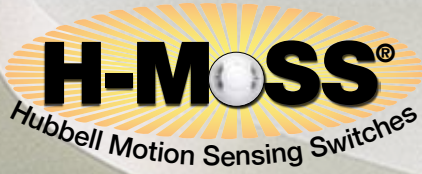


# H-MOSS<sup>®</sup> Occupancy and Vacancy Sensors



**Tomorrow's  
Technology  
Today!**



**Adaptive Technology • Dual Technology  
Ultrasonic • Passive Infrared**



Wiring Device-Kellems

## H-MOSS® Occupancy Sensors feature the latest in technological advances.

### *Adaptive Technology*

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

Adaptive technology sensors use microprocessor-based technology which makes 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, and furniture layout or occupancy pattern changes, the sensor will automatically adjust itself. These automatic adjustments will eliminate the need for multiple 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), ultrasonic, and passive infrared products.

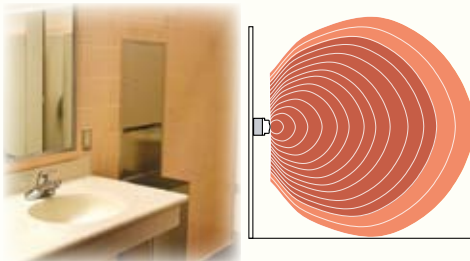


### *Dual Technology*



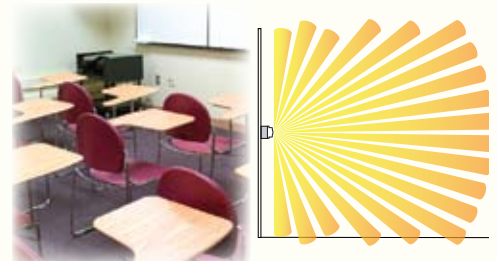
Dual technology occupancy sensors use both passive infrared and ultrasonic technologies for maximum reliability. These sensors also minimize the risk of false triggering (lights coming on when the space is unoccupied). Both ultrasonic (US) and passive infrared (PIR) technologies must detect occupancy to turn lighting on, while continued detection by only one technology will keep lighting on. The dual technology sensors are the best performing sensor for most applications.

### *Ultrasonic (US)*



Ultrasonic technology senses occupancy by bouncing ultrasonic sound waves (32kHz - 45kHz) off objects in a space and detecting a frequency shift between the emitted and reflected sound waves. Movement by a person or object within the space causes a shift in frequency, which is interpreted as occupancy. Ultrasonic occupancy sensors are good at detecting minor motion (e.g. typing, reading) and do not require an unobstructed line-of-sight, thus making them suitable for applications such as an office with cubicles or a restroom with stalls.

### *Passive Infrared (PIR)*



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



# Reduce Energy

## **Reduce Energy Consumption and Meet Federal and State Standards and Guidelines**

Reduction of energy consumption at all levels: local, state and national is critical. Today's buildings, both commercial and residential - new and renovated - must follow new state and federal standards and codes which call for energy efficiency throughout a facility.

### **LEED**

LEED (Leadership in Energy and Environmental Design) which is sponsored by the U.S. Green Building Council (USBC) has created a rating system to define what constitutes a green building by establishing common standards of measurement, and promoting integrated and whole building design. This certification applies to both new and renovated commercial buildings. Points are awarded by category and there are four levels of certification- certified, silver, gold and platinum.



**H-MOSS, Hubbell Motion Sensor Switches** offer a large array of occupancy sensors, which can be utilized to help increase energy efficiency in the following categories:

### **LEED Credit Categories**

Sustainable Sites- SS  
Light pollution reduction

Energy and Atmosphere- EA  
Optimize energy performance

Indoor Environment Quality- EQ  
Controllability of systems, lighting

Innovation & Design Process- ID  
Innovation in design

## **ASHRAE/IESNA 90.1 Standard**

Among the requirements in this standard is that a building of 5,000 sq. ft. or more, except for lighting operated 24 hours per day, must incorporate automatic control devices to turn off all lighting.

