

Radio Powr Savr™ English

Installation Instructions
Please Read Before Installing

Wireless Battery-Powered Occupancy and Vacancy Sensors

- California Title 24 Compliant*
- LF22-OWLB-P 3 V⁼⁼ 14 µA 434 MHz (180° Wall-Mount, Occupancy/Vacancy)
 - LF22-WVLB-P 3 V⁼⁼ 14 µA 434 MHz (180° Wall-Mount, Vacancy-Only)
 - LF22-OKLB-P 3 V⁼⁼ 14 µA 434 MHz (90° Corner-Mount, Occupancy/Vacancy)
 - LF22-VKLB-P 3 V⁼⁼ 14 µA 434 MHz (90° Corner-Mount, Vacancy-Only)
 - LF22-OHLB-P 3 V⁼⁼ 14 µA 434 MHz (Hallway, Occupancy/Vacancy)
 - LF22-VHLB-P 3 V⁼⁼ 14 µA 434 MHz (Hallway, Vacancy-Only)

Compatible Products
For a full list of compatible products visit www.lutron.com/occensors

Product Description
Lutron's wall-mounted Occupancy and Vacancy Sensors are wireless, battery-powered, passive infrared (PIR) devices that automatically control lights via RF communication with a dimming or switching device. These Sensors detect the heat from people moving within an area to determine when the space is occupied. The Sensors then transmit the appropriate commands to the associated dimming or switching device to turn the lights on or off automatically, providing both convenience and exceptional energy savings.

• Easy-to-follow Instructions



P/N 041-350a

Important Notes

- This Sensor is part of a system and cannot be used to control a load without a compatible dimming or switching device. Refer to the instruction sheets of the receiving device(s) for installation information.
- Clean Sensor with a soft damp cloth only. DO NOT** use any chemical cleaners.
- The Sensor is intended for indoor use only. Operate between 32 °F and 104 °F (0 °C and 40 °C).
- DO NOT** paint Sensor.
- Use only high-quality lithium batteries, size CR123, 3 V⁼⁼ (ANSI-5018LC, IEC-CR17345). DO NOT use rechargeable batteries. Using improperly rated batteries could damage the Sensor.

NOTICE: DO NOT disassemble, crush, puncture, drop on a hard surface, subject to high heat, place in water, incinerate, or alter batteries in any way. Please dispose of batteries in compliance with all applicable legal requirements. Your waste disposal provider may have information regarding any state or local restrictions on battery disposal.

- The range and performance of the RF system is highly dependent on a variety of complex factors such as:
 - Distance between system components
 - Geometry of the building structure
 - Construction of walls separating system components
 - Electrical equipment located near system components

WARNING: Entrapment hazard. To avoid the risk of entrapment, serious injury, or death, these controls must not be used to control equipment which is not visible from every control location or which could create hazardous situations such as entrapment if operated accidentally. Examples of such equipment which must not be operated by these controls include (but are not limited to) motorized gates, garage doors, industrial doors, microwave ovens, heating pads, etc. It is the installer's responsibility to ensure that the equipment being controlled is visible from every control location and that only suitable equipment is connected to these controls. Failure to do so could result in serious injury or death.

Key Features

- Low Maintenance** 10-year battery life. Convenient low-battery indicator.
- Multiple Devices.** Multiple Sensors can work together to control lights for broader coverage in large spaces. In addition, each Sensor may be added to multiple receiving devices. Maximum number of allowed devices varies by system. Consult the Product Specification Submittal of the receiving device for system limits.

Sensor Operation

Occupancy Version – The Sensor will automatically turn the lights on when the space is occupied and automatically turn the lights off after the space is vacated.

Vacancy-Only Version – The lights must be manually turned on at the dimming or switching device. The Sensor will automatically turn the lights off after the space is vacated.

There is a built-in 15-second vacancy grace period that begins when the lights are automatically turned off, during which the lights will automatically turn back on in response to motion. This grace period is provided as a safety and convenience feature in the event that the lights turn off while the room is still occupied, so that the user does not need to manually turn the lights back on. After 15 seconds, the grace period expires and the lights must be manually turned on.

NOTE: For either Sensor version, the lights can also be manually turned off at any time by using the dimming or switching device directly.

Technical Assistance

For questions concerning the installation or operation of this product, call the **Lutron Technical Support Center.** Please provide exact model number when calling.

