. Node ID has been excluded.</li> </ol>
Reset	<p><b><i>Notice: Use this procedure only in the event that the primary controller is lost or otherwise inoperable.</i></b></p> <ol style="list-style-type: none"> <li>1. Pressing button four times and keep about 5 seconds.</li> </ol>

	<ol style="list-style-type: none"> <li>2. IDs are excluded and all settings will reset to factory default.</li> </ol>
Association	<ol style="list-style-type: none"> <li>1. Have Z-Wave™ Controller entered association mode.</li> <li>2. Pressing button one time to enter the association mode.</li> </ol> <p>Note: The device support 2 groups. The group 1 is for receiving the report message, like triggered event, temperature, illumination etc. The group 2 is for light control, the device will send the “Basic Set” command to this group. And each group support 8 nodes maximum.</p>
<ul style="list-style-type: none"> <li>• Failed or success in add/remove the node ID can be viewed from Z-Wave™ Controller.</li> </ul>	

**Notice 1:** Always RESET a Z-Wave™ device before trying to add it to a Z-Wave™ network

**Notice 2:** When the device into NWI mode, the sensor functionality will useless. The NWI mode will timeout after 30 seconds. You can press the button one time to abort the NWI mode.

## Z-Wave™ Notification

After the device adding to the network, it will wake-up once per day in default. When it wake-up it will broadcast the “Wake Up Notification” message to the network, and wake-up 10 seconds for receive the setting commands.

The wake-up interval minimum setting is 30 minutes, and maximum setting is 120 hours. And the interval step is 30 minutes.

If the user want to wake-up the device immediately, please remove the front cover, and press the button once. The device will wake-up 10 seconds.

## Z-Wave™ Message Report

When the PIR motion triggered, the device will report the trigger event and also report the battery status.

In default the device will using Notification Report to represent the trigger event, it can be changed to Sensor Binary Report by setting the configuration NO. 7 Bit4 to 1.

### \* Motion Report:

When the PIR motion detected, the device will unsolicited to send the report to the nodes in the group 1.

Notification Report (V4)
Notification Type: Home Security (0x07) Event: Motion Detection, Unknown Location (0x08)
Sensor Binary Report (V2)
Sensor Type: Motion (0x0C) Sensor Value: 0xFF

### \* Tamper Report:

When tamper key are pressed over 5 seconds. The device will into the alarm state. In that state, if the tamper key is released, the device will unsolicited to send the report to the nodes in the group 1.

Notification Report (V4)
Notification Type: Home Security (0x07) Event: Tampering. Product covering removed (0x03)
Sensor Binary Report (V2)
Sensor Type: Tamper (0x08) Sensor Value: 0xFF

### \* Timing Report:

Beside the event triggered could report message, the device also support the timing unsolicited report of the status.

- Battery level report: Every 6 hours report once in default. It could be changed by setting the configuration NO. 10.
- Low battery report: When the battery level is too low, every 30 minutes will report once.

**Notice:** The configuration NO. 10 could be setting to zero to disable the auto report. And the configuration NO. 20 could change the tick interval, the default value is 30, if setting to 1, that means the minimum auto report interval will be one minute. And please notice if setting this value to zero, that means disable all of the timing report except the low battery detection.

## Power Up Procedure

### \* Battery Power Check

When the device power up, the device will detect the power level of the battery immediately. If the power level is too low, the LED will continue flash about 5 seconds. Please change another new battery.

### \* PIR Warm Up

When the device power on, the PIR need to warm up before the operation. The warm up time about 1 minute, the LED will flash in every 2 seconds. After finish the procedure the LED will light ON three times.

### \* NWI

When the device power on, the device will check is it already adding to the network? If doesn't, it will auto start the NWI mode. The LED will flash in every second and continue 30 seconds. Until timeout or the device successful to inclusion by controller. The use can presses button once to abort the NWI mode.

### \* **Wake**

When the device power on, the device will wake about 20 seconds. In this duration, the controller can communicate with the device. Normally the device is always sleeping to save the battery energy.

## **Security Network**

The device support the security function. When the device included with a security controller, the device will auto switch to the security mode. In the security mode, the follow commands need using Security CC wrapped to communicate, otherwise it will not response.

**Note:** A "Security Enabled Z-Wave Controller" must be used in order to fully utilize this function.

COMMAND\_CLASS\_BATTERY  
COMMAND\_CLASS\_NOTIFICATION\_V4  
COMMAND\_CLASS\_ASSOCIATION\_V2  
COMMAND\_CLASS\_CONFIGURATION  
COMMAND\_CLASS\_SENSOR\_BINARY\_V2  
COMMAND\_CLASS\_WAKE\_UP\_V2

## **Operation Mode**

There are two modes "Test" and "Normal". "Test Mode" is for the user test the sensor function when installation."Normal Mode" is for the normal operation.