## **IECC 2003 Lighting Control Provision**

The International Energy Conservation Code (IECC) which has been adopted by some states, affects new construction, additions and alterations for all commercial buildings, including residential structures with four or more stories above grade. It requires an automatic shutoff of all lighting for buildings larger than 5,000 sq. ft. with occupancy sensors as one way to achieve this goal.

## **California Energy Commission (CEC) Title 24 Program**

California's Title 24 Program sets up some of the most stringent standards and regulations in the country to reduce energy consumption in both commercial and residential structures.



### **Some of the key provisions are:**

#### **Multi-level lighting control**

Any enclosed space 100 sq. ft. or larger which has a connected lighting load that exceeds 0.8 watts per sq. ft. and has more than one light source (luminaire) shall be controlled so that the load for lights may be reduced by a minimum of 50%.

#### **Area controls**

Each area enclosed by ceiling height partitions must have an independent switching or control device- occupancy sensor or manual switch.

#### **Automatic shut-off controls**

For every floor, all indoor lighting must have a separate automatic control, capable of automatically shutting off the lighting.

#### **Residential buildings**

In 2005, Title 24 simplified and expanded the standard to include use of high efficacy luminaires, manual-on occupancy sensors, fluorescent lights or dimmers in most rooms of the home such as bedrooms, bathroom, garage, living room, hallway, and utility room.

Hubbell offers many models of occupancy, vacancy and dimmers (all CEC Title 24 compliant) that will enable builders, contractors and homeowners to meet these new requirements.

# H-MOSS® Wall Switches Featuring Adaptive Technology

All H-MOSS Wall Switches with Adaptive Technology featured below have the following standard features:

- Adaptive technology - "Install and forget" operation
- All digital sensing technology
- Dual 120/277V AC operation
- 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
- Two relays for two level switching or dual load control (AD, AP AU1277x2, 2N series)
- C-UL US

## Adaptive Technology, Dual (Ultrasonic and Passive Infrared)

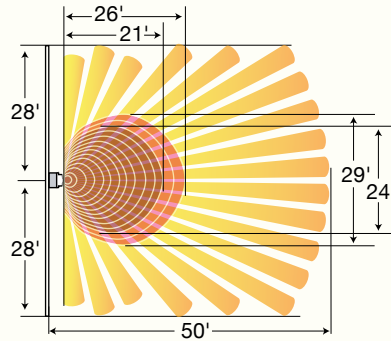
50/60Hz, 1000 sq. ft. coverage with photocell, 800W Incandescent, 1000W Fluorescent at 120V AC, 1800W Fluorescent at 277V AC



Circuit	Button	Color	Catalog Numbers
Single	1 Button for manual/auto control	Ivory White	<b>AD1277I1</b> <b>AD1277W1</b>
Single	Auto control with no button	Ivory White	<b>AD1277I1N</b> <b>AD1277W1N</b>
Dual	2 Buttons for manual/auto control	Ivory White	<b>AD1277I2</b> <b>AD1277W2</b>
Dual	Auto control with no button	Ivory White	<b>AD1277I2N</b> <b>AD1277W2N</b>

Sensors are available in three special order colors. To order special order colors, replace "I or W" with the following: **LA** (Light Almond), **GY** (Gray) or **BK** (Black). Special order colors have minimum ordering requirements and minimum lead times. Please call Customer Service for further information. Wallplates are sold separately.

- Ultrasonic Major Motion
- Ultrasonic Minor Motion
- Passive Infrared



AD1277W1



AD1277W1N  
AD1277W2N



AD1277W2



AU1277W1



AU1277W1N  
AU1277W2N



AU1277W2

## Adaptive Technology, Ultrasonic

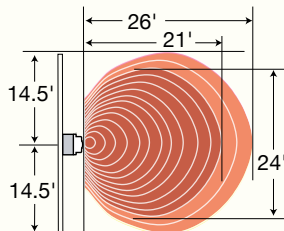
50/60Hz, 400 sq. ft. coverage with photocell, 800W Incandescent, 1000W Fluorescent at 120V AC, 1800W Fluorescent at 277V AC



