OPTEX

Installation Manual

Occupancy sensor

CPI-E
CPI-U

enocean®

Features

- This is a Passive Infrared Motion detector with EnOcean protocol for wireless transmissions.
- Use this indoor or outdoor, in a wet or dry environment with its internal protection (Rated IPX5) structure.
- Auto sensitivity adjustment stabilises detection capability in a dynamic environment.
- A combination of a solar panel and a battery enables a reliable operation in a various lighting condition.
- Aesthetic design to meet atmospheres of modern environment

Thank you for using OPTEX product.

Notice

✓ Please read this manual before installation.
✓ Please keep this manual available for future reference.
✓ OPTEX is not held responsible for any damage nor collateral indemnification resulting from breakdown and inappropriate usage of this product.

FC 902MHz : FCC : SZV-STM300U
IC : 5713-STM300U

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 opera-tion. Any changes or modifications not expressly approved by manufacturer could void the user's authority to operate the equipment.
IMPORTANT! Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

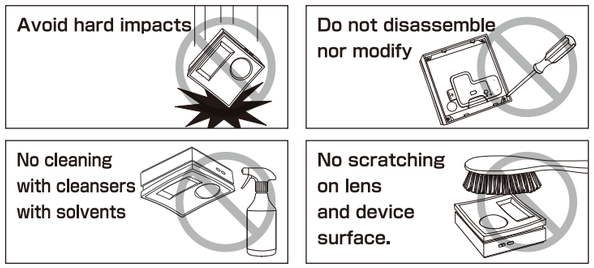
This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.
IMPORTANT! Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, meme si le brouillage est susceptible d'en compro-mettre le fonctionnement.
IMPORTANT! Tous les changements ou modifications pas expressément approuvés par la partie responsable de la conformité ont pu vider l'autorité de l'utilisateur pour actioner cet équipment.

Conforms to WEEE Directive (2012/19/EU).
Do not dispose as general household wastes.
Follow national laws/regulations to dispose.
CR-123A batteries are used.
Follow EU Battery Directive (2013/56/EU) to dispose batteries.
Do not burn.

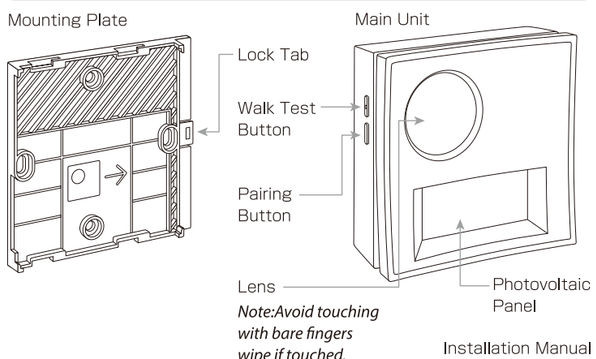
CE

No.5925202

Safety Precautions



Device Structure and Accessories



Not included but required
Lithium Battery (CR123A) 1pc

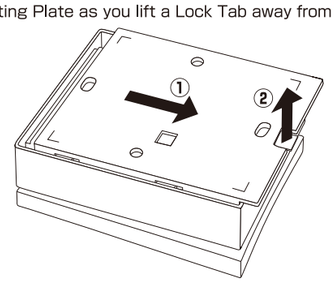
Hereby, OPTEX declares that the radio equipment type CSW-1/2-E is in compliance with RED 2014/53/EU.
The full text of the EU DoC is available at the following internet address;
www.optex.net
The following list indicates the areas of intended use of the equipment and any known restrictions. For countries not indicated in this list, please consult the responsible Spectrum Management Agency.
868 MHz ; Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherland, Spain, Sweden, United Kingdom, Other non EU: Iceland, Norway and Swizerland.
902 MHz ; USA, Canada
RF emission Frequency and Power;
868 MHz 3 mW e.i.r.p
902 MHz 3 mW e.i.r.p
EU contact information
Manufacturer:
OPTEX CO., LTD. 5-8-12 Ogoto, Otsu, Shiga, 520-0101 JAPAN
Authorised representative in Europe:
OPTEX (EUROPE) LTD. / EMEA HEADQUARTERS
Marandaz House 1 Cordwallis Park, Clivemont Road, Maidenhead, Berkshire, SL6 7BU, U.K.

