



WIRELESS CEILING MOUNT OCCUPANCY SENSOR

BATTERY POWERED

OVERVIEW

The **Intelligent Lighting Controls** wireless ceiling mount occupancy sensor is a simple, yet reliable battery powered control solution. Preferred by contractors for their flexible mounting methods, **ILC** wireless sensors greatly reduce total installation time and wireless pairing fuss. Requiring just a few seconds per device, **ILC** wireless sensors can be linked to one or more wireless load controllers (such as the **ILC-SWX-851** wireless wall switch, or a **ILC-SWX-950** series wireless power pack). Additionally, these sensors can be configured to work in applications with other wireless or wired ceiling, corner, or hallway sensors to provide extended coverage in large or irregularly shaped spaces. An integrated daylight harvesting photocell is also an available option.

As with all **ILC** products, the latest passive infrared technology techniques are used to provide unmatched occupant detection performance and energy savings.

BASIC OPERATION

Sensors detect movement in the infrared energy that radiates from occupants as they move within the device's field-of-view. Once occupancy is detected, the sensor immediately signals a wirelessly linked load controller (e.g. power pack) to switch on or dim up the connected lighting. At regular intervals, the sensor will retransmit its latest occupancy status such that the load controller can keep lights on for occupants during brief periods of inactivity, while returning the space to an energy saving lights off (or dim) state once no longer occupied.



FEATURES

- Links in Seconds with Wireless Controllers
- Passive Infrared (PIR) Detection
- 360° Small Motion & Large Motion Coverage Patterns
- Designed for 10 Year Battery Life
- Compact Size and Matte Finish
- Four Contractor Friendly Mounting Methods
- Mounting Nipple Attachment with Integrated Hole Saw
- Convenient Test Modes
- Optional Daylight Harvesting & On/Off Photocell

SPECIFICATIONS

ELECTRICAL & WIRELESS

BATTERY TYPE

Requires one CR123(A) Lithium Battery

BATTERY LIFE

Occupancy Model - Designed for 10 yr.
Occupancy and Daylight Harvesting Model - Designed for 7 yr.
Non-Volatile Memory (saves all settings regardless of battery state)
Blink Warning @10% Life

RANGE

80' line of site w/o obstruction (walls)
40' with obstruction (walls/floors)

FREQUENCY

915 MHz ISM Band

WIRELESS LINKING

Simple 3 sec. Push Button Process

SECURITY

All Wireless Data is Encrypted

ENVIRONMENTAL

OPERATING TEMP

32°F to 122°F (0°C to 50°C)

RELATIVE HUMIDITY

0-95% Non-Condensing,
Indoor Use Only

CODE COMPLIANCE

These sensors can be used to meet ASHRAE 90.1, IECC, & Title 24 energy code requirements.

PHYSICAL

SIZE

4.00" Diameter x 1.25" H
(10.16 x 3.17 cm)

WEIGHT

4.75 oz

COLOR

White

LED INDICATION

Motion Detection (when in Test Mode)
Wireless Linking (Pairing)

OPERATION

OPERATING MODES

Configured at Linked Load Controller
Motion: Occupancy & Vacancy
Photocell: Daylight Harvesting & On/Off

COMPATIBLE LOAD CONTROLLERS

ILC-SWX-851 Wall Switch
ILC-SWX-950 Series Power Packs

WIRELESS TEST MODE

Button Toggles On/Off
Wirelessly Linked Loads

COVERAGE TEST MODE

White LED Illuminates Upon Detected
Occupancy

TIME DELAY OPTIONS

Configured at Linked Load Controller(s)
1, 5, 10, 15, 20, 30 min.



ORDERING INFO

MODEL NUMBER	DESCRIPTION
ILC-SWX-201-B	Wireless Ceiling Mount Sensor, PIR, 360° Small Motion, Battery Powered
ILC-SWX-202-B	Wireless Ceiling Mount Sensor, PIR, 360° Large Motion, Battery Powered
ILC-SWX-211-B	Wireless Ceiling Mount Sensor w/ Daylight Harvesting Photocell, PIR, 360° Small Motion, Battery Powered
ILC-SWX-212-B	Wireless Ceiling Mount Sensor w/ Daylight Harvesting Photocell, PIR, 360° Large Motion, Battery Powered
ILC-SWX-299-JP	Accessory Trim Ring for Mounting to Single Gang Mudring, Handy Box, or 4" Octagon Box