Circuit	Button	Color	Catalog Numbers
Single	1 Button for manual/auto control	Ivory White	<b>AU1277I1</b> <b>AU1277W1</b>
Single	Auto control with no button	Ivory White	<b>AU1277I1N</b> <b>AU1277W1N</b>
Dual	2 Buttons for manual/auto control	Ivory White	<b>AU1277I2</b> <b>AU1277W2</b>
Dual	Auto control with no button	Ivory White	<b>AU1277I2N</b> <b>AU1277W2N</b>

Sensors are available in three special order colors. To order special order colors, replace "I or W" with the following: **LA** (Light Almond), **GY** (Gray) or **BK** (Black). Special order colors have minimum ordering requirements and minimum lead times. Please call Customer Service for further information. Wallplates are sold separately.

- Ultrasonic Major Motion
- Ultrasonic Minor Motion



# H-MOSS® Wall Switches and Wall Mount Sensors Featuring Adaptive Technology



## Adaptive Technology, Passive Infrared

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



Circuit	Button	Color	Catalog Numbers
Single	1 Button for manual/auto control	Ivory White	<b>AP1277I1</b> <b>AP1277W1</b>
Single	Auto control with no button	Ivory White	<b>AP1277I1N</b> <b>AP1277W1N</b>
Dual	2 Buttons for manual/auto control	Ivory White	<b>AP1277I2</b> <b>AP1277W2</b>
Dual	Auto control with no button	Ivory White	<b>AP1277I2N</b> <b>AP1277W2N</b>



AP1277W1



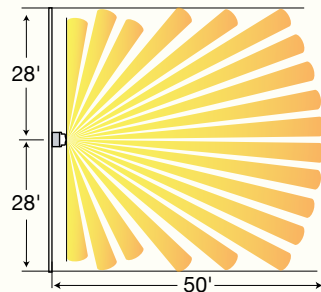
AP1277W1N  
AP1277W2N



AP1277W2

Sensors are available in three special order colors. To order special order colors, replace "I or W" with the following: **LA** (Light Almond), **GY** (Gray) or **BK** (Black). Special order colors have minimum ordering requirements and minimum lead times. Please call Customer Service for further information. Wallplates are sold separately.

Passive Infrared



## 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 (WRP and HBRP models)
- 24V DC, 33MA

## Dual (Ultrasonic and Passive Infrared)



Description	Coverage	Color	Catalog Numbers
32kHz, with photocell and isolated relay	1600 sq. ft.	White	<b>ATD1600WRP</b>
32kHz	1600 sq. ft.	White	<b>ATD1600W</b>

## Passive Infrared



Description	Coverage	Color	Catalog Numbers
With photocell and isolated relay	1600 sq. ft.	White	<b>ATP1600WRP</b>
	1600 sq. ft.	White	<b>ATP1600W</b>
For aisle and high bay applications, with photocell and isolated relay	120 linear ft.	White	<b>ATP120HBRP</b>
For aisle and high bay applications	120 linear ft.	White	<b>ATP120HB</b>



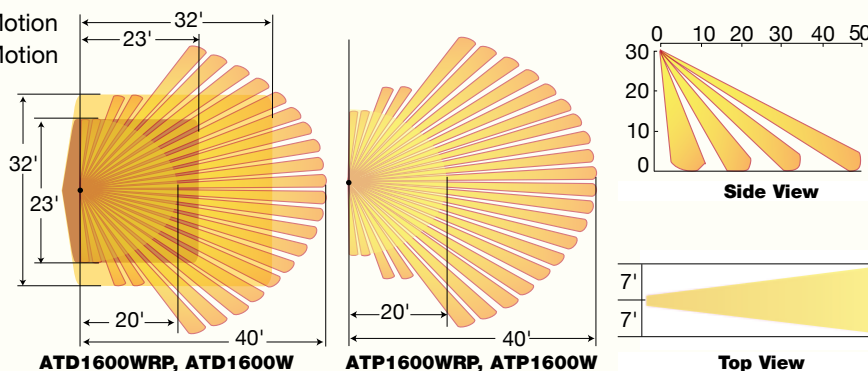
ATD1600WRP  
ATD1600W



ATP1600WRP  
ATP1600W  
ATP120HBRP  
ATP120HB

Note: All wall mount sensors must use a CU series control unit. See page 11 for details.

