H-MOSS®

Hubbell Motion Sensing Switches

Sensors for an Energy Conscious World

GREENWISE™

HUBBELL®

Wiring Device-Kellems

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Building Types

Room Types

Layout Capabilities and Technical Support

Hubbell representatives are available to answer all your questions and discuss any project—large or small. Sensor selection and layout services are available. Call 800-288-6000 for more info.

Energy Conservation at the Forefront

A significant energy conservation movement has been established across the globe in the form of local, state and national programs, standards and codes that call for energy efficiency in both commercial and residential buildings. These codes and standards include:

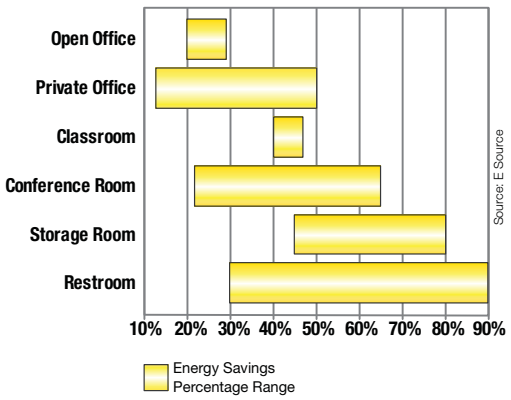
- LEED® (Leadership in Energy and Environmental Design) certification in new and renovated facilities through the U.S. Green Building Council (USGBC) promotes sustainable building design.
- California Energy Commission's (CEC) Title 24 program enforces stringent standards and regulations to reduce energy consumption, including automatic lighting control and shut-off.
- ASHRAE/IESNA 90.1 energy efficiency code requires interior lighting in buildings larger than 5000 sq. ft. to be controlled with automatic devices.
- IECC® (International Energy Conservation Code) compliance requires automatic shut-off of lighting which is now adopted by most states in some form.

As energy concerns increase, the "greening" of commercial and residential buildings will continue through more stringent standards and additional energy conservation initiatives like the EPA's ENERGY STAR program and the 2030 Challenge that aims to reduce energy use by 50% by 2030.

Hubbell 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, Hubbell's H-MOSS® 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, H-MOSS Occupancy Sensors have the potential to reduce wasted lighting by 13 to 90% for a significant return on investment (ROI).

Hubbell 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 CEC's Title 24. H-MOSS Occupancy Sensors can also provide LEED® points in categories like Sustainable Sites, Energy and Atmosphere, Indoor Environmental Quality and Innovative Design Process.



Backed by Hubbell Service and Support

H-MOSS® Occupancy Sensors are backed by Hubbell's GreenWise™ sustainability initiative and superior service and support including:

- Valuable online H-MOSS ROI worksheet for calculating energy savings
- Detailed H-MOSS online e-learning courses that can be taken anywhere, anytime
- Product selection guide for choosing the right H-MOSS Occupancy Sensor and technology
- Online specification assistance through spec wizard, AutoCAD drawings, templates and documentation
- Comprehensive design assistance for deploying occupancy sensors in a variety of applications
- Highly knowledgeable network of specification professionals and trained, dedicated sales staff
- Backed by Hubbell who is committed to safeguarding the environment through environmental stewardship, innovative products and efficient operations

For more information about Hubbell's GreenWise™ initiative and access to our complete suite of on-line tools, visit our website at www.hubbell-wiring.com/green.

Adaptive Technology...
Smart Technology for Today's Needs

Adaptive Technology is a Hubbell patented innovation that delivers benefits to both building owners and occupants. The building owner achieves reduced energy costs, fewer adjustments and less maintenance while the building occupant experiences fewer false on and offs and disturbances.

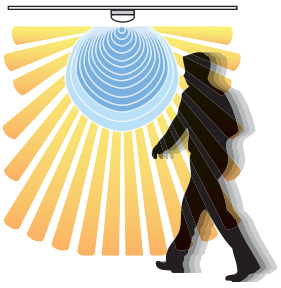
Adaptive Technology occupancy sensors use microprocessors that make all the decisions for setting adjustments. Internal software constantly monitors the controlled area and automatically adjusts the sensitivity and timer based on environmental history. This means that instead of manually adjusting the sensor for seasonal changes, modified airflow, furniture layout or occupancy pattern changes, the sensor automatically adjusts itself. These automatic adjustments eliminate the need for multiple manual adjustments by maintenance personnel or outside contractors. Hubbell offers Adaptive Technology throughout its product offering—wall switches, ceiling and wall mount sensors—in conjunction with dual technology, ultrasonic and passive infrared products.

Benefits:

- "Install-and-forget" operation
- Adapts to space and needs
    - Seasons
    - Airflow
    - Occupancy Patterns
- Reduces false on and offs

How to Select the Right Technology for the Proper Application

Dual Technology

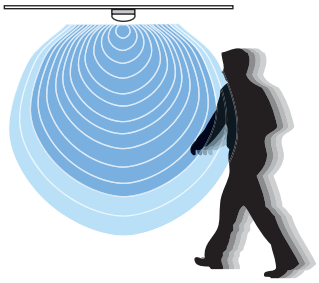


Dual technology occupancy sensors combine both passive infrared (PIR) and ultrasonic (US) technologies for maximum reliability. Because US and PIR need to both detect occupancy to turn lighting on, dual technology sensors minimize the risk of lights coming on when the space is unoccupied—false triggering.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

Benefits:

- Track occupancy on with two sensing methods
- Minimizes false triggering
- Consistent, reliable operation

Ultrasonic (US)

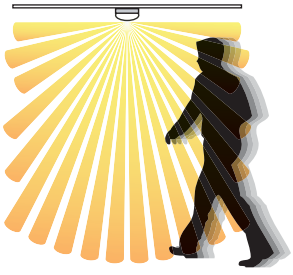


Ultrasonic (US) technology senses occupancy by bouncing sound waves (32 kHz - 45 kHz) off of objects and detecting a frequency shift between the emitted and reflected sound waves. Movement by a person or object within a space causes a shift in frequency, which the sensor interprets as occupancy. While 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.

Benefits:

- Detect small motion
- Sees around obstructions
- Cost efficient

Passive Infrared (PIR)



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.

Benefits:

- Long range detection
- Reliable triggering
- Cost efficient

Office Solutions

Energy Saving Locations:

Supply Closets
Restrooms
Break Rooms
Conference Rooms
Offices
Open Offices
Hallways

Pro Tip:

Sensors with photocells provide additional savings in areas with sufficient natural light by turning off lights whenever possible.

Success Factors:

- Reduce installation and maintenance labor by eliminating manual adjustments with adaptive sensors.
- Maximize savings with Hubbell's daylight harvesting products which precisely control lighting in response to available natural light.
- Open office spaces provide many placement and product selection challenges. Contact your local Hubbell sensor professional for layout and product assistance.

* Energy Information Administration: 2003 Commercial Buildings Energy Consumption Survey
** Based on 40% lighting savings from sensors. Actual results may vary.

Eliminate energy waste and improve the bottom line.

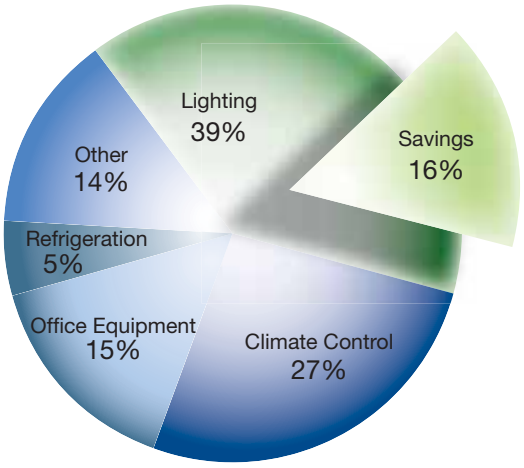
Companies have always had to make tough decisions regarding resource allocation. In the past, energy consumption was often treated as a fixed overhead cost. With new regulations and the need for sustainable building design, this no longer holds true. Lighting is responsible for much of an office's electricity use, and occupancy sensors can provide significant energy savings by only lighting where and when it's needed.

Enhance reputation and maintain employee satisfaction.

Companies with LEED-certified facilities have a higher standing within their communities and among industry peers. LEED-certified work environments also result in higher levels of employee satisfaction and retention due to healthier, brighter working conditions. Hubbell's H-MOSS sensors can help gain LEED points and illustrate a company's commitment to protecting the environment.

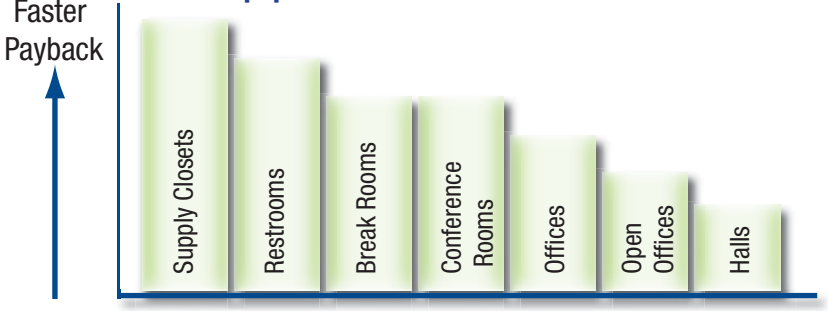
Typical Office Electricity Usage and Savings*

Lighting Uses 39% of Total Electricity



Potential electricity bill savings**

Application ROI Index



Based on average occupancy and installation complexity.

Education Solutions

Electricity doesn't educate—teachers do.

Electricity bills are second only to payroll in today's restricted school budgets. Most of the electricity goes to keeping the lights on, even when they are not needed. Systematically turning lights off whenever possible significantly reduces a school's utility bill.

Regain budget control with Hubbell.

H-MOSS® sensors provide a simple, automated and transparent system to make sure that lighting energy is used as needed. This protects school budgets from rate fluctuations, allowing educational institutions to more freely invest in teachers, programs and supplies that directly affect the quality of education.

