



Northwest Trade Ally Network

Commercial & Industrial Lighting

Illuminating opportunities

LIGHTING TECHNOLOGY RESOURCE: Combine occupancy sensors with retrofit projects for even greater energy savings

Modernizing an existing lighting system can significantly reduce electricity consumption, but for maximum energy savings it is important to make lighting controls part of the package.

The principle of a control is to adjust illumination levels to the requirements of the space. Space occupancy sensors are an automatic control that saves electricity by turning the lights off when there is no one physically in the space. Sensors can replace a standard wall toggle switch, be mounted on the ceiling or wall, or be integrated into individual fixtures. They use a variety of sensing technologies including;

Infrared – Passive infrared sensors are tuned to detect human body temperature and see occupancy as a change in infrared patterns across their segmented detection regions.

Ultrasonic – Ultrasonic sensors sense movement in a space by transmitting a low-power, high-frequency signal which they receive back as a reflected signal using the Doppler Effect.

Microphonics – Microphonic sensors listen for human sounds and automatically adjust to mask out background noise.

Dual technology – Combining infrared, ultrasonic or infrared with microphonics, can enhance occupancy sensor performance.

Manufacturers have developed a new leading-edge “smart” technology which, when combined with the basic technologies shown above, can further enhance the function of the sensor. Smart sensors are capable of learning the occupancy patterns of the space in which they are installed. For example, a sensor installed in a typical office environment would learn that the space is active during work week hours and is less active during non-business, weekend hours. During active periods, it would adapt to become more sensitive to movement and keep the lights on longer. During off-hours, it would adjust to become less sensitive and stay on for shorter periods of time. When compared to standard sensors, this

smart technology has the potential to create more satisfied occupants and save even more electricity.

Most utility programs provide generous incentives for occupancy sensors because of their role in improving energy efficiency.

For more information on occupancy sensor products and applications, check out these leading manufacturers: [Leviton](#), [Lutron](#), [Novitas](#), [Rabweb](#), and [Sensor Switch](#).