APPLICATIONS

SMALL SPACES

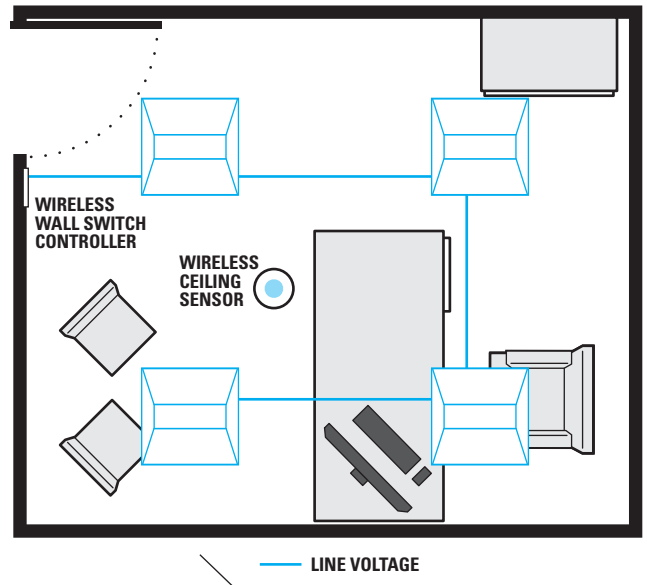
For control of small spaces like a private office, a single sensor linked to a wireless wall switch controller (**ILC-SWX-851**) is recommended (see diagram on right). Linking additional sensors is also an option if necessary. Switching from a second location (e.g. 3-way) is achieved by linking a remote wireless wall switch to the wireless switch controller. Both occupancy (auto-on) and vacancy (manual-on) operation are achievable in order to meet energy code requirements.

- Small Offices
- Copy Rooms
- Private Restrooms

LARGE SPACES

Multiple wireless sensors can be easily linked to a wireless power pack load controller (**ILC-SWX-950**) to provide coverage for larger spaces (or larger loads) like an open office. Additional functionality such as switching/dimming from multiple locations (e.g. 3-way) or interfacing with wired control devices is achieved by linking to a wireless power pack with appropriate functionality.

- Classrooms
- Conference Rooms
- Break Rooms
- Open Areas
- Hallways



OCCUPANCY W/ INTEGRATED PHOTOCELL OPTION

There are several types of photocell operational modes supported by this option. The mode is selected at the linked wireless power pack or wall switch controller that is wired to the lighting load(s).

DAYLIGHT HARVESTING

- Recommend for spaces where it is important to not distract occupants (e.g., offices, classrooms).
- Lights will gradually dim in order to maximize energy savings while maintaining desired overall lighting level.
- Requires dimming power pack controller.
- Option to dim to low trim or turn lighting off.

ON/OFF PHOTOCELL CONTROL

- Recommended for public spaces (hallways, entryways, etc) where fully switching of lighting off and on will not cause distraction of occupants.
- Lights are switched off if ambient light level surpasses threshold and back on if level drops.

INHIBIT ONLY PHOTOCELL CONTROL

- Lighting is held off if sufficient ambient light level is present upon initial occupancy.
- Lighting will turn on if light level drops below setpoint.
- Once on, lighting will only turn off from vacancy or a manual switch, never from daylight.

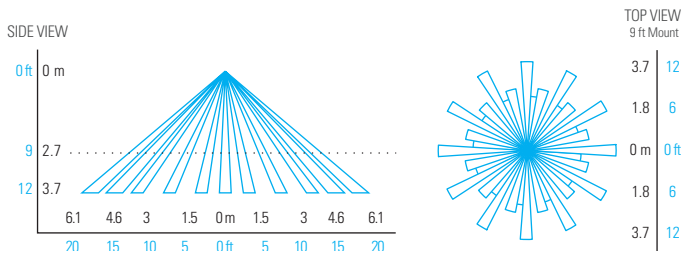
COVERAGE

PASSIVE INFRARED (PIR)

- Detection range improves when walking across beams as compared to into beams.
- Lenses can be swapped in field if necessary, contact technical support for assistance.
- Line of site between occupant and sensor is required for detection.
- Sensor can not see through glass windows or doors.
- Detection range improves when walking across beams as compared to into beams.
- Spaces with small temperature differential between occupants and ambient may encounter reduced sensitivity/range.