Energy Saving Locations:

Store Rooms
Restrooms
Cafeterias
Administration
Classrooms
Media Centers
Hallways

Pro Tip:

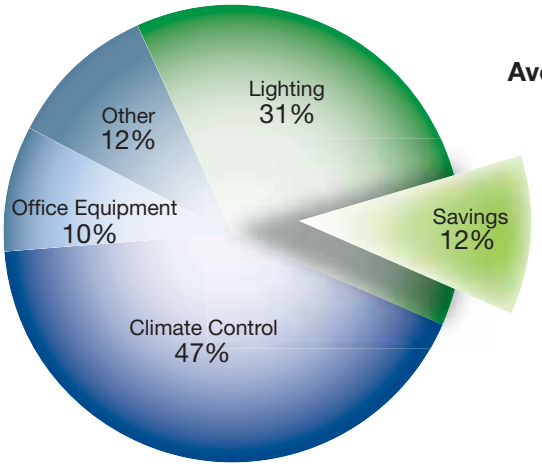
Dual technology sensors enhance minor motion detection reducing false off situations during periods of reading or testing.

Success Factors:

- Provide advanced lighting control of two zones for projector use with dual circuit switches.
- Increase sensor longevity by specifying AD or AP series switch sensors with vandal resistant hard lenses or ultrasonic sensors.
- Simplify retrofits by eliminating the need to run new wires by utilizing line voltage wall switch and ceiling sensors.

Typical Education Electricity Usage and Savings*

Lighting Uses 31% of Total Electricity



Average electricity bill savings**

Application ROI Index

Based on average occupancy and installation complexity.

* Energy Information Administration: 2003 Commercial Buildings Energy Consumption Survey
** Based on 40% lighting savings from sensors. Actual results may vary.

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Retail Solutions

Energy Saving Locations:

Supply Closets
Restrooms
Changing Rooms
Break Rooms
Offices
Hallways
Show Floor

Pro Tip:

Passive infrared is perfect for changing rooms, and break areas where ROI outweighs performance requirements.

Success Factors:

- Minimize cost and maximize savings in changing rooms with PIR sensors and short off delays.
- Reduce the chance for sensor damage by specifying the hard lenses of the AD and AP series.
- Contact you local Hubbell sensor professional for assistance with high bay storage and show floor solutions.

Illuminate sales potential and increase profit.

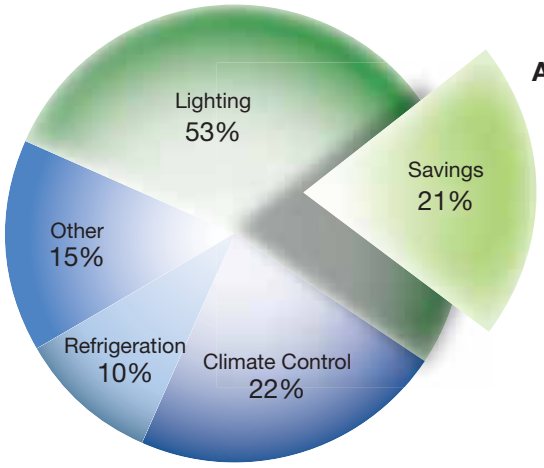
Retail establishments use a significant amount of electricity for lighting—both for overhead and display. After all, customers need to clearly see what they're buying. However, there are numerous areas in stores that don't require light all day like stock rooms, restrooms, and fitting rooms. Occupancy sensors in these areas can lower a store's electricity bill and increase profit.

The upgrade that pays back.

Hubbell's H-MOSS sensors provide a transparent, automated system that seamlessly makes sure lights are turned on when needed and off when they're not. Employees can carry goods in and out of stock rooms without worrying about lights, and patrons can enter instantly illuminated fitting rooms. Occupancy sensors also show customers that a retail establishment is committed to minimizing energy waste while saving money every day.

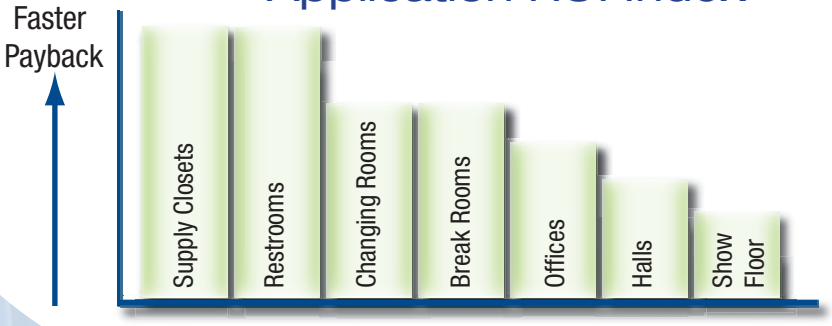
Typical Retail Electricity Usage and Savings*

Lighting Uses 53% of Total Electricity



Average electricity bill savings**

Application ROI Index



Based on average occupancy and installation complexity.

* Energy Information Administration: 2003 Commercial Buildings Energy Consumption Survey
** Based on 40% lighting savings from sensors. Actual results may vary.

Hospitality Solutions

Turn the lights off to keep the lights on.

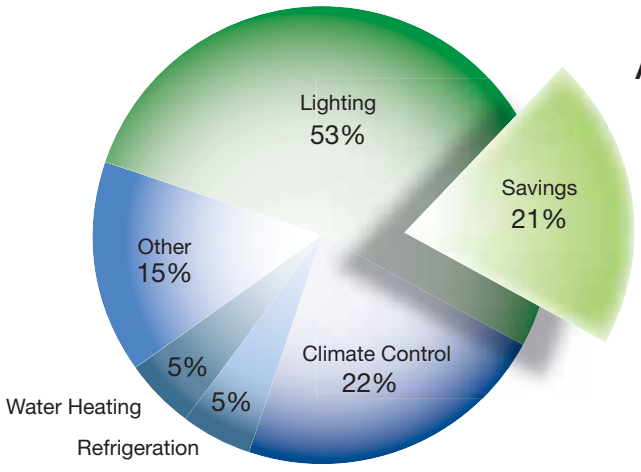
Over 50% of a hotel's electricity bill goes to keeping lights on, even when guests are away from their rooms. This results in substantial waste that reduces an establishment's financial efficiency and sustainability. With occupancy sensors, the waste can be eliminated without affecting customer comfort and convenience.

Manual-on mode automates savings.

Hotel guests are on the go and often away from their rooms. As a result room lights are often left on, even in broad daylight. Specifically developed with the hospitality industry in mind, manual-on mode provides guests with a traditional on/off light control experience but then automatically turn off lights once a room is unoccupied for a period of time. This provides a simple and transparent method to ensuring that lights are off when necessary, significantly increasing a hotel's energy efficiency.

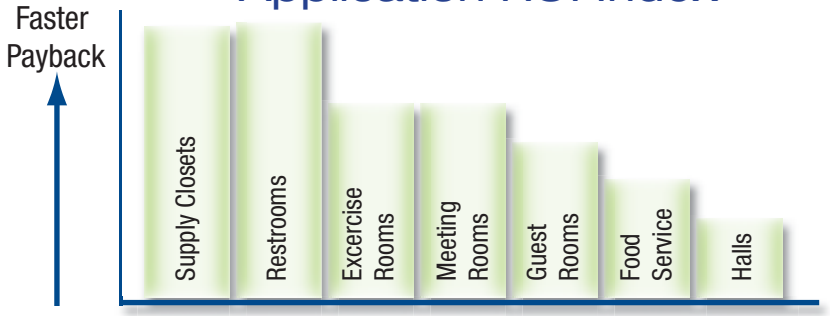
Typical Hospitality Electricity Usage and Savings*

Lighting Uses 53% of Total Electricity



Average electricity bill savings**

Application ROI Index



Based on average occupancy and installation complexity.

Energy Saving Locations:

Supply Closets
Restrooms
Exercise Rooms
Break Rooms
Meeting Rooms
Guest Rooms
Food Service
Hallways

Pro Tip:

Utilize manual-on setting to maximize savings by making sure lights are turned off when rooms are unoccupied while giving patrons a traditional on/off experience.

Success Factors:

- Let guest have traditional control by setting sensors to manual-on mode on AP, AD, and AU series products.
- Utilize free sunlight to light your lobbies and atriums with Hubbell's atrium daylight harvesting sensor.
- Provide nighttime illumination with nightlight sensors.

* Energy Information Administration: 2003 Commercial Buildings Energy Consumption Survey
** Based on 40% lighting savings from sensors. Actual results may vary.

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Healthcare Solutions

Energy Saving Locations:

Store Rooms
Restrooms
Break Rooms
Labs
Exam Rooms
Administration Offices
Circulation

Pro Tip:

Adaptive Technology will automatically adjust for changes in shifts, usage, and seasons eliminating the need for manual adjustments and improving system performance.

Success Factors:

- Prevent lights from coming on at night in patient rooms by setting AP, AD, and AU series products to manual-on mode.
- Minimize privacy curtains and carts from preventing sensor activation by utilizing Dual Technology or Ultrasonic sensors.
- Healthcare facilities have many special requirements and unique environments. Contact your local Hubbell sensor professional for layout and product selection assistance.

* Energy Information Administration: 2003 Commercial Buildings Energy Consumption Survey
** Based on 40% lighting savings from sensors. Actual results may vary.

Turning lights off should be the least of the worries.

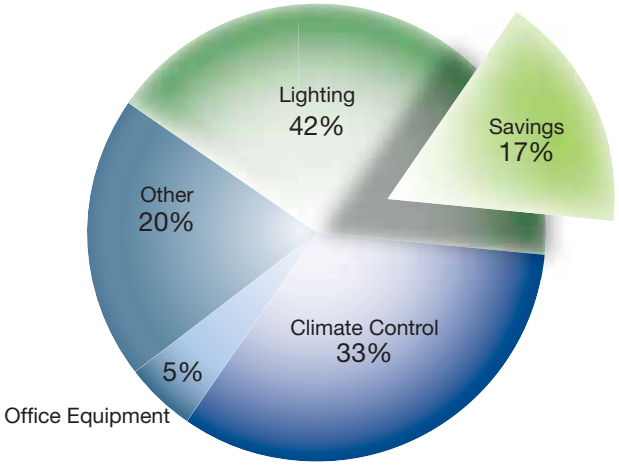
Hospitals are a 24/7 operation where decisions and actions regarding the wellness of patients are critical. Consequently, lights are often left on when not needed. There are several areas throughout hospitals that can realize substantial efficiency improvements with little investment like administration offices, storerooms, closets and break rooms. Private practices, medical labs and outpatient care facilities have lower occupancy rates than hospitals and can further benefit from occupancy sensors.

