LEVITON

Energy Saving Lighting Controls

Featuring Occupancy Sensors and Timers

A Simple Yet Dramatic Way to Reduce Lighting Energy Costs

Occupancy Sensors Are A Positive Step Towards Savings

The economic and ecological burdens of wasted electrical energy have never been harder to bear than they are today. Reducing energy consumption in a cost-effective way, without affecting comfort levels, will significantly reduce a building's utility expenses and positively impact the environment.

Typically, lighting consumes between 30 to 40% of the electricity required by a building. There is no simpler way to reduce lighting energy consumption than to turn off lighting in unoccupied spaces. The most effective way to monitor the lighting in these spaces is to install occupancy sensors which turn off lighting automatically.

WHY Use Occupancy Sensors?

There are four major advantages to using occupancy sensors.

1 Savings

Occupancy sensors monitor human presence, turning lights ON the moment someone enters an area and OFF **automatically** shortly after they leave. Recent studies have consistently shown that lighting accounts for up to 40% of a modern building's total energy consumption. Yet many building spaces are occupied for only 30 to 60% of the daily operating hours. Money and energy are wasted when these lights are on unnecessarily.

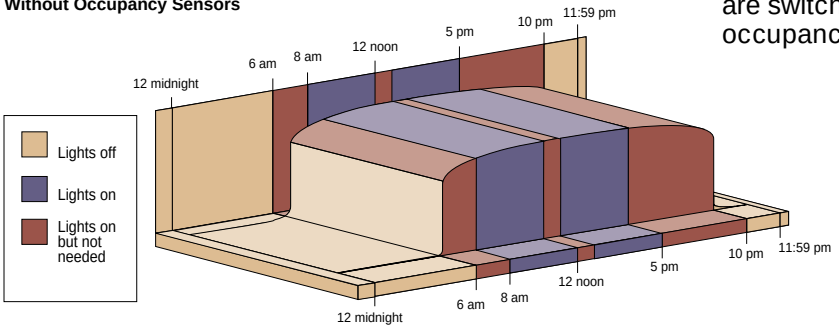
The Electric Power Research Institute, known as EPRI, is a non-profit organization that represents over 700 utilities nationwide. EPRI has determined the approximate savings for different types of building spaces, as shown in Table 1.

Space Type	Average Savings
Private Offices	25-30 %
Conference Rooms	35 %
Restrooms	40 %
Schools	25-45 %
Warehouses	60 %
Hotel meeting rooms	70 %
Small storage rooms	70 %
Hospitals	80 %

Table 1

Overall EPRI found that lighting energy usage is reduced 25-50 % when occupancy sensors are used.

Typical Office Complex Lighting Usage Without Occupancy Sensors



Other savings can be generated in addition to lighting energy cost reduction. These are summarized in Figure 1.

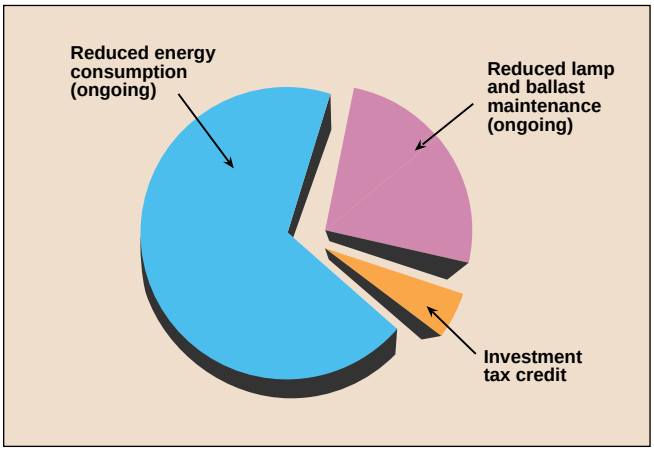
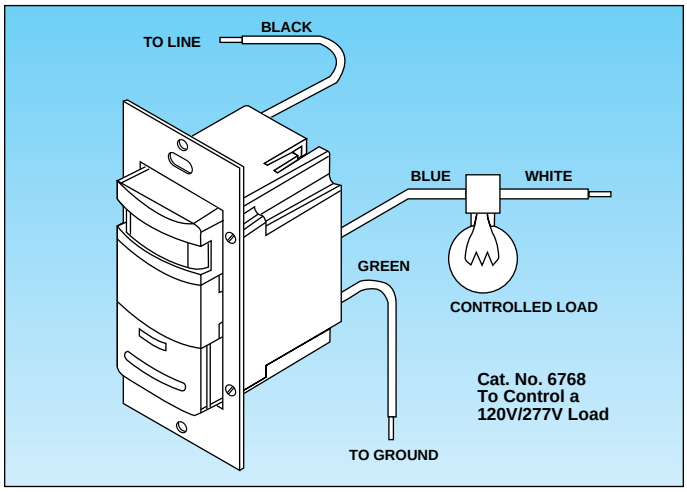


Figure 1

Investment tax credit is often available for new installations.

Long-term savings from reduced lighting usage are also generated by extended lamp and ballast life. In addition, air-conditioning costs could be reduced, since less heat is generated from operating lamps and ballasts that are switched off by occupancy sensors.



2 Simplicity

Occupancy sensors operate using fairly sophisticated technology, but they are very easy to install and use. There are models available that replace existing wall switches, where the sensor and switching relay are contained in the same device. Other sensor models work in conjunction with separate switching control units that are connected by low-voltage wiring in the plenum. The sensors are designed to mount in wallboxes or on ceiling surfaces.

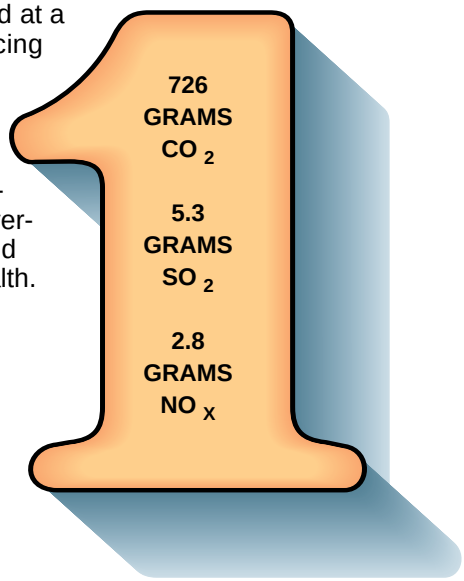
3 Versatility

Occupancy sensors are a most effective method for reducing lighting energy waste in unoccupied spaces when a plan is developed to target the high-use areas, determine an effective coverage scheme in each area, select between ultrasonic and infrared sensors and properly place each device.

A number of sensor types can be used individually in common spaces with one lighting circuit or together in larger spaces with more than one lighting circuit. This flexible arrangement allows after-hours workers to move about freely without lighting an entire floor.

