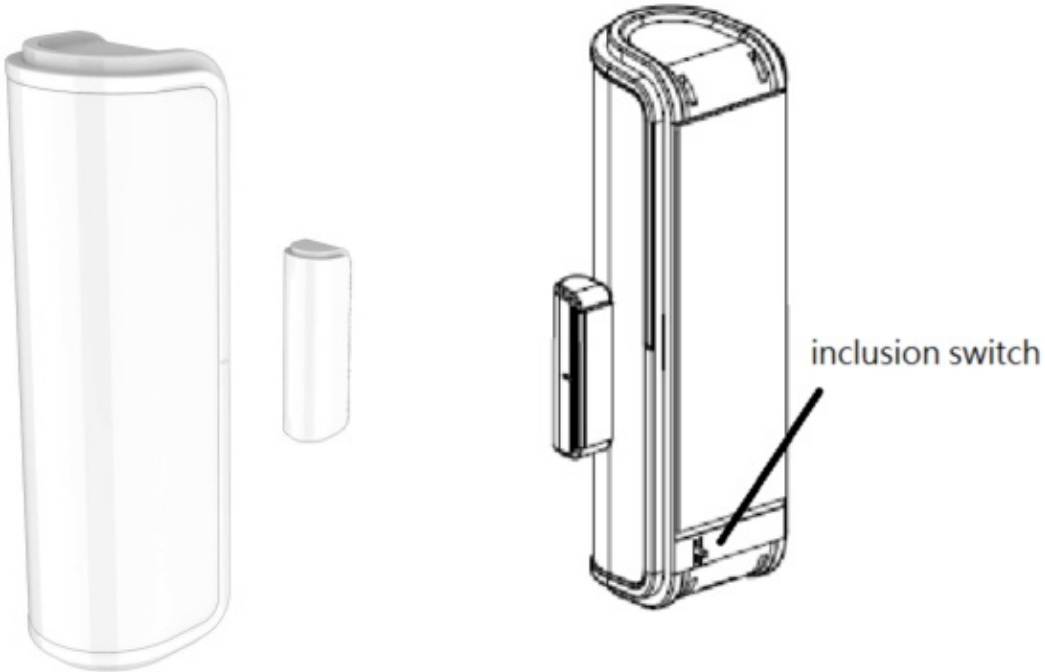
Z-Wave PST09 4-In-1 Multi Sensor User Manual

Z-Wave PST09 4-In-1 Multi Sensor

The 4 in 1 multi-sensor PST09 has PIR, door/window, temperature, and light sensor for combining several functionalities in one device, based on Zigbee 3.0 technology. ZigBee is the only open, global wireless standard to provide the foundation for the Internet of Things by enabling simple and smart objects to work together, improving comfort and efficiency in everyday life.



Contents

Warning:

lost network will cause the battery to continue to consume power.
When the device power on, the device will check is it already adding to the network? If does, but can't handshake, the device will try to link with zigbee network every minute. After 6 times, the device LED will flash in every second and continue 30 seconds. The cycle will not stop until join the network.
This will cause the battery to continue to consume power.

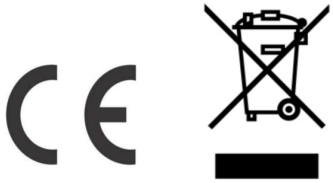
Function Compare A/B/C/D

	PIR	Door/Window	Temperature	Light sensor
PST09-A	V	V	V	V
PST09-B	V		V	V
PST09-C		V	V	V
PST09-D	V			