Promote healthier environments.

Light switches are one of the most commonly touched surfaces, spreading diseases and bacteria. Installing occupancy sensors where appropriate eliminates the need to touch a switch, which can help reduce the spread of pathogens. At the same time, healthcare staff benefit from a simple, user-friendly method of controlling the lights.

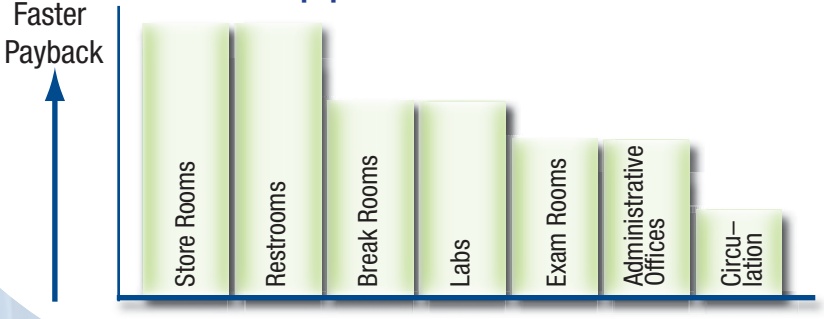
Typical Healthcare Electricity Usage and Savings*

Lighting Uses 42% of Total Electricity



Average electricity bill savings**

Application ROI Index



Based on average occupancy and installation complexity.

Residential Solutions

Is your home ready for the energy age?

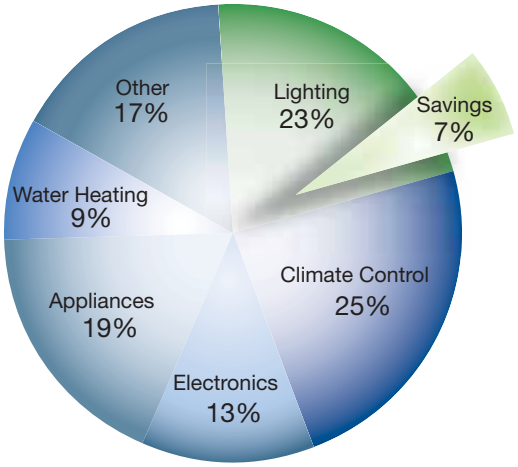
Residential construction has changed significantly in recent years. Updated energy efficiency standards such as California Title 24 have pushed energy efficient products to the forefront. Today's homeowners are demanding the latest technologies to help them manage energy usage and stay green. The construction of multi-dwelling units has also become more prevalent with common areas that are ultimately powered on the building owner's bill.

Attract today's home buyers.

Energy efficiency is a selling feature that helps differentiate a new home from an existing home. Hubbell's residential vacancy sensors were developed specifically for homeowners by incorporating features such as manual on, alert to off, dimming, optional nightlight and soft on and off. Incorporating Hubbell's sensors into the residence helps comply with the latest building codes while appealing to prospective home buyers.

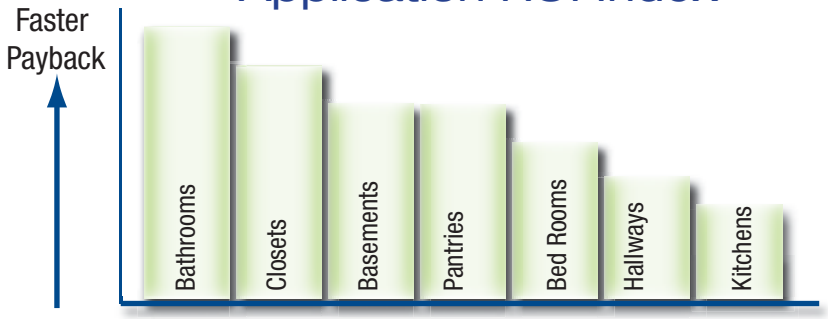
Typical Residential Electricity Usage and Savings*

Lighting Uses 23% of Total Electricity



Average electricity bill savings**

Application ROI Index



Based on average occupancy and installation complexity.

Energy Saving Locations:

Bathrooms
Closets
Basements/Garages
Pantries
Bed Rooms
Hallways
Kitchens

Pro Tip:

Vacancy sensors use manual activation to eliminate false triggering by pets and walkthroughs. They also help meet California Title 24 compliance.

Success Factors:

- Replace switches in bedrooms, bathrooms, closets and basements to maximize ROI as these areas often have lights left on.
- Provide nighttime and safety lighting in bathrooms and closets with nightlight-illuminated sensors.
- Give homeowners even more control of lighting and savings with dimming sensors.

* Source: US DOE Building Energy Data Book 2008
** Based on 40% lighting savings from sensors. Actual results may vary.

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Office Design Guide

Energy Saving Areas:

Open Office

Administration

Private Offices

Teaming Areas

Pro Tip:

Line voltage ceiling sensors simplify retrofits. Also note door location and swing radius to position wall switch sensors correctly.

Occupancy trends are changing.

Due to the increased use of flexible work hours, telecommuting and adaptable workspaces, modern office spaces experience constant changing occupancy patterns. These trends have increased the amount of unnecessary illumination in today's offices, which can be minimized through proper utilization of occupancy sensors.

Modern technology for modern offices.

The ever-changing nature of today's office space poses challenges for traditional occupancy sensors. Hubbell's H-MOSS® sensors, equipped with adaptive technology, constantly monitor and adjust to changing occupancy patterns, layouts and environmental conditions. H-MOSS takes the guesswork out of setup and operation by providing an "install-and-forget" experience.

Products

Recommended

Wall Switch:
AD1277x1 Series

Alternative

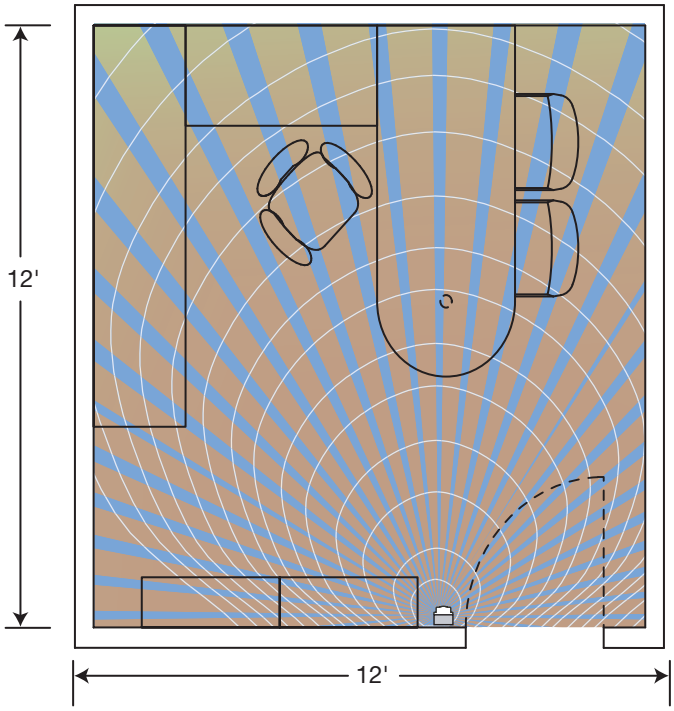
Wall Switches:
WS1277 Series
AP1277x1 Series

Ceiling Sensors:
ATD500C
ATP600C
(Must use a Control Unit)

LVPR1500R
(No control unit needed)

Typical Layouts and Coverage Patterns

Small Office



Technology

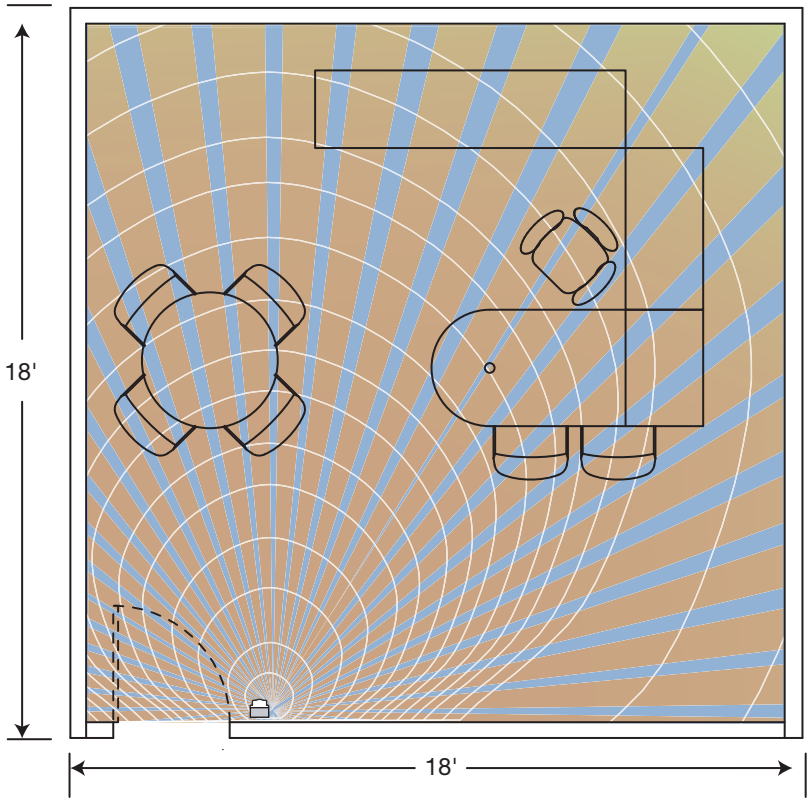
Adaptive Dual Technology
(Recommended)

Suggested Installation

Make sure sensor is not obscured by an open door.

