

# Sensors Buying Guide

Occupancy and Vacancy Sensors, which provide automatic switching of lighting and motor loads, are fast becoming a common fixture in both commercial and residential buildings – and with good reason. With regular use they provide convenience, energy savings, increased safety and lower electric bills. However, what many consumers don't realize is how easily and cost-effectively they can be installed in any room – many times by simply replacing a standard wall switch.



Today, sensors are designed to operate with a wide range of bulbs including Incandescent, CFL, LED, Halogen, and Fluorescent as well as motor loads. It is important to refer to the packaging on the sensor or to the manufacturer website before you make a purchase to be certain the sensor you select will control the type of bulb you intend to use.



**Sensors are available in three models to suit the specific needs of the location in which they are placed.**

Model	Description	Application
<b>Occupancy Sensor</b> (also known as Motion Sensors)	Automatically turns a light on when motion is sensed and off when the room is unoccupied or after a set period of time. They provide the convenience of hands-free switching which can prove very useful in rooms where residents might have their hands full and when reaching for a light switch would be difficult and possibly hazardous.	Great for basements, closets, garages, laundry rooms, pantries, storage areas, offices, conference rooms, bathrooms, lounges, copy rooms, and warehouses.
<b>Vacancy Sensor</b> (also known as Manual-On Sensors)	Lights have to be manually turned on, but will automatically turn off when the room is unoccupied for a predetermined period of time.	Ideal for high traffic areas such as bathrooms, children's rooms and hallways. Required under California Title 24.
<b>Dimming Sensor</b>	The convenience of a sensor with the ability to adjust light levels through a built-in dimming control. Available in occupancy and vacancy models.	Perfect in the home for setting the mood in rooms such as dining rooms, living rooms and family rooms.

Sensors also come in a variety of different designs to optimize performance based upon the size of a room and/or the area in the space requiring coverage as indicated in the chart below.

Sensor Type	When to Use	Ideal Locations
<b>Wall Switch</b>	When you don't want to install a separate device, choose this sensor because it replaces an existing wall switch. Get both occupancy sensing and manual on/off switching in a single device.	<b>Residential</b> - basements, garages, laundry rooms, pantries, bathrooms, children's rooms, dining rooms, living rooms, family rooms and hallways.
<b>Ceiling-Mount</b>	For 180° or 360° coverage of an area. Preferred for better coverage of an area to keep obstructions (furniture/plants) from blocking the Wall Switch location.	Offices, garages, basements, dining rooms, living rooms, family rooms and hallways.
<b>Wall-Mount</b>	For coverage of irregularly shaped areas or those with varying ceiling heights, as well as narrow hallway and high-bay corridor applications. For detection in spaces outside the field of view of other occupancy sensors. Adjustable swivel neck rotates 80° vertically and 60° horizontally to allow wall or ceiling mount installation.	Stairwells, hallways, basements and offices.
<b>Fixture-Mount</b>	For mounting on or in fixtures.	High ceiling spaces, task lighting areas, general work spaces and offices.



### **Advantages of Installing Sensors**

Convenience, energy-savings, increased safety and lower electric bills are all excellent reasons for installing sensors. Actual savings realized vary depending on usage patterns and occupant habits. Although convenience remains the most compelling feature with homeowners, the energy savings and reduced frequency of bulb replacement over time can provide significant savings both in the home and in commercial and office buildings. And, the ease of installation makes sensors a cost effective and viable energy saving alternative in both new construction and retrofit applications.

### **Smart Sensors**

With ambient light sensitivity, Leviton Occupancy Sensors detect when there is ample natural light and will not automatically switch lights ON if additional illumination is not needed. This feature, along with passive infrared technology, makes the devices “smart” and capable of enhancing life at home and in office settings through built-in technology that requires no programming.

### **Installation and Placement Considerations**

Leviton sensors primarily use passive infrared (PIR) technology to detect movement so there are a number of factors that must be considered when installing them:

- They require an unobstructed line-of-sight for accurate detection—any furniture or obstructions that block the sensor’s view will prevent occupant’s movement from being detected
- Size and shape of the area needing coverage should be in line with the range of the sensor selected
- Locate with a clear line-of-view of the area to be covered, perpendicular to the likely movement
- Type (minor or major motion) of activity in a space
- Mounting height of the sensor and obstacles within the space
- Airflow that can falsely register as motion
- Location of HVAC ducts, IR Cameras, Incandescent Light Cans and heat sources

### **Rebates**

Did you know that rebates are often available for purchasing and installing energy efficient lighting through manufacturers, State rebate programs and local power companies? For instance, many CFL and LED bulbs qualify as do sensors and Energy Star products. Some rebates come in the form of fixed dollar amounts while others are based upon the KWH saved over a period of time. Before you buy it pays to investigate what rebates might be available to you. Learn more at [www.leviton.com/rebates](http://www.leviton.com/rebates)

# FAQs

## **Why would I want to use a sensor?**

Most people choose to install sensors to save energy and, as a result, reduce energy costs. A sensor will automatically shut the lights or motor loads off after a set period of time when motion is no longer detected. Sensors also provide convenience for hands free lighting and in some areas like California, the building code requires them.