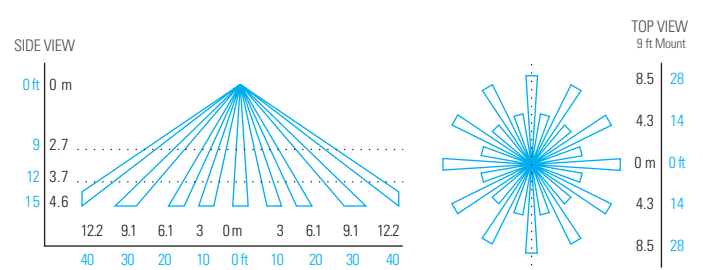
SMALL MOTION 360°

- Excellent detection of small motions from sitting or stationary occupants (e.g. hand motions).
- 8 to 12 ft (2.44 to 4.57 m) mounting height recommended.
- ~500 ft² of coverage



LARGE MOTION 360°

- Best choice for detection of larger motion (e.g., walking).
- 8 to 15 ft (2.44 to 4.57 m) mounting height recommended.
- ~2000 ft² of coverage
- One of the longer segments of the coverage pattern aligns with the screw hole axis on the sensor (shown as dotted line on Top View diagram below).

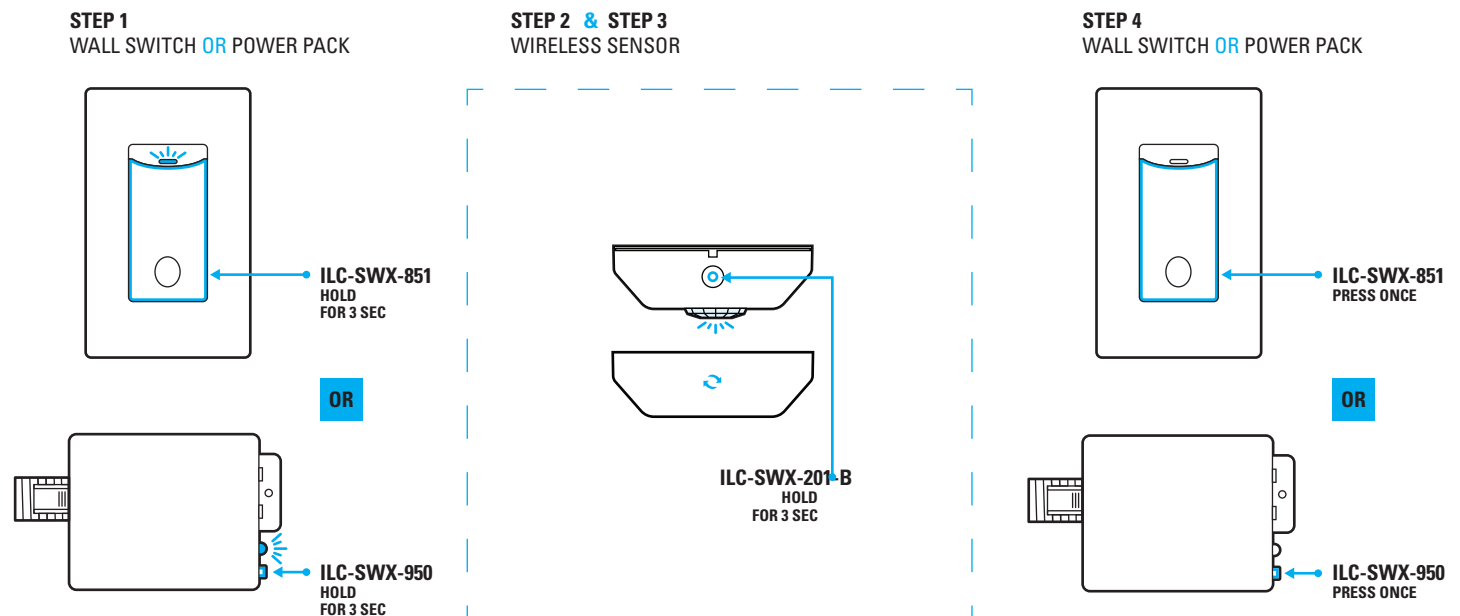


WIRELESS LINKING (PAIRING)