4 Improved Environment

The use of occupancy sensors helps to reduce the amount of harmful gasses released into the atmosphere as by-products of electrical power generation. 35 % of all carbon dioxide, a greenhouse gas, 65 % of all sulfur dioxide, a leading contributor to acid rain, and 36 % of all nitrous oxides, major components of smog and acid rain, comes from coal- and oil-fired electrical utility plants. For each kilowatt hour saved by a working occupancy sensor, less fossil fuel is burned at a power plant, reducing the emission of harmful gases at the source. The widespread use of occupancy sensors will benefit overall atmospheric and environmental health.



kWh

Air Pollution Emissions Prevented by Saving One Kilowatt-Hour (U.S. Average)

Source: EPA (Estimate)

Leviton's complete occupancy sensor line makes any coverage scheme possible

HOW Do Occupancy Sensors Work?

There are two types of occupancy sensor controls. One type relies on infra-red radiation (body heat) and the other type relies on ultrasonic sound waves.

Passive Infrared Sensors (PIR)

Infrared occupancy sensors are passive and designed to detect the movement of a heat-emitting body. Clothed people emit infra-red radiation in the form of heat from their hands, arms and heads. The infrared sensor is positioned to monitor movement within a critical wedge-shaped or cone-shaped space, with a specific height and width, called a **FIELD OF VIEW** (see Figure 1).

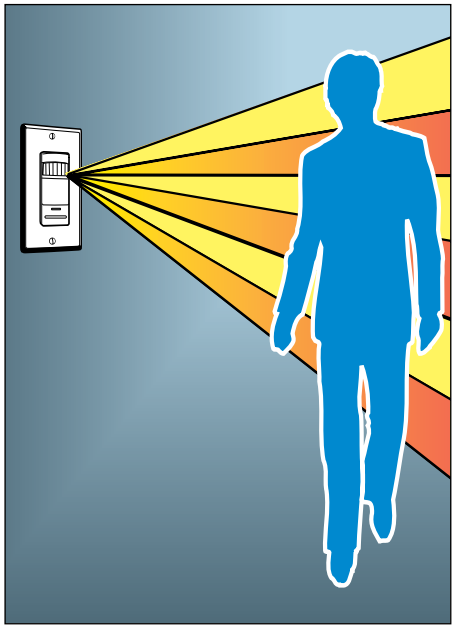


Figure 1

A specialized lens in the sensor divides the field of view into alternating zones. As a moving body passes across two zones, the sensor unit detects the motion as change in the infrared background, and responds by switching area lights on.

After the field of view is unoccupied for a user-selected period of time, set between 5 seconds and 15 minutes by the installer, the sensor unit responds to the absence of movement in the field by switching area lights off.

Ultrasonic Sensors (US)

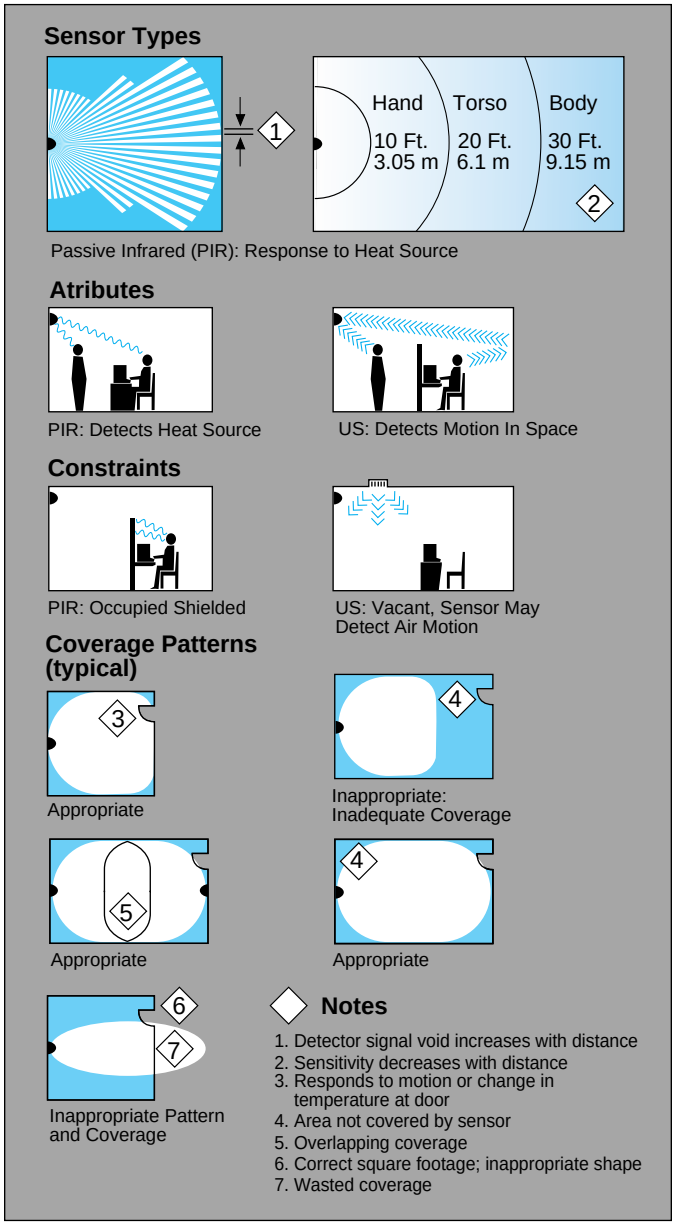
Ultrasonic controls generate high frequency sound waves in the 25 kHz to 40 kHz range, beyond the capability of human hearing. Ultrasonic controls are active, and continually emit these sound waves, bouncing off everything in their range. The sensors in ultrasonic controls monitor changes in the return time of the reflected sound waves. These devices operate best in enclosed areas with hard floors, walls and ceilings.

Movement in the sound wave field will cause a change in the sound wave frequency. The ultrasonic lighting control will respond to this change by switching area lights on. When the ultrasonic control sensor does not sense a change in frequency for a period of time, it will switch area lights off.

WHERE Should Occupancy Sensors Be Used?

Occupancy sensors are the most effective when used to monitor trafficked areas where lights are rarely, if ever, turned off voluntarily by the area residents. In common commercial, industrial and institutional applications these areas include:

- Enclosed office areas
- Rest rooms
- Hallways
- Stairwells
- Closets/Storage areas
- Lounges
- Computer rooms
- Open office areas
- Classrooms
- Conference rooms
- Copier rooms
- Conference rooms
- Warehouses
- Hotel rooms



Sensor Information Summary - courtesy Electric Power Research Insitute

Occupancy Sensor Success Stories

At present, major facilities throughout the country are realizing impressive savings by combining occupancy sensor technology with other lighting innovations. Their program data is summarized in the chart below.

The results speak for themselves. While actual dollar savings will vary from region to region due to utility rates, rebate program availability and other factors, kWh reduction percentages will be consistently dramatic.