Specification

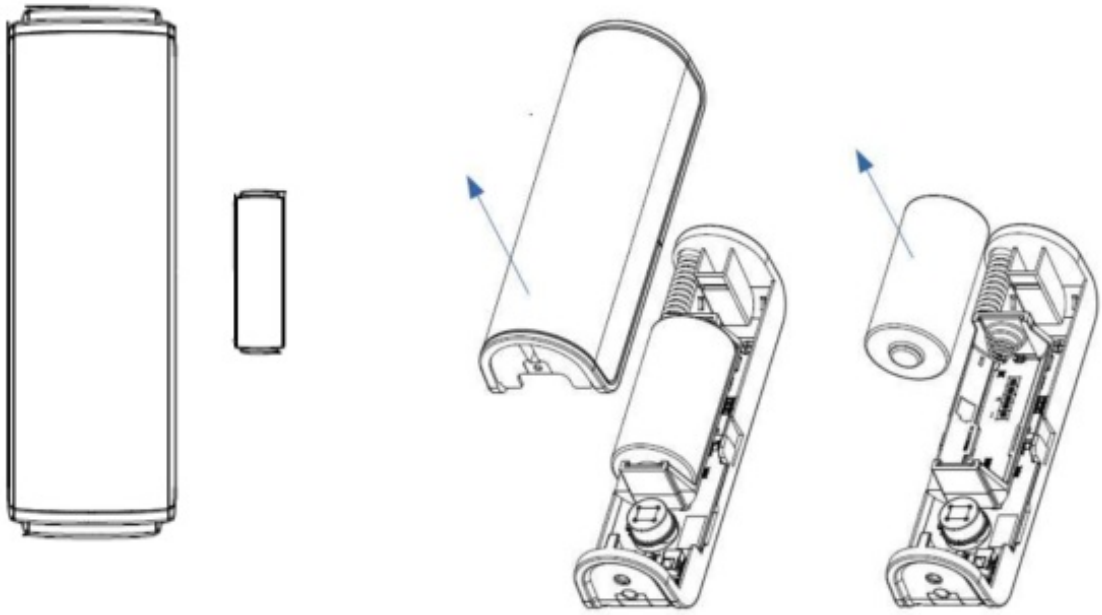
Rated	DC3V (CR123A)
RF distance	Min. 40M indoor, 100M outdoor line of sight,
RF Frequency	2405-2480MHz (16 channels (EU/US/CSA/TW/JP)
RF Maximum Power	+8dBm
Function	PIR, door/window, temperature and light sensor
Dimension	24.9 x 81.4 x 23.1mm 25.2 x 7.5 x 7 mm (magnetic)
Weight	
Location	indoor use only
Operation temperature	-20ºC ~ 50ºC
Humidity	85%RH max
Marking	CE

- Specifications are subject to change and improvement without notice.



For Instruction to **http://www.philio-tech.com**

Overview



Add to/Reset to default from Zigbee Network

There are two tamper keys in the device, one is in the back side, another is in the device. They have the same function. Both of them can joining network, reset from Zigbee network.
In the first time, add the device into the Zigbee network. First, make sure the primary controller is in the inclusion mode. And then power on the device, Pressing tamper key three times within 1.5 seconds will enter inclusion mode. The device will auto start the try joining network mode. And it should be included in 120 seconds. You will see the LED light ON one second.

*** Joining network:**

1. Have Zigbee Controller entered inclusion mode.
2. Pressing tamper key three times within 1.5 seconds will enter inclusion mode.

*** Reset to default:**

1. Pressing tamper key four times within 1.5 seconds and do not release the tamper key in the 4th pressed, and the LED will turn ON.
2. After 3 seconds the LED will turn OFF, after that within 2 seconds, release the tamper key. If successful, the LED will light ON one second. Otherwise, the LED will flash once.
3. IDs are excluded and all settings will reset to factory default.

Zigbee IAS-ZONE

While the device is associated with a Zigbee network:

- The PST09 will try to find the CIE.
- When PIR was triggered or door/window sensor was triggered. PST09 will send “ZCL Zone State Change Notification” to CIE.

Zigbee Message Report

*** Motion Report:**
When the PIR motion detected, the device will unsolicited to send the “Zone Status Change Notification” to the CIE.

Cluster ID : 0x0500
Zone Type: Motion (0x000D) Zone State : 0x0001 (see Table1 bit0 = 1)

*** Motion off Report:**
When the PIR motion detected, After 30 seconds the device will unsolicited to send the “Zone Status Change Notification” to the CIE.

Cluster ID : 0x0500
Zone Type: Motion (0x000D) Zone State : 0x0000 (see Table1 bit0 = 0)

*** Door/Window Report:**
When the Door/Window state changed, the device will unsolicited to send the “Zone Status Change Notification” to the CIE.

Cluster ID : 0x0500
Zone Type: Door/Window (0x0015) Zone State : OPEN : 0x0001 (see Table1 bit0 = 1) CLOSE : 0x0000 (see Table 1 bit0 = 0)

*** Tamper Report:**
When the 2 tamper keys in the device are pressed over 5 seconds. The device will into the alarm state. In that state, if any one of the tamper keys be released, the device will unsolicited to send the “Zone Status Change Notification” to the CIE.