Installation Process

① To remove the Mounting Plate
② Insertion of a Lithium Battery
③ Pairing
④ Setting DIP Switches
⑤ Physical Installation
⑥ Testing Detections
⑦ Testing Transmissions

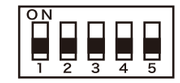
① To remove the Mounting Plate

Slide the Mounting Plate as you lift a Lock Tab away from the Main Unit.



④ Settings

If necessary, setting can be changed from a DIP switches inside a Battery cover.
Refer to a following table for each setting.

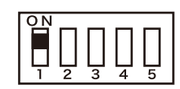


Position by Factory Default

①	LED indication	Set ON/OFF for LED lights when detections are made
②	Detection sensitivity	Change Standard/Low for sensitivity of detection
③	Indoor/outdoor mode	Adjust to the installation environment
④	Transmission by-pass time	Set 1 or 2 minute wait time before the next signal
⑤	Void	(No function assigned)

④-1. LED Indication

LED will light in [RED] when detection human motions while the DIP switch is set to ON.

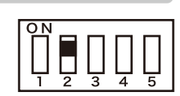


Note:
- *If LED indication setting is ON, battery life expectancy will be shorter.*
- *While in a walk test mode, LED will light regardless of LED indication setting. (ref. section 6)*
- *While warming up, LED will light regardless of LED indication setting.*

Switch Position	LED indication
ON	ON
OFF	OFF

④-2. Detection Sensitivity

The device automatically shift its sensitivity in accordance to surrounding temperature
- The overall sensitivity level can be adjusted.
- Perform a walk test every time, sensitivity setting is changed.



Switch Position	Sensitivity Level	Condition
ON	Low	Set this to minimize unnecessary transmission
OFF	Standard	Factory default setting

Note:
Sensitivity setting is effective in both Indoor and Outdoor mode.

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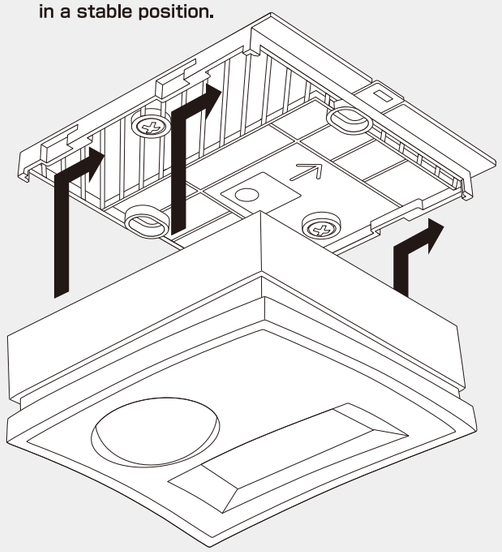
- Secure the Mounting Plate onto a designated position.
- Make sure a battery cover is tightly placed on the main unit.
- Slide in the main unit onto the Mounting Plate.
- Make sure that a lock tab has fixed the main unit in a stable position.