Major Motion: Ultrasonic PIR **Minor Motion:** Ultrasonic PIR

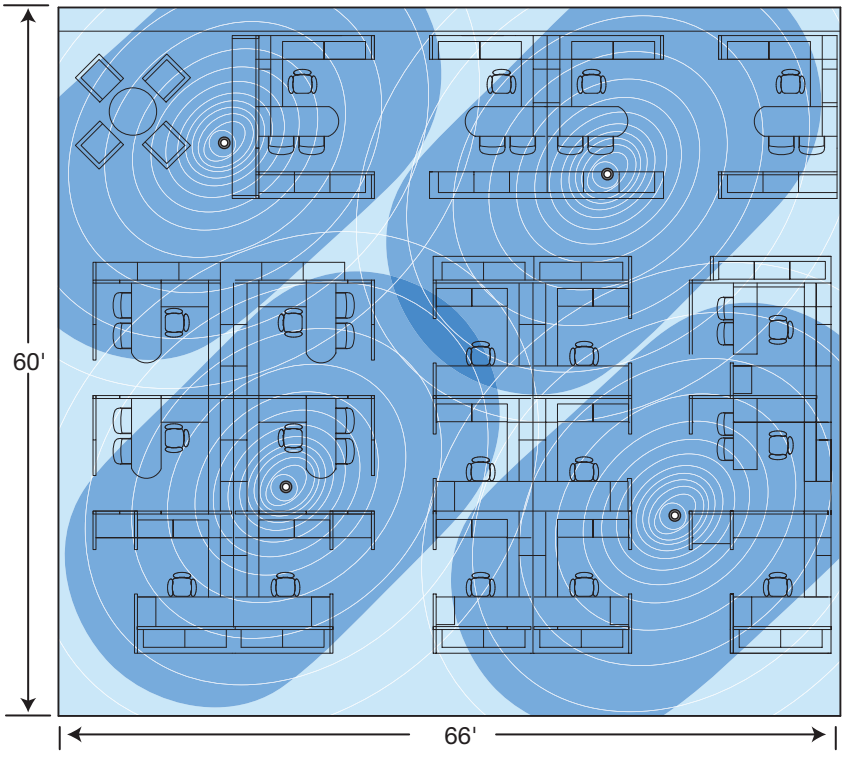
Large Office



Technology
Adaptive Dual Technology
(Recommended)

Suggested Installation
Place sensor to view into the room and not “see” hallway traffic.

Open Office



Technology
Adaptive Ultrasonic Technology
(Recommended)

Suggested Installation
Position and angle sensors to maximize minor motion detection over work space concentrations.

Major Motion: Ultrasonic PIR **Minor Motion:** Ultrasonic PIR

Products

Recommended
Wall Switch:
AD1277x1 Series

Alternative
Ceiling Sensor:
ATU1000C
(Must use a Control Unit)

Products

Recommended
Ceiling Sensor:
ATU2000C

Must use a Control Unit
CU300A

Alternative
Ceiling Sensor:
LVDT2000R
(No control unit needed)

Restroom Design Guide

Energy Saving Areas:

Single Person

Multi Person

Locker Rooms

Powder Rooms

Pro Tip:

Dual circuit sensors can allow for control of lights and exhaust fan simplifying installation. Contact technical services regarding load and motor types supported.

Products

Recommended

Wall Sensors:
AU1277X1 Series

Alternative

Wall Switches:
WS1277 Series
AP1277x1 Series

Ceiling Sensors:
ATU500C
(Must use a Control Unit)
LVPR1500R
(No control unit needed)

Occupied or not?

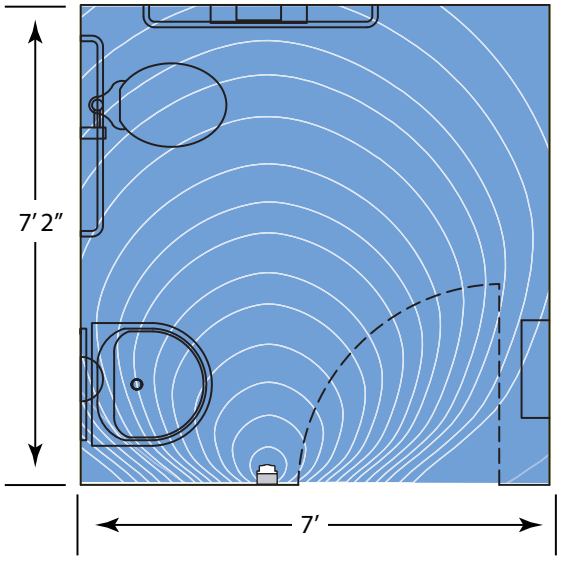
Restrooms are typically occupied less than 50% of the day, and lights are often left on while no one is present. Restrooms are also isolated, making it difficult to determine if lights have been left on inadvertently. Significant savings can be achieved by systematically turning lights off when possible.

Promote savings and health.

H-MOSS® sensors intelligently sense occupation and control lights accordingly so facility managers no longer have to ensure that the lights are turned off in restrooms or when closing up. And because a switch is a common touch point for transmitting germs in bathrooms, using H-MOSS sensors helps promote healthy buildings.

Typical Layouts and Coverage Patterns

Small Single Restroom



Technology

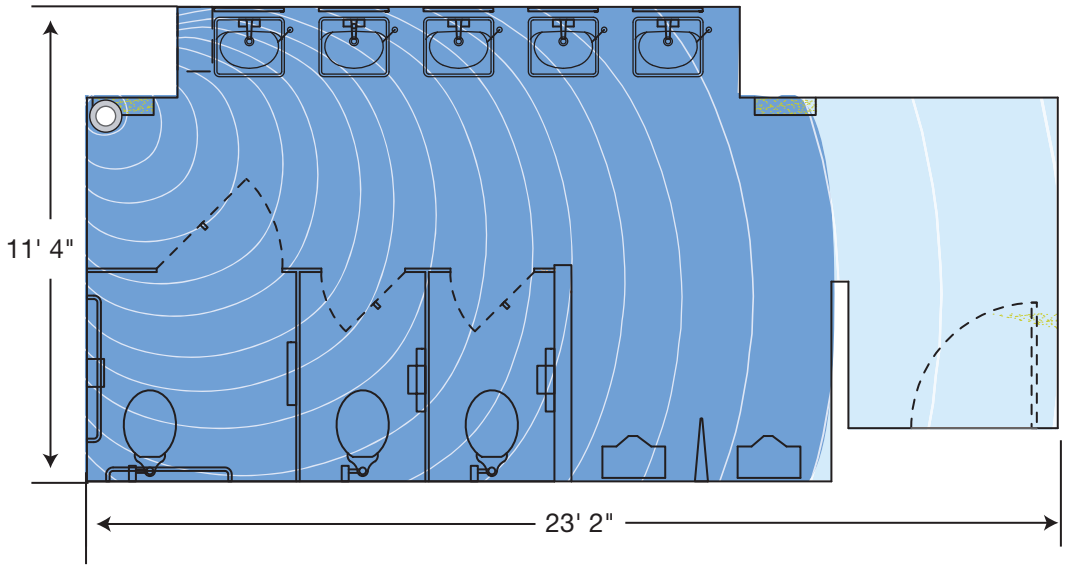
Adaptive Ultrasonic Technology (Recommended)

Suggested Installation

Mount switch in location that limits chance for damage.

Major Motion: Ultrasonic PIR **Minor Motion:** Ultrasonic PIR

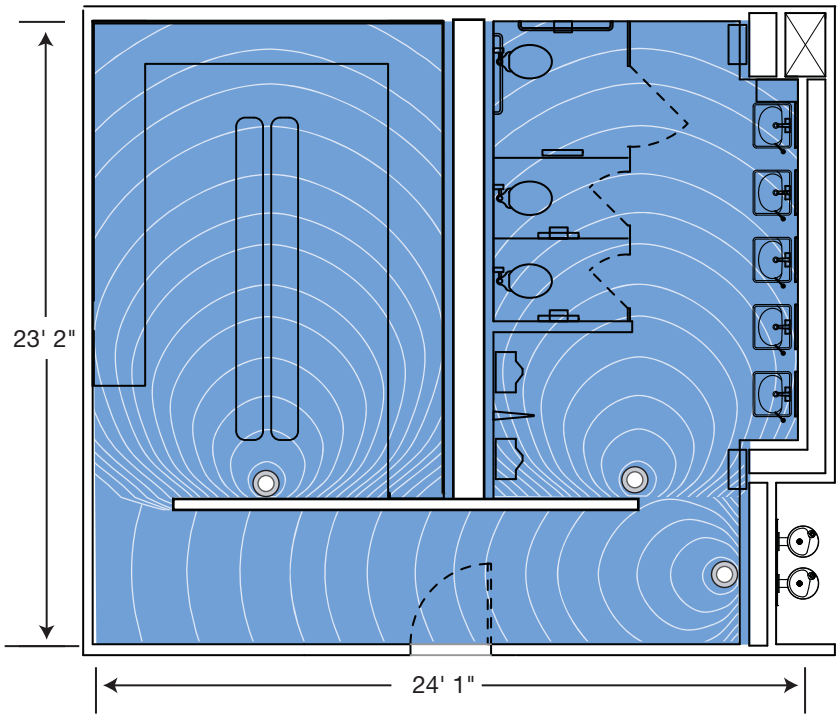
Large Restroom



Technology
Adaptive Ultrasonic Technology (Recommended)

Suggested Installation
Place sensor closer to stalls to maximize minor motion detection.

Large Restroom with Locker Room



Technology
Adaptive Ultrasonic Technology (Recommended)

Suggested Installation
Multiple sensors provide complete coverage and allow selective lighting based on occupancy.

