

# Lutron | occupancy sensor quick reference guide

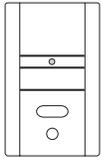
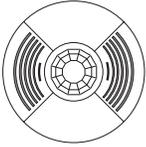


## **Wasted lighting energy is the problem**

Lighting can account for up to 50% of your building's total energy use. Many building spaces remain unoccupied with the lights on for 40% to 70% of the daily operating hours, wasting energy and money.

## **Lutron occupancy sensors are the solution**

Lutron's full line of occupancy sensors automate the switching or dimming of the lights, reducing the energy wasted in unoccupied spaces.

		Technology	Coverage (sq. ft.) <sup>1</sup>	Color	Field of View	Self-adaptive <sup>2</sup>	Special Features	
	<b>Wall Switch Models: Provide a quick replacement of wall switches for small enclosed areas (120/277V)</b>							
	LOS-SUS-WH	Ultrasonic	1000	White	180°	Yes		
	LOS-SUS-IV	Ultrasonic	1000	Ivory	180°	Yes		
	LOS-S2IR-HD-WH	Passive Infrared <sup>3</sup>	1000	White	180°	No	Dual circuit, Vandal resistant	
	LOS-SIR-HD-WH	Passive Infrared <sup>3</sup>	1000	White	180°	No	Vandal resistant	
	LOS-SIR-WH	Passive Infrared <sup>3</sup>	900	White	180°	No		
	LOS-SIR-IV	Passive Infrared <sup>3</sup>	900	Ivory	180°	No		
	LOS-SIR-M-WH	Passive Infrared <sup>3</sup>	900	White	180°	No	Manual-on <sup>4</sup>	
LOS-SIR-M-IV	Passive Infrared <sup>3</sup>	900	Ivory	180°	No	Manual-on <sup>4</sup>		
	<b>Wall Mount Models: For spaces with pendant fixtures, ceiling fans, or ceilings more than 12 ft. high (20-24VDC)</b>							
	LOS-WDT-R-WH	Dual Technology	1600	White	110°	Yes	Contact closure <sup>5</sup>	
	LOS-WDT-WH	Dual Technology	1600	White	110°	Yes		
	LOS-WIR-WH	Passive Infrared <sup>3</sup>	1600	White	110°	Yes		
	<b>Ceiling Mount Models: For larger open spaces with ceilings less than 12 ft. high (20-24VDC)</b>							
	LOS-CDT-2000R-WH	Dual Technology	2000	White	360°	Yes	Contact closure <sup>5</sup>	
	LOS-CDT-2000-WH	Dual Technology	2000	White	360°	Yes		
	LOS-CDT-1000R-WH	Dual Technology	1000	White	180°	Yes	Contact closure <sup>5</sup>	
	LOS-CDT-1000-WH	Dual Technology	1000	White	180°	Yes		
	LOS-CDT-500R-WH	Dual Technology	500	White	180°	Yes	Contact closure <sup>5</sup>	
	LOS-CDT-500-WH	Dual Technology	500	White	180°	Yes		
	LOS-CUS-2000-WH	Ultrasonic	2000	White	360°	Yes		
	LOS-CUS-1000-WH	Ultrasonic	1000	White	180°	Yes		
	LOS-CUS-500-WH	Ultrasonic	500	White	180°	Yes		
	LOS-CIR-1500-WH	Passive Infrared <sup>3</sup>	1500	White	360°	Yes		
LOS-CIR-450-WH	Passive Infrared <sup>3</sup>	450	White	360°	Yes			

**Footnotes:**

- 1 Use approximately half this value for excellent minor motion detection.
- 2 Self-adaptive technology: Automatic adjustments of sensitivity and timing so no calibration is required.
- 3 Passive infrared technology does not emit a signal into the space. Therefore, it uses less current and is useful in rooms that may contain sensitive equipment such as medical facilities or laboratories.
- 4 California Energy Commission (CEC) residential Title 24-compliant.
- 5 Contact closure for integration with other building systems such as a security system or HVAC system. Also, these models can be used with Lutron RadioRA® and HomeWorks® Systems (power pack required).

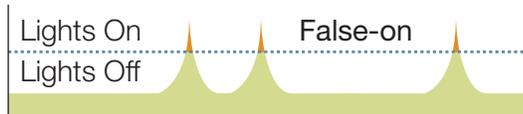
Classroom	Conference or Meeting Room	Hallway	Laboratory	Lecture Hall	Lobby	Lunch/Break Room	Open Office	Private Office	Public Restroom (multi-stall)	Public Restroom (single-stall)	Storage Area/Utility Room	Warehouse
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**Note:** All Lutron occupancy sensors are California Energy Commission (CEC) commercial Title 24-compliant. All ceiling and wall mount occupancy sensors require a power pack for stand-alone applications.

# Lutron | occupancy sensor technologies

## Self-adaptive

By analyzing occupancy patterns Lutron self-adaptive occupancy sensors constantly update their time and sensitivity settings to ensure that the sensors have the greatest accuracy. Therefore, no manual sensitivity and timer adjustments are necessary – providing maintenance free “install and forget” operation.



- Unoccupied Sensor Signal with Interference Spike
- ..... Occupancy Sensor Timing and Sensitivity Settings

### Occupancy sensor without self-adaptive technology

Interference repeatedly causes the occupancy sensor to falsely believe an occupant is in the room so the lights briefly turn on and then off again multiple times.



- Unoccupied Sensor Signal with Interference Spike
- ..... Occupancy Sensor Timing and Sensitivity Settings

### Occupancy sensor with self-adaptive technology

Occupancy sensor automatically adjusts timing and sensitivity after the first false-on so the interference will not cause the repeated false-on situation to occur.

## Passive infrared (PIR)

best for use in areas with:

- an unobstructed view
- high air flow
- ceiling fans

PIR technology senses occupancy by detecting the difference between heat emitted from the human body in motion and the background space. PIR sensors require an unobstructed line-of-sight for accurate detection. These sensors utilize a segmented lens which divides the coverage area into zones. Movement between these zones is interpreted as occupancy. Generally, PIR sensors are good at detecting **major motion** (e.g. walking) and work best in small, enclosed spaces with high levels of occupant movement.

## Ultrasonic (US)

best for use in areas with:

- low air flow
- partitions and dividers
- a high level of minor motion

Ultrasonic technology senses occupancy by bouncing ultrasonic sound waves (32kHz – 45kHz) off objects in a space and detecting a frequency shift between the emitted and reflected sound waves. Movement by a person or object within the space causes a shift in the wave frequency, which is interpreted as occupancy. Ultrasonic occupancy sensors are good at detecting **minor motion** (e.g. typing, reading) and do not require an unobstructed line-of-sight, thus making them suitable for applications such as an office with cubicles or a restroom with stalls.

## Dual technology (DT)

best performing sensor for most applications

Dual-technology occupancy sensors use both passive infrared and ultrasonic technologies for maximum reliability. These sensors also minimize the risk of false triggering (lights coming on when the space is unoccupied). Both US and PIR technologies must detect occupancy to turn lighting on, while continued detection by only one technology will keep lighting on.