Cluster ID : 0x0500
Zone State : 0x0004 (see Table1 bit2 = 1)

When the temperature differential over 0.5 Celsius, the device will unsolicited to send the “Zone Status Change Notification” to the CIE.

Cluster ID : 0x0402 Attribute ID : 0x0000 Endpoint : 0x03 DataType : 29

*** Illumination Report:**
When the illumination defferential over 5 percent, the device will unsolicited to send the “Zone Status Change Notification” to the CIE.

Cluster ID : 0x0400 Attribute ID : 0x0000 Endpoint : 0x04 DataType : 21

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

- Low battery report:

  When the battery level is too low, every 30 minutes will report once.

Cluster ID : 0x0500
Zone State : 0x0008 (see Table1 bit3 = 1)

- Set temperature auto report:

  The time setting ranges from 1 to 255 minutes. The shortest setting could be 60 seconds, equal to 1 minute, the longest one could be 15300 seconds, equal to 255 minutes. Please set it with 60pcs.

Cluster ID : 0x0500
Zone State : 0x0008 (see Table1 bit3 = 1)

- Set temperature auto report:

  The time setting ranges from 1 to 255 minutes. The shortest setting could be 60 seconds, equal to 1 minute, the longest one could be 15300 seconds, equal to 255 minutes. Please set it with 60pcs.

Cluster ID : 0x0402 Attribute ID : 0x0000 Endpoint : 0x03 DataType : 29 minReportTime : 0x0001 (seconds between reports) 0xFFFF (stop report) maxReportTime : 0x0001 (seconds between reports) 0xFFFF (stop report)

- Set illumination auto report:

  The time setting ranges from 1 to 255 minutes. The shortest setting could be 60 seconds, equal to 1 minute, the longest one could be 15300 seconds, equal to 255 minutes. Please set it with 60pcs.

Cluster ID : 0x0400

Attribute ID : 0x0000

Endpoint : 0x04

DataType : 21

minReportTime : 0x0001 (seconds between reports) 0xFFFF (stop report)

maxReportTime : 0x0001 (seconds between reports) 0xFFFF (stop report)

Notice1: “Zone State” change as PIR triggered door/window triggered or low battery. (see Table1)
Notice2: If device have motion sensor, will send “Endpoint” is 0x01 message. If device have door/window sensor, will send “Endpoint” is 0x02 message. And then if device have motion sensor and door/window sensor, will send “Endpoint” is 0x01 message and “Endpoint” is 0x02 message in all message report.

Attribute Bit Number	**Meaning**	**Values**
0	Alarm1	1 – opened or alarmed 0 – closed or not alarmed
1	Alarm2	1 – opened or alarmed 0 – closed or not alarmed
2	Tamper	1 – Tampered 0 – Not tampered
3	Battery	1 – Low battery 0 – Battery OK
4	Supervision reports (Note 1)	1 – Reports 0 – Does not report
5	Restore reports (Note 2)	1 – Reports restore 0 – Does not report restore
6	Trouble	1 – Trouble/Failure 0 – OK
7	AC (mains)	1 – AC/Mains fault 0 – AC/Mains OK
8-15	Reserved	–

Table 1 Zone Status Value

Power Up Procedure

*** Battery Power Check**
When the 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.

*** Network State Check**
When the power on, the device will check the network state. If the device join network , the LED will steady off. If doesn't, The LED will flash in every second and continue 120 seconds.

*** PIR Warm Up**
When the power on, the PIR need to warm up before 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.

*** Try joining network**
When the power on, the device will check is it already adding to the network? If doesn't, it will auto start the joining network mode. Until timeout or the device joined network.

*** lost network**
When the device power on, the device will check is it already adding to the network?
If does, but can't handshake, the device will try to link with zigbee network every minute.
After 6 times, the device LED will flash in every second and continue 30 seconds.
The cycle will not stop until join the network.
This will cause the battery to continue to consume power.

Over The Air (OTA) Firmware Update

The device support the Zigbee firmware update via OTA.
Before starting the procedure, please remove the front cover of the device. Otherwise the hardware check will be failed.
The Device will find the OTA server in the network. The OTA server will provide the necessary information to device. The device will decide if the OTA is necessary.

