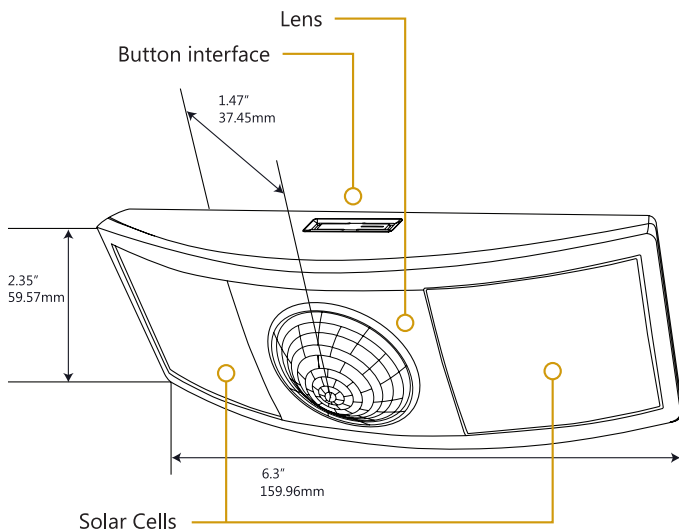




## Occupancy Sensor - Ceiling Mounted



### Specifications

Power Supply	Indoor light energy harvesting (Optional) Supplemental battery or 2-wire connector for external power or remote solar cell (3-5VDC)
Transmission Range	80 ft. (25 m)
Radio Frequency	EnOcean 315 MHz, ISO/IEC 14545-3-10 standard
Light Required to Sustain Operation	50 lux for 30 transmissions/hour 100 lux for 60 transmissions/hour
Charge Time before Linking	2 minutes @ 50 lux
Charge Time for Full Charge	3 hours @ 200 lux (after startup) 6 hours @ 200 lux (cold start)
Operating Life in Darkness (after full charge)	48 hours
EEP (EnOcean Equipment Profile)	A05-07-01
Heartbeat Intervals (for gateway systems)	2 - 12 mins., randomized
Dimensions	2.35" H x 6.3" W x 1.47" D (60 mm x 160 mm x 37 mm)
Weight	4.4 oz. (125 g)
Environment	Indoor use only 14° to 104°F (-10° to 40°C) 20% to 95% relative humidity (non-condensing)
Agency Compliance	FCC, IC

### Functional Description

If occupation is detected by the permanently active PIR sensor, a radio telegram indicating the occupied status will transmit immediately. An internal timer starts to run with a variable timer length. The timer value may vary between 60 and 300 seconds, depending on the light level. No radio telegrams will be sent out when the timer is counting down.

After the timer has finished the countdown, the unit will transmit again if occupancy was detected during the countdown time period. If occupancy was not detected, the unit will transmit a heartbeat signal - sending the unoccupied status with a random timing of 2 to 12 minutes. There are two buttons which allow entrance to a "Walk" or "Light-level" test mode. These test modes are for installation purposes only and will be exited automatically after 3 minutes.

#### Package Contents

- Occupancy Sensor
- 2 screws, 2 wall anchors
- Wire bracket

#### Tools Required

- Power drill, 3/16" bit
- Screwdriver
- Light meter
- Battery (CR2032) for testing

### Product Description

The ceiling-mounted Occupancy Sensor saves energy and adds convenience by accurately detecting when an area is occupied or vacant.

This device is wireless, powered by indoor light, and uses a passive infrared (PIR) sensor to detect motion. The occupancy sensor transmits RF signals that control lighting, HVAC and outlets to manage energy more efficiently.

#### Features Include:

- Sends wireless messages to other devices whenever motion is detected
- Harvests ambient solar energy to power the sensor and wireless communication
- Mounts easily on any ceiling material
- Works with other sensors for enhanced occupancy tracking
- Built-in tests to confirm operation at installed location
- Supplemental battery or alternative power supply options for extreme low-light conditions



## 1. Planning

Take a moment to plan for the sensor's successful operation and optimal communication with other system components.