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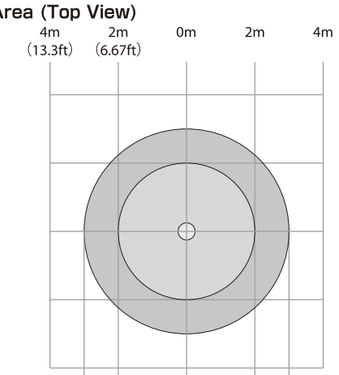
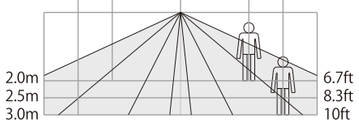
Detection Area Diagram

Detection Area (Top View)



Detection Area (Side View)



MAX. Detection Area

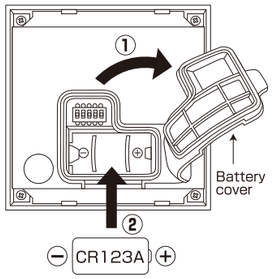
Monting height m(ft)	2.0-2.5 (6.7-8.3)	2.5-3.0 (8.3-10)
Detection size Φm(ft)	4 (13.3)	6 (20)

The Detection Area may change with temprature of surrounding environment.

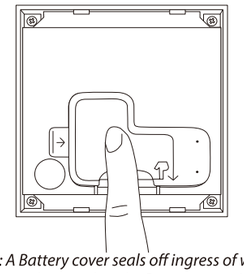
② Insertion of a Lithium Battery

- Lift off a Battery cover on the back of a Main Unit
- Insert CR123A Battery in an accordance to pole marks.

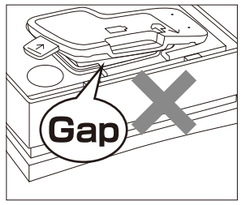
Note: Red LED will start blinking in a warm up sequence for 30 seconds when a battery is inserted



- Put a Battery cover back and make sure ridges meet correctly

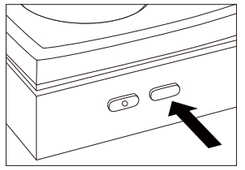


Note: A Battery cover seals off ingress of water. Please make sure that the Battery cover is not ajar.



③ Pairing

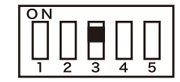
- Set a receiving equipment in a paring waiting mode.
- Keep pressing on an pairing button for 5 seconds.
- LED flashes in [Green] twice, as a paring signal is transmitted( ).



Please redo this procedure when re-pairing the device.

④-3. Indoor/Outdoor Mode

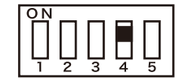
- The device has internal protection structure against ingress of water (rated IPX5)
- The device can be mounted on ceilings of eaves in outdoor environment.



Switch Position	Location	Condition
ON	Outdoor	This setting reduces unnecessary detection due to environmental factors.
OFF	Indoor	This setting prioritise detection capability of the device.

④-4. Transmission By-pass Time

- This setting controls duration time to the next consecutive transmission of signal.
- The setting controls duration to the first unoccupied signal (absence of human detection).
- During Transmission by-pass time, no human detection will be captured.



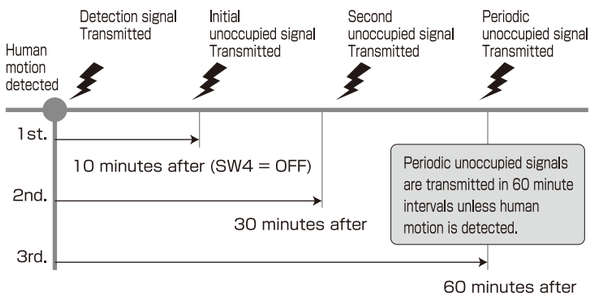
Switch Position	Transmission by-pass time	The first unoccupied signal	Periodic unoccupied signal
ON	1min.	After 5 min	30min.→60min. ···
OFF	2min.	After 10 min	30min.→60min. ···

Note:
- *The first unoccupied signal is sent after 5 or 10 minutes from the time, last human detection is made.*
- *The second unoccupied signal is sent after 30min from the last detection signal.*
- *The third and following unoccupied signal will be sent in a hour interval*

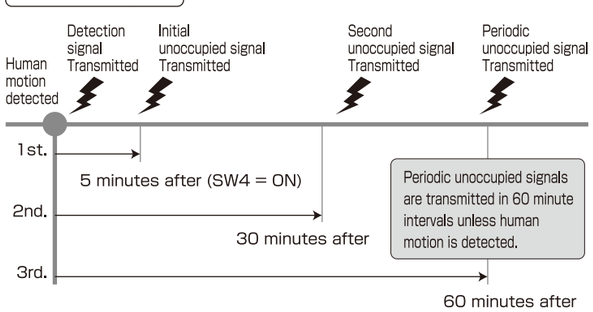
Transmission Timing Chart

This chart illustrates timings of signal transmissions after detection of human motion by the device.

