H-MOSS®

Hubbell Motion Sensing Switches

Sensors for an Energy Conscious World

GREENWISE™

HUBBELL®

Wiring Device-Kellems

Smart Technologies for Smart Buildings

H-MOSS® Occupancy Sensors combine innovative technologies for industry proven performance.

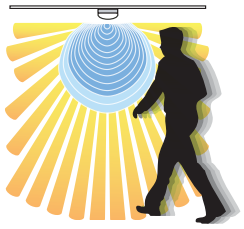
Adaptive Technology

Adaptive Technology is a Hubbell breakthrough that delivers benefits to both building owners and occupants. The building owner achieves reduced energy costs, fewer adjustments and less maintenance, and the building occupant experiences fewer false-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.

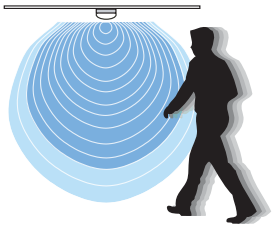
How to Select the Right Technology for the Proper Application

Dual Technology



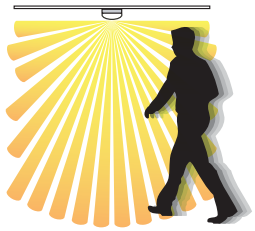
Dual technology occupancy sensors combine both passive infrared (PIR) and ultrasonic (US) technologies for maximum reliability. Because US and PIR need to both detect occupancy to turn lighting on, dual technology sensors minimize the risk of lights coming on when the space is unoccupied—false triggering.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

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.

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.

Table of Contents

Energy Savings with Occupancy Sensors

Typical Applications

Wall Switch | Ceiling Sensor | Wall Sensor

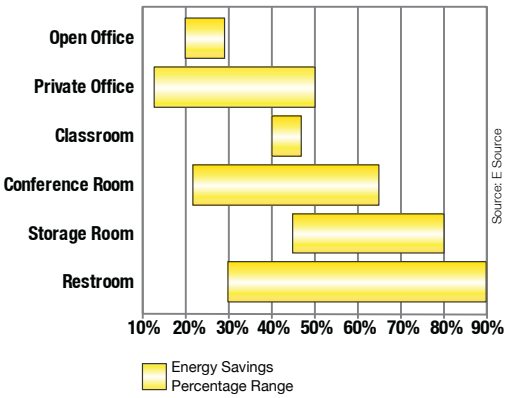
Applications are generalized. Consult your Hubbell representative for the type of technology and products that fit your needs.

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		✓+		✓+	✓		✓+	✓

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 California Energy Commission (CEC) 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, BIM objects 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

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.

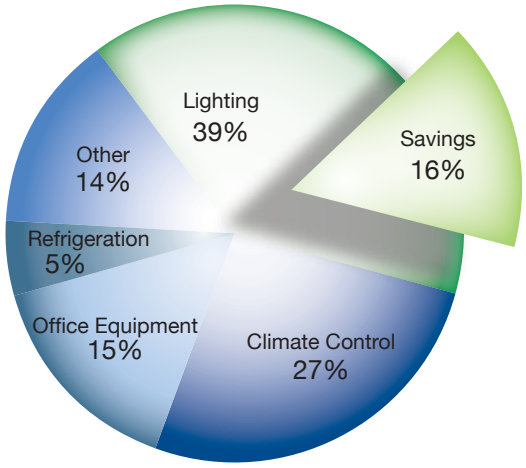
Companies have always had to make tough decisions regarding resource allocation. In the past, energy consumption was often treated as a fixed overhead cost. With new regulations and the need for sustainable building design, this no longer holds true. Lighting is responsible for much of an office's electricity 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:

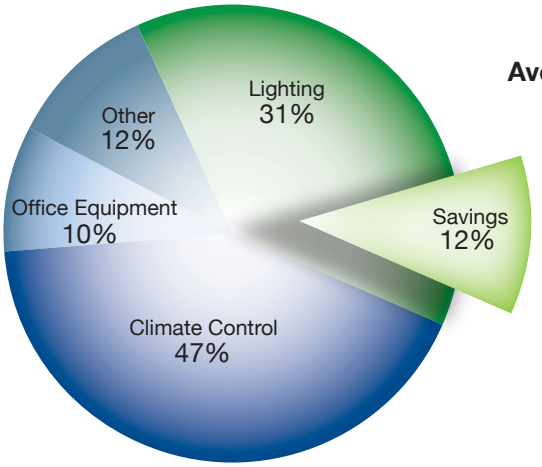
Dual technology sensors enhance minor motion detection reducing false off situations during periods of reading or testing.

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.

HUBBELL®
Wiring Device-Kellems

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.

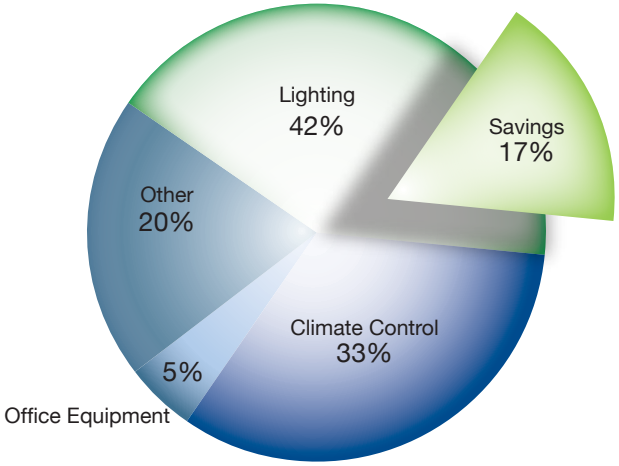
Hospitals are a 24/7 operation where decisions and actions regarding the wellness of patients are critical. Consequently, lights are often left on when not needed. There are several areas throughout hospitals that can realize substantial efficiency improvements with little investment like administration 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.

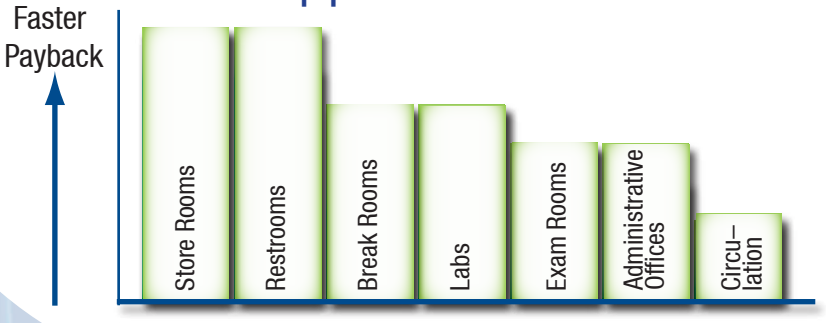
Typical Healthcare Electricity Usage and Savings*

Lighting Uses 42% of Total Electricity



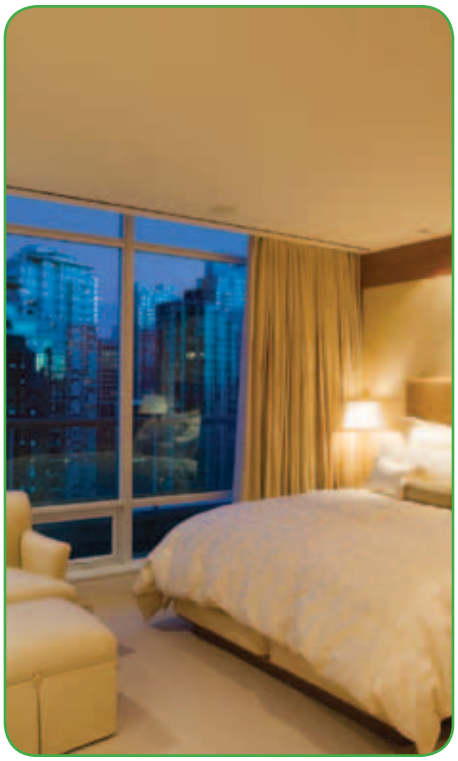
Average electricity bill savings**

Application ROI Index



Based on average occupancy and installation complexity.

Hospitality Solutions



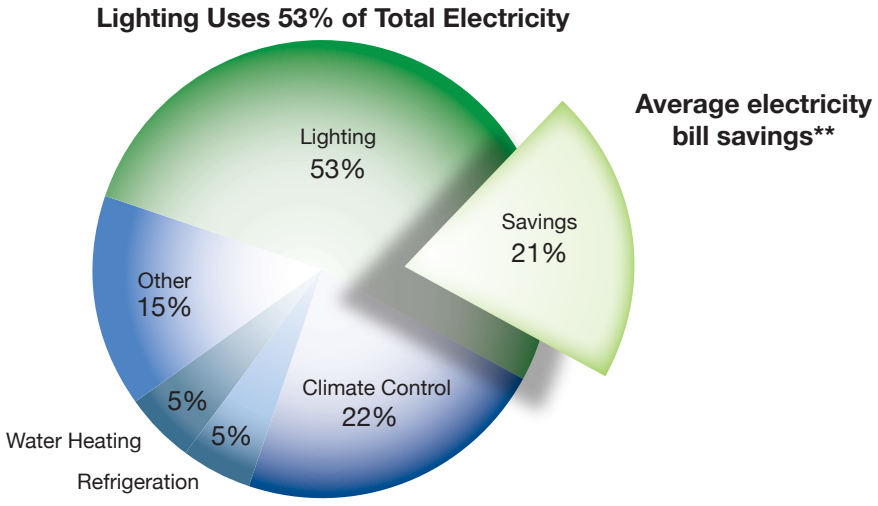
Turn the lights off to keep the lights on.

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*



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.

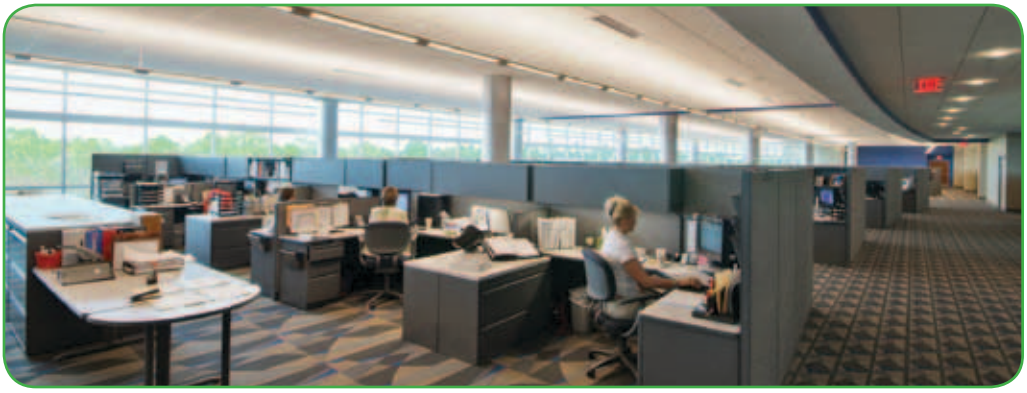
Success Factors:

- Let guests 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.

HUBBELL® Wiring Device-Kellems

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

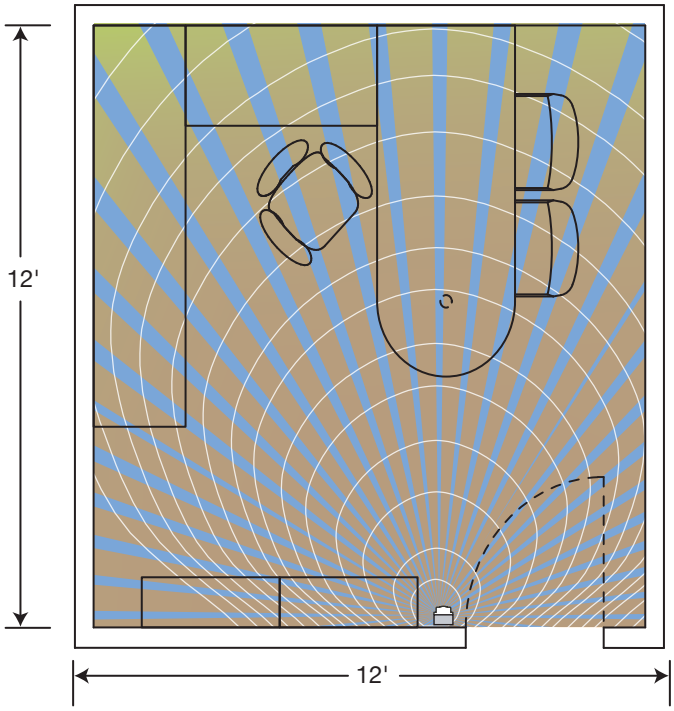
Wall Switches:
WS1277x Series
AP1277x1 Series

Ceiling Sensors:
ATD500C
ATP600C
(Must use a Control Unit **CU300A**)

LVPR1500R
(No control unit needed)

Typical Layouts and Coverage Patterns

Small Office



Technology

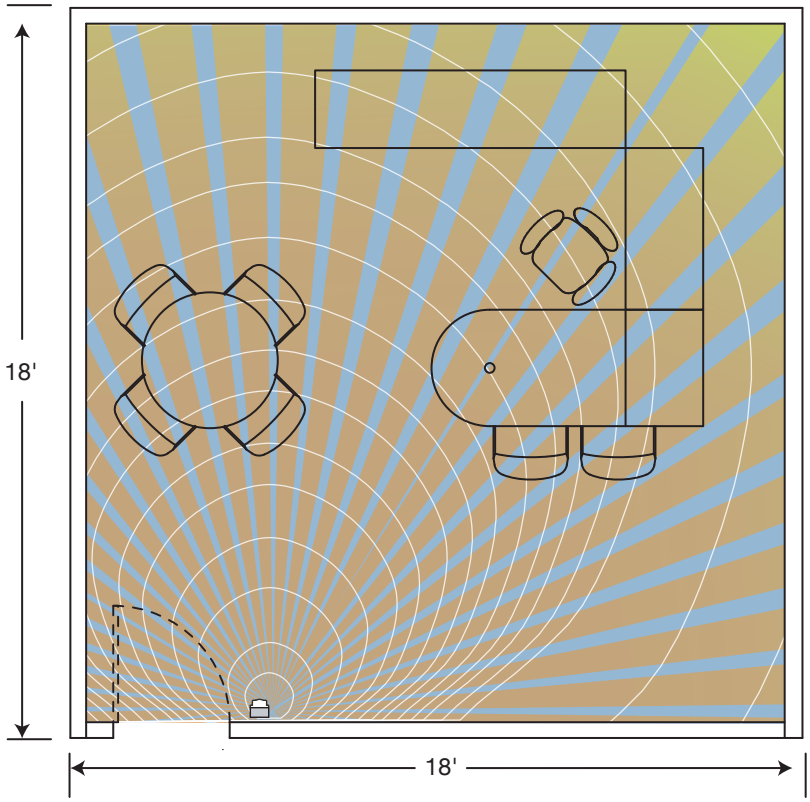
Adaptive Dual Technology
(Recommended)

Suggested Installation

Make sure sensor is not obscured by an open door.