Major Motion: Ultrasonic PIR **Minor Motion:** Ultrasonic PIR

Products

Recommended
Ceiling Sensor:
ATU500C

Must use a Control Unit
CU300A

Alternative
Ceiling Sensors:
LVUS2000R
LVUS1500R
(No control unit needed)

Products

Recommended
Ceiling Sensor:
ATU500C

Must use a Control Unit
CU300A

Alternative
Wall Sensor:
ATU2000C

Ceiling Sensor:
LVUS1500R
(No control unit needed)

Classroom Design Guide

Energy Saving Areas:

Classrooms

Conference Halls

Libraries

Pro Tip:

Dual technology provides reliable operation during periods of low activity such as testing. Manual on/off sensors provide control for movies and presentations.

Products

Recommended

Ceiling Sensor:
ATD2000C

Must use a Control Unit
CU300A

Alternative

Ceiling Sensor:
LVDT2000R
(No control unit needed)

H-MOSS®—the teacher's new pet.

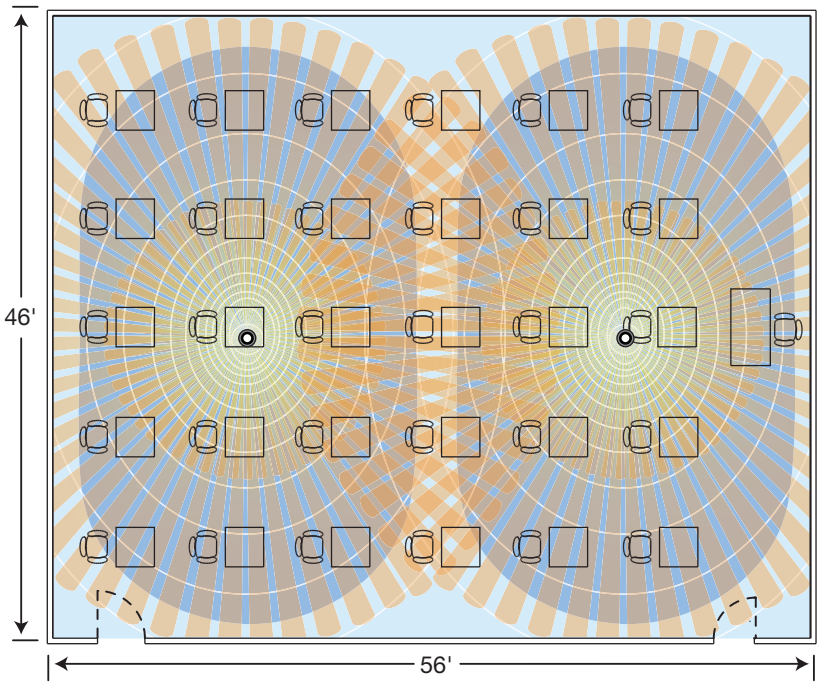
Lighting classrooms consumes a substantial amount of the education budget. However, significant savings can be realized by turning off lights when they are not needed. Occupancy sensors provide an inexpensive way to guarantee that energy waste is kept to a minimum. They can further enhance savings by using optional photo sensors that turn off the lights when enough natural light is detected.

Design for change.

Classrooms are multi-use spaces that accommodate school-day activities and after school programs. Field trips, vacations, events and cancellations all affect occupancy patterns. At the same time, seasonal environmental conditions are always changing. Hubbell's patented Adaptive Technology automatically adjusts to these changes to minimize inadvertent activation and maximize savings. Hubbell provides one of the most complete sensor lines for effectively managing project cost and performance in educational institutions.

Typical Layouts and Coverage Patterns

Large Classroom



Technology

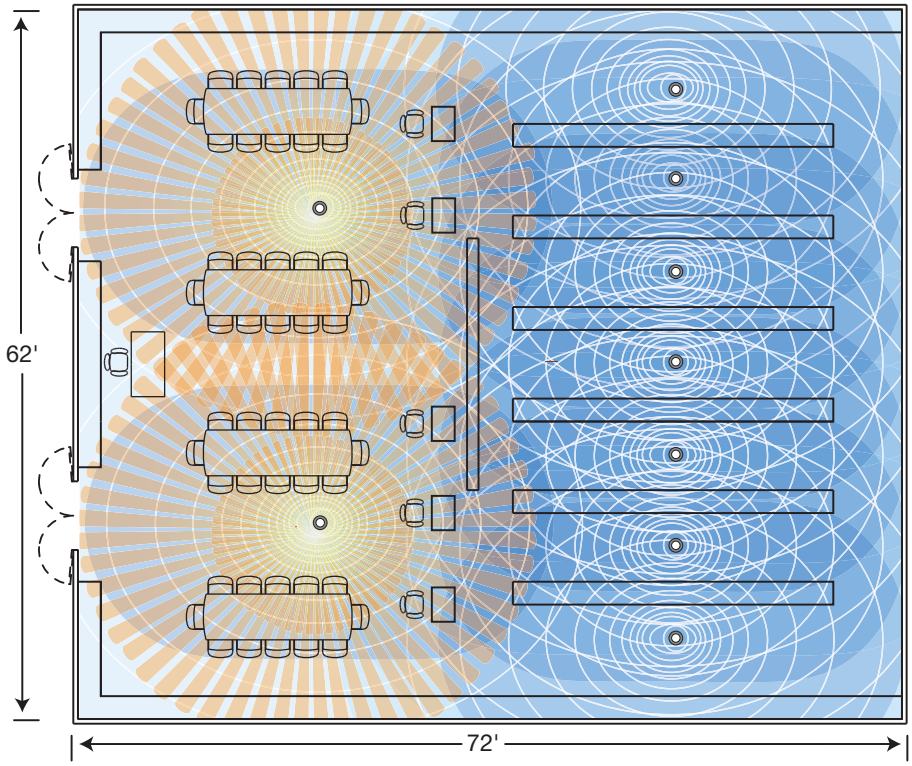
Adaptive Dual Technology
(Recommended)

Suggested Installation

Provide teachers with manual override switches to turn off lights during A/V presentations.

Major Motion: Ultrasonic PIR **Minor Motion:** Ultrasonic PIR

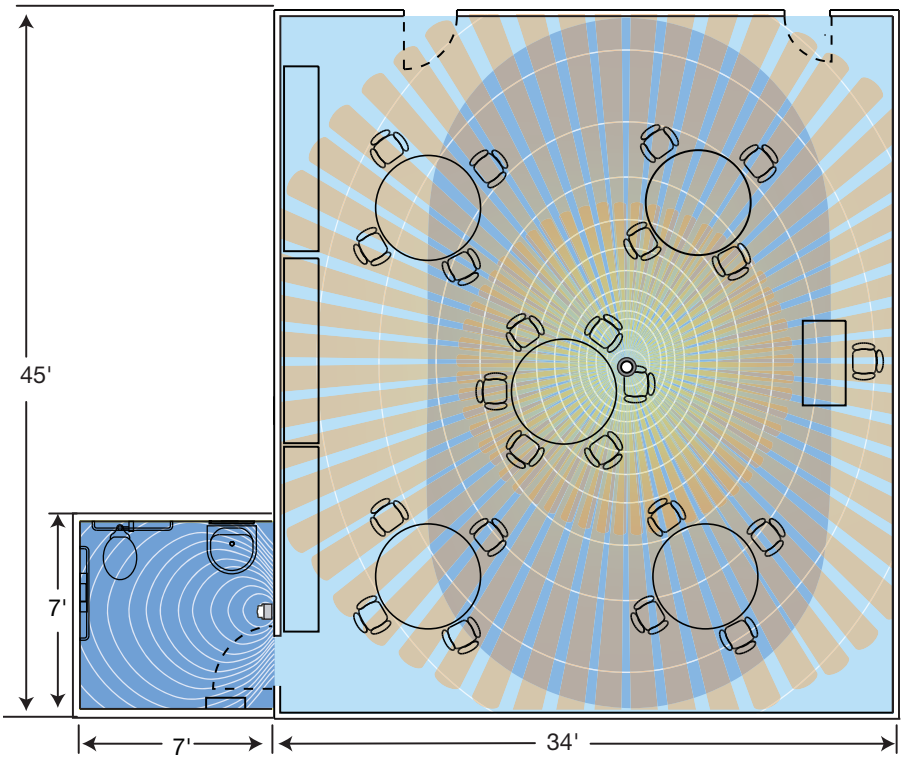
Library



Technology
Adaptive Dual Technology
(Recommended for sitting area)
Adaptive Ultrasonic Technology
(Recommended for browsing area)

Suggested Installation
Utilize ultrasonic sensors between book case stacks to eliminate blind spots.

Lower Grade Elementary Class



Technology
Adaptive Dual Technology
(Recommended for classroom)
Adaptive Ultrasonic Technology
(Recommended for bathroom)

Suggested Installation
Provide teachers with manual override switches to turn off lights for quiet times.

Major Motion: Ultrasonic PIR **Minor Motion:** Ultrasonic PIR

Products

Recommended
Ceiling Sensors:
ATD2000C

ATU2000C

Both must use a Control Unit
CU300A

Products

Recommended
Ceiling Sensor:
ATD2000C

Must use a Control Unit
CU300A

Wall Switches:
AU1277x1 Series
AU1277X1N Series

Laboratories Design Guide

Energy Saving Areas:

Pharmaceutical Labs

Quality Control Areas

Product Development Labs

Rapid Prototyping Shops

Pro Tip:

Use Dual Technology or Ultrasonic in labs with obstructions such as large filing cabinets or air flow hoods.

Products

Recommended

Wall Switches:
AU1277x1 Series
AU1277X1N Series

Alternative

Wall Switches:
WS1277 Series
AP1277x1 Series

Ceiling Sensors:
ATU500C
(Must use a Control Unit)
LVPR1500R
(No control unit needed)

Labs have unique requirements

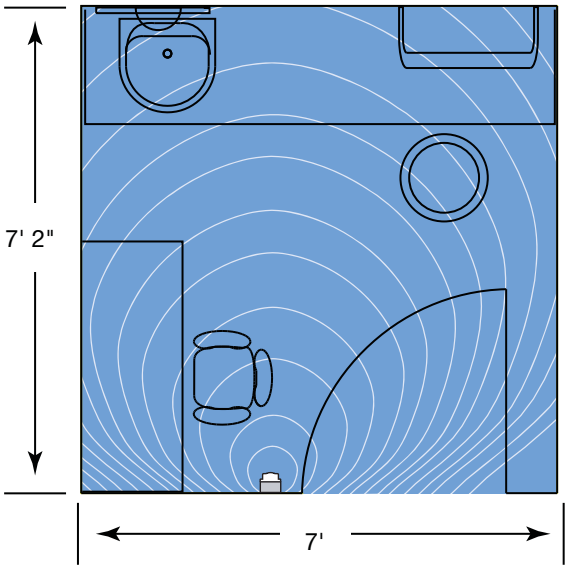
Laboratory spaces are unique environments that have uncommon usage patterns and requirements, such as clean room classification. Lab technicians and scientists often have their hands occupied dealing with equipment, chemicals or biomaterials. In addition, occupancy constantly changes in labs. Even though lighting is often not needed for prolonged periods of time, lights are often left on.