U.S.A. and Canada (24 hrs / 7days)
1.800.523.9466
Mexico 8am – 8pm ET
+1.888.235.2910
Other countries 8am – 8pm ET
+1.610.282.3800

Fax +1.610.282.6311
www.lutron.com

FCC/IC Information

This device complies with part 15 of the FCC Rules and Industry Canada license-exempt RSS standards. 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. Modifications not expressly approved by Lutron Electronics Co., Inc. could void the user's authority to operate the equipment.
NOTE: 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 or more 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.

Limited Warranty

(Valid only in U.S.A., Canada, Puerto Rico, and the Caribbean.)
Lutron will, at its option, repair or replace any unit that is defective in materials or manufacture within one year after purchase. For warranty service, return unit to place of purchase or mail to Lutron at 7200 Sutter Rd., Coopersburg, PA 18036-1299, postage pre-paid.
THIS WARRANTY IS IN LIEU OF ALL OTHER EXPRESS WARRANTIES, AND THE IMPLIED WARRANTY OF MERCHANTABILITY IS LIMITED TO ONE YEAR FROM PURCHASE. THIS WARRANTY DOES NOT COVER THE COST OF INSTALLATION, REMOVAL OR REINSTALLATION, OR DAMAGE RESULTING FROM MISUSE, ABUSE, OR DAMAGE FROM IMPROPER WIRING OR INSTALLATION. THIS WARRANTY DOES NOT COVER INCIDENTAL OR CONSEQUENTIAL DAMAGES. LUTRON'S LIABILITY ON ANY CLAIM FOR DAMAGES ARISING OUT OF OR IN CONNECTION WITH THE MANUFACTURE, SALE, INSTALLATION, DELIVERY, OR USE OF THE UNIT SHALL NEVER EXCEED THE PURCHASE PRICE OF THE UNIT.
This warranty gives you specific legal rights, and you may have other rights which vary from state to state. Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitation on how long an implied warranty may last, so the above limitations may not apply to you. Lutron, Maestro Wireless, and are registered trademarks and Radio Powr Savr is a trademark of Lutron Electronics Co., Inc. ANSI is a registered trademark of the American National Standards Institute. IEC is a trademark of the International Electrotechnical Commission. 3M and Command are trademarks of 3M Company © 2011 Lutron Electronics Co., Inc.



Instructions Install a Sensor in as little as 15 minutes

A Pre-Installation

- Before setting up the Sensor, the corresponding dimming or switching device(s) should be installed. Refer to that product's installation guide for instructions.
- Insert battery as shown.

B Set-Up

In order for the Sensor to operate properly, it must first be set up with a corresponding dimming or switching device. The procedure for setting up a Sensor with a Maestro Wireless® (MRF2- only) Dimmer or Electronic Switch is detailed below.

1 Setting up a Sensor with a Maestro Wireless Dimmer or Electronic Switch

- Place the Dimmer or Electronic Switch in set-up mode by pressing and holding the tap button for approximately 6 seconds until all LEDs on the device begin flashing. Release the tap button.

- Add the Sensor to the Dimmer or Electronic Switch by pressing and holding the "Q" button on the top of the Sensor for approximately 6 seconds until the lens flashes briefly. The lights in the room will also flash 3 times, indicating the Sensor has been successfully added. The Dimmer or Electronic Switch will exit set-up mode automatically.

- The "Q" button should now switch the lights in the room on and off when pressed. Repeat the above procedure to set up the Sensor with any additional devices.

2 Setting the Occupancy Light Level (Occupancy version, dimming devices only)

- Set the Dimmer to the desired light level for entering the room.

- Save the occupancy light level by pressing and holding the "Q" button on the top of a Sensor that has been set up. After approximately 6 seconds, the lens will flash rapidly several times, indicating the light level has been saved. The lights will now turn on to this level every time the room becomes occupied.

C Sensor Placement and Coverage

Before mounting the Sensor, please note the following:

- Each Sensor type (180°, 90°, and Hallway) is designed to be mounted at 6 to 8 ft (1.8 to 2.4 m) from the floor. Installing a Sensor at a height outside this range will alter its coverage of the area and may inhibit its performance.
- The Sensor should be installed in a location where it has a good view of all parts of the intended space. The Sensor requires line of sight to operate properly. **If you cannot see the Sensor, it cannot see you.** The Sensor cannot see through glass objects such as patio or shower doors.
- DO NOT** mount the Sensor within 4 ft (1.2 m) of HVAC vents, light bulbs, or microwave ovens, or within 6 in (15 cm) of other RF devices.
- The Sensor may be installed up to 60 ft (18.3 m) away from the associated dimming or switching device(s) if they are in direct line of sight. If there are walls or other barriers between the Sensor and receiving device(s), the Sensor should be located within 30 ft (9.1 m).