Operation Mode

There are two operation modes of the device. The user can choosing the suitable mode for application.
There are two modes "Test" and "Normal".
"Test Mode" is for the user test the sensor function when installation.
"Normal Mode" is for the user normal use.
When the event triggered, In "Normal Mode" the LED won't indicated, unless the battery is in the low level, the LED will flash once. And in the "Test Mode" the LED also will light ON one second.
The PIR motion re-detected interval, in the "Test Mode" fixed to 8 seconds. In the "Normal Mode", the PIR motion will start re-detected interval around 30 seconds.
Notice: When the tamper key of the back side is in the released state, the device always in the "Test Mode".

Choosing a Suitable Location

1. The recommended mounting height is 160cm
2. Don't let the device facing the window or the sunlight.
3. Don't let the device facing the source of heat. For instance the heater or the air-condition.

Battery Installation

Battery Installation

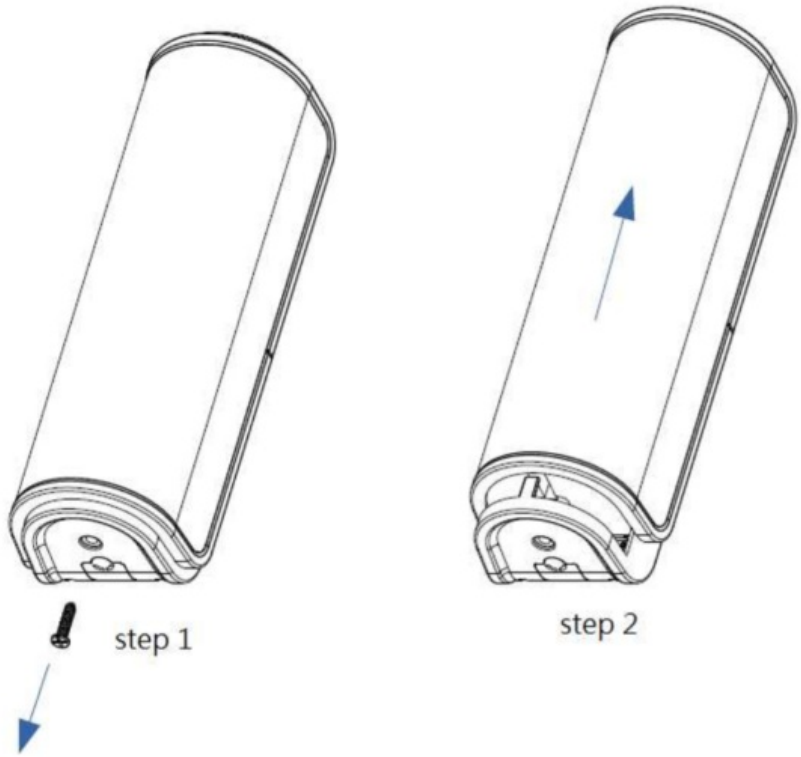
When the device reports the low battery message, users should replace the battery. The battery type is CR123A, 3.0V.

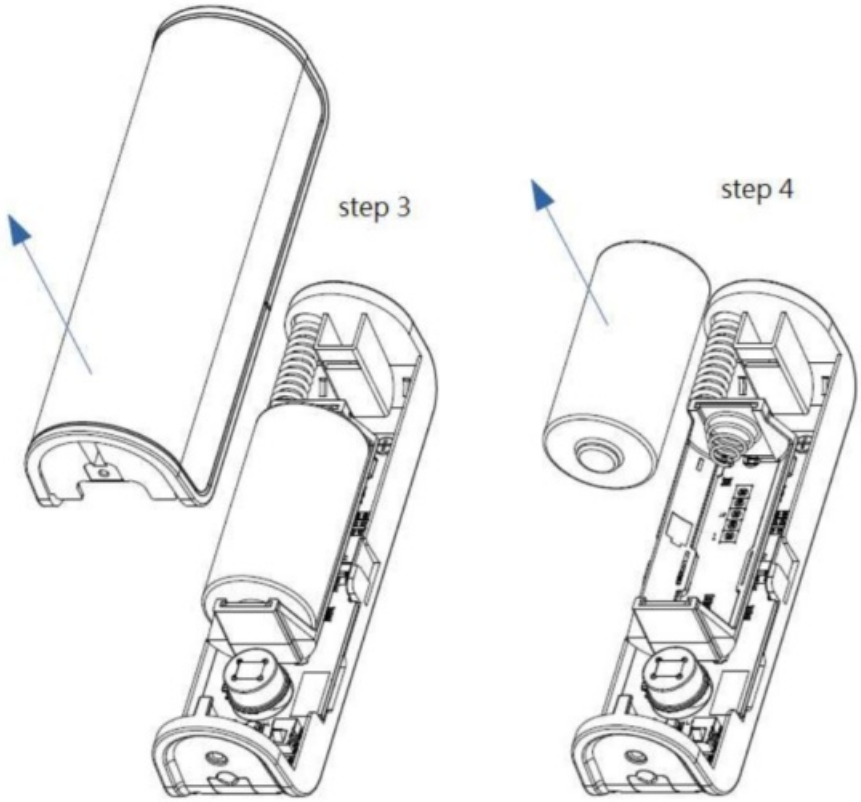
To open the front cover, follow the steps below.

