

## Occupancy Basics

### What is occupancy detection?

Occupancy detection is when occupancy sensors automatically turn lights on when a room becomes occupied, and off when the room is vacant. Sensors may have a preset or adjustable time-out depending on the sensor. Some systems may be programmed to go to specific light levels rather than ON and OFF.

### Why should I have occupancy detection?

Many building spaces remain unoccupied between 40% and 70% of the day. When lighting is left on even though a space is unoccupied, the result is wasted electricity and higher costs. Lutron occupancy sensors automate the switching and dimming of these lights, saving energy and money.

In addition to saving energy by turning the lights off when the space is unoccupied, occupancy sensors also provide the convenience of turning the lights on automatically when you walk into the space.

### How does it work?

Lutron's occupancy sensors incorporate multiple advanced motion detection technologies to determine whether a person is occupying the space. When a person walks into a space the lights will immediately turn on, and when the person leaves the lights will turn off after a specified time-out.

### Unoccupied time-out

If you enter a space controlled by an occupancy sensor, the sensor will detect occupancy and turn the lights on automatically. When all occupants leave the space, there is a specified time-out before the sensor turns the lights off. The default time-out can vary from system to system and can usually be modified per user specifications.

## Manual override example

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### 9:30 a.m. –

Betty Smith walks into her office.

Sensor detects that the space is now occupied and brings the lights up to 100%.

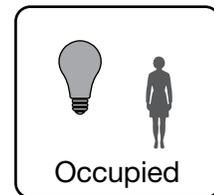


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### 10:00 a.m. –

Betty turns the lights off manually to give a video presentation.

Sensor detects the room is still occupied but will not turn the lights on due to the manual override.

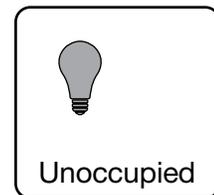


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### 10:10 a.m. –

Betty leaves her office.

Sensor detects the space is now unoccupied, and begins 15 minute time-out period.



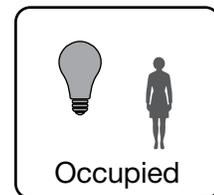
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### 10:15 a.m. –

Betty quickly returns to grab an important document, and then leaves the office again.

Sensor detects the space is occupied and interrupts the 15-minute time-out. The sensor does not turn the lights on because the time-out period was not reached.

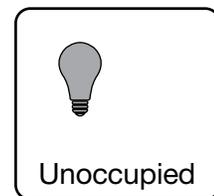
After Betty leaves the office the 15-minute time-out begins again.



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### 10:30 a.m. –

15-minute time-out reached and the sensor changes to unoccupied. Lights already off.



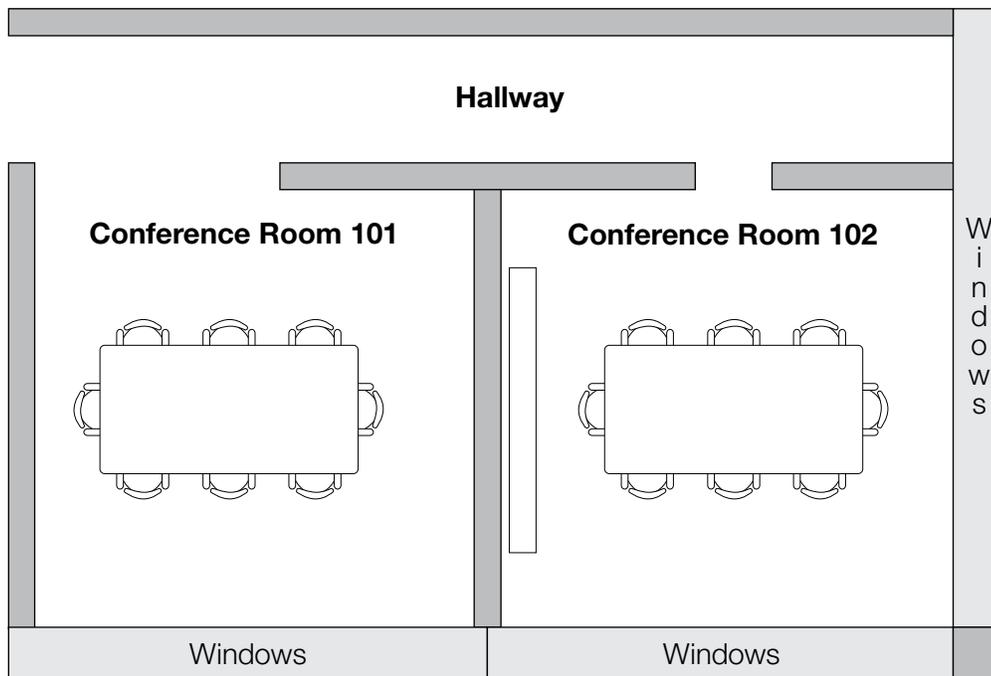
## Grouping

Some Lutron systems allow you to group areas so they act as a single, large occupancy group. All grouped areas will turn on when any occupancy sensor in the grouped areas registers an occupied status. All grouped areas will turn off only when all occupancy sensors in each of the grouped areas report unoccupied statuses.

## Dependency

Dependency is very similar to occupancy grouping, except that dependency only works in one direction. This is most frequently used to make a common area dependent on connected private offices or conference rooms to ensure the safety or comfort of building occupants.

As seen in **Figure 1**, if the hallway is dependent on the two conference rooms then the hallway will remain on if either conference room is occupied. The lights in the hallway will only turn off when both conference rooms and the hallway register unoccupied statuses. Walking into the hallway will not turn the conference rooms on because dependency behavior works in one direction only.



**Figure 1:** An example of occupancy dependency. In this installation the hallway area would be made dependent on conference room 101, and conference room 102.

## FAQs

### How do I adjust my sensor settings?

Most Lutron occupancy sensors allow you to adjust the sensitivity and time-out values directly from the sensor itself. Please consult the individual sensor installation guide for instructions on how to adjust the sensitivity and time-out period.

### How can I test sensor coverage?

Different sensors have different range capabilities. It is also possible to inadvertently create “blind spots” by blocking the sensor’s field of view. Refer to your individual sensor instructions for details on how to test sensor coverage and sensitivity.

### Do heaters, air conditioners, and air vents affect the performance of the occupancy sensor?

Some Lutron sensors analyze the movement of and changes in heat through a space. This works really well to detect a person, but can easily be affected by a heat source or air conditioner. The closer the heat source is to the sensor, the greater the chance that it may interfere with the sensor’s behavior. If you are having problems with an occupancy sensor check to see if there are any air vents or heating ducts close to the sensor. The sensor may have to be relocated, or airflow redirected.

### How do multiple sensors work together?

If there are multiple sensors assigned to the same area, the system will keep track of all assigned sensors. If at least one sensor registers an “occupied” status, the area will remain on. The lights in the area will only turn off when all assigned sensors report “unoccupied” statuses.

## Will my sensor detect motion through the doorway of my private office?

If the motion is within the sensor's depth range and if the sensor lens has a clear line of sight out a doorway then the sensor will think the area is occupied when someone walks by. Recommended sensor placement is in a far corner, against the wall with the door.

## Will my sensor detect motion through glass?

The technologies used by Lutron occupancy sensors to detect motion will not "see" through glass.

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