Facility	Location	Occupied Feet²	No. Leviton Sensors	Other Upgrades	Annual $ Savings	Annual kWh savings
Department of Energy Headquarters	Washington, DC	1.1 million	349	Electronic ballasts T-8 lamps Specular reflectors	$399,057 (all components)	6,145,654
CNN Center - Turner Broadcast System, Inc.	Atlanta, GA	200,000	1900	Electronic ballasts High-efficiency lamps	$ 18,532 (sensors only)	336,960

APPLICATION GUIDELINES

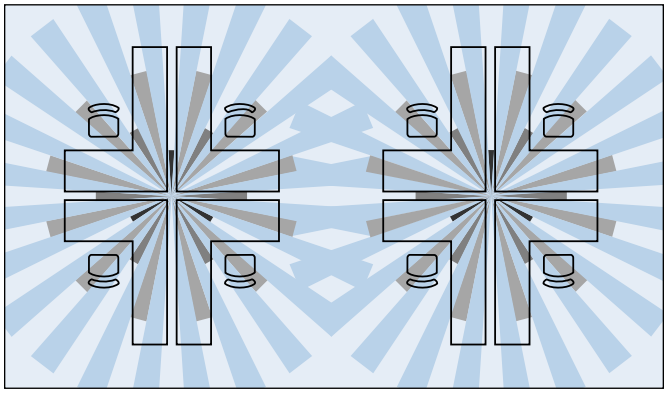
To obtain the maximum benefits from occupancy sensor use, a basic understanding of each device's operating characteristics is helpful.

Area coverage and **lens pattern array** are important factors to consider when determining occupancy sensor placement. Areas of coverage may be different shapes, and when a number of occupancy sensors are monitoring a large area, care must be taken to position each device so that the different shapes overlap for the most complete coverage obtainable.

Be aware that **false triggering** of occupancy sensors should also be taken into consideration when planning device location. Sunlight, hallway traffic, air from HVAC vents or other sources may cause PIR occupancy sensors to activate room lighting. Likewise, ultrasonic units may be activated by vibrations or direct air motion.

Lamp characteristics may be influenced by the use of occupancy sensors, especially lamps with long restart times. High intensity discharge (HID) lamps operate with special ballasts that run the lamp at a reduced output when the space is unoccupied and go to full output when occupancy is detected. This mode of operation may affect the color consistency of metal halide lamps.

Similarly, frequent use of occupancy sensors may impact fluorescent bulb life. Each fluorescent "start" reduces lamp life by a few hours. However, the use of occupancy sensors will usually save enough lamp hours to compensate for the extra starts.



Top view of Cat. No. 6778 overlapping coverage

Installation Checklist

The Electric Power Research Institute (EPRI) recommends using the checklist below to evaluate an occupancy sensor project :

- Determine the total amount of time lighting operates each day in the week, and how much of that time the lighting is on unnecessarily.
- Record - accurate measurements of all spaces to be monitored
  - position and height of all barriers present
  - materials used for wallcoverings, ceilings and floors
- Designate the most appropriate sensor technology for each space - PIR or ultrasound.
- Determine how many sensors will be retrofit switch replacements and how many will be new installations.
- Position sensors for optimal coverage in each space while minimizing false trippings due to HVAC vents, nearby traffic or sunlight.
- Determine the most desirable sensitivity and time delay settings for sensors in each space.
- Anticipate tuning requirements after installation and modifications to lamp replacement schedule.

Advanced occupancy sensor with self-adapting technology, ideal for private offices, conference rooms, class rooms, lounges, warehouses and any other area a wall switch occupancy sensor is desirable.

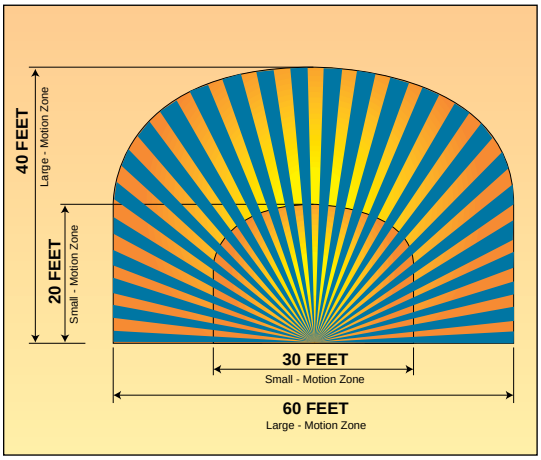
6768 Features

- DELAYED-OFF time self-adjusts based on occupancy patterns; prevents unnecessary ON/OFF switching
- Exclusive “walk-through” feature prevents lights from remaining ON for extended periods after momentary occupancy
- Decora styling complements any interior
- Adjustable horizontal field of view from 32°-180° blocks view of adjacent areas using internal shutters; no messy tape required
- Manual adjustment for DELAYED-OFF time setting between 30 seconds and 20 minutes
- Adjustable Ambient Light Override with self-adjusting setting
- Manual-ON/Automatic-OFF mode; push-button for manual ON/OFF light switching
- LED indicator light flashes when sensor detects motion
- Compatible with both electronic and magnetic ballasts
- Relay switches at the zero crossing point of the AC sine wave to ensure maximum lamp and switch life (reduces in-rush current to lamp); especially advantageous for electronic ballasts
- Fits in standard wallbox and replaces single-pole wall switch; requires connection to ground
- UL Listed and CSA Certified; complies with California Title 24 Energy Code
- Limited Five-Year Warranty

Cat. No. 6768 Advanced PIR Decora Wall Switch Occupancy Sensor

***Typical lighting energy savings of 25-30%**

TOP VIEW



Catalog Number	Description	Rating/Load Types Controlled	Field of View	Colors
6768	Advanced PIR Decora Wall Switch Occupancy Sensor	Fluorescent/Low Voltage: 1800 VA @ 120V, 4800 VA @ 277V Incandescent: 1800 W @ 120V Motor: 1/4 HP @ 120V	180° field of view 2100 sq. ft. coverage	Ivory (-I) White (-W) Gray (-GY) Almond (-A)

* Documented by the independent research organization, EPRI (Electric Power Research Institute).

Substitutes for single-pole wall switch to automatically control lighting in private offices, conference rooms, classrooms, lounge areas, etc.

