Occupancy Sensors and Lighting Controls

Energy Savings with Occupancy Sensors

Typical Applications

Applications are generalized. Consult your BRYANT representative for the type of technology and products that fit your needs.

| Application | | Sensor Technology | | | | Sensor Style | | |
|-----------------------|-------|-------------------|------|------------|------------|--------------|------------|------|
| | | Adaptive | Dual | Ultrasonic | PIR | Wall Switch | Ceiling | Wall |
| Office | Small | √+ | √+ | | ✓ | √+ | ✓ | |
| | Large | √+ | √+ | ✓ | | | √+ | |
| Open Office | | √+ | ✓ | √+ | | | √+ | |
| Storage/ Warehouse | Small | | | | √+ | √+ | | |
| | Large | √+ | | | √+ | | √+ | √+ |
| Rest Room | Small | | | √ + | √ + | √+ | ✓ | |
| | Large | √+ | | √+ | | | √+ | |
| Conference Room | Small | √+ | √+ | | | √+ | ✓ | |
| | Large | √+ | √+ | | | | √+ | |
| Classroom | Small | √+ | √+ | | | √+ | ✓ | |
| | Large | √+ | √+ | | | | √+ | |
| Hall | | √ + | | √ + | \ | | √ + | 1 |

Bryant Occupancy Sensors Play a Key Role

In the U.S., lighting consumes 22% of electricity and represents \$40 billion a year in energy costs. Using advanced technology, Bryant's Occupancy Sensors are doing their part to save energy and provide sustainability by automatically and effectively turning lights on when a room is occupied and off when a room is vacant. In a typical office building, where lighting accounts for 35 to 45% of energy use, Occupancy Sensors have the potential to reduce wasted lighting by 13 to 90% for a significant return on investment (ROI).

Bryant offers a broad range of occupancy and vacancy sensors and lighting controls that meet the latest codes and standards, including ASHRAE/IESNA 90.1 and California Energy Commission (CEC) Title 24. BRYANT® Occupancy Sensors can help gain LEED® points in categories like Sustainable Sites, Energy and Atmosphere, Indoor Environmental Quality and Innovative Design Process.

Electrical bill impact for a typical office building*

Lighting Uses 39% of Total Electricity



Application ROI Index



Based on average occupancy and installation complexity.

LEED® is a registered trademark of the U.S. Green Building Council.

How to Select the Right Technology for the Proper Application Dual technology occupancy sensors

Dual Technology



Ultrasonic (US)



Passive Infrared (PIR)



combine both passive infrared (PIR) and ultrasonic (US) technologies for maximum reliability. Because US and PIR need to both detect occupancy to turn lighting ON, dual technology sensors minimize the risk of lights coming ON when the space is unoccupied-false triggering. Continued detection by only one technology then keeps lighting ON as necessary. Dual technology sensors offer the best performance for most applications.

Ultrasonic (US) technology senses occupancy by bouncing sound waves (32 kHz - 45 kHz) off of objects and detecting a frequency shift between the emitted and reflected sound waves. Movement by a person or object within a space causes a shift in frequency, which the sensor interprets as occupancy. While US occupancy sensors have a limited range, they are excellent at detecting even minor motion such as typing and filing, and they do not require an unobstructed line-of-sight. This makes US technology sensors ideal for an application like an office with cubicles or a restroom with stalls.

Passive infrared (PIR) technology senses occupancy by detecting the movement of heat emitted from the human body against the background space. Unlike US technology, PIR sensors require an unobstructed line-of-sight for detection. These sensors use a segmented lens, which divides the coverage area into zones. Movement between zones is then interpreted as occupancy. PIR sensors are ideal for detecting major motion (e.g. walking), and they work best in small, enclosed spaces with high levels of occupant movement.