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

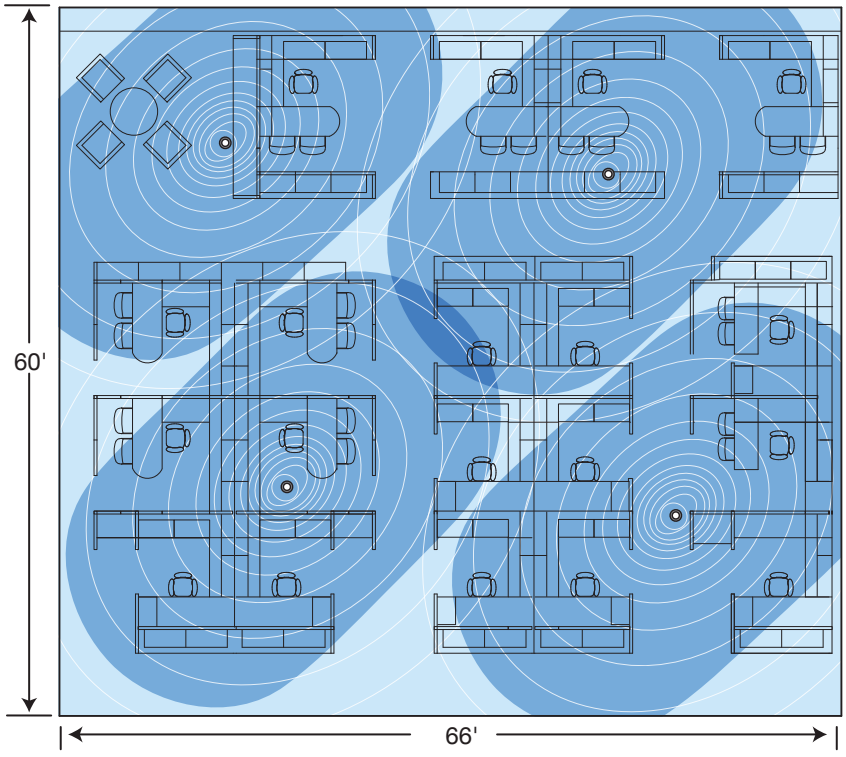
Large Office



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.

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

Products

Recommended
Wall Switch:
AD1277x1 Series

Alternative
Ceiling Sensor:
ATU1000C
(Must use a Control Unit **CU300A**)

Products

Recommended
Ceiling Sensor:
ATU2000C

Must use 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:
WS1277x Series
AP1277x1 Series

Ceiling Sensors:
ATU500C
(Must use a Control Unit **CU300A**)
LVPR1500R
(No control unit needed)

Occupied or not?

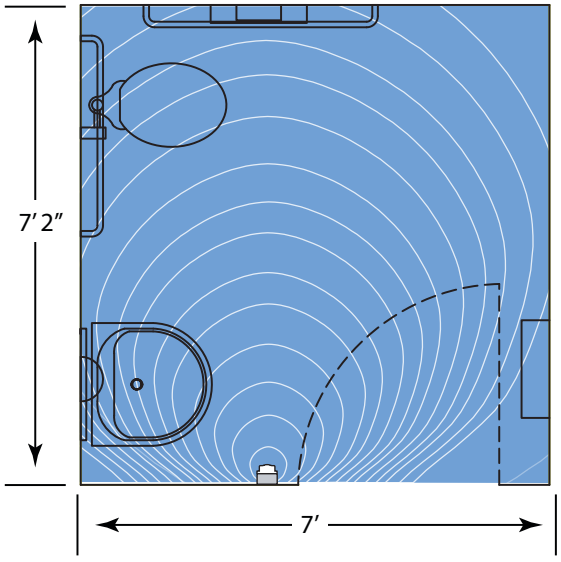
Restrooms are typically occupied less than 50% of the day, and lights are often left on while no one is present. Restrooms are also isolated, making it difficult to determine if lights have been left on inadvertently. Significant savings can be achieved by systematically turning lights off when possible.

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

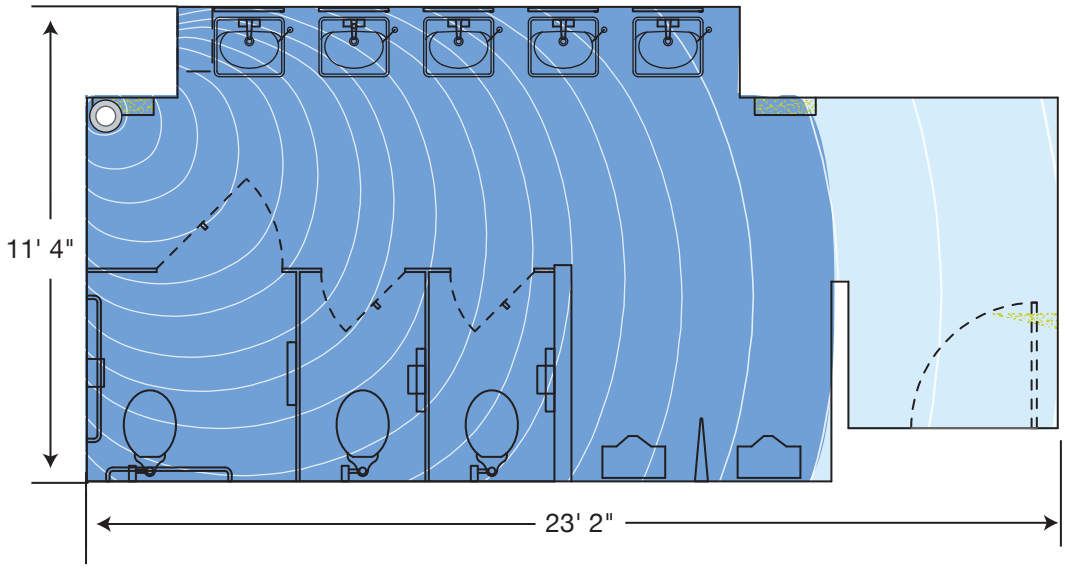
Adaptive Ultrasonic Technology (Recommended)

Suggested Installation

Mount switch in location that limits chance for damage.

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

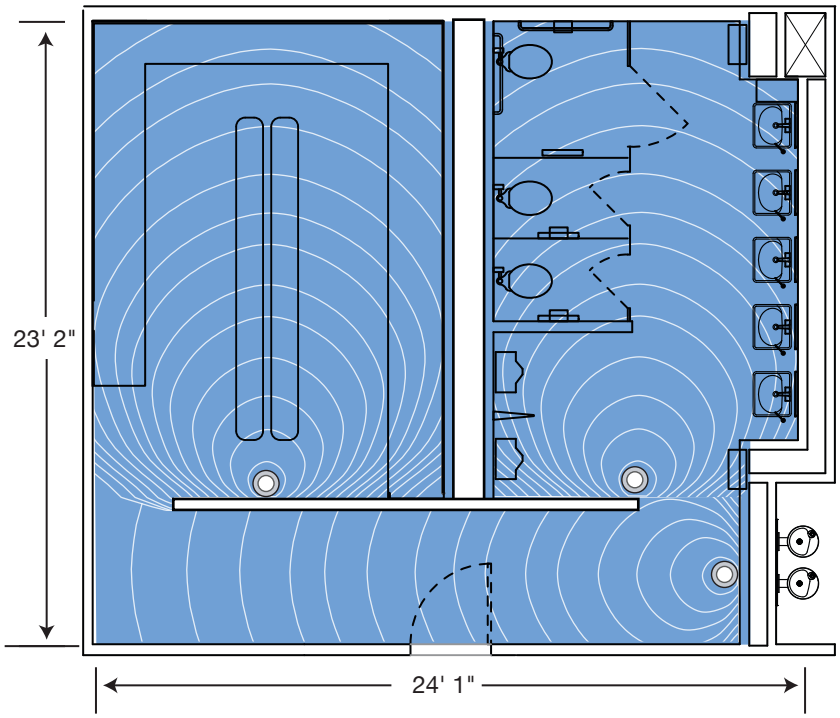
Large Restroom



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.

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
(Must use Control Unit **CU300A**)

Ceiling Sensor:
LVUS1500R
(No control unit needed)

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

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.

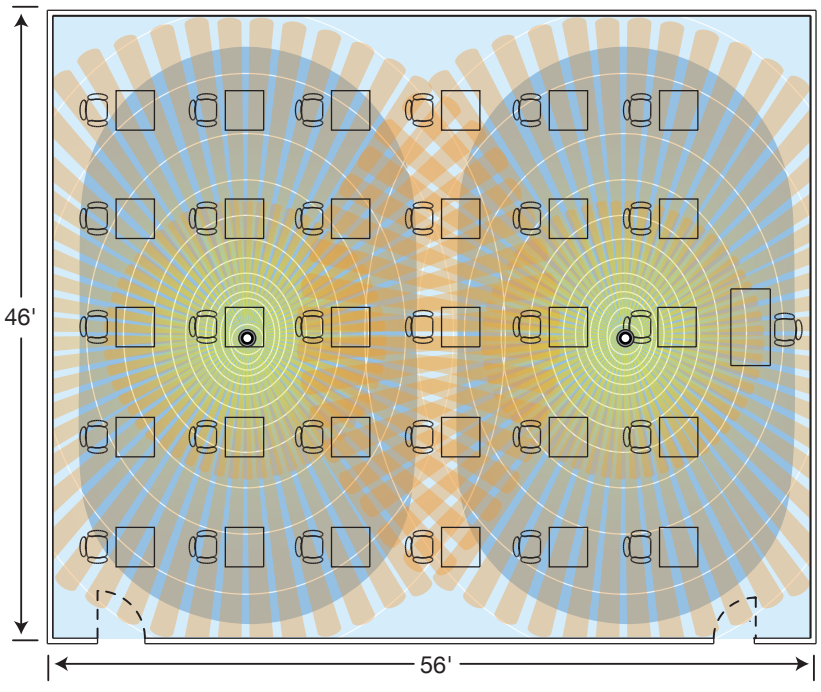
Lighting classrooms consumes a substantial amount of the education budget. However, significant savings can be realized by turning off lights when they are not needed. Occupancy sensors provide an inexpensive way to guarantee that energy waste is kept to a minimum. They can further enhance savings by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

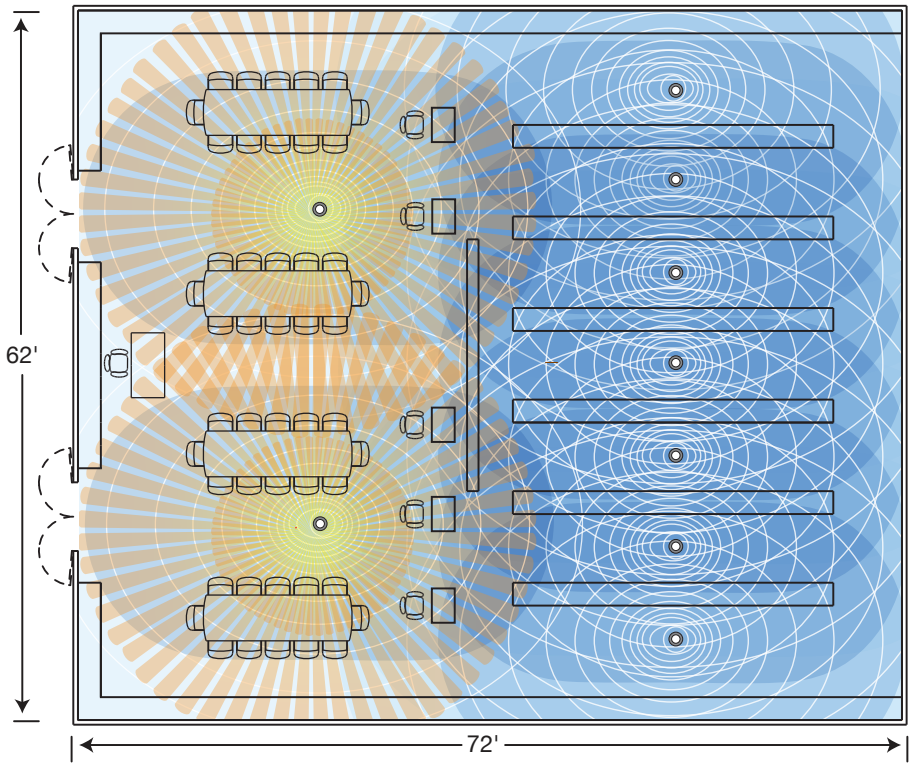
Adaptive Dual Technology (Recommended)