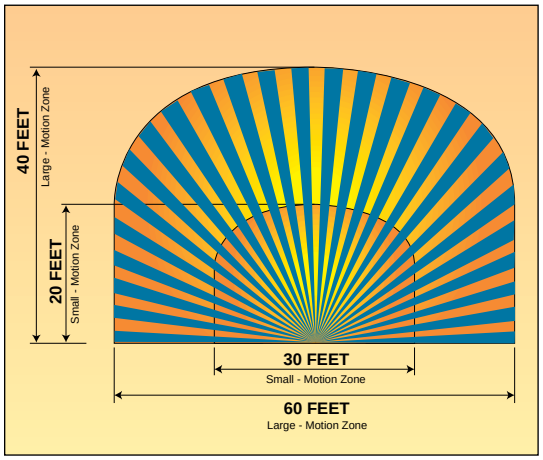
16775 Features

- Convenient push-button provides manual ON/OFF override
- Segmented fresnel lens provides optimum sensitivity and performance — offers an extensive “small motion” area to detect even slight movement
- Optional manual adjustment for DELAYED-OFF time settings of 30 seconds (for walking test), 10 minutes, 20 minutes and 30 minutes — customized adjustments maximize energy savings
- Adjustable Ambient Light Override from approximately 2 foot-candles (2 lux) to 500+ foot-candles (500+ lux) prevents lights from turning ON during periods of ample natural light
- Manual-ON/Automatic-OFF mode for installations where manual ON switching is required but automatic OFF swtiching is still desired for energy savings
- LED indicator light flashes when sensor detects motion
- Can be used for either 120V or 277V lighting and is compatible with both electronic and magnetic ballasts
- UL Listed and CSA Certified; complies with California Title 24 Energy Code
- Limited Five-Year Warranty

Cat. No. 16775 PIR Decora Wall Switch Occupancy Sensor

***Typical lighting energy savings of 35%**

TOP VIEW



Catalog Number	Description	Rating/Load Types Controlled	Field of View	Colors
16775	PIR Decora Wall Switch Occupancy Sensor	Fluorescent/Low Voltage: 1200 VA @ 120V, 2700 VA @ 277V Incandescent: 800W @ 120 V Motor: 1/4 HP @ 120V	180° field of view with up to 2100 sq. ft. of coverage	Ivory (-I) White (-W) Gray (-GY) Almond (-A)

* Documented by the independent research organization, EPRI (Electric Power Research Institute).

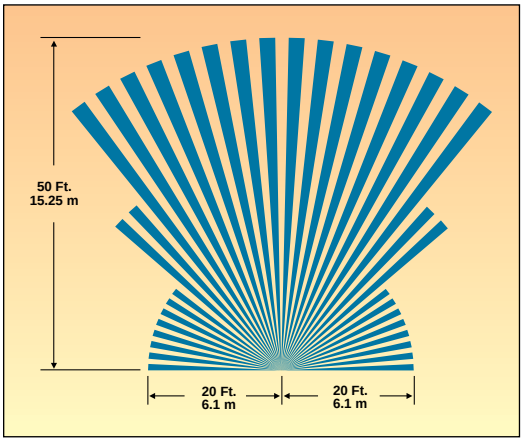
Ideal for large rooms such as meeting areas, cafeterias, lounges.

6777 Features

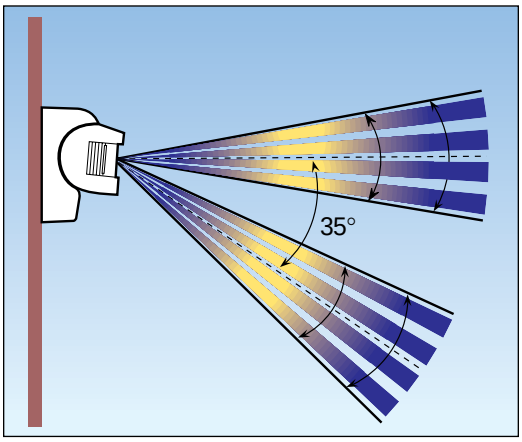
- Up to five sensors can be connected to a single Control Unit with low-voltage wiring
- Requires use of a Leviton Control Unit
- Adjustable DELAYED OFF time setting between 30 seconds and 30 minutes
- LED indicator light flashes when sensor detects motion
- Operates with electronic ballasts
- UL Listed; CSA Certified
- Limited Five-Year Warranty

Cat. No. 6777 Wide View Occupancy Sensor

TOP VIEW



SIDE VIEW



***Typical lighting energy savings of 25-30%**

Cat. No. 6777 features an adjustable AMBIENT LIGHT setting that overrides switching function during periods of ample natural sunlight; range can be set between 2 footcandles and full brightness.

Catalog Number	Description	Rating	Load Types Controlled	Field of View	Colors
6777	Wide View Occupancy Sensor	12 Volts DC @ 5 mA- No load rating. Requires 6779, 6779-DT or 16773-CBX Control Unit	Incandescent, Low-voltage Fluorescent, Inductive - See Control Unit list for ratings	Adjustable between 90° & 180° horizontal, 0° & 35° vertical, 2500 square feet 232 square meters	Ivory (-I) White (-W) Gray (-GY) Almond (-A)

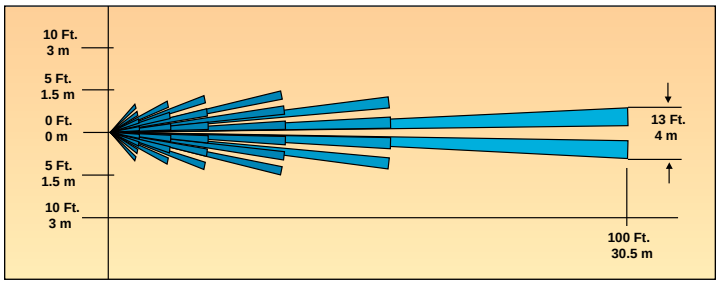
* Documented by the independent research organization, EPRI (Electric Power Research Institute).

Suitable for monitoring hallways, stairways and narrow areas such as library book shelf areas.

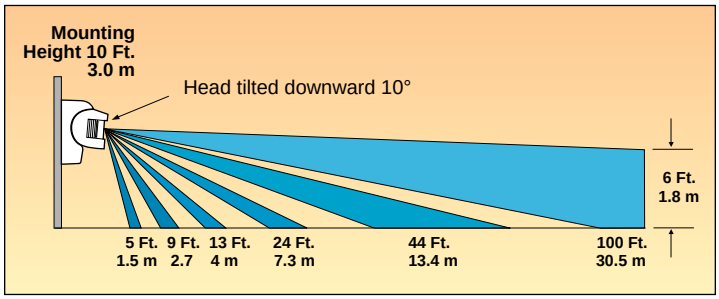
6787 Features

- Can be surface mounted or GEM box mounted
- Up to five sensors can be connected to a single Control Unit with low-voltage wiring
- Requires use of a Leviton Control Unit
- Adjustable DELAYED OFF time setting between 30 seconds and 30 minutes
- LED indicator light flashes when sensor detects motion
- Operates with electronic ballasts
- UL Listed; CSA Certified
- Limited Five-Year Warranty