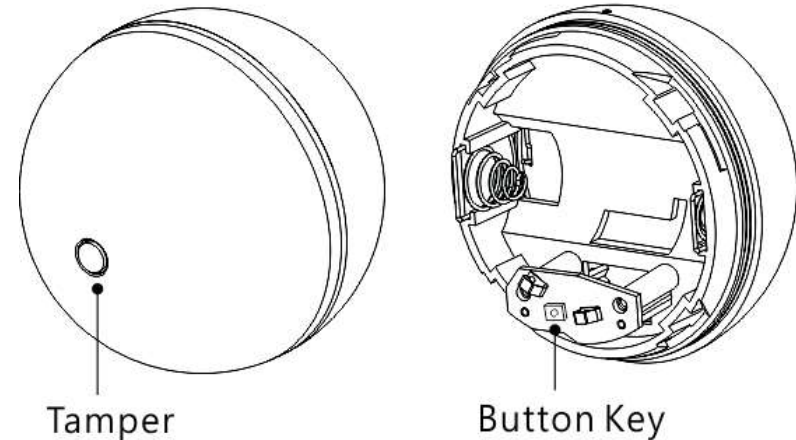
Operation Mode can be switched by pressing button or tamper key two times. LED can indicate which mode it is. Lighting on one second means entering test mode, flashing once means entering normal mode.

When the event triggered, normally the LED won't indicated, unless the battery is in the low level, the LED will flash once. But in the "Test Mode" the LED also will light ON one second.

When the event triggered, the device will report the messages to the nodes in the group 1. The messages also include the battery level. The user can switch the report by setting the configuration NO. 7 bit6 (battery).

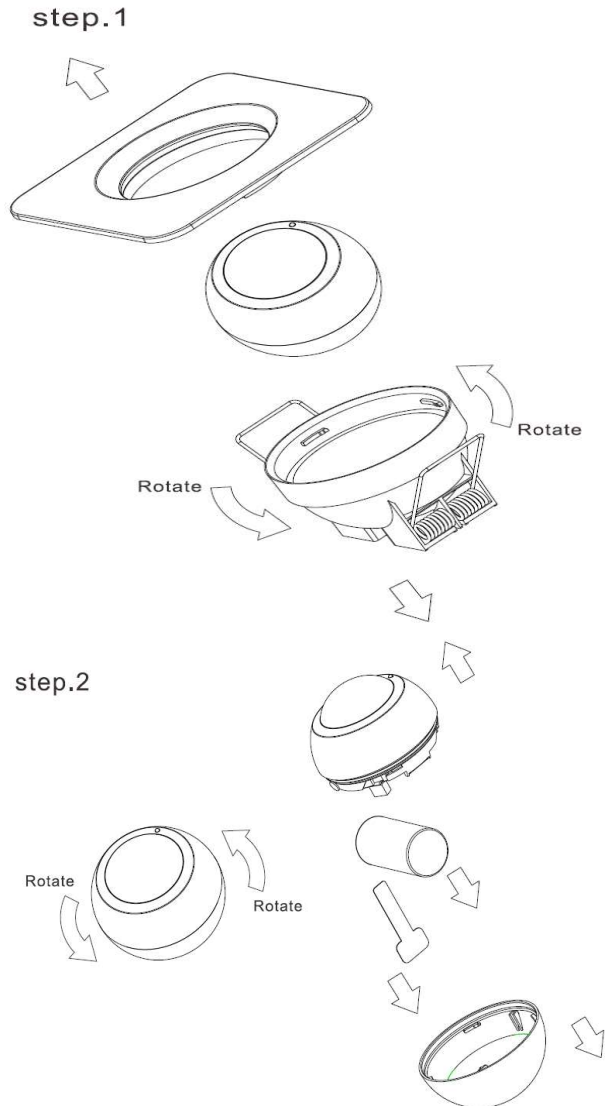
When the event triggered, the device will emit the signal to turn ON the lighting equipment, those nodes are in the group 2. And delay a while to turn OFF the lighting equipment. The delay time is setting by the configuration NO. 9.

The PIR motion re-detected interval, in the "Test Mode" fixed to 6 seconds. In the "Normal Mode", it according to the setting of the configuration NO. 8.



## Battery Installation

When the device reports the low battery message, users should replace the battery. The battery type is CR123A, 3.0V.



## Z-Wave Configuration Settings

### Notice:

- \* All of the configuration, the data size is 1.
- \* The configuration mark with star(\*), means after the remove the setting still keep, don't reset to factory default. Unless the user execute the "RESET" procedure.
- \* The reserve bit or not supported bit is allowed any value, but no effect.