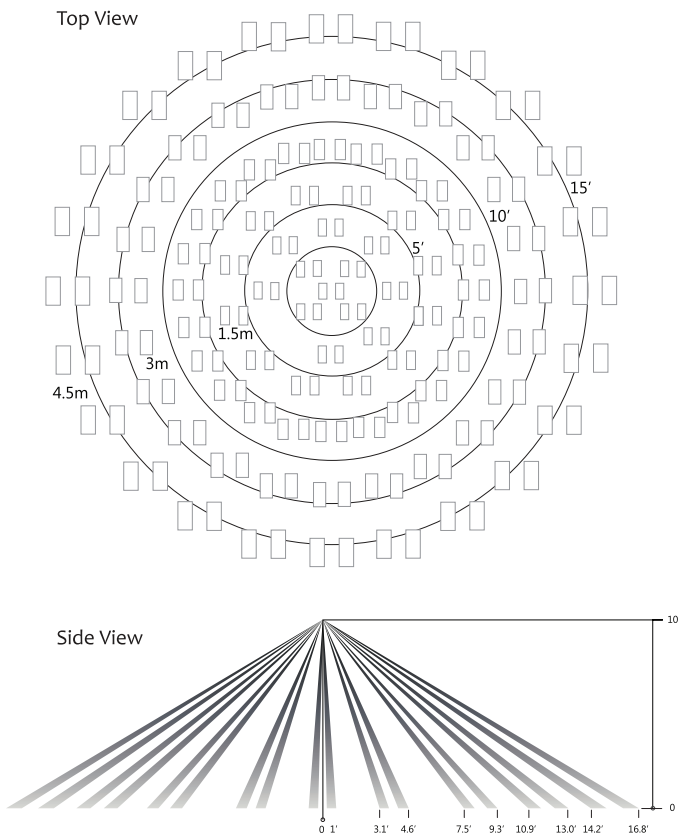
Remove the sensor from its packaging and place it under a bright light to provide the required startup charge. To quickly ensure the sensor energy storage is fully charged, insert a CR2032 battery for 5 minutes.

- Ensure the location provides consistent and adequate light
- Install with the appropriate lens for the required coverage
- Avoid installed near ceiling fan or hanging fixtures
- Consider the area's traffic patterns and principal use, for example, walking, working, lounging or sleeping
- Provide a minimum clearance of 4 ft. (1.2 m) away from heat sources, light bulbs, forced air, or ventilation systems
- Consider the construction materials (such as metal) in the space and obstacles that may interfere with RF signals

### Sensor Range

A single occupancy sensor provides sufficient coverage for most applications. For some applications, multiple sensors may be required to provide complete coverage.

### Coverage Diagrams



To provide coverage for very high ceilings, a wall sensor can be incorporated in the plan for complete coverage.

## 2. Installing

estimated time: 20 minutes

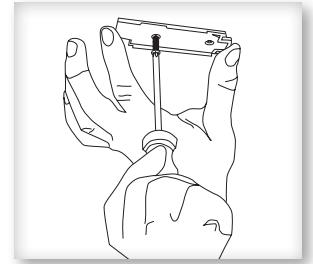
The occupancy sensor can be mounted on most ceilings with the provided screws, or mounted on dropped ceilings, using the provided wire bracket.

NOTE: It may be easier to link the sensor before it is mounted on the ceiling. Refer to the "Linking" section.

1. Decide where you want to install the occupancy sensor.  
Tip: For visual alignment, orient the sensor parallel to one of the walls.
2. Remove the mounting plate from the sensor.
3. Decide which of the two installation options is appropriate.

### A. Screw Mounting Plate to the Ceiling

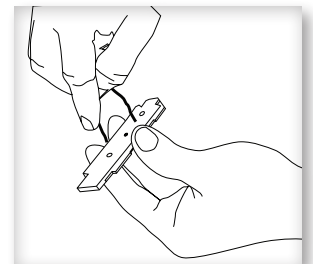
- i. Hold the mounting plate in place on the ceiling and use a pencil to lightly mark two small dots for the screw drill points.
- ii. Drill two holes with a 3/16" drill bit and insert the wall anchors.
- iii. Insert the first screw loosely and level the mounting plate.
- iv. Insert the second screw and then hand-tighten the first screw.



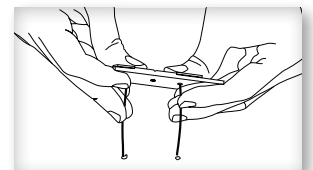
### B. Mount Using the Wire Bracket

- i. Remove the ceiling tile where you want to mount the sensor.
- ii. Place the mounting plate squarely on the ceiling tile and use the wire to mark two points for the holes.
- iii. Punch two small holes through the ceiling tile at the marked points.
- iv. Insert the wire bracket through the two holes in the mounting plate.

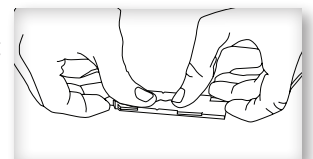
Make sure the ends are roughly even.