TOP VIEW

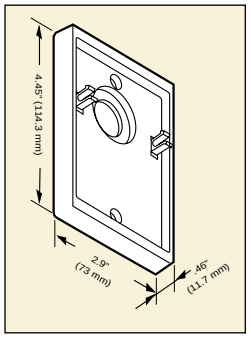


SIDE VIEW



Cat. No. 6787 Hallway/Corridor Sensor

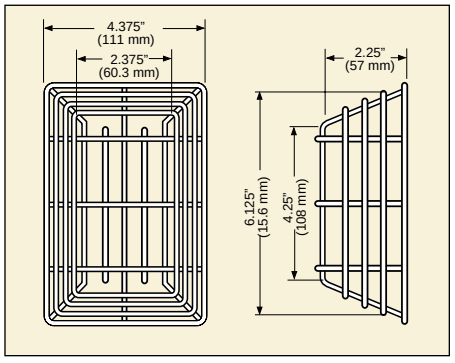
***Typical lighting energy savings of 25-30%**



Cat. No. 6781

Catalog Number	Description	Rating	Load Types Controlled	Field of View	Colors
6787	Hallway Occupancy Sensor	12 Volts DC @ 5 mA- No load rating. Requires 6779, 6779-DT or 16773-CBX Control Unit.	Incandescent, Low-voltage Fluorescent, Inductive - See Control Box list for ratings	Adjustable between, 0° & 35° vertical; forward view extends 100 feet by 13 feet wide.	Ivory (-I) White (-W) Gray (-GY) Almond (-A)

Cat. No. 6787 features an adjustable AMBIENT LIGHT setting that overrides switching function during periods of ample natural sunlight; range can be set between 2 footcandles and full brightness.



Cat. No. 6797

Accessories for Wall Mounted Sensors

Catalog Number	Description	Colors
6781	Box Mount Adapter Plate	Ivory (-I), White (-W), Gray (-GY), Almond (-A)
6797	Protection Cage	White

All devices are UL Listed and CSA certified

* Documented by the independent research organization, EPRI (Electric Power Research Institute).

Ideal for partitioned office areas, cafeterias and general work areas.

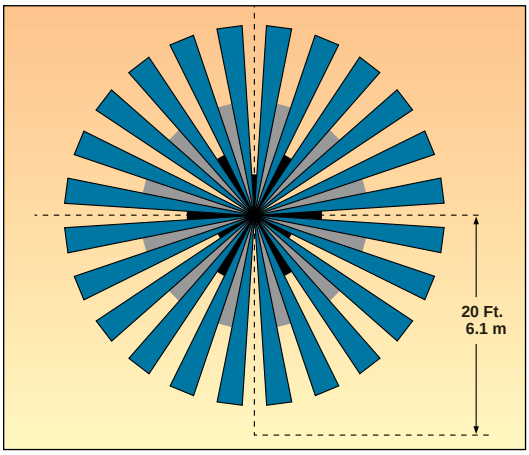
6778 Features

- Up to five sensors can be connected to a single Control Unit with low-voltage wiring
- Requires use of a Leviton Control Unit
- Installs easily into dropped ceiling panels
- Adjustable DELAYED OFF time setting between 30 seconds and 30 minutes
- Adjustable AMBIENT LIGHT setting that overrides switching function during periods of ample sunlight; can be set between 2 footcandles and full brightness
- LED indicator light flashes when sensor detects motion
- One-piece aluminum casing for easy installation; provides EFI/RFI shielding
- Limited Five-Year Warranty
- UL Listed; CSA Certified

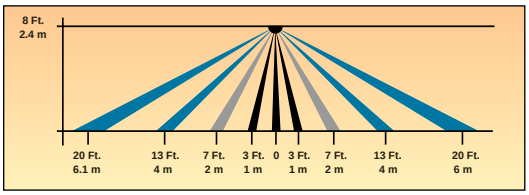
***Typical lighting energy savings of 25-30%**

Cat. No. 6778 Ceiling Sensor

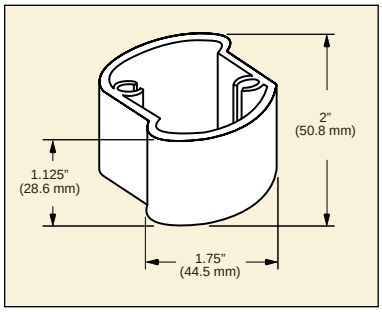
TOP VIEW



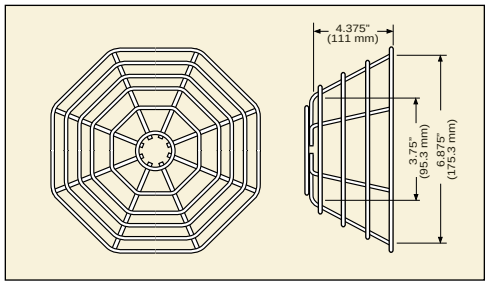
SIDE VIEW



Cat. No. 6784



Cat. No. 6798



Catalog Number	Description	Rating	Load Types Controlled
6778	Ceiling Mount Occupancy Sensor	12 Volts DC @ 5 mA. No load rating. Requires 6779, 6779-DT or 16773-CBX Control Unit	Incandescent, low-voltage, fluorescent, inductive - see Control Unit list for ratings

Mounting Height		Area of Coverage	
Feet	Meters	Sq. Feet	Sq. Meters
8	2.4	1200	112
9	2.7	1600	149
10	3.1	1900	182
11	3.4	2300	242
12	3.6	2800	260

Accessories for Ceiling Mounted Sensors

Catalog Number	Description
6784	Conduit Mounting Adapter - for installations where codes require that Class 2 low-voltage wiring lay inside conduit
6798	Protection Cage (White)

* Documented by the independent research organization, EPRI (Electric Power Research Institute).

Suitable for storage areas, small bathrooms, copy rooms, mop/sink closets or small spaces without wall switches.

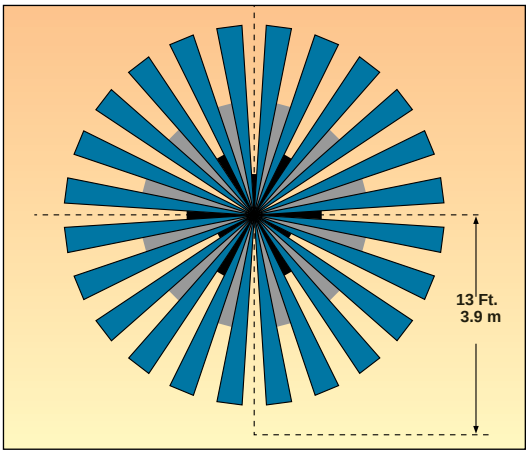
16786 Features

- Sensor and switching relay in one unit—eliminates need for additional control unit for power or switching
- Adjustable DELAYED OFF time setting between 20 seconds and 15 minutes allows custom adjustment for maximum savings
- An ambient light override option can be set between 2 foot candles and full brightness to prevent the sensor from turning ON lights when ample natural sunlight is available
- Segmented fresnel lens equipped with 79 segments for optimum sensitivity and detection performance
- A standard A/C toggle switch can be used to provide manual override so that lights may be switched OFF during presentations
- LED indicator light flashes when sensor detects motion to verify placement and function of sensor at installation
- UL listed, CSA Certified
- Complies with California Title 24 Energy Code
- Limited Five-Year Warranty