## Z-Wave Supported Command Class

COMMAND\_CLASS\_ZWAVEPLUS\_INFO\_V2  
COMMAND\_CLASS\_BATTERY  
COMMAND\_CLASS\_NOTIFICATION\_V4  
COMMAND\_CLASS\_ASSOCIATION\_V2  
COMMAND\_CLASS\_CONFIGURATION  
COMMAND\_CLASS\_MANUFACTURER\_SPECIFIC\_V2  
COMMAND\_CLASS\_VERSION\_V2  
COMMAND\_CLASS\_SENSOR\_BINARY\_V2  
COMMAND\_CLASS\_WAKE\_UP\_V2  
COMMAND\_CLASS\_ASSOCIATION\_GRP\_INFO  
COMMAND\_CLASS\_POWERLEVEL  
COMMAND\_CLASS\_DEVICE\_RESET\_LOCALLY  
COMMAND\_CLASS\_MULTI\_CMD  
COMMAND\_CLASS\_SECURITY

NO	Name	Def.	Valid	Description
2	Basic Set Level	-1	All	Setting the BASIC command value to turn on the light. -1(0xFF) means turn on the light. For dimmer equipment 1 to 100 means the light strength. 0 means turn off the light. <b>Caution:</b> The range is from 0x00~0xFF using hexadecimal notation.
3 (* )	PIR Sensitivity	80	0 ~ 99	PIR sensitivity setting. 0 means disable the PIR motion. 1 means the lowest sensitivity, 99 means the highest sensitivity. High sensitivity means can detected long distance, but if there is more noise signal in the environment, it will re-trigger too frequency.
6 (* )	Mult-Sensor Function Switch	5	All	Multisensor function switch. Using bit to control. <b>Caution:</b> The range is from 0x00~0xFF using hexadecimal notation.
		0		<b>Bit0:</b> Reserve.
		0		<b>Bit1:</b> Reserve.
		1		<b>Bit2:</b> Reserve.
		0		<b>Bit3:</b> When Bit2 is 0 (Enable), Are the device and the lighting in the same room? 0: In the same room(Default), 1: In the different room. <b>Notice:</b> If this bit is 1, it is recommended also set the Bit1 to 1, cause the PIR triggered, doesn't mean the people in that room.

NO	Name	Def.	Valid	Description
		0		<b>Bit4:</b> Disable delay 5 seconds to turn off the light, when door/window closed. (1:Disable, 0:Enable)
		0		<b>Bit5:</b> Disable auto turn off the light, after door/window opened to turn on the light. (1:Disable, 0:Enable) <b>Notice:</b> If bit2 is zero, this setting is useless. <b>Notice:</b> If the configuration No.9 is zero, this setting is useless.
		0		<b>Bit6:</b> Reserve.
		0		<b>Bit7:</b> Reserve.
7 (* )	Customer Function	4	All	Customer function switch, using bit control. <b>Caution:</b> The range is from 0x00~0xFF using hexadecimal notation.
		0		<b>Bit0:</b> Reserve.
		0		<b>Bit1:</b> Enable sending motion OFF report. (0:Disable, 1:Enable) <b>Note:</b> Depends on the Bit4, 0: Report Notification CC, Type: 0x07, Event: 0xFE 1: Sensor Binary Report, Type: 0x0C, Value: 0x00
		1		<b>Bit2:</b> Enable PIR super sensitivity mode. (0:Disable, 1:Enable)
		0		<b>Bit3:</b> Reserve.
		0		<b>Bit4:</b> Notification Type, 0: Using Notification Report. 1: Using Sensor Binary Report.
		0		

NO	Name	Def.	Valid	Description
		0		<b>Bit5:</b> Disable Multi CC in auto report. (1:Disable, 0:Enable)
		0		<b>Bit6:</b> Disable to report battery state when the device triggered. (1:Disable, 0:Enable)
		0		<b>Bit7:</b> Reserve.
8	PIR Re-Detect Interval Time	3	1 ~ 127	In the normal mode, after the PIR motion detected, setting the re-detect time. 8 seconds per tick, default tick is 3 (24 seconds). Setting the suitable value to prevent received the trigger signal too frequently. Also can save the battery energy. <b>Notice:</b> If this value bigger than the configuration setting NO. 9. There is a period after the light turned off and the PIR not start detecting.
9	Turn Off Light Time	4	0 ~ 127	After turn on the lighting, setting the delay time to turn off the lighting when the PIR motion is not detected. 8 seconds per tick, default tick is 4 (32 seconds). 0 means never send turn off light command.
10	Auto Report Battery Time	12	0 ~ 127	The interval time for auto report the battery level. 0 means turn off auto report battery. The default value is 12. The tick time can setting by the configuration No.20.
20	Auto Report Tick Interval	30	-128~127	The interval time for auto report each tick. Setting this configuration will effect configuration No.10.

NO	Name	Def.	Valid	Description
				The unit is 1 minute. <b>Caution1:</b> Setting to <b>0</b> means turn off all auto report function. <b>Caution2:</b> The range is from 0x00~0xFF using hexadecimal notation.

## Disposal



This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.

Philio Technology Corporation  
8F., No.653-2, Zhongzheng Rd., Xinzhuang Dist., New Taipei City  
24257, Taiwan(R.O.C)  
**www.philio-tech.com**

## FCC Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates,



uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

## Warning

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities. Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging

your health and well-being.

When replacing old appliances with new once, the retailer is legally obligated to take back your old appliance for disposal at least for free of charge.

**Note:** The illuminance may be affected by the angle at which the lens is shaded

### 警語:

「取得審驗證明之低功率射頻器材，非經核准，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

低功率射頻器材之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。

前述合法通信，指依電信管理法規定作業之無線電通信。低功率射頻器材須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。」