Suggested Installation

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

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

Library



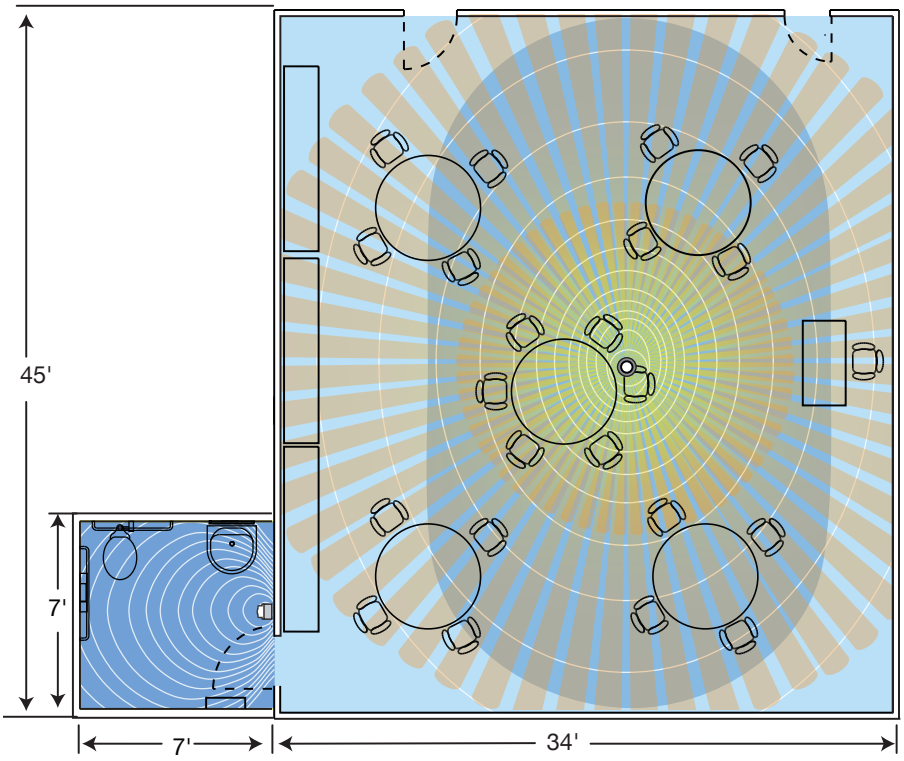
Technology

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.

Minor Motion: Ultrasonic PIR **Major 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:
WS1277x Series
AP1277x1 Series

Ceiling Sensors:
ATU500C
(Must use a Control Unit **CU300A**))
LVPR1500R
(No control unit needed)

Labs have unique requirements

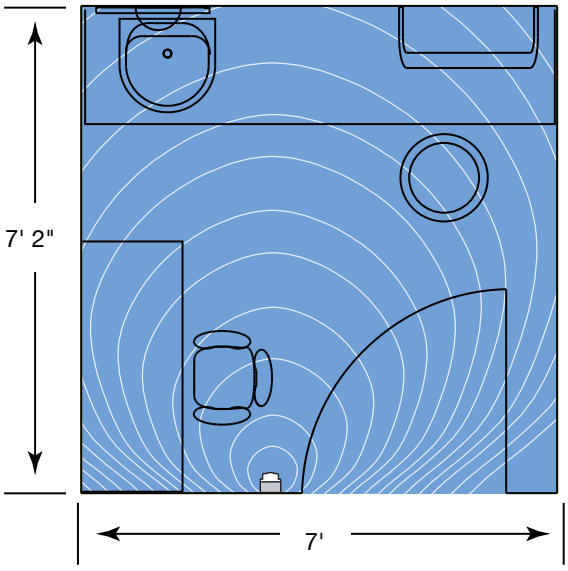
Laboratory spaces are unique environments that have uncommon usage patterns and requirements, such as clean room classification. Lab technicians and scientists often have their hands occupied dealing with equipment, chemicals or biomaterials. In addition, occupancy constantly changes in labs. Even though 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

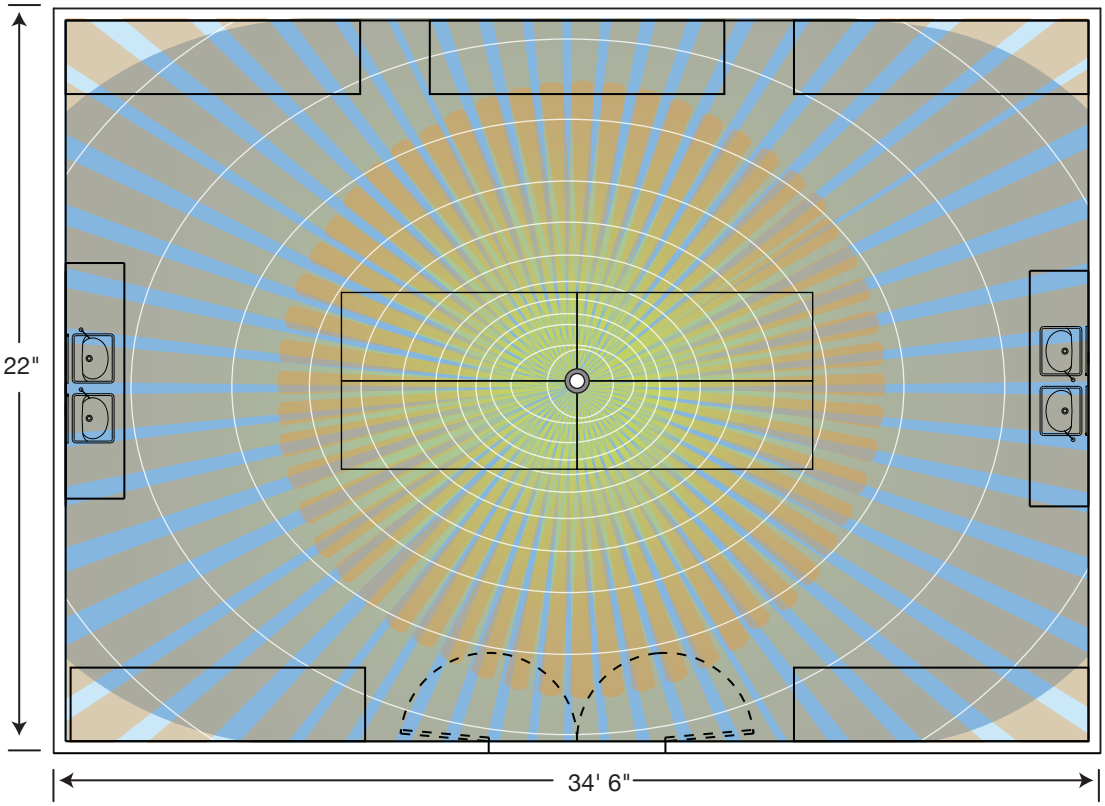
Adaptive Ultrasonic Technology (Recommended)

Suggested Installation

Utilize PIR to prevent detection of minor equipment motions.

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

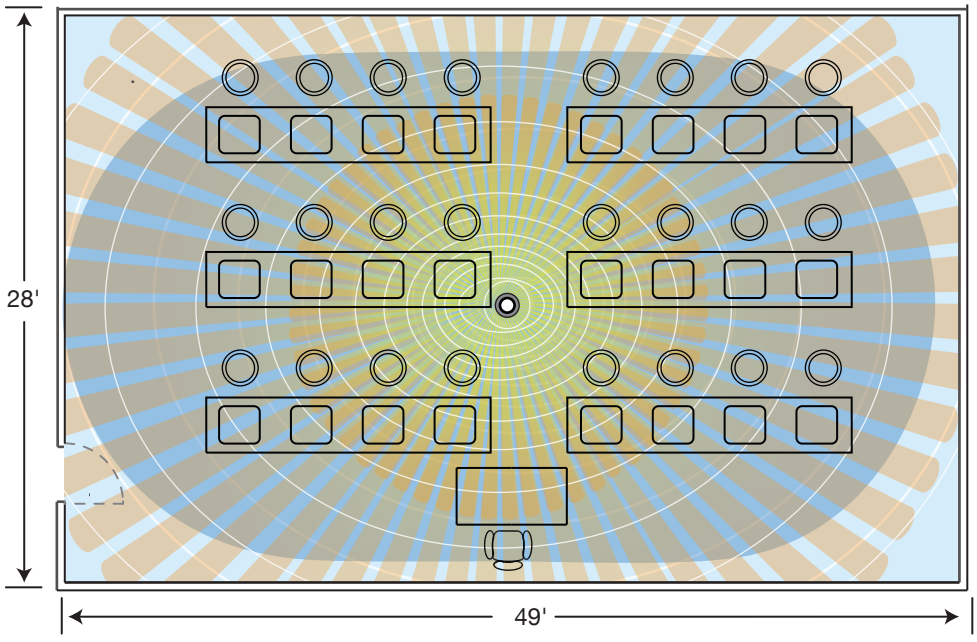
Large Laboratories



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.

Minor Motion: Ultrasonic PIR **Major 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

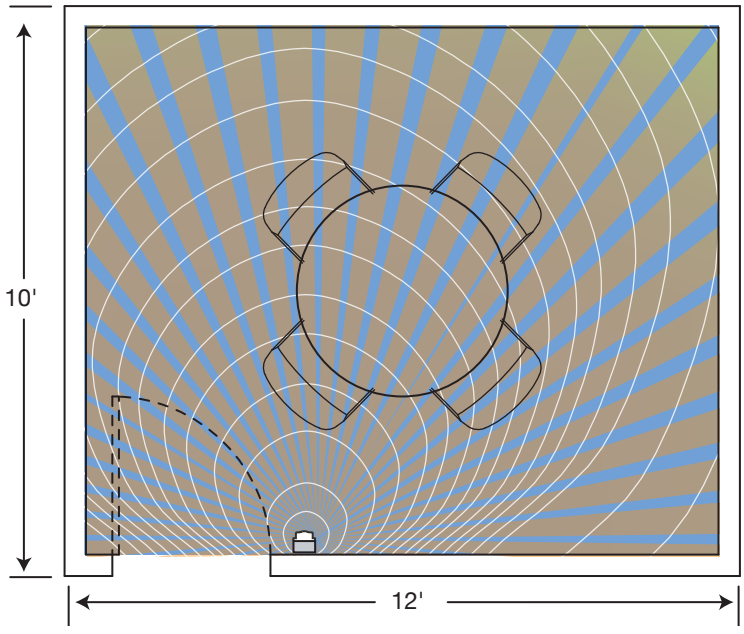
Wall Switch:
AD1277x1 Series

Alternative

Ceiling Sensor:
ATD1000C
(Must use a Control Unit **CU300A**)

Typical Layouts and Coverage Patterns

Small Conference Room



Technology

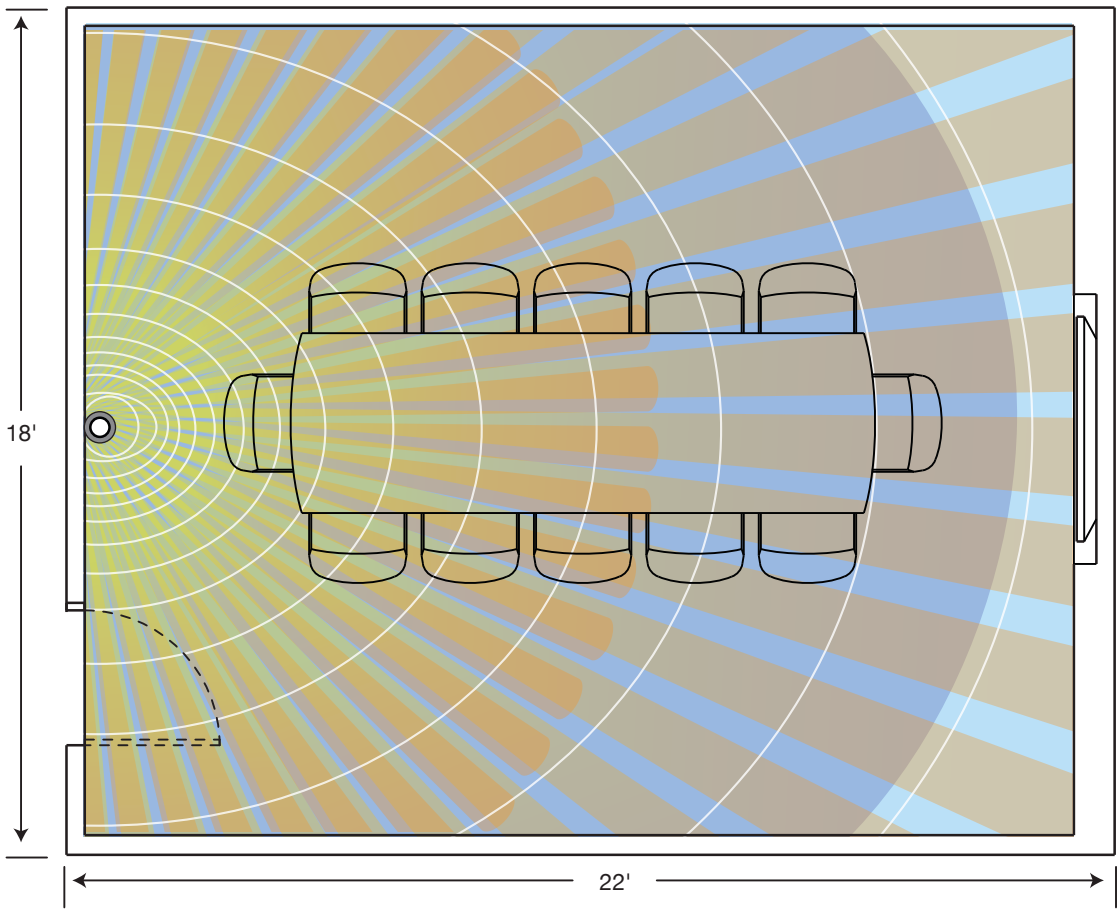
Adaptive Dual Technology (Recommended)