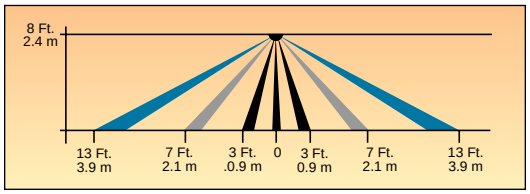
Cat. No. 16786 PIR Self-Contained Ceiling-Mount Sensor

***Typical lighting energy savings of 25-45% in schools, 70% in storage areas**

TOP VIEW



SIDE VIEW



Catalog Number	Description	Load Rating /Load Types Controlled	Field of View	Colors
16786-120	PIR Self-Contained Ceiling Mount Occupancy Sensor & Switching Relay	1000W @ 120 V AC Incandescent 1000 VA @120 V AC Fluorescent/ Low-Voltage	360° field of view with about 1200 sq. ft. of coverage when mounted at 8 ft. ceiling height	White (-W)
16786-277	PIR Self-Contained Ceiling Mount Occupancy Sensor & Switching Relay	2700 VA @ 277 V AC Fluorescent/ Low-Voltage	360° field of view with about 1200 sq. ft. of coverage when mounted at 8 ft. ceiling height	White (-W)
6798	Protective Cage	———— ————	————	White (-W)

* Documented by the independent research organization, EPRI (Electric Power Research Institute).

Suitable for storage areas, bathrooms, copy rooms, mop/sink closets or small spaces without wall switches.

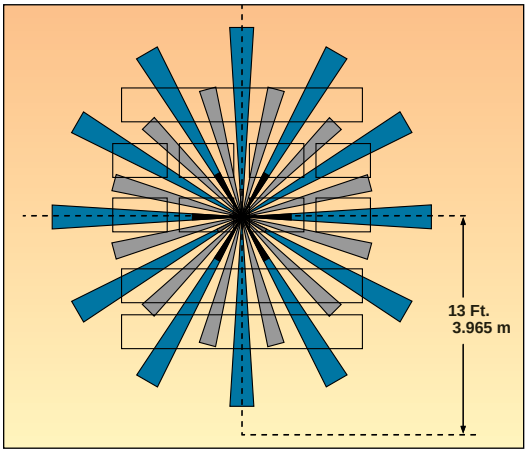
6788 Features

- Compact design for maximum mounting versatility
- Two settings provided for DELAYED-OFF time: 30 seconds or 20 minutes, set by installer during installation
- 34-segment fresnel lens
- LED indicator light flashes when sensor detects motion
- Requires use of appropriate Leviton Control Unit
- UL Listed, CSA Certified; compiles with California Title 24 Energy Code
- Five-Year Limited Warranty

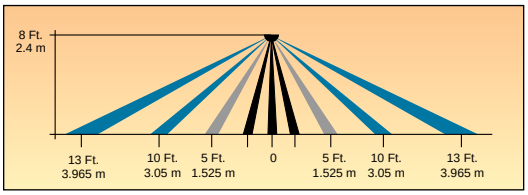
Cat. No. 6788 Miniature Ceiling-Mount Sensor

***Typical lighting energy savings of 25-45% in schools, 70% in storage areas**

TOP VIEW



SIDE VIEW



Catalog Number	Description	Rating/Load Types Controlled	Field of View	Colors
6788	Miniature Ceiling Mount Sensor	5mA @ 12V DC. No load rating. Requires 6779, 6779-DT or 16773-CBX Control Unit	360° field of view with 530 sq. ft. coverage when mounted at eight-foot ceiling height	White (-W)
6798	Protective Cage	————————		White (-W)

Mounting Height	Diameter of Coverage	Square Feet
8 Ft.	26 Ft.	530
10 Ft.	36 Ft.	1100
12 Ft.	44 Ft.	1600
14 Ft.	50 Ft.	2150

* Documented by the independent research organization, EPRI (Electric Power Research Institute).

Ideal for rest rooms, locker rooms, libraries and partitioned areas where fixtures and furnishings are likely to block the field of view of infrared passive sensors and ultrasonic detection is desirable.

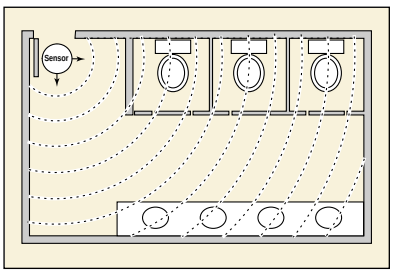
6878 Features

- Adjustable DELAYED-OFF time setting between 45 seconds and 30 minutes
- ASC (Automatic Sensing Control) Technology to prevent false tripping
- Uses automatic compensation for background noise such as air currents
- Solid-state crystal-controlled circuitry (32.7 Khz ± 0 .005%) ensures detection accuracy, and top perfor mance in single or multiple-unit installations
- Adjustable ambient light override from 2 ft. candles (2 lux) to 500+ foot candles (500+lux). Prevents sensors from switching lights ON when there is adequate natural light
- Adjustable sensitivity or range settings to customize area of coverage and prevent false tripping
- LED indicator light flashes when sensor detects motion
- Requires appropriate Leviton Control Unit
- Bypass ON switch allows user to override sensor and switch lights ON manually
- UL Listed, CSA Certified
- Complies with California Title 24 Energy Code
- Leviton Limited Five Year Warranty

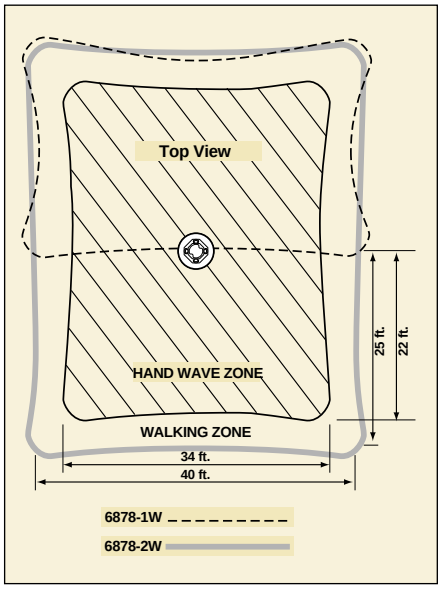
Cat. No. 6878 Ultrasonic Ceiling-Mount Sensor

***Typical energy savings of 40% in bathrooms**

6878-1W One-Way Sensor



TOP VIEW



Catalog Number	Description	Rating	Load Types Controlled	Field of View	Colors
6878-1W	One-Way Ultrasonic Sensor	15mA @ 12V DC. No load rating. Requires 6779, 6779-DT or 16773-CBX Control Unit	Incandescent Low-Voltage Fluorescent Motor Load	180° field of view with 1000 sq. ft. coverage when mounting in an eight-foot ceiling	White (-W)
6878-2W	Two-Way Ultrasonic Sensor	15mA @ 12V DC. No load rating. Requires 6779, 6779-DT or 16773-CBX Control Unit	Incandescent Low-Voltage Fluorescent Motor Load	360° field of view with 2000 sq. ft. coverage when mounting in an eight-foot ceiling	White (-W)
6798	Protective Cage	————	————	————	White (-W)

* Documented by the independent research organization, EPRI (Electric Power Research Institute).