Linking an occupancy sensor with a wireless wall switch controller or power pack load controller is quickly done via the following procedure:

- Step 1.** Enter learn mode by holding down the wireless load controller's button for 3 seconds until the LED starts alternating white then blue, then release.
- Step 2.** At the sensor, hold down the programming button for 3 seconds until the LED starts alternating white then blue. Releasing will link the sensor with any device in learn mode (see note 1 below). The lights will toggle once as confirmation.
- Step 3.** Repeat step 2 to link another sensor or device.
- Step 4.** When all devices have been linked, exit learn mode on the wireless load controller by pressing the button 1 time. Learn mode will also be automatically closed after 15 minutes of no new devices being linked.

Note 1: When in learn mode, the alternating LED colors on the wireless load controller will periodically pause and blink out the total number of linked devices. There will be no blinks during the pause until the first device is linked.

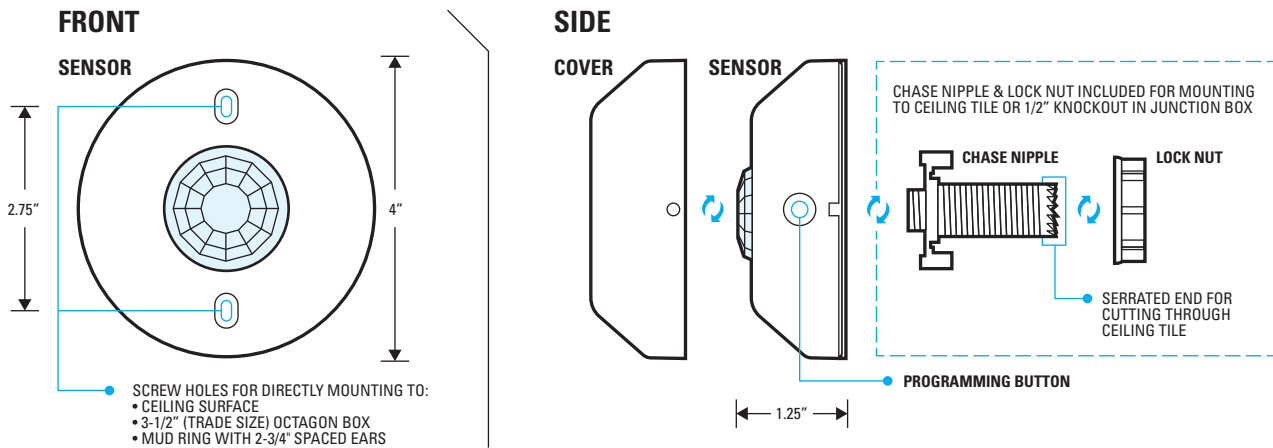


COMPATIBLE WIRELESS DEVICES

The below chart lists the devices that can be used in a **ILC** wireless application. Note that occupancy sensors, photocells, and remote switch & dimmers are transmit only devices and therefore must be linked to a load controller for switching or dimming of lighting.

MODEL #	DESCRIPTION	WIRELESS TYPE	POWER TYPE
ILC-SWX-201-B	Small Motion 360° Sensor, PIR	Transmit	Battery
ILC-SWX-202-B	Large Motion 360° Sensor, PIR	Transmit	Battery
ILC-SWX-211-B	Small Motion 360° Sensor, PIR w/ Integrated Daylight Harvesting Photocell	Transmit	Battery
ILC-SWX-212-B	Large Motion 360° Sensor, PIR w/ Integrated Daylight Harvesting Photocell	Transmit	Battery
ILC-SWX-401-B	Wide View Sensor, PIR	Transmit	Battery
ILC-SWX-402-B	Long Range Hallway Sensor, PIR	Transmit	Battery
ILC-SWX-250-B	Daylight Harvesting & On/Off Photocell	Transmit	Battery
ILC-SWX-851-xx	Wall Switch Load Controller, No Neutral Required, <xx = color>	Transmit & Receive	120-277 VAC
ILC-SWX-852-B-xx	Remote Switch (On/Off), <xx = color>	Transmit	Battery
ILC-SWX-854-B-xx	Remote Dimming Switch (On/Off, Raise/Lower), <xx = color>	Transmit	Battery
ILC-SWX-950	Power Pack Load Controller, 20A	Transmit & Receive	120/277 VAC
ILC-SWX-950-D2	Power Pack Load Controller, 20A, 0-10V Dimming	Transmit & Receive	120/277 VAC
ILC-SWX-950-AX	Hybrid Wireless/Wired Power Pack Load Controller, 20A	Transmit & Receive	120/277 VAC
ILC-SWX-950-AX-D2	Hybrid Wireless/Wired Power Pack Load Controller, 20A, 0-10V Dimming	Transmit & Receive	120/277 VAC