If SW4 is OFF



If SW4 is ON

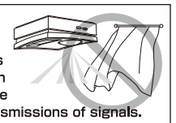


⑤-1. Precautions for a place of Installation.

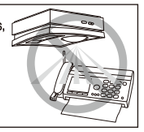
General Precautions

Avoid positioning the device from direct exposures to hot or cold airflows from vents and air-conditioning equipment.

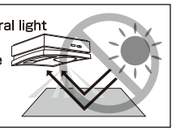
Curtains, blinds and moving objects in the detection area may cause excessive transmissions of signals.



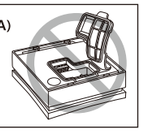
Facsimiles, copy machines, refrigerator and anything that creates heat change in the detection area may cause excessive transmissions of signals.



Change of natural light in the detection area may cause excessive transmissions of signals.



A battery (CR-123A) must be used and the cover must be positioned tightly.

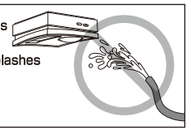


Additional Precautions

Trees and plants may cause excessive transmissions of signals.

Set the device at an eave or a flat ceiling to look down on the ground.

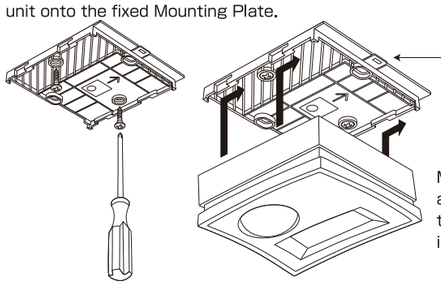
Avoid locations where water showers or splashes can forcefully hit the device.



Changes in lights, sun and car head lights may cause excessive transmissions of signals.

⑤-2. Installation

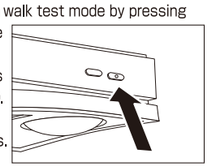
Fix the Mounting Plate on a ceiling.
Make sure that the battery cover is positioned tightly and slide the main unit onto the fixed Mounting Plate.



Make sure that a Lock Tab has fixed the main unit in stable position.

⑥ Walk Test

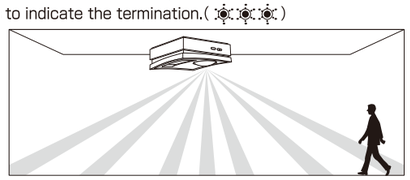
Perform a walk test at the installed location. Enter into a walk test mode by pressing (●) for 5 seconds. The button is located on a side of the main unit toward a corner.
When human motion is detected, LED will light up 4 times (0.1 second each) regardless of setting on DIP switch ①.



The walk test mode ends automatically after 3 minutes.
LED[RED] lights 3 times to indicate a termination of the walk test mode.(✳✳✳)
To extend the walk test mode, press (●) again for 5 seconds.

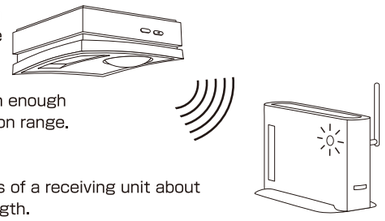
To intentionally exit the walk test mode, press (●) button for 2 seconds.
LED[RED] lights 3 times to indicate the termination.(✳✳✳)

Note:
While the device is warming up, the walk test mode can not be started.



