

WSG Environmental Quick Hit Occupancy Sensor Light Switches



What are occupancy sensor light switches?

An occupancy sensor light switch combines an infrared sensor with a timer on a standard manual light switch to automatically turn lights on or off with the room's use. When a person enters a room, the infrared sensor detects the change in temperature and turns on the lights. As soon as this happens, the timer starts, and if no further movement is detected before the timer goes off, then the lights are turned off. These controls can be manually overridden for convenience by pressing the light switch.

What are the benefits of using them?

Lighting upgrades are typically the simplest and most cost-effective retrofit energy saving measures for most non-residential facilities. Occupancy sensors, by ensuring that lights are not on if the room is not in use, contribute to energy savings.

| Typical range of savings from occupancy sensors | |
|---|--------------------|
| Type of room | Energy savings (%) |
| Private office | 13 to 50 |
| Open-plan office | 20 to 28 |
| Classroom | 40 to 46 |
| Conference room | 22 to 65 |
| Restroom | 30 to 90 |
| Corridors | 30 to 80 |
| Storage area/closet | 45 to 80 |

Which rooms should they be installed?

These work best in rooms with infrequent use or distinct periods of vacancy such as restrooms, storerooms, conference rooms, and personal offices.

With which technical aspects should I be concerned?

- Infrared sensors have gaps in their field of vision, so test movement throughout the room once they are set up.
- They are designed for rooms with a clear line of sight to occupants, so the position of the sensor will only work if the occupants' activities will be in range and with an unobstructed line of sight to the sensor.
- The room needs to conform to the limited range of the sensor, roughly an area 15' from either side by 25' away from the sensor. The switches are better adapted for smaller rooms such as offices, copy rooms, lunch rooms, and conference rooms.
- Installation is an easy and quick process for a licensed professional, it requires only changing out the old switch for the occupancy sensor switch.

http://www.uppco.com/business/eba_10.asp

How much do they cost?

The retail price of light switch sensors can range from \$20 to \$60. The upper end sensors are recommended because they are commercial grade, having longer delay settings, extended sensing range, and more durable construction.

How can I get help to pay for them?

Here are examples for the Los Angeles area. Both the Los Angeles Department of Water and Power (LADWP) and Southern California Edison offer rebates on lighting upgrades. The target building may be eligible for the following programs.

Los Angeles Department of Water and Power –

[Commercial Lighting Efficiency Offer \(CLEO\)](#) LADWP offers cash rebates for qualifying energy-efficient lighting products.

Southern California Edison –

[Express Efficiency Program](#) These rebates are designed to cover a portion of your cost for the sensor installation. They are available to any size business. The qualifying occupancy sensors are eligible for rebates up to \$44 on each sensor.

If occupancy sensor light switches will not work in every room, what are my options?

Occupancy sensor light switches are the least expensive and easiest to install of all occupancy sensors. There are a variety of other occupancy sensors that automatically turn lights or HVAC systems on and off according to the usage of a room. These sensors are more complicated, but cover areas that the light switch sensors cannot, such as larger rooms and those rooms without a clear line of sight of the occupants.

You should hire a professional consultant to design a sensor layout plan if more than sensor light switches are needed. They will pick the right product and the right location to match the lighting with the requirements of the occupants. LADWP and SCE offer such design services:

Los Angeles Department of Water and Power –

[Energy Load Monitoring \(ELM\) Program](#) Commercial and industrial customers can gain a better understanding of their energy practices or better plan for their future needs with tools that allow them to view, modify, and analyze their energy usage data. For more information, please call (213) 367-2010 or e-mail elm@ladwp.com.

[Energy Use Analysis](#) This program offer analysis of your energy usage with recommendations for specific efficiency practices and/or equipment. If you would like this service, call 1 (800) GREENLA (473-3652). An online energy analysis is available at www.ladwp.com.

Southern California Edison –

[Integrated Lighting Solutions](#) The program approaches lighting from a total systems perspective - that is, taking into account fixtures, ballasts, lamps, sensors, etc. They consider the proper lighting levels required for tasks performed and provide a written recommendation that makes it easy to obtain and compare bids from different contractors.

[Energy Optimization Services](#) Their staff includes architectural and engineering experts that will help you reduce your energy costs with a range of services such as: building energy use simulation, electronic equipment performance and energy-efficiency consultation, energy monitoring instrumentation, facility engineering analysis, and building systems commissioning.

Where can I find more information?

[UPPCO](#) Michigan's Upper Peninsula Power Company has a very informative web page about occupancy sensors and which considerations are important when choosing them.

[Wattstopper](#) This is a leading company in the motion sensor industry and has an informative website about what products are available, useful tips about them, and test cases of buildings using their products.