Whenever possible, avoid placing the Sensor in a location where it has a broad view outside the intended space.

Important details about Corner-Mount and Hallway Sensors:

- Corner-Mount – This Sensor may either be mounted directly in a corner or on a wall, offset away from a corner. Refer to section **G. Permanent Mounting** for more details.
- Hallway – This Sensor is designed to mount flat against a wall at the end of a hallway with a view down the length of the hall. It should not be mounted on either of the side walls of the hallway. For proper performance, the Sensor should be centered within the hallway. Detection at longer distances is best for motion occurring at right angles to the sensor.

• See **Sensor Coverage Diagrams**, shown to the far right.

D Temporary Mounting

If you are uncertain about correctly positioning the Sensor, the following temporary mounting and testing procedures are recommended to verify proper performance before permanently installing the Sensor.

A 3M™ Command™ adhesive strip is provided for temporarily mounting and testing the Sensor. This strip is designed for easy, damage-free removal and is not reusable. The strip should not be used for permanently mounting the Sensor (see section **G. Permanent Mounting**). Carefully follow the removal instructions below to ensure the wall is not damaged during removal.

NOTE: The strip may be cut in half (lengthwise) to provide means for two temporary mounting locations. This will allow for repositioning of the Sensor in the event that its performance in the first location is unsatisfactory.

- Peel the red "Command Strips" liner off of the adhesive strip and apply the strip to the mounting bracket as shown in the diagram. Press firmly.

- Identify a location on the wall where the Sensor will have a good view of the room.

- Remove the black "WALL side" liner from the adhesive strip.

- Position the mounting bracket on a clean, dry, dust-free wall and press firmly for several seconds.

- Mount the Sensor by sliding it down onto the mounting bracket until it clicks into place.

- Perform the Sensor coverage and wireless communication tests as described in sections **E. Testing Sensor Coverage** and **F. Testing Wireless Communication**.

NOTE: Press firmly for several seconds to mount.

NOTE: Slide sensor down until it clicks into place.

Removing Temporary Mounting Strip

- Remove the Sensor from the mounting bracket by sliding it up and off. If the Sensor coverage and wireless communication tests have been successfully completed, mark the location of the mounting bracket for permanent installation.

- Hold the bracket securely with one hand. With the other hand, grasp the removal tab on the adhesive strip and pull the tab **VERY SLOWLY** straight down the wall, stretching the strip until the bracket releases from the wall. Discard the strip. **NEVER** pull the strip at an angle, as it may break or damage the wall surface.

NOTE: Pull very slowly.

E Testing Sensor Coverage

- With the Sensor mounted, press and release the "Test" button on the top of the device. The lens will glow briefly, indicating the test mode has been entered.

NOTE: There is a warm-up period of approximately 90 seconds after the battery is installed before the test mode can be activated. If the button is pressed during this time, the lens will flash continuously until the warm-up period is complete, and then the test mode will be automatically entered.

- Confirm the coverage area by walking through the space and observing the lens. The lens will glow solid every time motion is detected. If the lens remains off during motion, the Sensor cannot detect motion at that location.

- Press and release the "Test" button again to exit the test mode. If the button is not pressed, the test mode will automatically time out 15 minutes after being enabled, or 5 minutes after the last detected motion if the room is vacated.

- If the Sensor has significant trouble detecting motion during the test, it should be moved to another location and retested. If the Sensor still has poor detection from the new location, refer to the **Troubleshooting** section.

- If Sensor detection is satisfactory during this test, perform the wireless communication test as described in section **F. Testing Wireless Communication**.

F Testing Wireless Communication

This test should be performed to verify the Sensor has been correctly set up with the corresponding dimming or switching device and that there is proper wireless communication from the chosen Sensor location.

- Press and release the "Q" button multiple times to toggle the lights on and off.

If the lights do not respond correctly, refer to the **Troubleshooting** section.

G Permanent Mounting

Each Sensor type is designed for installation on drywall or plaster surfaces. If attempting to mount on another material such as concrete or masonry, alternative mounting hardware may be required.

1 180° Wall-Mount and Hallway Sensors

The 180° Wall-Mount and Hallway Sensors are designed to mount flat against a wall.

- Mark the screw hole locations with a pencil, using the mounting bracket as a template.

- Drill two 3/16 in (5 mm) pilot holes for the provided screw anchors. **NOTE:** If mounting on a plaster wall, you may wish to also clear out a larger area for the lip of the anchor by hand-turning a 3/8 in (9.5 mm) drill bit into the top of the pilot hole.