Suggested Installation

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

Minor Motion: Ultrasonic PIR **Major 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)

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

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 **CU300A**)

Frequently forgotten

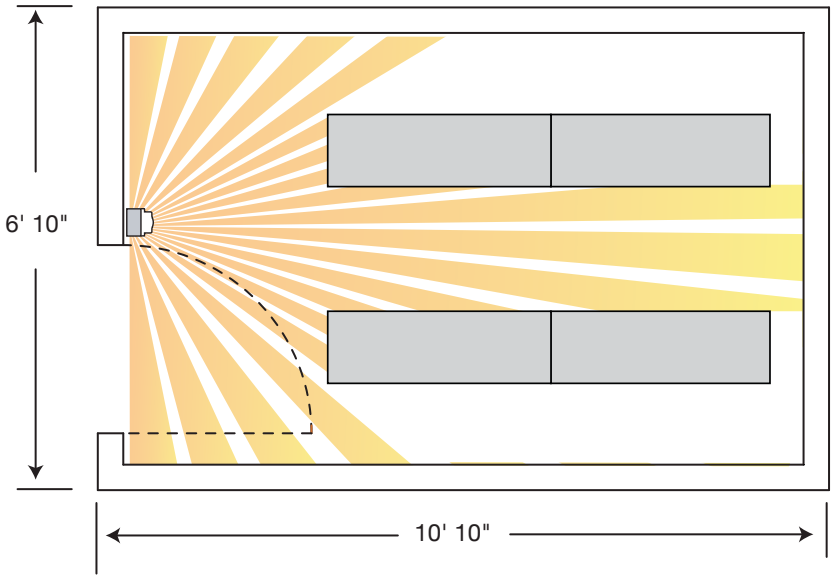
Closets and storerooms offer one the best environments for occupancy savings due to intermittent use. Furthermore, people leaving these spaces are often carrying supplies or merchandise, making turning off lights difficult. People then move on to the task at hand. Going back to turn off lights is frequently 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

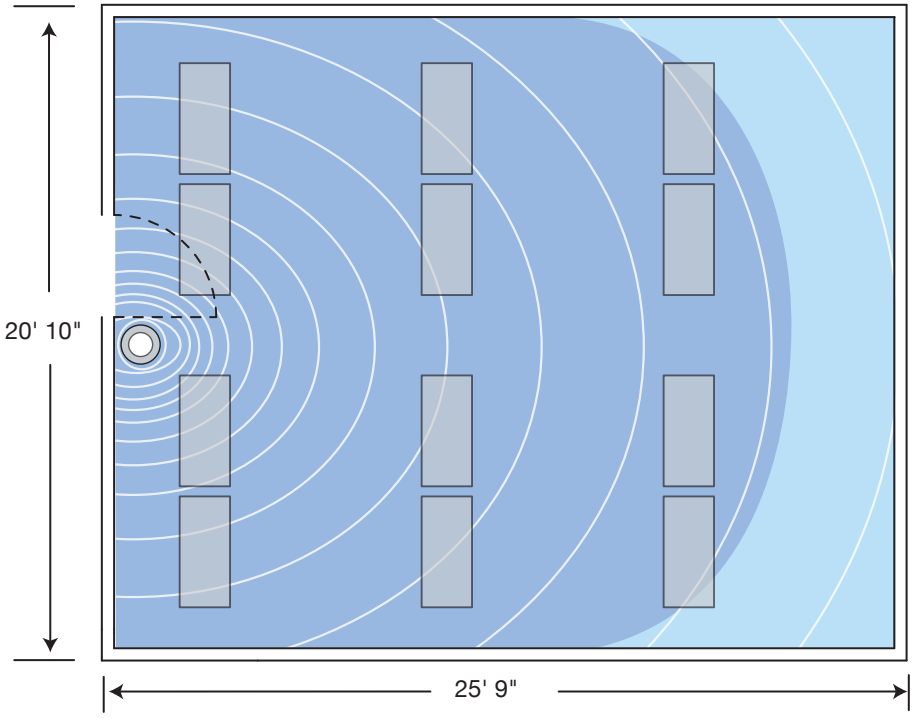
Adaptive Passive Infrared Technology (Recommended)

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

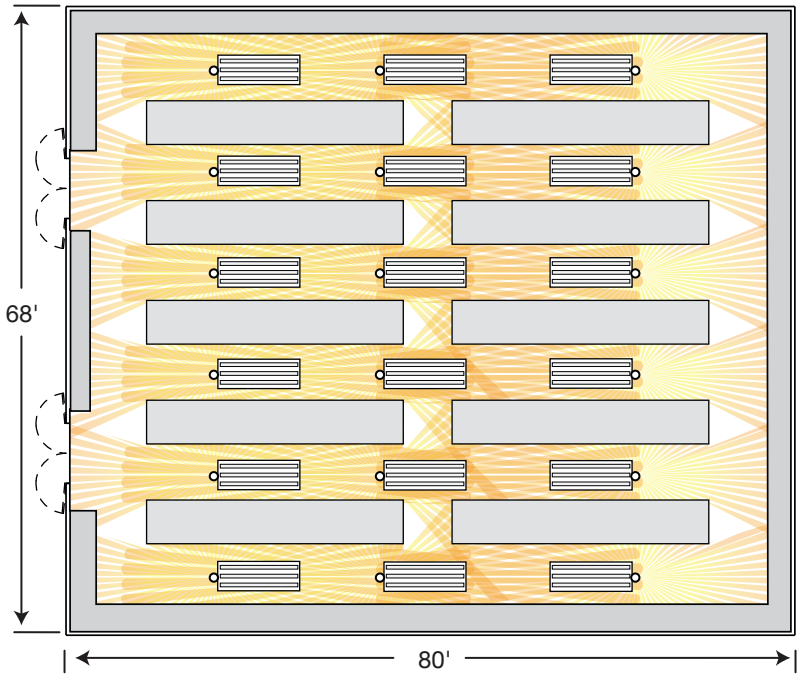
Large Closet/Storeroom



Technology
Adaptive Dual Technology
(Recommended)

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

Warehouse



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:
ATU1000C

Must use a Control Unit
CU300A

Alternative
Ceiling Sensor:
ATU2000C
(Must use a Control Unit
CU300A)

Products

Recommended
Ceiling Sensor:
HMHB2xU Series

Alternative
Wall Mount Sensor:
ATP120HB

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

Adaptive Dual Technology Wall Switches

Features and Benefits

Available in ivory, white, light almond, black and gray

Dual technology sensing combines the individual advantages of passive infrared and ultrasonic detection

Impact resistant hard lens is standard and color matched to the switch

Designed for use on 120 or 277V AC circuits. No neutral needed for fast retrofits

Adaptive technology - “Install and forget” operation, analyzes environment and adjusts sensitivity and timer, eliminating the need for manual adjustment

Built in photocell with manual super saver mode for daylight harvesting

Auto or manual “On” operating modes. Available in either single relay or dual relay versions for enhanced savings with bi-level switching applications

AD1277W1

Adaptive Passive Infrared Wall Switches

Features and Benefits

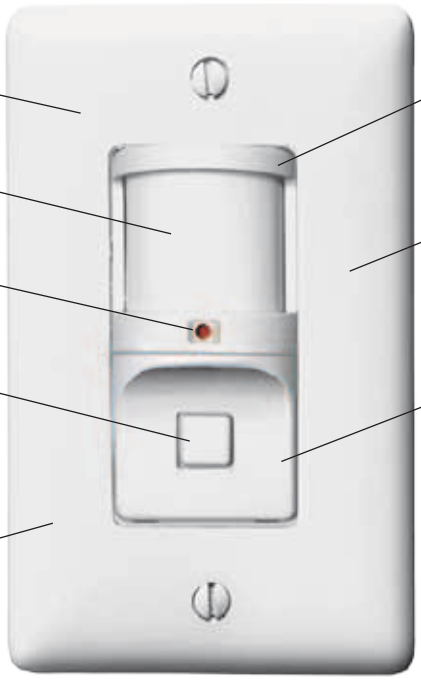
Ivory and white models available to match office decor

High density 1200 square foot coverage with color matched lens

Two-color LED provides instant feedback of sensor status

Front press switch allows the occupant to switch the sensor from automatic operation to momentary off mode. The sensor returns to automatic operation mode 30 minutes after the last detected motion

Designed for use on 120 or 277V AC circuits. No neutral needed for fast retrofits



Heavy-duty relay controls up to 1800 watts at 120V AC or 4155 watts at 277V AC

Soft tone alert provides audible indication of sensor time-out 12 seconds prior to switching lights out

Digital pushbutton ambient light level control located behind cover allows for quick, accurate setting of ambient light threshold

AT1277W

Wall Switches
Featuring Adaptive Technology

Adaptive Technology

- Adaptive technology - “Install and forget” operation
- All digital sensing technology
- Dual 120/277V AC operation. No neutral required
- Auto or manual “On” operating modes
- No minimum load requirements
- Hard lens (dual technology, passive infrared)
- Zero arc point switching
- Built in photocell with manual super saver mode for daylight harvesting
- Bi-level switching or dual load control (AD, AP AU1277x2, 2N series)
- cULus, CEC Title 24 Certified

Dual (Ultrasonic and Passive Infrared)

1000 square foot coverage with photocell, 800W Incandescent, 1000W Fluorescent at 120V AC, 1800W Fluorescent at 277V AC, 50/60Hz

Description	Catalog Number Ivory	White
Single Circuit; 1 Button for manual/auto control	**AD1277I1**	**AD1277W1**
Single Circuit; Auto control with no button	**AD1277I1N**	**AD1277W1N**
Dual Circuit; 2 Buttons for manual/auto control	**AD1277I2**	**AD1277W2**
Dual Circuit; Auto control with no button	**AD1277I2N**	**AD1277W2N**

AD1277W1 **AD1277W1N** **AD1277W2N**

Ultrasonic

400 square foot coverage with photocell, 800W Incandescent, 1000W Fluorescent at 120V AC, 1800W Fluorescent at 277V AC, 50/60Hz

Description	Catalog Number Ivory	White
Single Circuit; 1 Button for manual/auto control	**AU1277I1**	**AU1277W1**
Single Circuit; Auto control with no button	**AU1277I1N**	**AU1277W1N**
Dual Circuit; 2 Buttons for manual/auto control	**AU1277I2**	**AU1277W2**
Dual Circuit; Auto control with no button	**AU1277I2N**	**AU1277W2N**

AU1277W1 **AU1277W2**

Passive Infrared

1000 sq. ft. coverage with photocell, 800W Incandescent, 1000W Fluorescent at 120V AC, 1800W Fluorescent at 277V AC, 50/60Hz

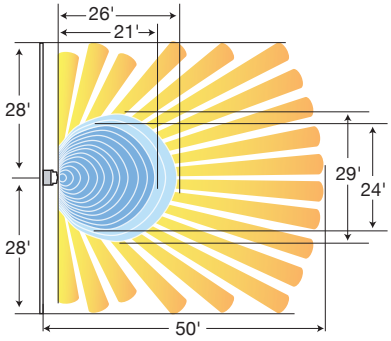
Description	Catalog Number Ivory	White
Single Circuit; 1 Button for manual/auto control	**AP1277I1**	**AP1277W1**
Single Circuit; Auto control with no button	**AP1277I1N**	**AP1277W1N**
Dual Circuit; 2 Buttons for manual/auto control	**AP1277I2**	**AP1277W2**
Dual Circuit; Auto control with no button	**AP1277I2N**	**AP1277W2N**

Note: Sensors are also available in: LA (Light Almond), GY (Gray) or BK (Black). These colors have minimum lead times. Please call Customer Service for further information. Wallplates are sold separately.