1. Use a screwdriver to loosen the screw. (step 1)
2. Hold the front cover and push it up. (Step 2)

Replace the battery with a new one and replace the cover.

1. Align the bottom of the front cover with the lower cover. (Step 3).
2. Push the top of the front cover to close and lock the screw. (Step 4 and step 1)





Installation

1. In the first time, add the device into the Z-WaveTM network. First, make sure the primary controller is in the inclusion 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. (refer to fig. 1)
2. Let the controller associate with the device into the first group, any light switch that intend to be turned on when the device trig please associate with the device into the second group.
3. In the accessory pack, There is double-coated tape. you can use a double coated type for the test at the beginning. The right way for double coated type installation is to stick it to the position of the back. the sensor will enter the test mode, You may test if the installed position is good or not by this way (refer to fig. 2 and fig. 3)

fig. 1

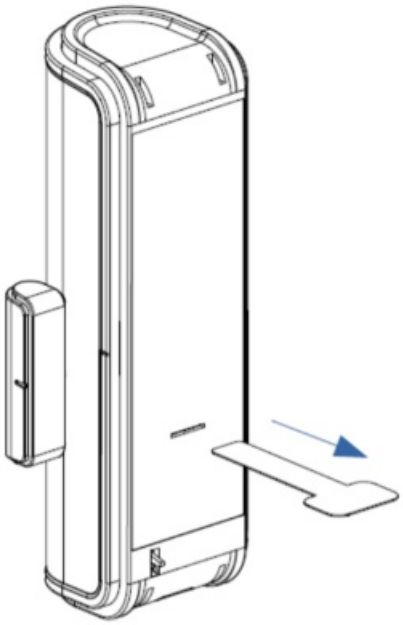


fig. 2

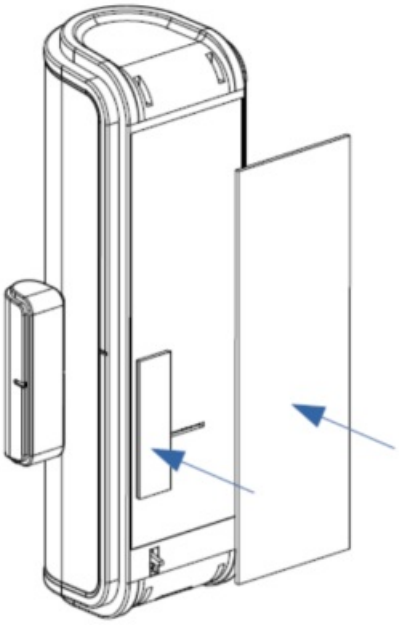
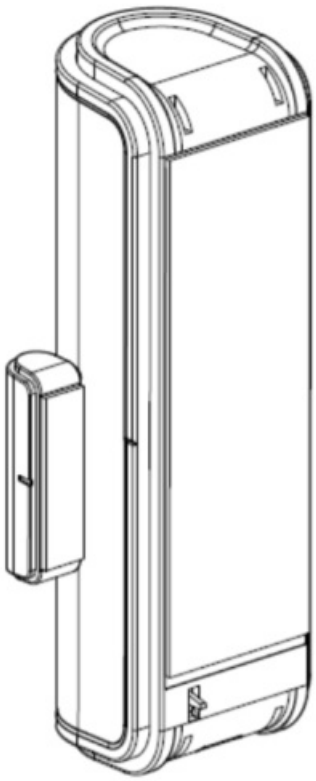


fig. 3



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.

Documents / Resources

	Z-Wave PST09 4-In-1 Multi Sensor [pdf] User Manual PST09, 4-In-1 Multi Sensor