- Press the anchors into the holes and tap flush with a hammer.

- Place the mounting bracket against the wall with the "UP" arrow visible and oriented upward, and loosely install the two provided screws. Straighten the mounting bracket vertically and then tighten the screws fully.

- Mount the Sensor by sliding it down onto the mounting bracket until it clicks into place.

2 90° Corner-Mount Sensor

The Corner-Mount Sensor has a 90° field of view and is designed to be mounted in a corner, or on a wall offset from the corner if there are cabinets or other objects preventing mounting directly in the corner. This bracket may also be mounted in either of two vertical orientations, allowing either pair of screw holes to be used on either wall.

2a Mounting Directly in a Corner

In this procedure, the mounting bracket's two angled **screw bosses** are used rather than the hole and slot on the other side. The wall anchors are not used for this procedure.

- Decide which wall will receive the screws used to mount the bracket.

- Place the bracket into the corner with the face containing the screw bosses against the chosen wall.

- While holding the bracket firmly against the corner, use the screw bosses as a guide to drill two 3/32 in (2.4 mm) pilot holes angled into the wall.

- Take the bracket down and turn the two provided screws into the bosses just far enough that they hold in place.

- Place the bracket back into the corner and align the bosses with the pilot holes.

- Hold the bracket firmly against the corner and tighten the screws fully into place.

- Mount the Sensor by sliding it down onto the mounting bracket until it clicks into place.

2b Mounting Offset from a Corner

In this procedure, the bracket's **screw hole and slot** are used for mounting.

- Mark the screw hole locations with a pencil, using the mounting bracket as a template.

- Drill two 3/16 in (5 mm) pilot holes for the provided screw anchors. **NOTE:** If mounting on a plaster wall, you may wish to also clear out a larger area for the lip of the anchor by hand-turning a 3/8 in (9.5 mm) drill bit into the top of the pilot hole.

- Press the anchors into the holes and tap flush with a hammer.

- Place the mounting bracket against the wall and loosely install the two provided screws. Straighten the mounting bracket vertically and then tighten the screws fully.

- Mount the Sensor by sliding it down onto the mounting bracket until it clicks into place.

H Advanced Set-Up (Optional)

The Sensor features several advanced set-up modes. For the majority of installations, the default settings will provide the best performance and you will not need to utilize the advanced set-up.

The Occupancy version of the Sensor has three adjustable advanced set-up modes: Timeout, Activity, and Auto-On. The Vacancy-Only version has only two modes (Auto-On not available). The default settings are listed below.

Timeout	Activity	Auto-On	Default Settings
30 min		Enabled	Timeout: 15 minutes
15 min		Disabled	Auto-On: Enabled (Occupancy version only)
5 min		Disabled	Activity: Low Activity

Advanced Set-Up Modes
Timeout
The Sensor will turn the lights off if no motion occurs for the duration of the timeout period. There are four available timeout settings: **1, 5, 15, and 30 minutes**.

Activity
The sensitivity of the Sensor can be adjusted based on the expected level of activity within the room. There are three available activity settings: Low Activity, Medium Activity, and High Activity.

Auto-On
The automatic-on functionality of the Sensor can be adjusted to control how the lights respond upon initial occupancy. There are two available settings: Enabled and Disabled. **Enabled:** The lights will always turn on automatically on occupancy and automatically turn off after vacancy. **Disabled:** This setting converts the Sensor to vacancy mode. The lights will not automatically turn on but will still automatically turn off after vacancy. The lights must be manually turned on by using the associated dimming or switching device. **NOTE:** The 15-second vacancy grace period is active in this mode. Refer to the **Sensor Operation** section at the beginning of this document for more details.

Width of Hall	Length of Hall
6 ft (1.6 m) or less	50 ft (15.2 m)
8 ft (2.4 m)	100 ft (30.5 m)
10 ft (3.0 m) or more	150 ft (45.7 m)

Maximum Recommended Hallway Length

Minor Motion Coverage Area
1500 ft² (139.4 m²)

Major Motion Coverage Area
3000 ft² (278.7 m²)

Minor Motion Coverage Area
1225 ft² (113.8 m²)

Major Motion Coverage Area
2500 ft² (232.3 m²)