Dual-Tech Occupancy Sensor Control Box for Centralized Control

For large installations, monitors individual sensors or groups of ultrasonic and PIR occupancy sensors for extensive scope of control; reduces false OFF by requiring confirmation of occupancy from sensors.

Cat. No. 6779-DT *Cat. No. 16773-CBX*

6779-DT Features

- Equipped with dual switching relays — main relay for incandescent, fluorescent and low-voltage lighting loads with either magnetic or electronic ballasts; secondary low-voltage relay can signal HVAC system controls
- Centralizes DELAYED-OFF time for all sensors (from 30 seconds to 1 hour); coordination of individual settings not needed
- Centralizes Ambient Light Override for all sensors; eliminates need for coordination of individual settings
- Manual ON/OFF control when used with Leviton Cat. No. 6294 Momentary Contact Wall switch (for primary lighting relay only)
- Switches primary lighting load ON only during the zero crossing of AC sine wave to maximize lamp life
- Uses photocell sensor for automatic lighting control
- "Flash" option flashes lights 30-seconds before auto matic OFF switching to alert personnel
- Mounts easily in standard 4" or 5" square electrical box
- Contains control panel LED indicator for diagnostics
- UL Listed, CSA Certified
- Complies with California Title 24 Energy Code
- Backed by Leviton's Limited Five-Year Warranty

Catalog Number	Description	Load Rating/Load Types Controlled
6779-DT	Dual-Tech Occupancy Sensor Control Box	**Primary Load Relay:** Fluorescent/Low Voltage 20 Amps: 2400 VA @ 120V, 4800 VA @ 277V Incandescent 15 Amps: 1800W @ 120V
		Secondary Relay: 1 Amp max. @ 24 VAC/DC

Standard Occupancy Sensor Control Box

Monitors one or more ultrasonic and PIR occupancy sensors and provides switching of lighting and motor loads.

6779 Features

- Works with fixtures fitted with electronic ballasts
- Can be linked to multiple PIR and ultrasonic sensors
- 1/2 inch knock-out provided for optional conduit attachment
- Fits FS or 1900 box
- UL Listed, CSA Certified

Catalog Number	Description	Load Rating/Load Types Controlled
6779	Occupancy Sensor Control Unit w/isolated relay contact output	Incandescent: 2400W @ 120V Fluorescent/Low Voltage: 2400 VA @ 120V, 4800 VA @ 277V Motor: 1 HP @ 120V, 2 HP @ 240 V
6779-C	Occupancy Sensor Control Unit w/isolated relay contact output Canadian version	Incandescent: 4200 Watts @ 347 V Fluorescent/Low Voltage: 4800 VA @ 347V Motor: 1 HP @ 120V, 2 HP @ 347V

Control Box for Smaller-Scale Applications

Monitors one or more ultrasonic or PIR occupancy sensors for occupancy status and provides dual switching relay features to turn ON lighting and signal HVAC system and other building controls.

16773-CBX Features

- Dual switching relays: primary relay for incandescent, fluorescent and low-voltage lighting loads with either magnetic or electronic ballasts; secondary isolated-contact signals HVAC system controls or other devices
- Primary relay switches loads ON only during the zero crossing of AC power curve to maximize lamp life
- Easy mounting in standard 4" x 4" x 2-1/8" square electrica box.
- UL Listed, CSA Certified
- Complies with California Title 24 Energy Code

Catalog Number	Description	DC Output Power supply to Sensors	LoadRating/Load Types Controlled
16773-CBX	Occupancy Sensor Control Unit	36 mA @ 12 VDC, short-circuit protected	**Primary Load Relay:** Incandescent: 1800W @ 120V Fluorescent: 2500VA @ 120V 5500VA @ 277V Motor: 1 HP @ 120V
			Secondary Relay Load: 1 Amp Max. @ 30 VDC

Accessories

Catalog Number	Description
6782	Control Box Gasket for 6779

Add-A-Relay Units:

Add-A-Relay Units, Cat. Nos. 6783-120 and 6783-277 may be used with the Cat. No. 16773-CBX, 6779 and 6779-DT Sensor Control Units. The Add-A-Relay Units allow switching of 120V loads in a 277V system, or 277V loads in a 120V system. They also can be used as supplementary switching relays for additional circuits to expand control capability.

Catalog Number	Description	Line Rating	Common Load Rating
6783-120	Add-A-Relay Control Unit	120 Volts AC to operate	660 Watts Tungsten, 1800 VA @ 120 Volts 1 HP @ 120 Volts
6783-277	Add-A-Relay Control Unit	277 Volts AC to operate	2700 VA @ 277 Volts 1.5 HP @ 250 Volts
6783-347	Canadian Add-A-Relay	347 Volts AC to operate Control Unit	660 Watts Tungsten, 1800 VA @ 120 Volts 2800 VA @ 347 Volts 1 HP @ 120 Volts AC

Cat. No. 6783 Add-A-Relay Control Unit

Low Voltage Interface Unit

Interfaces with GE's energy management control relays and Leviton's ultrasonic and passive infrared sensors to efficiently switch incandescent, fluorescent and low-voltage lighting loads and motor loads.

6789 Features

- Mounts in a single gang electrical box
- Includes conduit adapter plate with 3/4" knockout
- Switches up to four GE relays, part numbers RR7, RR8 and RR9
- For use with any Leviton Occupancy Sensor that does not have integral switching relay
- UL Listed, CSA Certified
- Complies with California Title 24 Energy Code
- Leviton Limited Five-Year Warranty

Cat. No.	Description	Line Rating
6789	Low Voltage Interface Control Unit for GE Low-Voltage Switching System	Operating Voltage: 24V AC RMS, 60 Hz Output Voltage 12VDC

Cat. No. 6789 Low Voltage Interface Unit

Shut OFF Control Unit

In work areas and open spaces, activates a "lighting sweep" that shuts OFF the lighting within a facility but still permits individual fixtures or groups of fixtures to remain turned ON.