Sensors—clean and efficient.

Hubbell's H-MOSS occupancy sensors provide a helpful way of automating energy savings. At the same time, they enhance the operation of the lab environment by allowing users to focus on their work instead of managing the lights. Ideal for the clean room environment, sensors have fewer moving parts that minimize foreign particulate generation and smooth surfaces that can be more easily cleaned. Hubbell's H-MOSS sensors not only save money, they provide a more efficient work environment.

Typical Layouts and Coverage Patterns

Small Laboratories



Technology

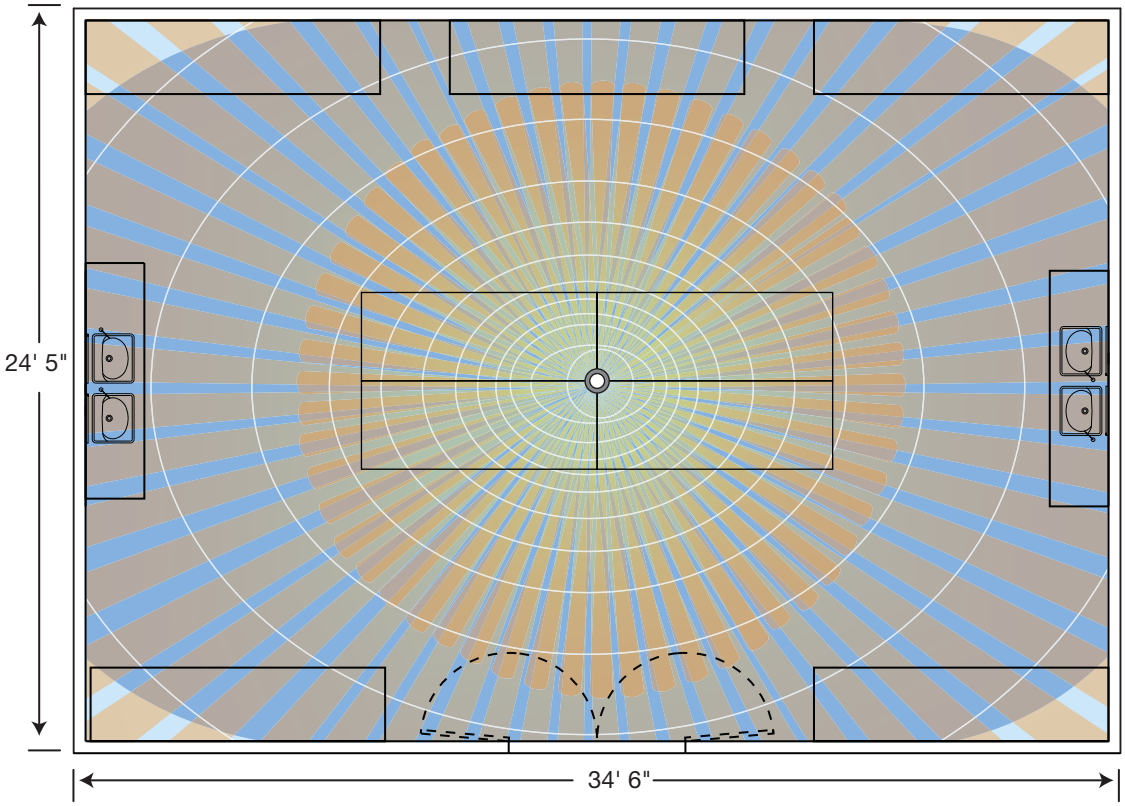
Adaptive Ultrasonic Technology (Recommended)

Suggested Installation

Utilize PIR to prevent detection of minor equipment motions.

Major Motion: Ultrasonic PIR **Minor Motion:** Ultrasonic PIR

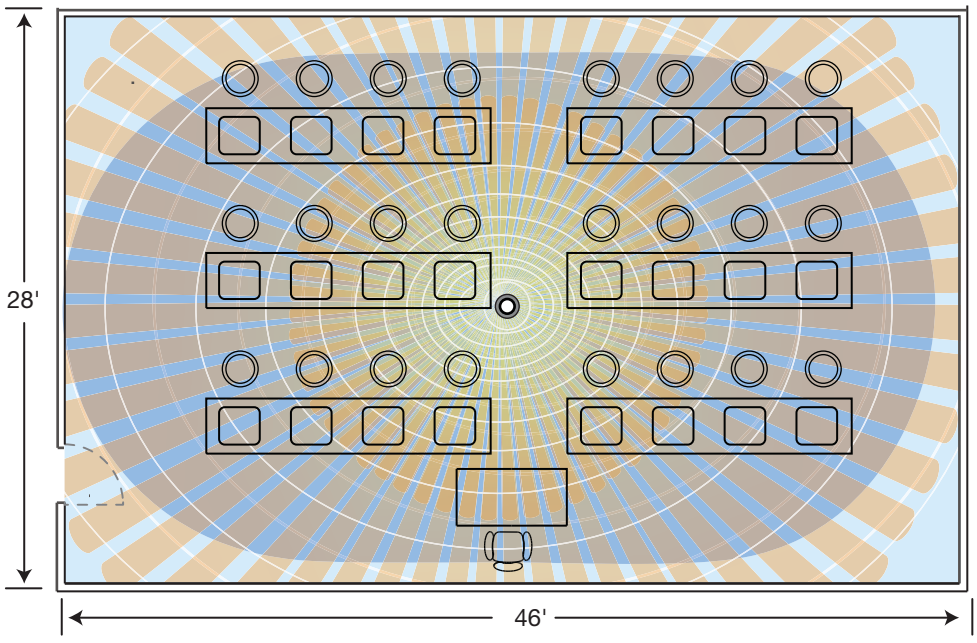
Large Laboratories



Technology
Adaptive Dual Technology
(Recommended)

Suggested Installation
Determine equipment placement to position sensors accordingly. Multiple sensors may be required if large equipment is present.

Computer Lab



Technology
Adaptive Dual Technology
(Recommended)

Suggested Installation
Centering sensor over the seating area maximizes detection of minor motion like typing.

Major Motion: Ultrasonic PIR **Minor Motion:** Ultrasonic PIR

Products

Recommended
Ceiling Sensor:
ATD2000C

Must use a Control Unit
CU300A

Alternative
Ceiling Sensor:
LVDT2000R
(No control unit needed)

Products

Recommended
Ceiling Sensor:
ATD2000C

Must use a Control Unit
CU300A

Alternative
Ceiling Sensor:
LVDT2000R
(No control unit needed)

Conference Room Design Guide

Energy Saving Areas:

Large Boardrooms
Small Boardrooms
Training Rooms
Teaming Areas

Pro Tip:

Use sensors with manual on/off control for projection of presentations.

A place of purpose

Conference rooms are critical, bringing great minds together to develop strategies for success, but these meetings of the minds don't always happen all day long. People come and go, and even day-long meetings often break for significant periods of time. Still, lights are often left on when meetings adjourn and conference rooms are left empty. In addition, productivity increases with natural light, often making lighting unnecessary where windows can take over.

Portraying the right image

The irregular occupancy pattern of conference rooms makes these spaces ideal for Hubbell occupancy sensors. The use of photocell sensors ensures productive natural light is utilized when detected. Manual controls avoid lights coming on during audio-visual projection despite movement in the room. Because conference rooms are also often frequented by guests, they portray an image to meeting guests and attendees. No better image could be portrayed than a commitment to the environment through the use of occupancy sensors.

Products

Recommended

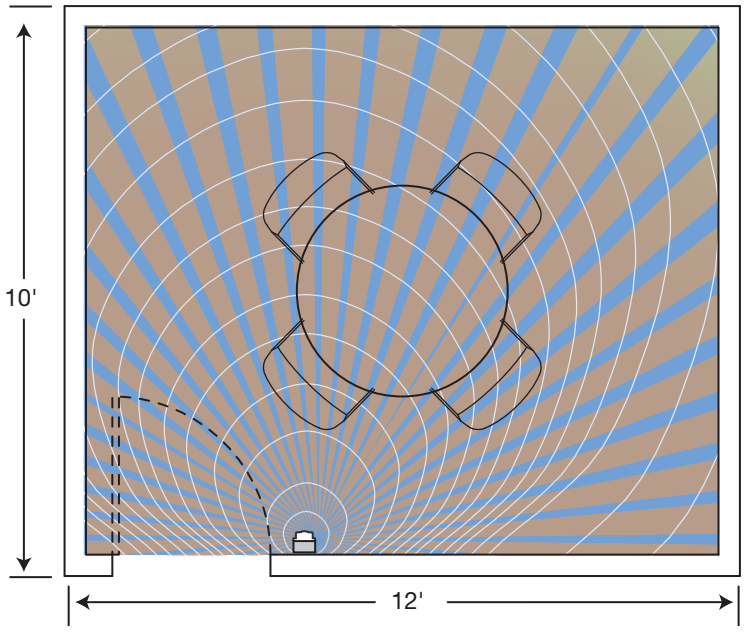
Wall Switch:
AD1277x1 Series

Alternative

Ceiling Sensor:
ATD1000C
(Must use a Control Unit)