- Ultrasonic Major Motion
- Ultrasonic Minor Motion
- Passive Infrared






Wiring Device-Kellems

# H-MOSS® Wall Switches Passive Infrared Sensors

## Adaptive Technology, Passive Infrared

- Adaptive technology - "Install and forget" operation
- Passive infrared technology
- Dual 120/277V AC operation
- Heavy duty relay (AT1277)
- Audible alarm before sensor turns lights off (AT1277)
- 1200 sq. ft. coverage
- Built in photocell for daylight harvesting
- Nylon wallplate included

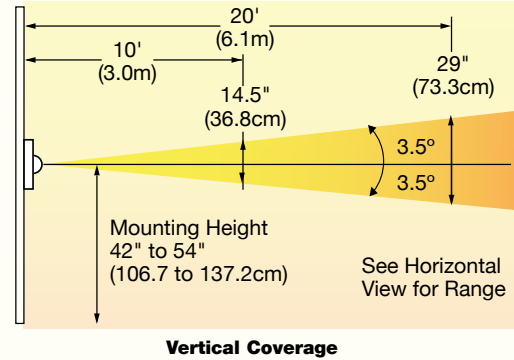
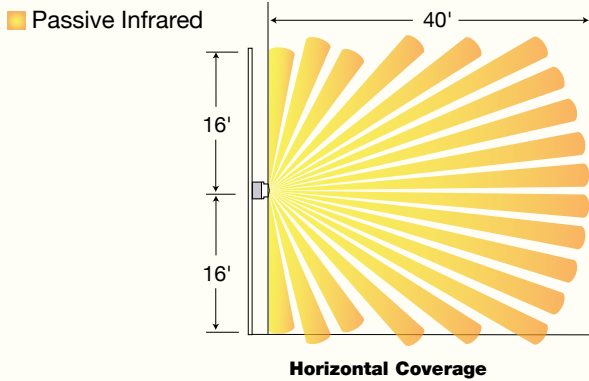
Description	120V AC	277V AC	Color	Catalog Numbers
One Button	1800W Incandescent	4155W Fluorescent	Ivory White	<b>AT1277I</b> <b>AT1277W</b>  
One Button	800W Incandescent 800W Fluorescent	1200W Fluorescent	Ivory White Gray	<b>ATP1277I</b> <b>ATP1277W</b>  <b>US LISTED</b> <b>ATP1277GY</b>



AT1277W










ATP1277W



## Passive Infrared Wall Switches

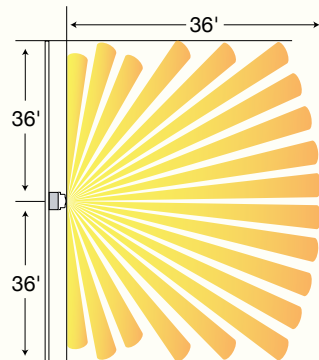
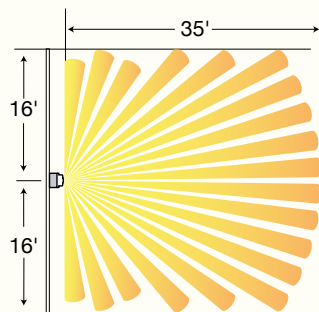
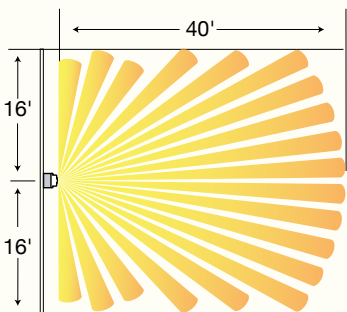
- Passive infrared technology
- Manual adjustment time delay (WS1277 - 20 sec. to 30 min.) (WS120/WS277 - 30 sec. to 30 min.)
- Photocell (WS1277I, WS1277W)
- Dual level switching from one or two circuits (WS1277W2)
- Nylon wallplate included (except WS1277W2)