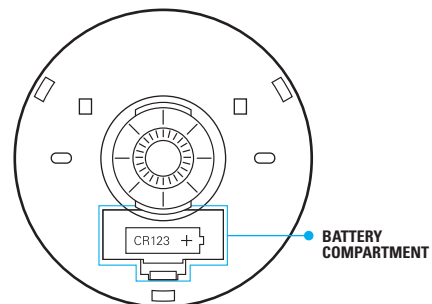
INSTALLATION OPTIONS



Note: If mounting to a Single Gang Mudring, Handy Box, or 4" Octagon Box, a trim ring is required. Part Number: **ILC-SWX-299-JP**.

BATTERY INFORMATION

- The sensor runs on one CR123(A) Lithium Battery (included).
- 10 year battery life design for occupancy only models. For units with enabled integrated photocells, expected battery life is 7 years.
- Install battery prior to mounting sensor. Polarity is indicated on the battery compartment door.
- If the sensor's battery life reaches 10%, all wirelessly linked load controllers will blink lights on/off/on upon initial occupancy as a replacement warning.
- Replacement batteries are available at most retailers or home centers where batteries are sold or from **ILC**



OPERATION NOTES

OCCUPANCY ONLY MODELS (ILC-SWX-201-B/ILC-SWX-202-B)

- By default, every ~60 seconds the sensor transmits whether or not occupancy was detected during the previous period.
- Referred to as the sensor's "heartbeat", this period can be reduced to ~30 seconds although this will decrease expected battery life.
- If a sensor transmitted "unoccupied" at its last heartbeat, any new occupancy detection event will be transmitted immediately.
- If a sensor transmitted "occupied" at its last heartbeat, new occupancy events will only be transmitted at the heartbeat interval, thus conserving battery life.
- The wirelessly linked wall switch load controller and/or power pack maintains a master time delay that is reset every time a linked sensor reports occupancy. Lights will be switched off once all linked sensors have continuously reported unoccupied for the duration of the time delay.

OCCUPANCY W/ INTEGRATED PHOTOCCELL OPTION (ILC-SWX-211-B/ILC-SWX-212-B)

- Sensors with the integrated photocell require auto-setpoint calibration to be initiated from the sensor in order to enable photocell operation.
- Every ~15 seconds the photocell transmits the light level it is measuring in the space.
- Dimming from high trim to low trim (or in reverse) due to daylight harvesting requires ~1.5 minutes.
- The wirelessly linked wall switch load controller and/or power pack controller compares the received light level to the setpoint and controls the connected lighting accordingly.
- Wireless load controllers will only listen to a single wireless photocell sensor. If more than one is wirelessly linked, the unit that last ran the auto-setpoint calibration procedure will be used.
- The photocell control algorithm compensates for the contribution of the controlled lighting to the overall light level of the space. This prevents lights from cycling back on shortly after they are switched off by the photocell operation.
- Refer to the instruction sheets of the wirelessly linked controllers for information on their respective LED blink out behavior when controlled lights are transitioning on or off from photocell operation.
- To accommodate multi-zone photocell applications, wireless power packs can be configured to track according to the received daylight level, but control lights a fixed percentage brighter.

FCC INFORMATION (FCC ID: 2AVRY-SWX0002)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following 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

Changes and Modifications not expressly approved by BLP Technologies can void your authority to operate this equipment under Federal Communications Commission's rules. In order to comply with FCC/ISED RF Exposure requirements, this device must be installed to provide at least 20 cm separation from the human body at all times.

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

ISED CANADA INFORMATION (IC: 26012-SWX0002)

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

In order to comply with FCC/ISED RF Exposure requirements, this device must be installed to provide at least 20 cm separation from the human body at all times.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique 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;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.
3. Afin de se conformer aux exigences d'exposition RF FCC / ISED, cet appareil doit être installé pour fournir au moins 20 cm de séparation du corps humain en tout temps