⑦ Acknowledging Signal Transmissions

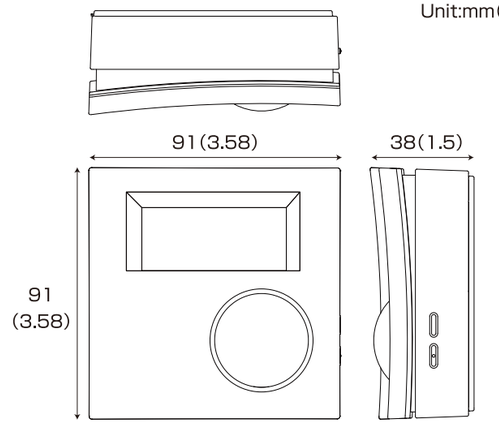
Range of signal transmissions is approximately 25m in an open line of sight.
Walls(especially metals and blicks) or any kind of separations in between the device and a designated receiving unit affect reaching distance of a transmitted signal.
Please note that a human presence may also reduce the range by blocking signal transmissions.
Place a receiving unit with enough allowance of a transmission range.



Please refer to documents of a receiving unit about how to check signal strength.

Dimensions

Unit:mm(inch)



LED Indications

LED [RED]: status indicates operations related to human motion detections

LED status			Indications	Additional note
RED	✳	keep flashing	Warming up	Warm up requires approximately 30 seconds at the minimum.
	◉	light for 0.1 second	Human motion detected	Applicable only when · DIP switch (1) is ON
	✳✳	flash 2 times	Initiating a walk test mode	· Walk test mode starts when (●) is pressed for 5 seconds.
	✳✳✳✳	flash 4 times	Walk test detected	Application only to Walk test mode. LED flashes regardless of any DIP switch position.
	✳✳✳	flash 3 times	Ending a walk test mode	· Walk test mode is terminated by pressing (●) button for 2 seconds.

LED [GREEN]: status indicates that EnOcean registering signal is being transmitted.

LED status			Indications	Additional note
GREEN	✳✳	flash 2 times	Transmitting EnOcean registration packets.	· Press ( ) for 5 seconds to transmit a single signal. · Repeat pressing ( ) for 5 seconds to transmit another signal of registration packets.

Trouble Shooting

Trouble shooting table

Symptoms	Causality	Countermeasures
The device does not respond	A battery (CR123A) is not inserted	Insert a new battery (CR123A). Move the device into a presence of light to enable energy harvesting.
	A battery power is low.	
	Insufficient light to fuel solar panel	
	Detection area is out of range.	Perform walk test to confirm detection area. Remove any temporary object that is blocking detection area.
Warm up does not finish	Disturbance during a warm up process.	Remove disturbance (Human motion, hot/cold moving object or sudden temperature changes) during warm up process.
No human is detected by device	Detection area is blocked by an object.	If anything exists between the device and moving human, detection area become ineffective. Mind tables, shelves, cubicle walls. Move the device to an appropriate location.
		Perform walk test to confirm detection area. Add an additional device to cover the blocked detection area.
	Surrounding temperature is near human body temperature.	The device can not detect human motion under a circumstance that a difference of temperatures between the human and surrounding environment is insignificant.
		Close distance from the device to the area where human motions are expected.
No detection signal is being transmitted	A battery power is low.	Insert a new battery (CR123A). Move the device into a presence of light to enable energy harvesting.
Detection signal is not recognised by a receiving unit.	Detection signal is not reaching a receiving unit.	Check signal strength level on a receiving unit.
	Pairing is not completed or paired status has been dissolved.	Check settings on the device and a receiving unit and repeat a pairing procedure.
Detection signal is transmitted without human presence (unnecessary signals)	Units are affected by RF noise.	Identify a source of RF noise and place the device away from the source.
	Moving heat source is located within the detection area.	Move the device or the heat source to avoid unnecessary signals. Set sensitivity setting to Low.
	Moving curtains, facsimiles, Air-conditioning equipment, vents and animals.	Mask off areas that are causing unnecessary signals.
Excess of signal transmissions in an outdoor environment	Presence of animals in the detection area	Set sensitivity to Low. Apply a fence or a deterrent to avoid animals from entering the detection area.
	Swaying trees and plants	Set sensitivity to Low. Minimize swaying factors of the trees and plants by pruning or changing a position of the device.
	Direct sunlight or car headlights and their reflections on water.	Set sensitivity to low. Change location of the device or mask off the area of reflective surfaces.

