

## Occupancy Sensor Microphonics vs. Ultrasonic Technology

**Product:** Occupancy Sensors

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**Summary:** This document defines Microphonic occupancy sensor detection and explains how it differs from ultrasonic technology.

**Information:** Microphonics is a proprietary technology that uses a microphone inside of an occupancy sensor to hear sounds indicating occupancy. It is designed to be used in conjunction with passive infrared (PIR) sensing within a space. Microphonics is a passive technology and cannot be used as a standalone sensing technique in spaces that do not have a line-of-sight to motion such as open office cubicle areas, restrooms, filing or storage rooms, alcoves, stairwells, hallways and corridors. In contrast, ultrasonic (U/S) is an active technology and can be used as a standalone sensing technique, allowing for more flexible detection in spaces that do not have line-of-sight to motion.

Microphonics was developed by one company and is not standard in either the lighting or security industries, which have both demonstrated U/S occupancy and motion detection as superior for over 20 years.

U/S sensors do not have the extent of interference concerns that Microphonics do, which include noise from outside traffic, HVAC rumbles, compressors turning ON/OFF, refrigeration equipment, radios, telephones, alarms, etc.

Leviton sensors using multi-technology (PIR and U/S), like the proprietary Microphonic/PIR sensors, also do the following:

- **Automatic gain control**—sensors look at the nuisance tripping from PIR and U/S at different times during a 7 day period and make micro-adjustments to enhance operation for optimal energy savings and to prevent false-ON/OFF
- **Auto-adapt time delay**—sensors look at the trigger points in the first 25% and last 25% of a vacancy trigger and make decisions to increase or decrease the time-out period, providing additional energy savings and preventing false-ON/OFF
- **Auto-filter sensitivity**—looks at any consistent nuisance triggers and reduces U/S sensitivity. In addition, set to turn lights OFF in conditions where a PIR trigger is not detected for 31 minutes

Ultrasonic power consumption is very low, and Leviton is one of few companies in the industry displaying power consumptions specifications on our product data sheets. Please reference the appropriate occupancy sensor data sheet for more information.

**Contact:** If you have any questions or concerns, please call LES technical support at (800) 959-6004.

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