## **What is the difference between an occupancy sensor and a vacancy sensor?**

An occupancy sensor, also known as a motion sensor, automatically turns the lights or motor load ON when motion is detected within the sensor viewing range and automatically turns the lights/motor load OFF after a designated time elapses when the room is vacant and motion is no longer detected.

Vacancy sensors, also known as manual-on sensors, require the user to manually turn ON the lights or motor load. The sensor will automatically turn lights/motor OFF after a designated time elapses when the room is vacant and motion is no longer detected.

## **Where would I use an occupancy sensor? Where would I use a vacancy sensor?**

Occupancy sensors are great in areas where you want the convenience of the lights turning ON and OFF automatically such as laundry rooms, garages, basements, pantries, closets and storage areas. Vacancy sensors are recommended for high traffic areas such as hallways, children's rooms, living rooms, dining rooms and bathrooms where people and pets frequent often. Vacancy sensors are also required by code in some areas such as California.

## **If there is sufficient daylight in an area, will the occupancy sensor still automatically turn the lights on?**

Generally, occupancy sensors incorporate an ambient light override setting which, when enabled, will prevent the sensors from switching the lights on when there is ample daylight.

## **If I have pets, will their movement trigger the occupancy sensor and turn the lights on?**

There is a possibility that the movement of a pet or small child within 8 feet of an occupancy sensor will trigger the lights to turn on. However, the sensor can be adjusted so it will need to be manually turned ON and function as a vacancy sensor.

## **Can a sensor be triggered by humidity or a heat source?**

In general this is highly unlikely. However, in some instances if the sensor is placed too close to a heat source such as a dryer, stove or heating vent, the heat generated may trigger the lights ON or prevent them from turning off. For optimal performance, sensors should be installed a reasonable distance away from heat sources.

## **Can an occupancy sensor be converted to a vacancy sensor?**

Yes, occupancy sensors often can be converted by changing the light level adjustment. See the product instruction guide for details.

## **When using sensors, can I manually turn the lights or fan off?**

Yes, all lighting and motor loads controlled by sensors can be manually turned off.

## **Can I adjust how long the lights or fan stays on after the space is vacated?**

Yes, most sensors have a time delay option with adjustable settings. Once a setting is chosen, the lights or fan load will turn off at the selected interval of time once a room is unoccupied and motion is no longer detected.



**Can a sensor replace a standard wall switch?**

Yes, sensors are designed to replace standard wall switches and most do not require a neutral wire for installation making them perfect for retrofit applications where a neutral wire may not be present.

**Do sensors require special wiring?**

Most sensors have been designed to use existing wiring and most do not require a neutral for installation. Always refer to the product instruction guide for details.

**Can sensors operate on a 3-way?**

Yes, sensors are available that work in 3-way applications.

**Do sensors require a neutral wire connection?**

Some do and others do not. Please refer to the wiring instructions.

**Do sensors require a ground connection?**

Some do and others do not. Please refer to the wiring instructions.

**Can sensors be used to control exhaust fans?**

Yes, the sensors which use a relay can be used to control exhaust fans.

**Do any sensors meet the requirements of California Title 24?**

Yes, for example, all Leviton vacancy sensor models meet California Title 24 requirements. Leviton vacancy sensor models are: IPV05, IPV06, IPV06 and IPV15.

**Do sensors work with LED or CFL bulbs?**

Yes. Many sensors are compatible with LED and CFLs. Please refer to packaging and usage instructions.

**What is the maximum LED or CFL load?**

This varies by sensor so refer to the instructions provided.

**Is there a minimum load required for a sensor to operate properly?**

No minimum load is required.

**What does "kick start" mean?**

The Leviton dimming sensors (IPSD6 and IPV06) have a "kick start" feature that when enabled provides a momentary boost in starting voltage; this is especially useful for hard to start dimmable CFL bulbs at low settings. See package instructions for more details.

**Are there any precautions to take when replacing bulbs?**

Yes, often a simple to operate "air gap" switch allows the user to fully disconnect power to the lampholder for safe bulb replacement. See the product instruction guide for direction on how to enable the air gap switch.

**Visit our Website at: [www.leviton.com/sensors](http://www.leviton.com/sensors)**

© 2013 Leviton Manufacturing Co., Inc. All rights reserved.  
All trademarks are the property of their respective owners.