Description	Coverage	120V AC	277V AC	Color	Catalog Numbers
One button 120/277V AC	1200 sq. ft.	800W	1200W	Ivory White	<b>WS1277I</b> <b>WS1277W</b>  <b>US LISTED</b>
One button, 120V AC	900 sq. ft.	800W Incandescent 1000W Fluorescent	N/A	Ivory White	<b>WS120I</b> <b>WS120W</b>  
One button, 277V AC	900 sq. ft.	N/A	1800W Fluorescent	Ivory White	<b>WS277I</b> <b>WS277W</b>  
Double pole switch, 120/277V AC	1000 sq. ft.	600W Incandescent* 1000W Fluorescent*	1800W Fluorescent	White	<b>WS1277W2</b>  

Two-gang adapter wallplate for **WS1277W2** to mount to a two-gang box **WSAP**

\*per circuit

■ Passive Infrared



WS1277W



WS120W



WS1277W2



# H-MOSS® Wall Switches Residential and Vacancy Sensors



## Residential Occupancy Sensors - Passive Infrared

- Passive infrared technology
- Photocell equipped for daylight harvesting
- Auto-on, auto-off
- Delayed off adjustment from 30 seconds to 30 minutes
- Patent pending “alert to off” feature dims lights prior to going off (RMS101&121)
- Wallplate included
- C-UL US



Description	Coverage	Catalog Numbers		Color	Catalog Numbers	
		120V AC	277V AC		Standard	Nightlight
Single pole switch with button, 150° view	800 sq. ft.	500W Incandescent	N/A	Ivory	<b>RMS101I</b>	<b>RMS101IL</b>
				White	<b>RMS101W</b>	<b>RMS101ILW</b>
				Almond	<b>RMS101AL</b>	<b>RMS101ILAL</b>
				Light Almond	<b>RMS101LA</b>	<b>RMS101ILLA</b>
Single pole switch with dimming, 150° view	800 sq. ft.	500W Incandescent	N/A	Ivory	<b>RMS121I</b>	<b>RMS121IL</b>
				White	<b>RMS121W</b>	<b>RMS121ILW</b>
				Almond	<b>RMS121AL</b>	<b>RMS121ILAL</b>
				Light Almond	<b>RMS121LA</b>	<b>RMS121ILLA</b>
Heavy duty switch, 180° view	900 sq. ft.	800W	1800W	Ivory	<b>RMS141I</b>	—
		Incandescent	Fluorescent	White	<b>RMS141W</b>	—
		1000W	Fluorescent	Almond	<b>RMS141AL</b>	—



RMS101W



RMS121W



RMS121ILW



RMS141W

## Vacancy Sensors - Passive Infrared - CA Title 24 Compliant

- Passive infrared technology
- Manual-on, auto-off
- Patent pending “alert to off” feature dims lights prior to going off (RMS100 & 120)
- Delayed off, adjustment from 30 seconds to 30 minutes
- Wallplate included
- C-UL US



Description	Coverage	Catalog Numbers		Color	Catalog Numbers	
		120V AC	277V AC		Standard	Nightlight
Single pole switch with button, 150° view	800 sq. ft.	500W Incandescent	N/A	Ivory	<b>RMS100I</b>	<b>RMS100IL</b>
				White	<b>RMS100W</b>	<b>RMS100ILW</b>
				Almond	<b>RMS100AL</b>	<b>RMS100ILAL</b>
				Light Almond	<b>RMS100LA</b>	<b>RMS100ILLA</b>
Single pole switch with dimming, 150° view	800 sq. ft.	500W Incandescent	N/A	Ivory	<b>RMS120I</b>	<b>RMS120IL</b>
				White	<b>RMS120W</b>	<b>RMS120ILW</b>
				Almond	<b>RMS120AL</b>	<b>RMS120ILAL</b>
				Light Almond	<b>RMS120LA</b>	<b>RMS120ILLA</b>
Heavy duty switch, 180° view	900 sq. ft.	800W	1800W	Ivory	<b>RMS140I</b>	—
		Incandescent	Fluorescent	White	<b>RMS140W</b>	—
		1000W	Fluorescent	Almond	<b>RMS140AL</b>	—