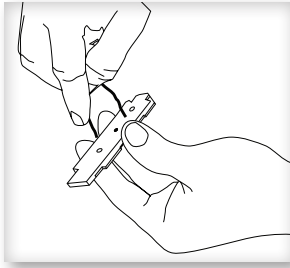
- v. Feed the wires through the holes in the ceiling tile.



- vi. On the front of the ceiling tile, flatten the wire bracket so it is snug against the mounting plate.



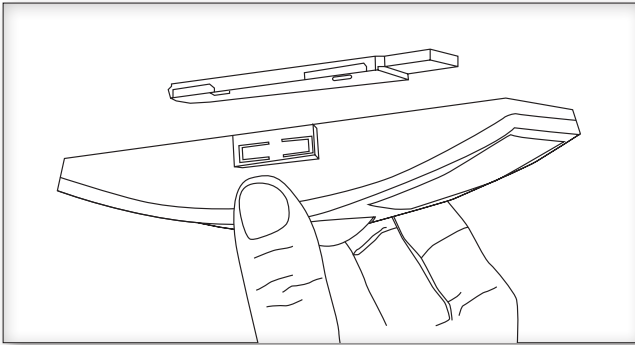
- vii. On the back of the ceiling tile, twist the wires together to hold the mounting plate securely.



- viii. Replace the ceiling tile.

4. Attach the sensor to the mounting plate.

With the 2-button interface facing you, slide the sensor to the left on the mounting plate until it snaps into place.



5. Confirm the sensor is properly positioned to detect motion and has sufficient light to operate - refer to the "Walk Test" and "Light Test" sections.

### 3. Linking

Two or more compatible devices can be linked and configured to provide the desired control. There are two basic types of devices in the system; transmitters and transceivers.

- **Transmit-only:** Transmitters are simple energy-harvesting devices that send RF messages to communicate a condition, level, or state. Transmitters can only be linked to transceivers. Examples > Self-powered Light Switches, Occupancy Sensors
- **Transmit & Receive:** Transceivers are controlling devices that send as well as receive RF messages. They also process relevant control logic, and actuate the appropriate outputs (switching a light on or off for example). Transceivers can be linked with transmitters as well as other transceivers. A transceiver can have up to 30 devices linked to it. Examples > Relays, Gateways

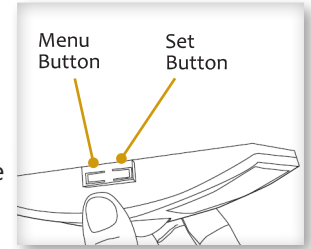
#### The Occupancy Sensor is a Transmit-only Device.

To link the occupancy sensor to a transceiver, the transceiver must first be powered, within wireless range of the sensor, and set to accept links.

Next, the desired transmitter, or another transceiver, is triggered to send a special link message. The awaiting transceiver receives and stores the link permanently so the devices can interact to provide a variety of intelligent control options.

#### To Link or Unlink an Occupancy Sensor

1. Set the desired transceiver to the desired Link/Unlink mode. (refer to that device's installation guide).
2. Click the Menu button on the bottom of the sensor once. This sends a link/unlink radio telegram.



NOTE: The button interface on the sensor is used for linking and testing only. The occupancy timer settings are configured on the transceiver to which the sensor is linked.

**Refer to the "Linking" section of the transceiver/controller installation guides to complete the linking process.**

#### Testing the Sensor

Before starting a test, ensure the sensor's energy storage is fully charged by placing it under bright light (at least 200 lux) for 20 minutes, or insert a battery for 5 minutes.

If a battery is used to charge the sensor for a light test, ensure it is removed to get an accurate light measurement.

A test mode will stay active for 3 minutes. To exit a test and resume normal operation, press and hold the Menu button for 5 seconds.

#### Walk Test

Use the walk test to confirm that motion is within the sensor's range.

1. Press and hold the Set button for 5 seconds.
  - > Red LED will blink to confirm that a walk test is active.
2. Move in and out of the sensor's range to determine its coverage area.
  - > Sensor will blink when it detects motion.
3. Make small hand movements just inside the limit of the sensor's range to see if the motion triggers a response.

#### Light Test

Use the light test to measure real-time light levels and confirm whether the occupancy sensor has sufficient light.

1. Create a realistic lighting condition (the test measures the real-time light level).
2. Press and hold the Set button for 10 seconds.
  - > Red & green LEDs will blink to confirm light test is active.
3. Watch the LED blink rate to determine the light strength.
  - > The highest is 5 blinks which indicates very good light (200 lux or more). 1 blink indicates minimum light (15 lux).