Troubleshooting

Symptom	Possible Causes	Solution
Lights do not turn ON when space is occupied.	Sensor is not correctly added to dimming/switching device(s). Sensor's Auto-On setting is set to "Disabled". The lights were recently turned off manually and the sensor's timeout has not yet expired. Sensor does not have full view of room. Sensor is outside wireless range of dimming/switching device. Battery has been installed incorrectly. Dimming/switching device has been improperly wired. Light bulb(s) burned out. Breaker is off or tripped.	Refer to section B. Set-Up . Refer to section H. Advanced Set-Up . For more details, refer to Frequently Asked Questions at www.lutron.com/occensors Refer to section C. Sensor Placement and Coverage or E. Testing Sensor Coverage . Refer to section C. Sensor Placement and Coverage or F. Testing Wireless Communication . Refer to section A. Pre-Installation . Refer to the instruction sheet of the receiving device or call Lutron Technical Support Center at 800.523.9466.
Lights turn OFF while space is occupied.	Sensor's timeout is too short for this application. Sensor does not have full view of room. Sensor's activity setting is too high.	Refer to section H. Advanced Set-Up . Refer to section C. Sensor Placement and Coverage or E. Testing Sensor Coverage . Refer to section H. Advanced Set-Up .
Lights stay ON after space is vacated.	Sensor's timeout has not yet expired. An external noise source such as an HVAC vent is interfering.	Refer to section H. Advanced Set-Up . Try moving Sensor to a new location or reducing sensitivity. Refer to section C. Sensor Placement and Coverage or H. Advanced Set-Up .
Lights turn ON when walking past room.	Battery has been installed incorrectly. Sensor coverage extends beyond room perimeter.	Refer to section A. Pre-Installation . Refer to section C. Sensor Placement and Coverage .
Behavior of lights does not match Sensor settings.	The intended setting was not saved. Multiple Sensors are added to a dimming/switching device and their settings do not match.	Refer to section H. Advanced Set-Up . Refer to section H. Advanced Set-Up .
Sensor lens does not glow in response to motion during Sensor coverage testing.	Sensor cannot see motion due to obstruction. Room is too big or oddly shaped.	Move Sensor to another location. Refer to section C. Sensor Placement and Coverage . Multiple Sensors may be necessary for full room coverage. For more details, refer to Frequently Asked Questions at www.lutron.com/occensors .
Lens does not stop glowing during Sensor coverage testing even when there is no motion.	Battery has been installed incorrectly. An external noise source such as an HVAC vent is interfering.	Refer to section A. Pre-Installation . Try moving Sensor to a new location or reducing sensitivity. Refer to section C. Sensor Placement and Coverage or H. Advanced Set-Up .
Lights do not respond correctly during wireless communication testing.	Sensor is not correctly added to dimming/switching device. Sensor is outside wireless range of dimming/switching device. Battery has been installed incorrectly. Dimming/switching device has been improperly wired. Light bulb(s) burned out. Breaker is off or tripped.	Refer to section B. Set-Up . Move Sensor closer to dimming/switching device and retry test. Refer to section F. Testing Wireless Communication . Refer to section A. Pre-Installation . Refer to the instruction sheet of the receiving device or call Lutron Technical Support Center at 800.523.9466.
Sensor lens flashes and lights do not turn ON when space is occupied.	Battery is low. Sensor is in test mode.	Replace battery. For more details, refer to Frequently Asked Questions at www.lutron.com/occensors Remove sensor from test mode. Refer to section E. Testing Sensor Coverage .

Low Activity: This is the most sensitive setting and will detect very slight motions. This is the recommended setting, as it will work well for nearly all applications. It is ideal for spaces where occupants will often be seated for long periods of time.

Medium Activity: This setting is slightly less sensitive than the Low Activity setting and can be used for spaces that experience normal activity.

High Activity: This is the least sensitive setting and can be used for spaces that will generally only experience large motions, such as foot traffic.

* The Low Activity setting is the default and will perform best for most applications. Rarely, if the Sensor is placed near external noise sources such as heating vents, air conditioning vents, or light bulbs, it may turn the lights on without occupancy or keep the lights on too long after vacancy. If this occurs, changing the sensitivity to Medium Activity or High Activity should resolve the problem.

Auto-On (Occupancy version only)

The automatic-on functionality of the Sensor can be adjusted to control how the lights respond upon initial occupancy. There are two available settings: Enabled and Disabled.

Enabled: The lights will always turn on automatically on occupancy and automatically turn off after vacancy.

Disabled: This setting converts the Sensor to vacancy mode. The lights will not automatically turn on but will still automatically turn off after vacancy. The lights must be manually turned on by using the associated dimming or switching device.

NOTE: The 15-second vacancy grace period is active in this mode. Refer to the **Sensor Operation** section at the beginning of this document for more details.

Advanced Set-Up Operation