Please contact a designated technical support in case the device shows malfunctions or symptoms not described above.

Specification Table

Model name		CPI-E	CPI-U
Applicable environment		Indoor (includes bathrooms) and semi-outdoor environment	
Installation location/ internal protection rate		Ceiling mount / IPX5	
Detection technology		Passive infrared detection	
Installation height		2.0 to 3.0m(7 to 10 ft.)	
Detection area		φ6m (at 2.5m high)/φ20ft (at 8.3ft high)	
Power source		CR123A x1 & Solar Cell	
Battery life expectancy		Approximately 10 years (in a stable temperature living environment with LED (OFF) setting.)	
RF protocol		EEP A5-07-01 (EnOcean)	
RF frequency		868MHz	902MHz
Signal transmission range		25m/83.3ft (in an open line of sight)	
Warm up period		Approximately 30 seconds (with flashing LED)	
LED	LED [RED]	Warm up / human motion detection / walk test	
	LED [GREEN]	EnOcean registration transmission	
Buttons	Walk test mode button	Press for 5 seconds : initiates walk test mode (ends in 3 minutes) Press for 2 seconds : terminates walk test mode (effective during walk test mode)	
	pairing (EnOcean) button	Press for 5 seconds : transmits EnOcean pairing registration packets	
DIP switches	LED ON/OFF setting	ON / OFF	
	Sensitivity setting	Standard / low	
	Installation environment setting	Indoor / outdoor	
	Transmission by-pass time setting	2 minutes / 1 minute	
Dimensions mm(inch)		W91×H91×D38 (W3.58×H3.58×D1.5)	
Mass		180g(6.350oz) (including a CR123A battery)	
Operating temperature		−10℃ to +50℃ (+14°F to +122°F)	
Operation humidity		95% max.	
Accessories		+3×30 Tapping Screws (2pcs)	
Not included (but required)		A battery (CR123A)	
Conformity to standards		CE, RED	FCC, IC

Specification may be subject to change without a pre-notification.

Manufactured by
OPTEX
5-8-12 Ogoto Otsu Shiga 520-0101Japan
TEL. (077)579-8890 FAX. (077)579-7120

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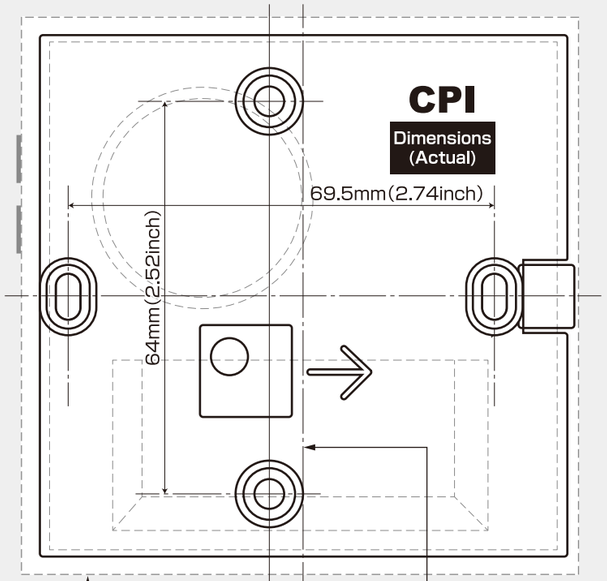
Mounting Guide Sheet

Use this pattern to position the device into a designated location



Screw holes are off set from the center line by 5.5mm(0.22inch).

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