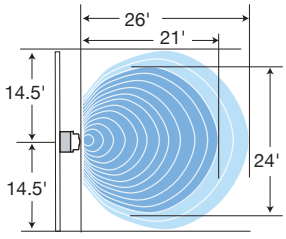
AP1277W1 **AP1277W2**

Coverage Patterns

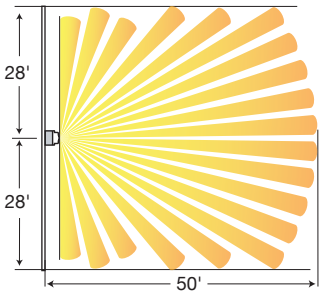
Minor Motion: Ultrasonic PIR **Major Motion:** Ultrasonic PIR



AD1277 Series



AU1277 Series



AP1277 Series

Wall Switches and Digital Timer

Featuring Passive Infrared Technology

AT1277W

ATP1277W

Adaptive Technology, Passive Infrared

- Adaptive technology - "Install and forget" operation
- Passive infrared technology
- Dual 120/277V AC operation, no neutral required
- Heavy duty relay (AT1277)
- Audible alarm before turning lights off (AT1277)
- 1200 sq. ft. coverage
- Built in photocell for daylight harvesting
- Nylon wallplate included
- cULus, CEC Title 24 Certified

Description	120V AC	277V AC	Color	Catalog Number
One Button	1800W Incandescent	4155W Fluorescent	Ivory White	**AT1277I** **AT1277W**
One Button	800W Incandescent 800W Fluorescent	1200W Fluorescent	Ivory White Gray	**ATP1277I** **ATP1277W** **ATP1277GY**

WS1277W

WS120W

Passive Infrared Wall Switches

- Passive infrared technology
- Manual adjustment time delay
  (WS1277 - 20 sec. to 30 min.)
  (WS120/WS277 - 30 sec. to 30 min.)
- Photocell (WS1277I, WS1277W)
- Bi-level switching (WS1277W2)
- Wallplate included
- No neutral required
- cULus, CEC Title 24 Certified

Description	Coverage	120V AC	277V AC	Color	Catalog Number
One button; 120/277V AC	1200 sq. ft.	800W	1200W	Ivory White	**WS1277I** **WS1277W**
One button; 120V AC	900 sq. ft.	800W Incandescent 1000W Fluorescent	N/A	Ivory White	**WS120I** **WS120W**
One button; 277V AC	900 sq. ft.	N/A	1800W Fluorescent	Ivory White	**WS277I** **WS277W**
Double pole; 120/277V AC	1000 sq. ft.	600W Incandescent* 1000W Fluorescent* **per circuit*	1800W Fluorescent	White	**WS1277W2**
Two-gang adapter wallplate for **WS1277W2** to mount to a 2-gang box.					**WSAP**

WS1277W2

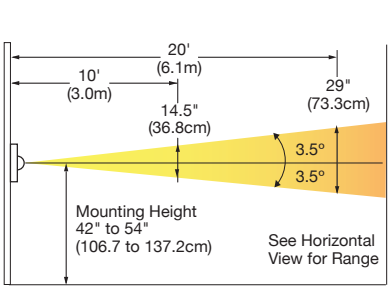
DT1277W

Digital Timer Wall Switch

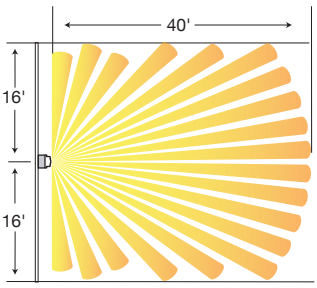
Description	120V AC	277V AC	Color	Catalog Number
Dip switch enabled preset intervals - 5,15 or 30 minutes - 1, 3, 6, 9 or 12 hours Includes an on/off momentary push button switch feature	800W	1200W	White	**DT1277W**

Coverage Patterns

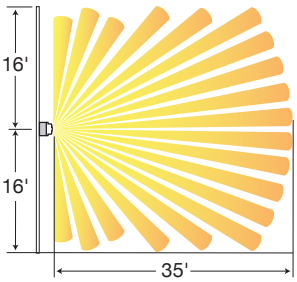
Minor Motion: PIR **Major Motion:** PIR



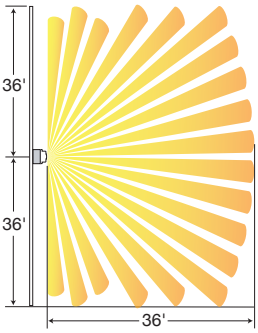
Vertical Coverage
AT1277, ATP1277



AT1277, ATP1277, WS1277



WS120, WS277



WS1277W2

c UL us LISTED

Wall Switches

Residential Occupancy and Vacancy Sensors

Residential Occupancy Sensors - Passive Infrared

- Passive infrared technology. No neutral required
- Photocell equipped for daylight harvesting
- Auto-on, auto-off
- Time delay adjustment, 30 seconds to 30 minutes
- Patent pending “alert to off” dims lights prior to going off (RMS101&121)
- Wallplate included
- cULus

Description	Coverage	120V AC	277V AC	Color	Catalog Number Standard	Nightlight
Switch with button; 150° view	800 sq. ft.	500W Incandescent only	N/A	Ivory	**RMS101I**	**RMS101ILI**
				White	**RMS101W**	**RMS101ILW**
				Almond	**RMS101AL**	**RMS101ILAL**
				Lt. Almond	**RMS101LA**	**RMS101ILLA**
Switch with dimming; 150° view	800 sq. ft.	500W Incandescent only	N/A	Ivory	**RMS121I**	**RMS121ILI**
				White	**RMS121W**	**RMS121ILW**
				Almond	**RMS121AL**	**RMS121ILAL**
				Lt. Almond	**RMS121LA**	**RMS121ILLA**
Heavy duty switch; 180° view	900 sq. ft.	800W Incandescent 1000W Fluorescent	1800W Fluorescent	Ivory	**RMS141I**	—
				White	**RMS141W**	—
				Almond	**RMS141AL**	—

RMS101W

RMS121W

RMS121ILW

RMS141W

Vacancy Sensors - Passive Infrared

- Passive infrared technology. No neutral required
- Manual-on, auto-off
- Patent pending “alert to off” dims lights prior to going off (RMS100 & 120)
- Time delay adjustment, 30 seconds to 30 minutes
- Wallplate included
- cULus, CEC Title 24 Certified

Description	Coverage	120V AC	277V AC	Color	Catalog Number Standard	Nightlight
Switch with button; 150° view	800 sq. ft.	500W Incandescent only	N/A	Ivory	**RMS100I**	**RMS100ILI**
				White	**RMS100W**	**RMS100ILW**
				Almond	**RMS100AL**	**RMS100ILAL**
				Lt. Almond	**RMS100LA**	**RMS100ILLA**
Switch with dimming; 150° view	800 sq. ft.	500W Incandescent only	N/A	Ivory	**RMS120I**	**RMS120ILI**
				White	**RMS120W**	**RMS120ILW**
				Almond	**RMS120AL**	**RMS120ILAL**
				Lt. Almond	**RMS120LA**	**RMS120ILLA**
Heavy duty switch; 180° view	900 sq. ft.	800W Incandescent 1000W Fluorescent	1800W Fluorescent	Ivory	**RMS140I**	—
				White	**RMS140W**	—
				Almond	**RMS140AL**	—

RMS100W

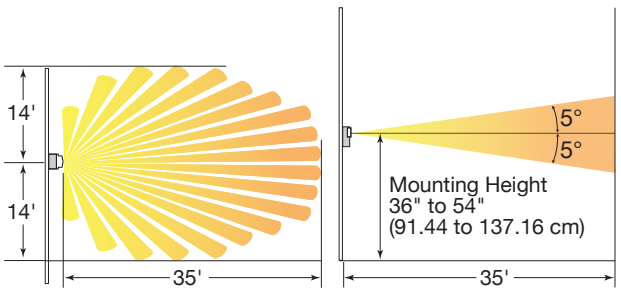
RMS120W

RMS120ILW

RMS140W

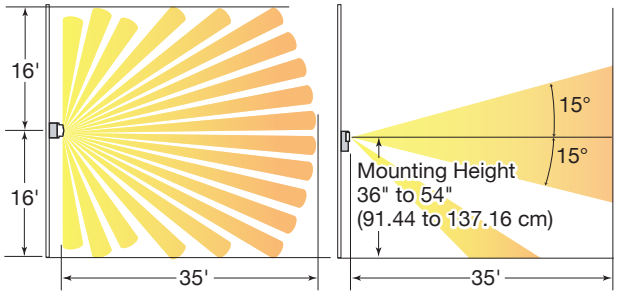
Coverage Patterns

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



Horizontal Coverage **Vertical Coverage**

RMS101, RMS121, RMS100, RMS120



Horizontal Coverage **Vertical Coverage**

RMS141, RMS140

Adaptive Dual Technology Ceiling Sensors

Features and Benefits

Red LED indicates passive infrared detection

Digital, crystal controlled ultrasonic transmitter and receiver for coverage in each direction for superior sensing of motion

Off-white ABS enclosure blends with ceiling tile

Green LED indicates ultrasonic detection

Isolated relay included on sensors with “RP” suffix for interfacing sensor to auxiliary systems such as HVAC

Ambient light level control featured on sensors with “RP” suffix to prevent unnecessary lighting usage when natural light is sufficient

ATD2000C

Dual element passive-infrared detector and lens sense heat in motion

Adaptive Technology Wall Mount Sensors

Features and Benefits

Dual technology sensing combines the individual advantages of passive infrared and ultrasonic detection

110° coverage provides complete room sensing when corner mounted

Isolated relay included on sensors with "RP" suffix for interfacing with auxiliary systems such as HVAC

Swivel mounting bracket allows sensor to be easily adjusted in ceiling or wall mount applications

Green LED indicates ultrasonic detection

Red LED indicates passive infrared detection

Ambient light level control featured on sensors with “RP” suffix to prevent unnecessary lighting usage when natural light is sufficient

ATD1600W

Ceiling Sensors
Featuring Adaptive Technology

Adaptive Technology

- Adaptive Technology- "Install and forget"
- All digital sensing technology
- Photocell for daylight harvesting and relay to interface with auxiliary systems such as HVAC (CRP models)
- Mounting base included with sensor
- Non-volatile memory settings retained after power outage
- 24V DC, 33mA
- 32kHz (ATD/ATU500C & CRP - 40kHz)
- cULus, CEC Title 24 Certified

Dual (Ultrasonic and Passive Infrared)

Combines the excellent minor motion detection of ultrasonic with the outstanding passive infrared (PIR) long-range major motion detection

Coverage	Color	Catalog Number
2000 sq. ft. with photocell and isolated relay	White	**ATD2000CRP**
2000 sq. ft.	White	**ATD2000C**
1000 sq. ft. with photocell and isolated relay	White	**ATD1000CRP**
1000 sq. ft.	White	**ATD1000C**
500 sq. ft. with photocell and isolated relay	White	**ATD500CRP**
500 sq. ft.	White	**ATD500C**

Note: All ATD ceiling sensors must use a CU series control units. See page 27 for details.

ATD2000C Series

ATD1000C/ ATD500C Series

Ultrasonic

Excellent minor motion detection

Coverage	Color	Catalog Number
2000 sq. ft. with photocell and isolated relay	White	**ATU2000CRP**
2000 sq. ft.	White	**ATU2000C**
1000 sq. ft. with photocell and isolated relay	White	**ATU1000CRP**
1000 sq. ft.	White	**ATU1000C**
500 sq. ft. with photocell and isolated relay	White	**ATU500CRP**
500 sq. ft.	White	**ATU500C**

Note: All ATU ceiling sensors must use a CU series control units. See page 27 for details.

ATU2000C Series

ATU1000C/ ATU500C Series

Passive Infrared

Outstanding long range major motion detection

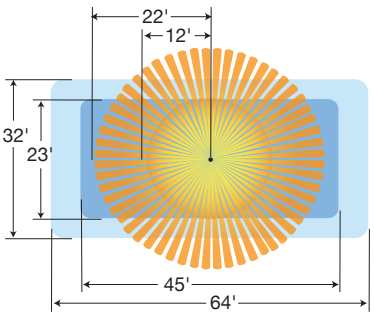
Description	Coverage	Color	Catalog Number
Wide view lens	1500 sq. ft. with photocell and isolated relay	White	**ATP1500CRP**
Wide view lens	1500 sq. ft.	White	**ATP1500C**
High density lens	450 sq. ft. with photocell and isolated relay	White	**ATP600CRP**
High density lens	450 sq. ft.	White	**ATP600C**

Note: All ATP ceiling sensors must use a CU series control units. See page 27 for details.

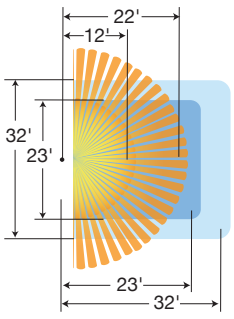
ATP1500C/ ATP600C Series

Coverage Patterns

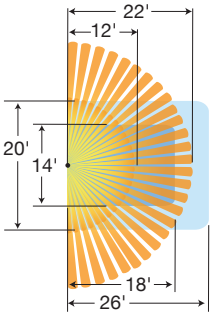
Minor Motion: Ultrasonic PIR **Major Motion:** Ultrasonic PIR



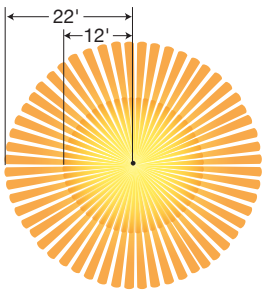
ATD2000C Series



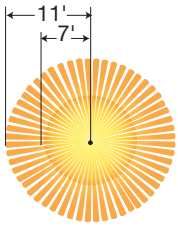
ATD1000C Series



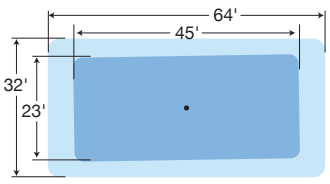
ATD500C Series



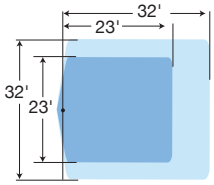
ATP1500C Series



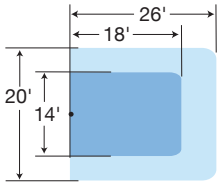
ATP600C Series



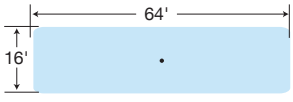
ATU2000C Series



ATU1000C Series



ATU500C Series



ATU2000C Series Hallway Application

Ceiling Sensors
Line Voltage and Low Voltage

Line Voltage Ceiling Sensors

- Adjustable Time Delay/Sensitivity
- Self Contained Power Supply
- Reduced Installation Time
- Connect to Existing Line Voltage Circuits
- cULus, CEC Title 24 Certified