Typical Layouts and Coverage Patterns

Small Conference Room



Technology

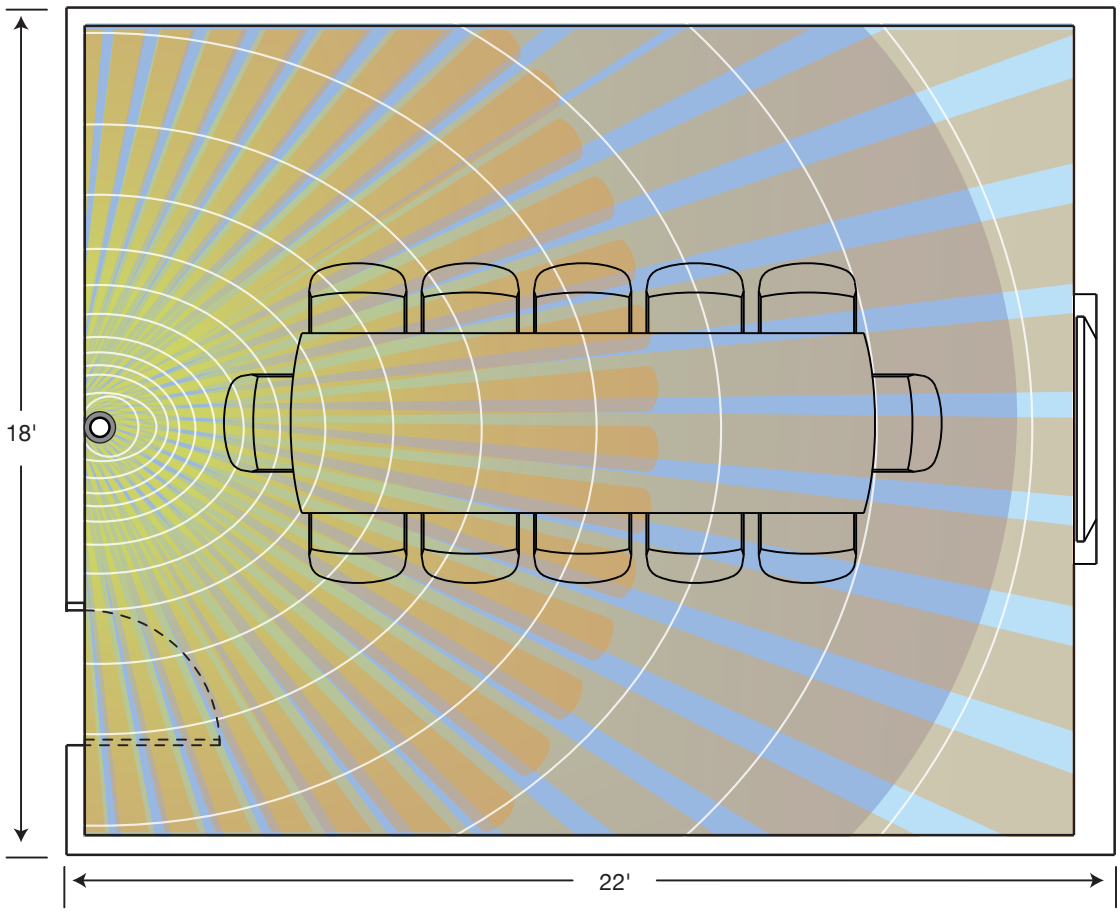
Adaptive Dual Technology
(Recommended)

Suggested Installation

Make sure sensor is not obscured by presentation equipment like screens or easels.

Major Motion: Ultrasonic PIR **Minor Motion:** Ultrasonic PIR

Large Conference Room



Technology
Adaptive Dual Technology
(Recommended)

Suggested Installation
Dual circuit wall switches can be used to allow accent lighting during presentations if room size allows.

Products

Recommended
Ceiling Sensor:
ATD1000C

Must use a Control Unit
CU300A

Alternative
Ceiling Sensor:
LVDT2000R
(No control unit needed)

Storage Area Design Guide

Energy Saving Areas:

Warehouses
Supply Closets
Storerooms
Utility Closets
Network Closets

Pro Tip:

Set short delays for small supply closets and store rooms to maximize savings.

Products

Recommended

Wall Switch:
WS1277x Series

Alternative

Ceiling Sensor:
ATP600C
(Must use a Control Unit)

Frequently forgotten

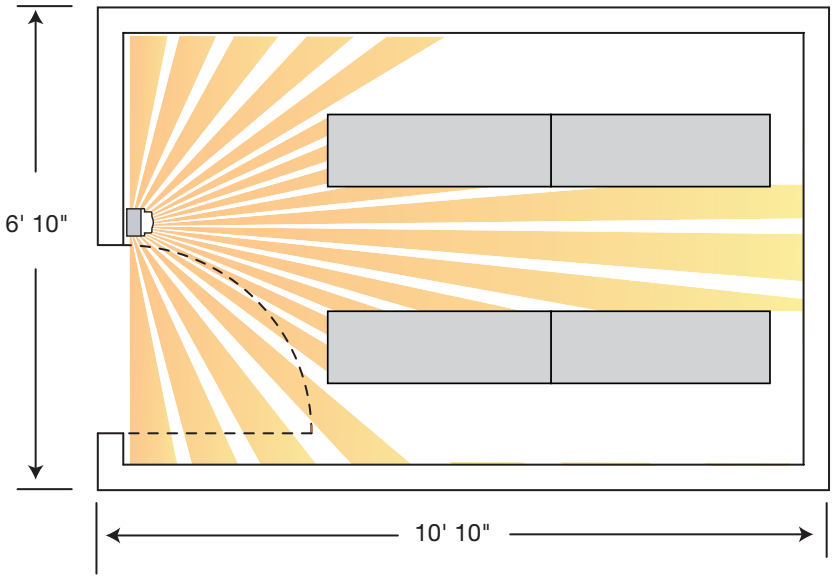
Closets and storerooms offer one the best environments for occupancy savings due to intermittent use. Furthermore, people leaving these spaces are often carrying supplies or merchandise, making turning off lights difficult. People then move on to the task at hand. Going back to turn off lights is frequently forgotten. Like restrooms, closets and storerooms are normally isolated, and it's difficult to determine if lights have been left on.

Easy in, easy out

With occupancy sensors, entering or leaving a storeroom with hands full is easily accomplished without worrying about the lights staying on and wasting energy. Hubbell H-MOSS breadth of products includes occupancy sensors with passive infrared technology that are ideal for small spaces of major movement, as well as options for covering large warehouse aisles and high-bay applications with 120-foot linear coverage.

Typical Layouts and Coverage Patterns

Small Closet/Storeroom



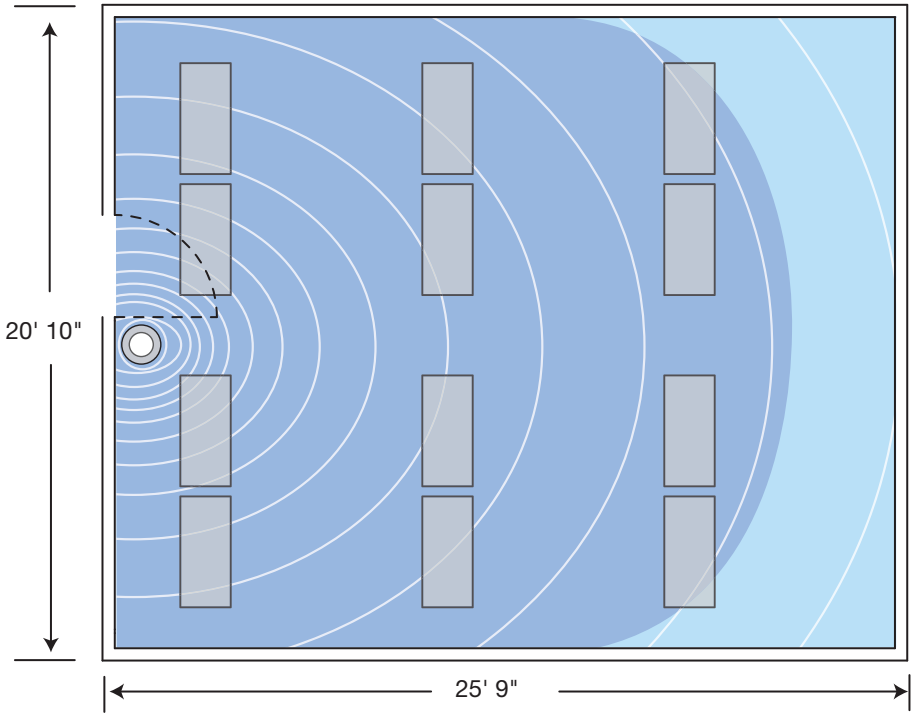
Technology

Adaptive Passive Infrared Technology (Recommended)

Suggested Installation

Position sensor close to door to make sure lights come on when the door is opened.

Major Motion: Ultrasonic PIR **Minor Motion:** Ultrasonic PIR



Technology
Adaptive Dual Technology
(Recommended)

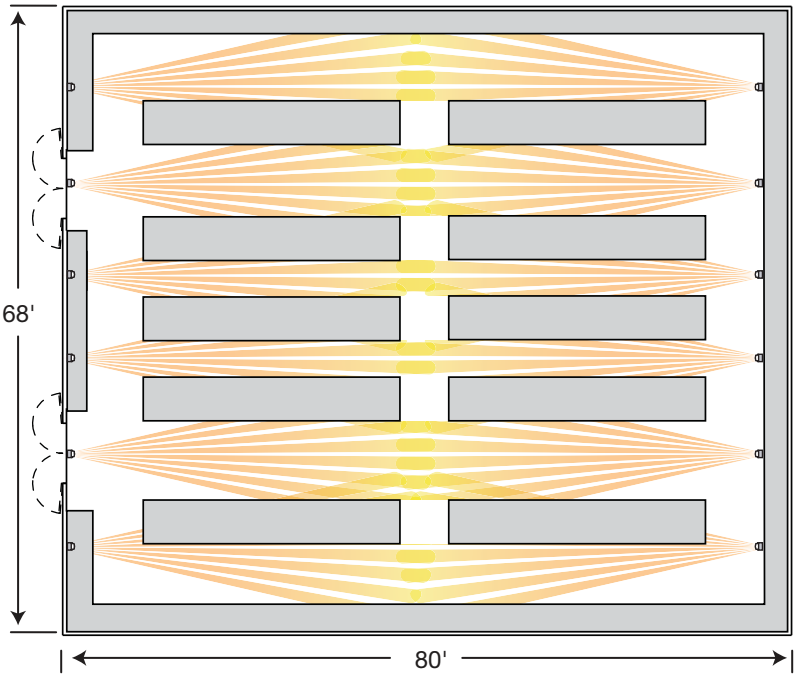
Suggested Installation
Use a wall mount sensor if ceiling height is above 12ft.