RMS100W



RMS120W

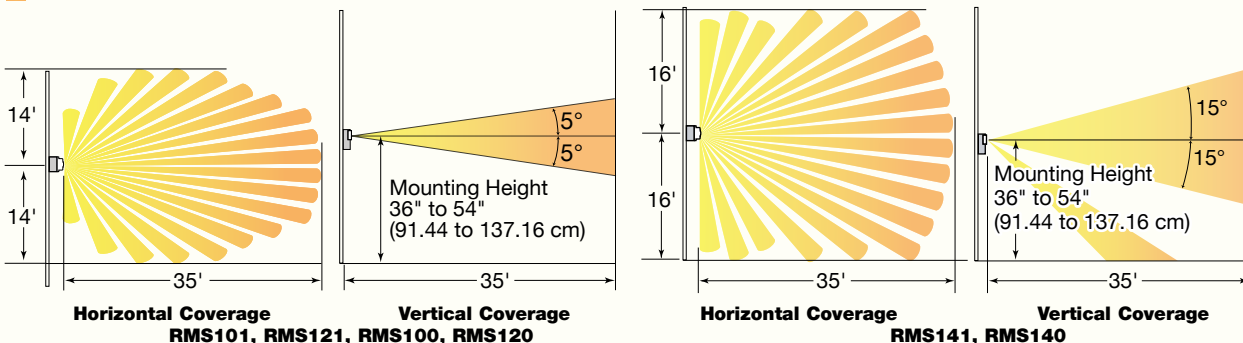


RMS120ILW



RMS140W

### Passive Infrared



# H-MOSS® Ceiling Sensors Featuring Adaptive Technology

All H-MOSS ceiling sensors with Adaptive Technology contain the following standard features:

- 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)
- Non-volatile memory- learned and adjusted settings retained after power outage
- 24V DC, 33mA
- 32kHz (ATD/ATU500C & CRP - 400kHz)
- Mounting base included with sensor

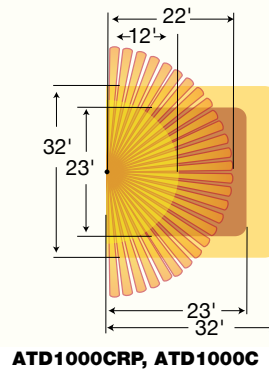
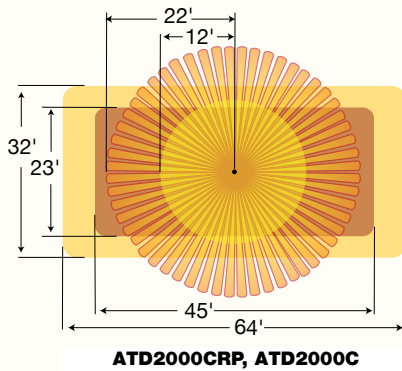
## Adaptive Technology, Dual (Ultrasonic and Passive Infrared)

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

Coverage	Color	Catalog Numbers
2000 sq. ft. with photocell and isolated relay	White	<b>ATD2000CRP</b>
2000 sq. ft.	White	<b>ATD2000C</b>
1000 sq. ft. with photocell and isolated relay	White	<b>ATD1000CRP</b>
1000 sq. ft.	White	<b>ATD1000C</b>
500 sq. ft. with photocell and isolated relay	White	<b>ATD500CRP</b>
500 sq. ft.	White	<b>ATD500C</b>

Note: All ATD ceiling sensors must use a CU series control unit. See page 11 for details.