LVDT2000R120

LVUS1500R120

LVUS2000R120

LVPR1500R

LVPR1500RP

Dual Technology Passive Infrared/Ultrasonic

Combines the excellent minor motion detection of ultrasonic with the outstanding passive infrared (PIR) long-range major motion detection

Voltage	Coverage	Load Rating	Color	Catalog Number
120V AC	2000 sq. ft.	2400W	White	**LVDT2000R120**
277V AC	2000 sq. ft.	5000W	White	**LVDT2000R277**

Ultrasonic

Excellent minor motion detection. 32.7kHz operating frequency

Voltage	Coverage	Load Rating	Color	Catalog Number
120V AC	2000 sq. ft.	2400W	White	**LVUS2000R120**
277V AC	2000 sq. ft.	5000W	White	**LVUS2000R277**
120V AC	1500 sq. ft.	2400W	White	**LVUS1500R120**
277V AC	1500 sq. ft.	5000W	White	**LVUS1500R277**

Passive Infrared (PIR)

Outstanding long range major motion detection in a compact low profile housing

Voltage	Coverage	Load Rating	Color	Catalog Number
120-347V AC with photocell and isolated relay	1500 sq. ft.	800W Inc. 1000W Fl. @ 120V AC 1800W Fl. @ 277V AC 2200W Fl. @ 347V AC	White	**LVPR1500R**

Low Voltage Ceiling Sensor

- Adjustable Time Delay/Sensitivity
- Integral photocell control for Daylight Harvesting
- Compact Low Profile Minimizes Visual Impact
- Integrates into Building Automation Systems

Passive Infrared (PIR)

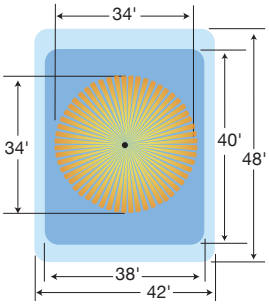
Outstanding long range major motion detection

Description	Coverage	Color	Catalog Number
With Relay isolated relay	1500 sq. ft.	White	**LVPR1500RP**

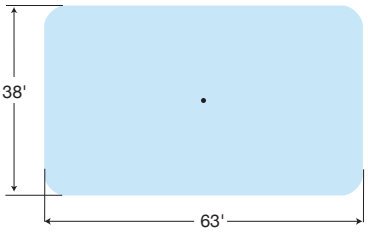
Note: For use with building automation and HVAC systems, power with 24V DC from Hubbell CU series control units.
See page 27 for details.

Coverage Patterns

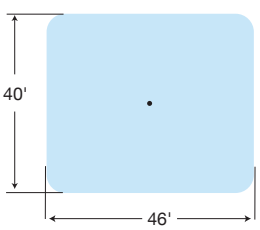
Minor Motion: Ultrasonic PIR **Major Motion:** Ultrasonic PIR



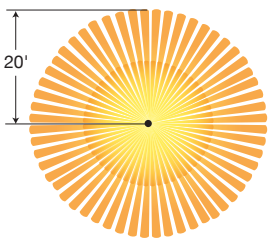
LVDT2000R Series



LVUS2000R Series



LVUS1500R Series



LVPR1500R(P)

c UL us LISTED

Wall Mount Sensors, Control Units and Accessories

Adaptive Technology Wall Mount Sensors

- Adaptive Technology - "Install and forget" operation
- Swivel mounting bracket included for wall or ceiling mounting
- All digital sensing technology
- Photocell for daylight harvesting and relay interface with auxiliary systems such as HVAC (RP models)
- 24V DC, 33MA
- cULus, CEC Title 24 Certified

ATD1600W Series

Dual (Ultrasonic and Passive Infrared)

Description	Coverage	Color	Catalog Number
32kHz, with photocell and isolated relay	1600 sq. ft.	White	**ATD1600WRP**
32kHz	1600 sq. ft.	White	**ATD1600W**

Passive Infrared

Description	Coverage	Color	Catalog Number
With photocell and isolated relay	1600 sq. ft.	White	**ATP1600WRP**
	1600 sq. ft.	White	**ATP1600W**
For aisle and high bay applications, with photocell and isolated relay	120 linear ft.	White	**ATP120HBRP**
For aisle and high bay applications	120 linear ft.	White	**ATP120HB**

Note: All wall mount sensors must use a CU series control units. See below for details.

ATP1600W, ATP120HB Series

Accessories

Control Units

The CU300A provides a 24V DC power supply for 1 to 4 sensors or sensor/Add-A-Relay combinations or 1 to 3 for CU347A. The control units contain an internal relay for the control of an external lighting load. Control units are plenum rated cULus Listed.

Description	Catalog Number
120/277V AC, 50/60 Hz for use with ATD, ATU and ATP series ceiling/wall mount sensors	**CU300A**
Same as CU300A above, manufactured in U.S.A.	**CU300AU**
347V AC, 60 Hz, for use with ATD, ATU and ATP series ceiling and wall mount sensors	**CU347A**

CU347A, CU300A

Add-A-Relay

Hubbell AAR Add-A-Relay contains an internal relay for control of an external lighting load. The AAR requires a 24V DC power supply from the Hubbell CU series control unit. The AAR is typically used when: 1. It is desired to switch more than one circuit when occupancy is sensed. 2. The lighting load exceeds the maximum rating of the control unit.

Description	Catalog Number
For use with CU series control units and Hubbell ATD, ATU and ATP series ceiling and wall mount sensors	**AAR**

AAR

Ceiling Accessories

Description	Catalog Number
Ceiling Sensor Infrared NEMA 4X Enclosure	**ACIPE**
Ceiling Mount Wire Guard	**ACMG**
Ceiling Mount Raceway Adapter	**ACMRA**

ACIPE

Wall Mount and Switch Accessories

Description	Catalog Number
Wall Switch Wire Guard	**AWSG**
Wall Mount Wire Guard	**AWMG**

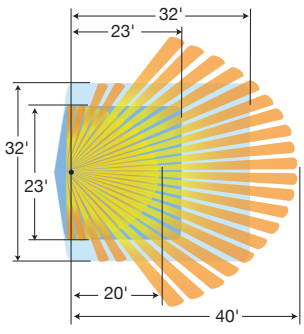
AWSG

ACMG

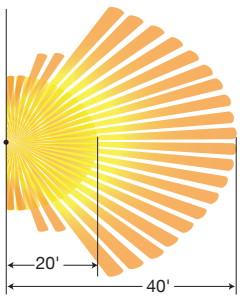
AWMG

Coverage Patterns

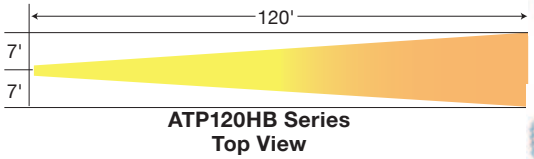
Minor Motion: Ultrasonic PIR **Major Motion:** Ultrasonic PIR



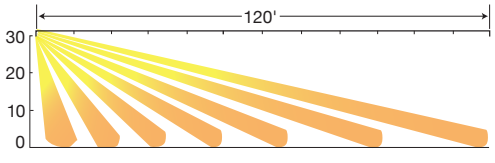
ATD1600W Series



ATP1600W Series



ATP120HB Series Top View



Side View

OPTIMYZER™ High Bay Controls and Daylight Harvesting

OPTIMYZER™ High Bay Controls

- Digital passive infrared (PIR) sensor
- Multiple (single and dual) output versions
- Single and dual timer operation
- Low-profile design
- Supports mounting heights up to 40 ft.
- Area and aisle coverage
- Universal voltage (120/277/347V AC) models available
- No minimum load

HMHB21U

Standard

Description	Voltage	Catalog Number
Fluorescent High Bay PIR Sensor, 1 Relay	120-347V AC	**HMHB21U**
Fluorescent High Bay PIR Sensor, 2 Relays	120-347V AC	**HMHB22U**
Fluorescent High Bay PIR Sensor, 1 Relay	208V AC	**HMHB23A**
Fluorescent High Bay PIR Sensor, 1 Relay	480V AC	**HMHB23B**
Fluorescent High Bay PIR Sensor	24V DC	**HMHB2LV***

Daylight Harvesting (With Photocells)

Description	Voltage	Catalog Number
Fluorescent High Bay PIR Sensor, 1 Relay with Photocell	120-347V AC	**HMHB21UP**
Fluorescent High Bay PIR Sensor, 2 Relays with Photocell	120-347V AC	**HMHB22UP**
Fluorescent High Bay PIR Sensor, 1 Relay with Photocell	208V AC	**HMHB23AP**
Fluorescent High Bay PIR Sensor, 1 Relay with Photocell	480V AC	**HMHB23BP**
Fluorescent High Bay PIR Sensor with Photocell	24V DC	**HMHB2LVP***

Low Temperature (-40°F, -40°C Min)

Description	Voltage	Catalog Number
Fluorescent High Bay Low Temp. PIR Sensor, 1 Relay Universal No Photocell	120-347V AC	**HMHB21UC**
Fluorescent High Bay Low Temp. PIR Sensor, 2 Relays Universal with Photocell	120-347V AC	**HMHB21UPC**
Fluorescent High Bay Low Temp. PIR Sensor, 2 Relays Universal	120-347V AC	**HMHB22UC**
Fluorescent High Bay Low Temp. PIR Sensor, 2 Relays Universal with Photocell	120-347V AC	**HMHB22UPC**
Fluorescent High Bay Low Temp. PIR Sensor, 1 Relay Universal with Photocell	208V AC	**HMHB23AC**
Fluorescent High Bay Low Temp. PIR Sensor, 1 Relay Universal with Photocell	208V AC	**HMHB23APC**
Fluorescent High Bay Low Temp. PIR Sensor, 1 Relay	480V AC	**HMHB23BC**
Fluorescent High Bay Low Temp. PIR Sensor, 1 Relay Universal with Photocell	480V AC	**HMHB23BPC**
Fluorescent High Bay Low Temp. PIR Sensor	24V DC	**HMHB2LVC***
Fluorescent High Bay Low Temp. PIR Sensor with Photocell	24V DC	**HMHB2LVPC***

DHADC

DHIP,
DHOP

DHAP,
DHSP

DHCM

Accessories

Description	Catalog Number
High Bay Mounting Extension Adapter	**HMHBSA**
External Daylight Control	**HMHBEP**

Daylight Harvesting

- Multiple calibration options
- Selectable 3- or 8-second dimming rate
- Low-profile design
- Light-sensitivity range of 0–500 foot-candles

Description	Voltage	Catalog Number
Single Zone Continuous Automatic Dimming Control	10V DC	**DHADC†**
Indoor Photocell	24V DC	**DHIP▲**
Outdoor Photocell	24V DC	**DHOP▲**
Atrium Photocell	24V DC	**DHAP▲**
Skylight Photocell	24V DC	**DHSP▲**
Control Module	24V DC	**DHCM**

*Note: * For use with CU series control units. See page 27 for details.*
† For use with 0-10V DC dimming ballasts.
▲For use with DHCM and CU series control units.

Specifications and Wiring Schematics
Dual Technology and Ultrasonic Wall Switches

Adaptive Dual Technology Wall Switch
AD1277 Series Wall Switches

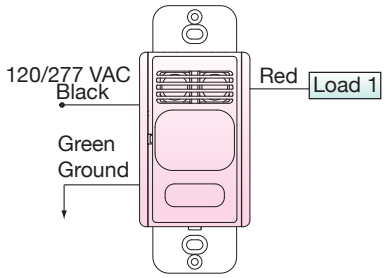
Electrical	AD1277 Series
Power Supply	120/277V AC, 50/60Hz
Load Capacity	
Incandescent	0 to 800 watts
120V AC Ballast	0 to 1000 watts
277V AC Ballast	0 to 1800 watts
Agency Approvals	cULus Listed
Physical	
Housing	High impact plastic (UL-94-5V)
Lens	Dual element pyrometer and 12 element cylindrical hard lens
Dimensions	Face 2.59"H x 1.73"W, 0.37"D (from wall out)
Mounting Height	42 to 54 inches above floor
Environmental	
Operating	32°F to 104°F (0°C to 40°C); 0% to 95% non-condensing relative humidity
Controls	
Time Delay	Digital, adaptive 4 to 30 minutes
Ambient Light	Adjustable ambient light override, 10 to 500 foot candles
Front Press Switch	Auto/Off
Sensitivity	Adaptive 0% to 100%
Service Switch	Air gap off
Sensing Indicator	
Passive Infrared	Red LED
Ultrasonic	Green LED

Adaptive Technology Ultrasonic and Passive Infrared Wall Switches

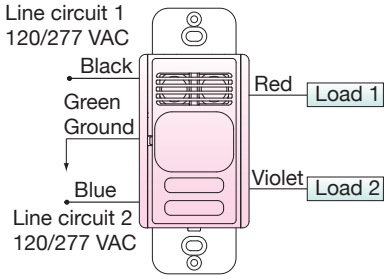
Electrical	AP1277 and AU1277 Series
Power Supply	120/277V AC, 50/60Hz
Load Capacity	
Incandescent	0 to 800 watts
120V AC Ballast	0 to 1000 watts
277V AC Ballast	0 to 1800 watts
Agency Approvals	cULus Listed
Physical	
Housing	High impact plastic (UL-94-5V)
Lens	Dual element pyrometer and 12 element cylindrical hard lens (AP1277 only)
Dimensions	Face 2.59"H x 1.73"W, 0.37"D (from wall out)
Mounting Height	42 to 54 inches above floor
Environmental	
Operating	32° F to 104°F (0°C to 40°C); 0% to 95% non-condensing relative humidity
Controls	
Time Delay	Digital, adaptive 4 to 30 minutes 20 minutes default
Ambient Light	Adjustable ambient light override, 10 to 500 foot candles
Front Press Switch	Auto/Off
Sensitivity	Adaptive 0% to 100%
Service Switch	Air gap off
Sensing Indicator	
Passive Infrared	Red LED (AP1277 only)
Ultrasonic	Green LED (AU1277 only)