NOTE: If there is no blink rate, consider relocating the sensor or installing a battery to provide supplemental power. If the sensor does not have a sufficient charge, it cannot enter the test modes. No LED light or 1 red blink when the test button is pressed indicates insufficient charge.

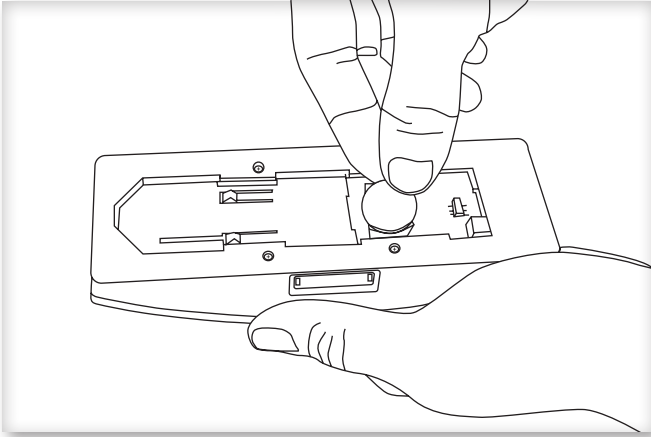
## Installing Supplemental Battery (optional)

If light levels are very low where the sensor is installed, auxiliary battery power (CR2032) can be used to supplement the solar energy harvester.

1. Remove the sensor from the mounting plate.

With the push-button interface facing you, slide the sensor to the right.

2. Turn the sensor over and identify the battery holder on the circuit board



3. Insert the battery under the clip with the positive pole (+) up and press it in place.
4. Remount the sensor on the mounting plate.

## Troubleshooting

Problem	Solution Checklist
Sensor does not generate a wireless message	<ul style="list-style-type: none"> <li>Verify the LED blinks when motion is detected during a walk test</li> <li>Verify the solar cell is charged properly</li> </ul>
Sensor is activated when there is nothing to detect	<ul style="list-style-type: none"> <li>Verify there is 4 ft. (1.2 m) clearance from heat sources that may disturb sensing</li> <li>Reduce sensitivity setting by moving the PIR sensitivity switch on the back to low (the left-hand position)</li> </ul>
Linked device does not respond to wireless messages	<ul style="list-style-type: none"> <li>Check for environment or range issues</li> <li>Verify the device is linked</li> <li>Check the transceiver connection and the wiring for errors</li> <li>Check if appropriate devices are linked according to good system planning</li> </ul>



FCC SZV-EOSC01  
IC 5713A-EOSC01

This device complies with part 15 of the FCC rules and Industry Canada ICES-003. 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.

**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, même si le brouillage est susceptible d'en compromettre 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 actionner cet équipement.

### Limited Warranty

Subject to the other terms of this warranty, the manufacturer warrants you the original purchaser that this product will be free from defects in material and workmanship for one year from the date of your purchase of the product. During that period, if the product does not comply with this limited warranty, the manufacturer will, at its discretion, repair or replace the product. Repair or replacement is your sole remedy under this or any other warranty of the product, whether express or implied.

**Coverage Limitations.** This limited warranty extends only to the original purchaser and is not transferable. This limited warranty expressly excludes any defects or damages resulting from any product installed improperly or in an improper environment, overloaded, misused, opened, abused, or altered in any manner.

To obtain warranty service - return the product, a description of the problem, together with your proof of purchase, securely packaged and with postage prepaid, to the manufacturer.

You may be required to provide other information or evidence of the defect. Any returned product that is replaced becomes the property of the manufacturer.

**Implied Warranties.** TO THE EXTENT PERMITTED BY LAW, ANY IMPLIED WARRANTIES, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO THE SAME DURATION AS THIS EXPRESS WARRANTY. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. NO OTHER EXPRESS WARRANTY HAS BEEN MADE OR WILL BE MADE BY THE MANUFACTURER WITH RESPECT TO THIS PRODUCT.

**Limitation of Liability.** THE MANUFACTURER SHALL NOT BE RESPONSIBLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES SUCH AS THE COST OF LABOR FOR REMOVAL OR REINSTALLATION OF THE PRODUCT, WHETHER ARISING OUT OF BREACH OF WARRANTY, BREACH OF CONTRACT, TORT, OR OTHERWISE. Some states do not allow the exclusion of incidental or consequential damages, so the above exclusion and limitation may not apply to you.

This limited warranty gives you specific legal rights, and you also may have other rights which vary from state to state. In Canada, the above provisions are not intended to operate where prohibited by law and do not preclude the operation of any applicable provisional consumer protection statute which in certain circumstances may extend the express warranties herein.