Products

Recommended
Wall Mount Sensor:
ATU1000C

Must use a Control Unit
CU300A

Alternative
Ceiling Sensor:
ATU2000C
(Must use a Control Unit)



Technology
Passive Infrared Adaptive Technology
(Recommended)

Suggested Installation
Utilize fixture mount high bay sensors in larger areas or where wall sensors are not feasible.

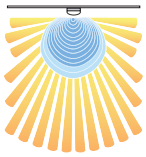
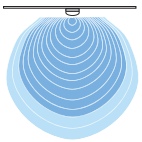
Products

Recommended
Wall Mount Sensor:
ATP120HB

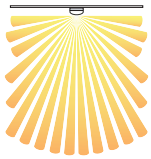
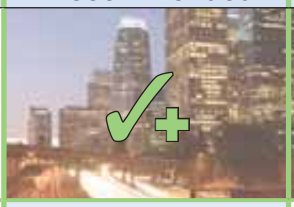
Must use a Control Unit
CU300A

Alternative
Ceiling Sensor:
HMHB2xU Series

Major Motion: Ultrasonic PIR **Minor Motion:** Ultrasonic PIR

Application	Space		Sensor Technology		
			Adaptive 	Dual 	Ultrasonic 
	Office	**Small** up to 1000 sq. ft.	✓+	✓+	
		Large up to 2000 sq. ft.	✓+	✓+	✓
	Open Office	up to 2000 sq. ft.	✓+	✓	✓+
	Storage/ Warehouse	**Closet** up to 1200 sq. ft.			
		Warehouse up to 1500 sq. ft.	✓+		
	Restroom	**Small** up to 400 sq. ft.			✓+
		Large up to 2000 sq. ft.	✓+		✓+
	Conference Room	**Small** up to 1000 sq. ft.	✓+	✓+	
		Large up to 2000 sq. ft.	✓+	✓+	
	Classroom	**Small** up to 1000 sq. ft.	✓+	✓+	
		Large up to 2000 sq. ft.	✓+	✓+	
	Hallway		✓+		✓+

Daylight Harvesting Sensors Available.

Sensor Style				Products	
PIR	Wall Switch	Ceiling	Wall	Recommended	Alternative
					
✓	✓+	✓		AD1277W1	WS1277 ATD500C AP1277W1 ATP600C LVPR1500R
		✓+		ATD2000C	ATU2000C LVDT2000R
		✓+		ATU2000C	ATD2000C LVDT2000R
✓+	✓+			WS1277W ATP1500C ATP120HB	
✓+		✓+	✓+	HMHB21U HMHB22U HMHBSA	HID1 HID2 HID3
✓+	✓+	✓		AU1277W1N AU1277W1	ATU500C LVPR1500R
		✓+		ATU2000C	LVUS2000R LVUS1500R
	✓+	✓		AD1277W1	ATD1000C
		✓+		ATD2000C	LVDT2000R
	✓+	✓		AD1277W1	ATD2000C
		✓+		ATD2000C	LVDT2000R
✓		✓+	✓	ATU2000C	ATP120HB LVUS2000R ATU2000C

All ceiling sensors must use a CU series control unit except line voltage series

H-MOSS®
Hubbell Motion Sensing Switches

Hubbell Sensors for an

Wall Switches
Adaptive Technology
120/277V AC



Type	Circuit	Coverage	1 Button	2 Button	No Button
Dual Technology	Single	1,000 sq. ft.	**AD1277x1**	—	**AD1277x1N**
	Dual	1,000 sq. ft.	—	**AD1277x2**	**AD1277x2N**
Ultrasonic	Single	1,000 sq. ft.	**AU1277x1**	—	**AU1277x1N**
	Dual	1,000 sq. ft.	—	**AU1277x2**	**AU1277x2N**
Passive Infrared	Single	1,000 sq. ft.	**AP1277x1**	—	**AP1277x1N**
	Dual	1,000 sq. ft.	—	**AP1277x2**	**AP1277x2N**
	Single	1,200 sq. ft.	**ATP1277x**	—	—
	Single	1,200 sq. ft.	**AT1277x**	—	—

The AD/AU/AP1277 series are available as standard colors in White (W) and Ivory (I). They are also available as special orders with minimums and lead times in the following colors: Gray (GY), Black (BK) and Light Almond (LA) The AT1277 is available in White (W), Ivory (I) and Gray (GY). To order colors, replace "x" with appropriate suffix.

Non Adaptive Technology



Description	Coverage	120V AC	277V AC	120/277V AC
1 button	1,200 sq. ft.	—	—	**WS1277x**
1 button	900 sq. ft.	**WS120x**	**WS277x**	—
Double pole	1,000 sq. ft.	—	—	**WS1277W2**

Available in White (W) and Ivory (I). To order colors, replace "x" with appropriate suffix.

Residential


Description	Coverage	Occupancy	Vacancy
1 button	800 sq. ft.	**RMS101x**	**RMS100x**
1 button w/ nightlight	800 sq. ft.	**RMS101ILx**	**RMS100ILx**
1 button w/ dimming	800 sq. ft.	**RMS121x**	**RMS120x**
1 button w/ dimming & nightlight	800 sq. ft.	**RMS121ILx**	**RMS120ILx**
Heavy duty	900 sq. ft.	**RMS141x**	**RMS140x**

Residential sensors are available in Ivory (I), White (W), Almond (AL) or Light Almond (LA). Heavy duty sensors are not available in Light Almond. To order replace "x" with appropriate suffix.

Digital Timer

Description	Catalog Number
Digital Timer; white; dip switch enabled preset intervals: - 5, 15 or 30 minutes - 1, 3, 6, 9 or 12 hours; includes an on/off momentary push button switch feature	**DT1277W**

Ceiling Sensors

Adaptive Technology

Coverage	Dual Technology
2,000 sq. ft.	**ATD2000C**
1,500 sq. ft.	—
1,000 sq. ft.	**ATD1000C**
500 sq. ft.	**ATD500C**
450 sq. ft.	—

Must use a CU series control unit.
Available with photocell and isolated relay. To order add "RP"

Non Adaptive Line Voltage Sensors

Type	Coverage	Dual Technology
120V AC	1500 sq. ft.	—
	2000 sq. ft.	**LVDT2000R120**
277V AC	1500 sq. ft.	**LVDT2000R277**
	2000 sq. ft.	—
120-347V AC	1500 sq. ft.	—

* Also available in low voltage.
Must use a CU series control unit. To order add "P" to the

Wall Mount Sensors
Adaptive Technology

Description	Coverage
Wall mount sensor	1,600 sq. ft.
For aisle & high bay	120 linear ft.

Must use a CU series control unit.
Add "RP" to the catalog number to order with photocell and

Control Units
Control Unit for use with
ATD/ATU/ATP Series wall/ceiling sensors

Description
120/277V AC, 50/60 Hz
347V AC, 60 Hz

Add-a-Relay

Description
Add-A-Relay for use with CU series control units and ATD, ATU and ATP series ceiling and wall mount sensors

For complete ordering and technical information, please visit

Energy Conscious World


Ultrasonic	Passive Infrared
ATU2000C	—
—	ATP1500C
ATU1000C	—
ATU500C	—
—	ATP600C

" to the catalog number.


Ultrasonic	Passive Infrared
LVUS1500R120 LVUS2000R120	—
LVUS1500R277 LVUS2000R277	—
—	LVPR1500R*

catalog number.


Dual Technology	Passive Infrared
ATD1600W	ATP1600W
—	ATP120HB

isolated relay

Catalog number
CU300A
CU347A

Catalog number
AAR

Daylight Harvesting





Description	Catalog Number
Automatic Dimming Control	DHADC
Indoor Photocell	DHIP
Outdoor Photocell	DHOP
Atrium Photocell	DHAP
Skylight Photocell	DHSP
Control Module	DHCM

High Bay Controls

Fluorescent Control

Description	Catalog Number
Passive Infrared Sensor 1 SPST Output; 120-347V AC	HMHB21U
Passive Infrared Sensor 2 SPST Output; 120-347V AC	HMHB22U
Mounting Extension Adaptor	HMHBSA

HID Control

Description	Catalog Number
Supports 175W Metal Halide	HID1*
Supports 250W, 320W, 350W, 400W Metal Halide	HID2*
Supports 1,500W, 1,650W Metal Halide	HID3*

*With 4 Pin Low Voltage Interface add "LV" to catalog number.




Aisle Lens

Description	Color	Max. Mounting Height	Catalog Number
Aisle Lens	Black	25 ft.	HIDLENS15
Aisle Lens	Charcoal	35 ft.	HIDLENS10
Aisle Lens	Clear	60 ft.	HIDLENS07
Area Lens	Light Gray	35 ft.	HIDLENS0806
Laser Alignment Tool			HIDLAT
Conversion Hardware Kit			HIDKIT

Accessories

Description	Catalog Number
Ceiling Sensor Infrared Protective Enclosure	ACIPE
Wall Switch Wire Guard	AWSG
Wall Mount Wire Guard	AWMG
Ceiling Mount Wire Guard	ACMG
Ceiling Mount Raceway Adapter	ACMRA

our online catalog at www.hubbell-wiring.com

Hubbell Wiring Device-Kellems
Hubbell Incorporated (Delaware)
185 Plains Road, Milford, CT 06461-2420
Phone: (800) 288-6000
Fax: (800) 255-1031
www.hubbell-wiring.com

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for an Energy Conscious World

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