Wiring Schematic AD, AU, AP, 1277 Series Wall Switch Sensors

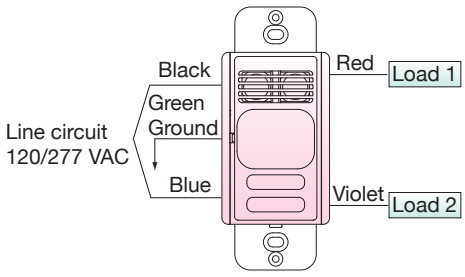
Single Circuit Wiring



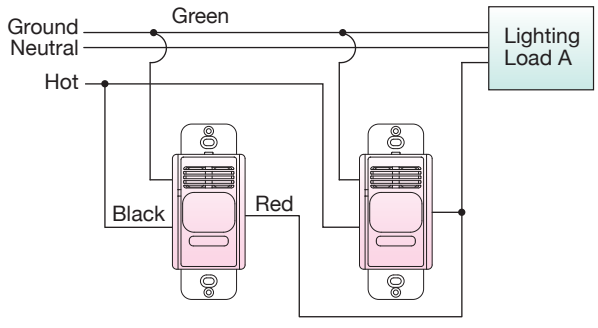
Dual Circuit Sensor, Wired for Dual Circuits



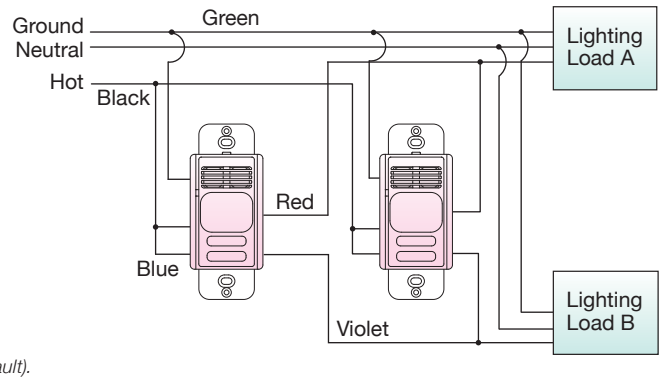
Dual Circuit Sensor, Wired for Single Circuit



Single Circuit Sensors, Wired as 3-Way Sensors*



Dual Circuit Sensors, Wired as 3-Way Sensors*



*Note: * Load can not exceed the rating of one switch.*
Sensor is shipped with all dip switches in the OFF position (factory default).

Specifications and Wiring Schematics

Passive Infrared Wall Switches


AT1277W


WS1277W

Adaptive Technology PIR Wall Switch
AT1277 Series, ATP1277 and WS1277 Series Wall Switches

Electrical	AT1277 Series	ATP1277 Series	WS1277
Power Supply	120/277V AC, 60Hz	120/277V AC, 60Hz	120/277V AC, 60Hz
Load Capacity			
Incandescent	NA	0 to 800 watts	0 to 800 watts
120V Ballast	0 to 1800 watts	0 to 800 watts	0 to 800 watts
277V Ballast	0 to 4155 watts	0 to 1200 watts	0 to 1200 watts
Agency Approvals	UL Listed, cULus Certified	UL Listed, cULus Certified	UL Listed, cULus Certified

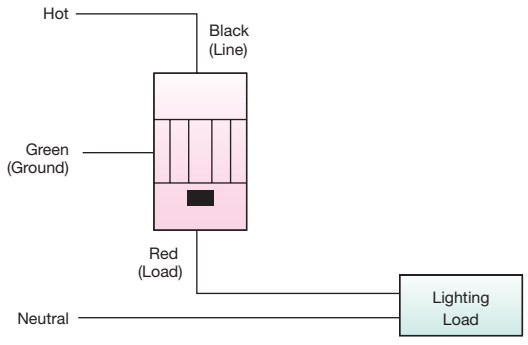
Physical	AT1277 Series, ATP1277 Series and WS1277
Housing	Flame retardant UL 94 V-0 ABS
Lens	Polyethylene
Dimensions	Face 2.61"H x 1.29"W, 0.73"D (from wall out)
Mounting Height	42 to 54 inches above floor

Environmental	AT1277 Series	ATP1277 Series and WS1277
Operating	32°F to 122°F (0°C to 50°C) with rate of change not exceeding 20°F (11°C) per hour; 20% to 90% non-condensing relative humidity	32°F to 122°F (0°C to 50°C) with rate of change not exceeding 20°F (11°C) per hour; 20% to 90% non-condensing relative humidity
Storage	-20°F to 150°F (-29°C to 65°C); 20% to 90% non condensing relative humidity	-40°F to 150°F (-40°C to 65°C); 20% to 90% non condensing relative humidity

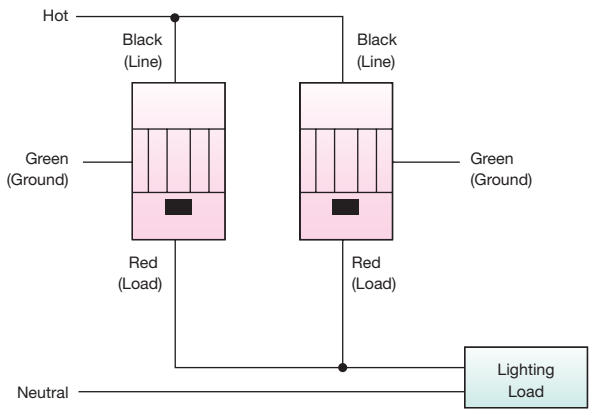
Controls	AT1277 Series	ATP1277 Series	WS1277
Time Delay	Digital, test (15 seconds), Adaptive 5 to 30 minutes	Digital, test (20 seconds), Adaptive 5 to 30 minutes	Manual 20 seconds to 30 minutes
Ambient Light	Digital, pushbutton, 30 to 300 foot candles	Digital, pushbutton, 30 to 300 foot candles	Digital, pushbutton, 30 to 300 foot candles
Front Press Switch	Auto/Momentary Off (30 minutes after last motion, switch returns to automatic mode)	Auto/Momentary Off (30 minutes after last motion, switch returns to automatic mode)	Auto/Momentary Off (30 minutes after last motion, switch returns to automatic mode)
Service Switch	Auto/Off	Auto/Off	Auto/Off
Sensing Indicator			
Passive Infrared	2-color LED (red, green)	Red LED	Red LED

Wiring Schematic AT1277, ATP1277 and WS1277 Series Wall Switches

Normal Wiring



Sensors Wired as 3-Way Sensors*



*Note: * Load can not exceed the rating of one switch.*

Specifications and Wiring Schematics

Passive Infrared Wall Switches


WS120W


WS1277W2


RMS140W

WS120 Series, WS277 Series, WS1277W2, RMS140 Series and RMS141 Series

Electrical	WS120 Series	WS277 Series	RMS140/141 Series	WS1277W2
Power Supply	120V AC, 60Hz	277V AC, 60Hz	120/277V AC, 50/60Hz, 1/6 HP	120/277V AC, 60Hz
Load Capacity				
Incandescent	0 to 800 watts	NA	800 watts	0 to 600 watts ea circuit
120V Ballast	0 to 1000 watts	NA	0 to 1000 watts each fluorescent circuit	0 to 1000 watts ea circuit
277V Ballast	NA	0 to 1800 watts	0 to 1800 watts each fluorescent circuit	0 to 1800 watts ea circuit
Agency Approvals	UL Listed, cULus Certified	UL Listed, cULus Certified	UL Listed, cULus Certified	UL Listed, cULus Certified

Physical	WS120/WS277 Series	RMS140/141 Series	WS1277W2
Housing	High-impact ABS	High-impact ABS	High-impact ABS
Lens	Polyethylene	Polyethylene	Polyethylene
Dimensions	Face 2.6"H x 1.3"W, 0.51"D (from wall out)	Face 2.6"H x 1.3"W, 0.36" (from wall out)	Face 4.54"H x 2.79"W, 0.95"D (from wall out)
Mounting Height	42 to 54 inches above floor	42 to 54 inches above floor	42 to 54 inches above floor

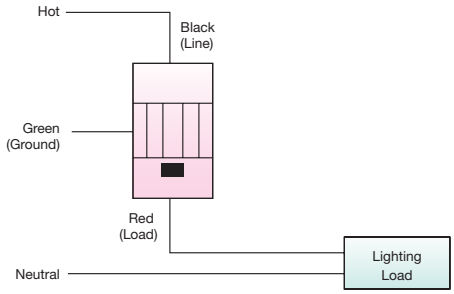
Environmental	WS120/WS277 Series, WS1277W2 and RMS140/141 Series
Operating	32°F to 122°F (0°C to 50°C) with rate of change not exceeding 20°F (11°C) per hour; 20% to 90% noncondensing relative humidity
Storage	-40°F to 150°F (-40°C to 65°C); 20% to 90% noncondensing relative humidity

Controls	WS120/WS277 Series and RMS140/141 Series	WS1277W2
Time Delay	30 seconds to 30 minutes	30 seconds to 30 minutes
Switch	Auto/Off (Front Press)	Auto/Off (Front Rocker)
Manual Override Bypass		Override ON key provided

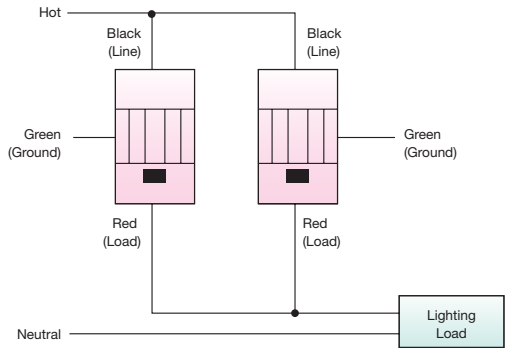
Sensing Indicator	WS120/WS277 Series, WS1277W2 and RMS140/141 Series
Passive Infrared	Red LED

Wiring Schematic
WS120, WS277 and RMS Series Wall Switches

Normal Wiring

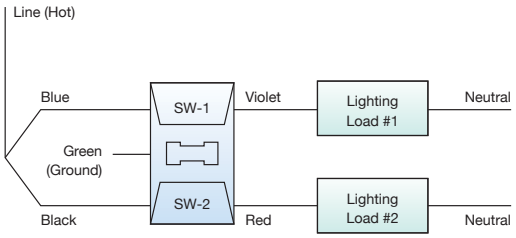


Sensors Wired as 3-Way Sensors*

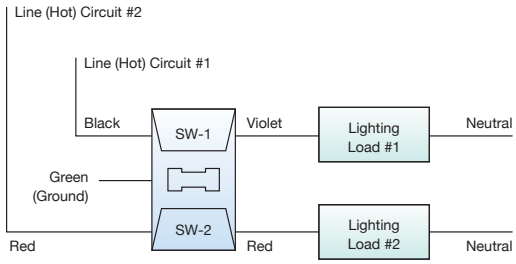


Wiring Schematic
WS1277W2 Wall Switch

Dual Level Switching of a Single Circuit



Dual Level Switching of Two Circuits



Specifications

Ceiling and Wall Mount Sensors

ATD, ATU, ATP Series Ceiling and Wall Mount Sensors

Electrical	
Power Requirements	24V DC nominal, 33mA from Hubbell CU series control unit
Isolated Relay (sensors with RP suffix)	Normally open and normally closed Terminals available
Agency Approvals	UL Listed

Physical	Ceiling Sensors	Wall Mount Sensors
Housing	Flame retardant UL 94 V-0 ABS	Flame retardant UL 94 V-0 ABS
Lens	Polyethylene	Polyethylene
Dimensions	1.5"H x 4.5"D	6"H x 2"W x 1.5"D
Color	Office white	Office white
Mounting Height	8 to 12 feet	8 to 12 feet, 8 to 30 feet (ATP120HB series)

Environmental	
Operating	32°F to 104°F (0°C to 40°C) with rate of change not exceeding 20°F (11°C) per hour; 0% to 95% non condensing relative humidity.
Storage	-20°F to 150°F (-29°C to 65°C); 0% to 95% non-condensing relative humidity.

Controls	
Time Delay	Test (8 seconds), adaptive 8 to 40 minutes.
Ambient Light	1 to 1000 foot candles.
Sensitivity	Adaptive 0 to 100%.

Sensing Indicators	
Ultrasonic (ATD and ATU Series)	Green LED.
Passive Infrared (ATD and ATP Series)	Red LED.