- Passive Infrared
- Ultrasonic Major
- Ultrasonic Minor



**ATD2000CRP  
ATD2000C**



**ATD1000CRP  
ATD1000C  
ATD500CRP  
ATD500C**



**ATU2000CRP  
ATU2000C**



**ATU1000CRP  
ATU1000C  
ATU500CRP  
ATU500C**

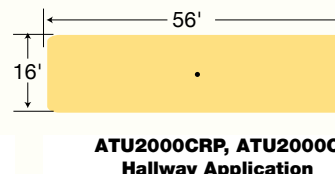
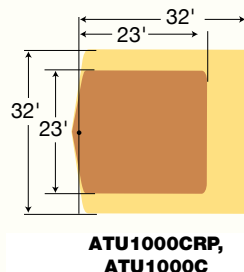
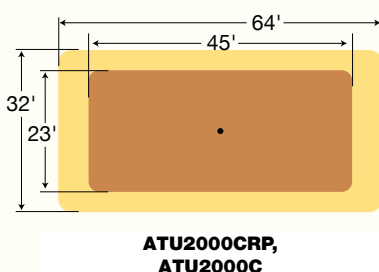
## Adaptive Technology, Ultrasonic

Excellent minor motion detection

Coverage	Color	Catalog Numbers
2000 sq. ft. with photocell and isolated relay	White	<b>ATU2000CRP</b>
2000 sq. ft.	White	<b>ATU2000C</b>
1000 sq. ft. with photocell and isolated relay	White	<b>ATU1000CRP</b>
1000 sq. ft.	White	<b>ATU1000C</b>
500 sq. ft. with photocell and isolated relay	White	<b>ATU500CRP</b>
500 sq. ft.	White	<b>ATU500C</b>

Note: All ATU ceiling sensors must use a CU series control unit. See page 11 for details.

- Ultrasonic Major
- Ultrasonic Minor





## Adaptive Technology, Passive Infrared

Outstanding long range major motion detection

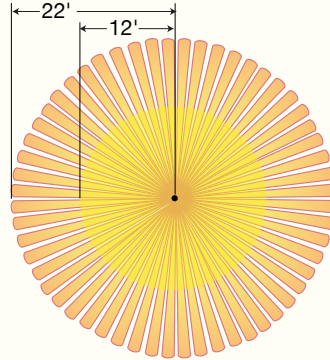
Description	Coverage	Color	Catalog Numbers
Wide view lens	1500 sq. ft. with photocell and isolated relay	White	<b>ATP1500CRP</b>
Wide view lens	1500 sq. ft.	White	<b>ATP1500C</b>
High density lens	450 sq. ft. with photocell and isolated relay	White	<b>ATP600CRP</b>
High density lens	450 sq. ft.	White	<b>ATP600C</b>

Note: All ATP ceiling sensors must use a CU Series control unit. See below for details.



**ATP1500CRP  
ATP1500C  
ATP600CRP  
ATP600C**

■ Passive Infrared



**ATP1500CRP, ATP1500C**

## Control Units

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

Description	Catalog Numbers
120/277V AC, 50/60 Hz for use with ATD, ATU and ATP series ceiling sensors and wall mount sensors	<b>CU300A</b>
347V AC, 60 Hz, for use with ATD, ATU and ATP series ceiling and wall mount sensors	<b>CU347A</b>



**CU347A, CU300A**



**AAR**

## 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	<b>AAR</b>



**DT1277W**

## Digital Timer Wall Switch

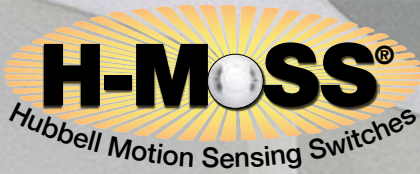
Description	120V AC	277V AC	Color	Catalog Number
Dip switch enabled preset intervals - 5, 15 or 30 minutes - 1, 3, 6, 9 or 12 hours Includes an on/off momentary push button switch feature	800W	1200W	White	<b>DT1277W</b>



Wiring Device-Kellems

**All Hubbell H-MOSS® Occupancy Sensors are covered by a 5 year limited warranty.**

**Adaptive Technology • Dual Technology  
Ultrasonic • Passive Infrared**



**Tomorrow's  
Technology  
Today!**



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