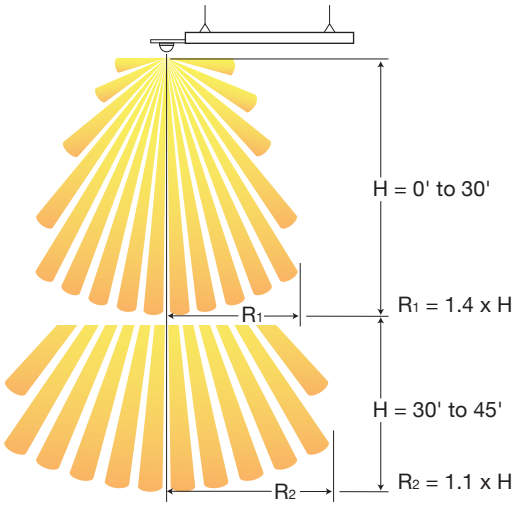
High Bay Specifications
HMHB21U, HMHB22U

Electrical	
Power Requirements	Line voltage units: 120/277/347V AC, 60Hz.
Load Capacity	120V AC: 0–800W ballast or tungsten 277V AC: 0–1,200W ballast 347V AC: 0–1,500W ballast ¼-HP motor load
Agency Approvals	ETL, Conforms to UL STD 916, Certified to CAN/USA STD 22.2 No. 61010-1-04 and Title 24 Compliant

Physical	
Casing	High-impact injection-molded plastic
Size	4.4 inch x 3.6 inch x 2.0 inch
Weight	7 oz.
Color	White
Mounting	Fixture mount

Environmental	
Operating	Indoor use only 32°F to 104°F (0°C to 40°C) with rate of change not exceeding 20°F (11°C) per hour; 0% to 95% noncondensing relative humidity
Storage	-20°F to 150°F (-29°C to 65°C); 0% to 95% non-condensing relative humidity

Controls		
Time Delay		
	Primary:	8-second test mode – 4, 8, 16 and 30 minute time-outs
	Secondary:	Can be disabled – 30, 60 and 90 minute time-outs



Specifications and Wiring Schematics

Control Units and Add-A-Relay

CU Series Control Units
CU300A(U) and CU347A

Electrical	CU300A(U)	CU347A
Power Supply	120 to 277V AC, 50/60Hz	347V AC, 60Hz
Power Output	24V DC, 150mA	24V DC, 100mA
Load Capacity		
Incandescent	0 to 1800 watts	NA
120V Ballast	0 to 2400 watts	NA
230V Ballast	NA	NA
277V Ballast	0 to 5540 watts	NA
347V Ballast	NA	0 to 5205 watts
AT Sensor/AAR Capacity	1 to 4 combined	1 to 3 combined
Agency Approvals	UL Listed, cULus Certified	UL Listed, cULus Certified

Physical	All CU Series Control Units
Housing	Flame retardant UL 94-5V thermoplastic
Dimensions	3.69"L x 2.33"W x 1.36"H
Color	Black

Environmental	
Operating	32°F to 104°F (0°C to 40°C); 0% to 90% non condensing relative humidity
Storage	-20°F to 150°F (-29°C to 65°C); 0% to 90% non condensing relative humidity

Add-A-Relay
AAR

Electrical	
Power Input	24V DC nominal, 33mA from Hubbell CU series control unit.
Load Capacity	
Incandescent	0 to 1800 watts
120V Ballast	0 to 2400 watts
230V Ballast	0 to 3680 watts
277V Ballast	0 to 5540 watts
347V Ballast	0 to 5205 watts
Agency Approvals	UL Listed

Physical	
Housing	Flame retardant UL 94-5V thermoplastic
Dimensions	3.69"L x 2.33"W x 1.36"H
Color	Black

Environmental	
Operating	32°F to 104°F (0°C to 40°C); 0% to 90% non condensing relative humidity
Storage	-20°F to 150°F (-29°C to 65°C); 0% to 90% non condensing relative humidity

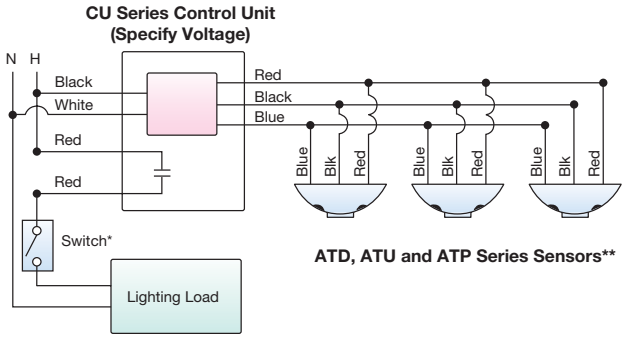
Wiring Schematics

Ceiling and Wall Mount Sensors

Adaptive Dual Technology, Ultrasonic, and Passive Infrared Ceiling and Wall Mount Sensors
ATD, ATU and ATP Series Ceiling and Wall Mount Sensors

Single Circuit Application:

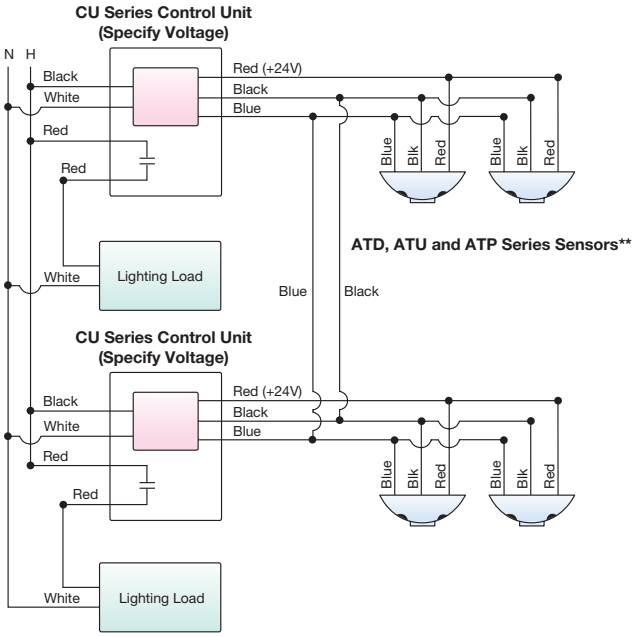
1 to 4 sensors wired to control unit with optional override off switch.



* Optional Override Off Switch

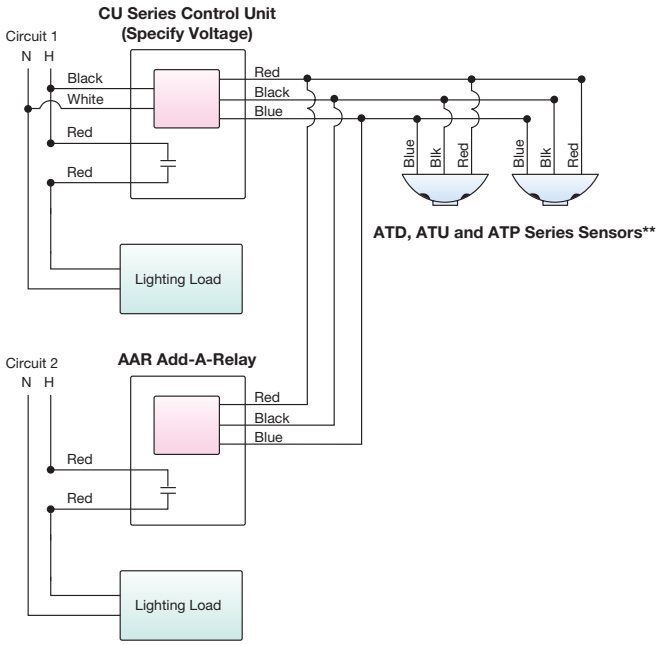
Single Circuit Application:

Two control units wired in parallel to operate 5 to 8 sensors in a single zone. Maximum 4 sensors per control unit any sensor will activate lighting.



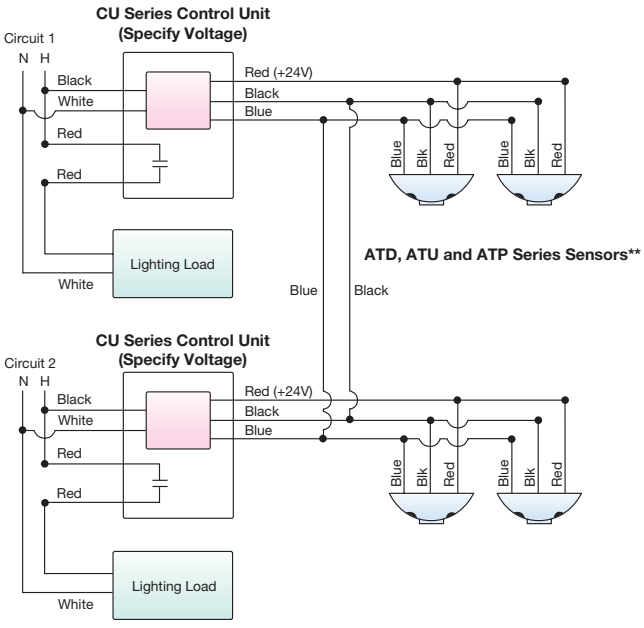
Two Circuit Application:

1 to 4 sensors wired to control unit and Add-A-Relay (control unit switches circuit 1, Add-A-Relay switches circuit 2).



Two Circuit Application:

Two control units wired in two circuits to operate 2 to 8 sensors in a single zone. Maximum 4 sensors per control unit any sensor will activate both lighting loads.

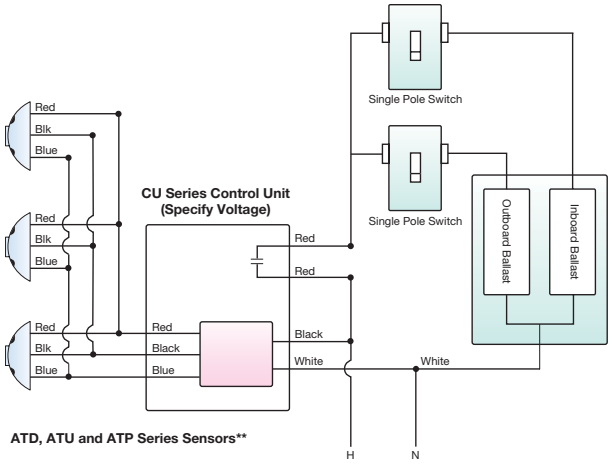


*** For wiring sensors with isolated relay and photocell option (models with "RP" suffix): Photocell Option: Cap off Blue sensor wire. Connect Grey sensor wire to Blue control unit wire. Isolated Relay Option: Common-Blue/White wire,Normally Closed-Black/White wire, Normally Open-Yellow/White wire.*

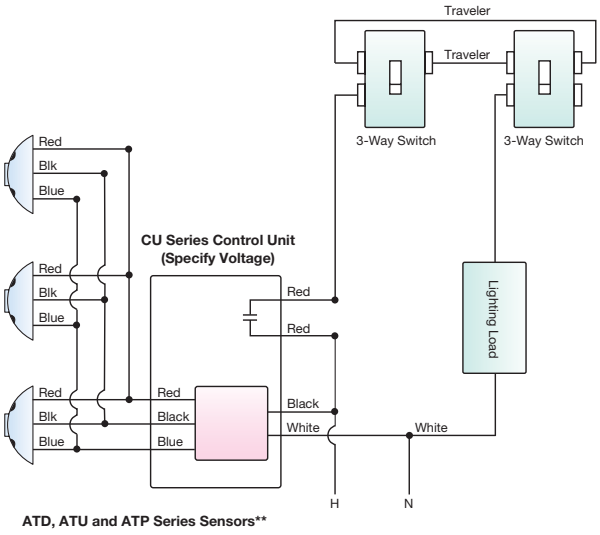
Wiring Schematics
Ceiling and Wall Mount Sensors

Adaptive Technology Dual, Ultrasonic, and Passive Infrared Ceiling and Wall Mount Sensors
ATD, ATU and ATP Series Ceiling and Wall Mount Sensors

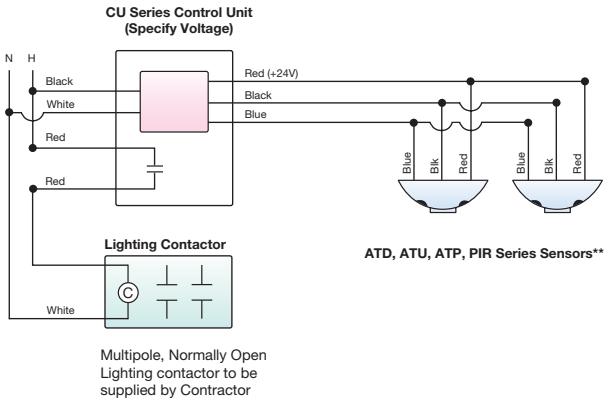
Single Circuit, Dual Level Switching Application:
1 to 4 sensors wired to control unit with optional override off switches.



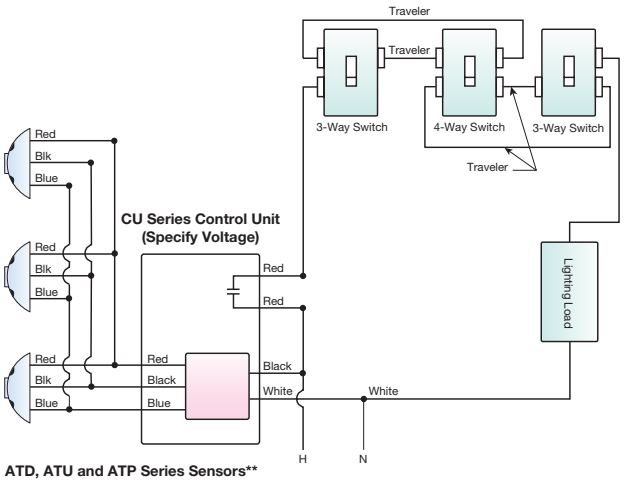
Single Circuit, 3-Way Switching Application:
1 to 4 sensors wired to control unit with optional override off switches.



Multi-Circuit Application:
1 to 4 sensors wired to control unit that is wired to a multi-pole lighting contactor.



Single Circuit, 4-Way Switching Application:
1 to 4 sensors wired to control unit with optional override off switches.



*** For wiring sensors with isolated relay and photocell option (models with "RP" suffix): Photocell Option: Cap off Blue sensor wire. Connect Grey sensor wire to Blue control unit wire. Isolated Relay Option: Common-Blue/White wire,Normally Closed-Black/White wire, Normally Open-Yellow/White wire.*

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