SC-120 and SC-277 Features:

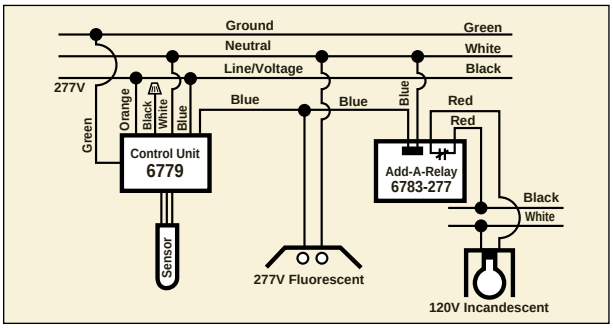
- Cost-effective, saves energy
- Convenient, easy-to-use
- Suitable for single-pole installations and 3-way switching (using optional Cat. No. 6294)
- Mounts into a standard single gang wall box
- Complies with California Title 24 Energy Code
- UL Listed, CSA Certified, NOM Certified
- Red LED indicator light
- Snap-on Ivory and White wallplates in package
- Limited 2-Year Warranty

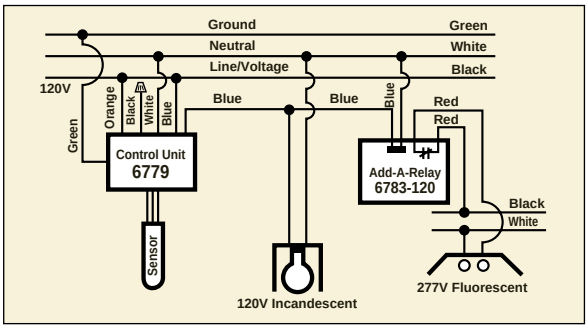
Catalog Number	Description	Load Rating	Load Types Controlled
SC-120	Shut-Off Control Switch 120 Volts	20 Amp Ballast Power Consumption 4.8W	Incandescent Inductive
SC-277	Shut-Off Control Switch 277 Volts	20 Amp Ballast Power Consumption 11.8W	

Cat. No. SC-120 Shut-Off Control Switch

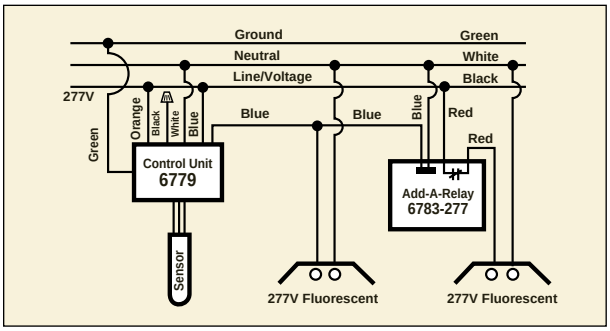
Wiring Diagrams

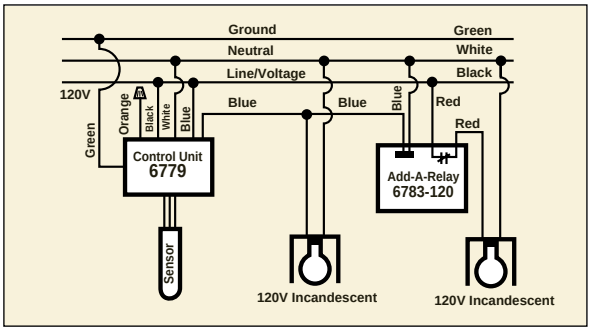
Wiring Diagrams for Cat. No. 6777, 6778, 6787, 6788 and 6878





Add-A-Relay for switching loads of different voltage systems





Add-A-Relay for expanding switching capacity

Outdoor Security Lighting with Energy Savings

Leviton's line of outdoor motion sensor units meets a wide range of commercial and residential applications. These devices are contained in durable, weather-resistant housings. They provide superior coverage and operate high wattage lighting levels.

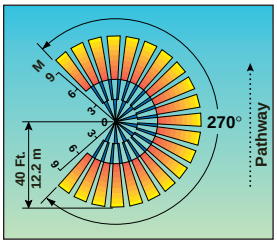
Outdoor Motion Sensor Product Specification Summary

Catalog Number	Description	Rating	Load Types	Field of View	Temp/HumidityRange
OS127	Outdoor Corner Mount Motion Sensor	1000 Watts @ 120V 500 VA @ 120V	Incandescent Low voltage/ Fluorescent	270° elliptical Adjustable between 1850 & 3700 sq. ft. 172 & 344 sq. meters	-20° F through 130° F -29° C through 55° C 20-90% non-condensing
OS120	Indoor/Outdoor Wall/Soffet Mount Motion Sensor	1500 Watts @ 120V 500 VA @ 120V AC	Incandescent Low voltage/ Fluorescent	200° elliptical Adjustable between 1400 & 2800 sq. ft. 130 & 260 sq. meters	-20° F through 130° F -29° C through 55° C 20-90% non-condensing
OS111	Outdoor Wall Mounted Motion Sensor	1000 Watts @ 120V 500 VA (40 VA min) @ 120V	Incandescent Low voltage/ Fluorescent	110° elliptical Adjustable between 1200 & 2400 sq. ft. 112 & 223 sq. meters	-20° F through 130° F -29° C through 55° C 20-90% non-condensing

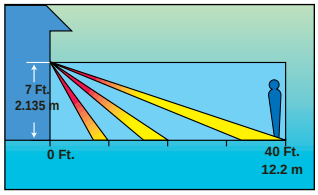
Monitors exceptionally large 270° fields of view; does the work of two sensors by monitoring large, adjoining areas.

OS127 Features

- Sensor and switching relay in one unit; mounts on building corner
- Adjustable DELAYED OFF time setting between 20 seconds and 10 minutes
- Adjustable light sensitivity setting between 0.5 footcandles (5 LUX) and full brightness
- Wires directly to fixture(s); connections must be terminated in NEMA weatherproof enclosure
- In-line switch can be wired to provide manual override option
- 3 foot 18-3 SJTW-A drop wire with 3-inch leads stripped5/8 inch provided
- Available in Brown and White



TOP VIEW



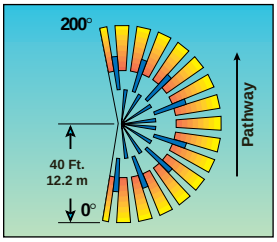
SIDE VIEW


Cat. No. OS127 Corner Mount Motion Sensor

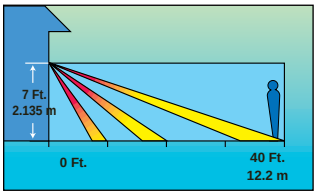
Monitors outdoor areas and controls outdoor lighting; can also be used in cold storage areas.

OS120 Features

- Sensor and switching relay in one unit; wires directly to fixture(s)
- In-line switch can be wired to provide manual override option
- Mounts in any standard NEMA rectangular weather proof fixture fitting on wall or under soffitt
- Adjustable DELAYED OFF time setting between 20 seconds and 10 minutes
- Adjustable light sensitivity setting between 0.5 footcandles (5 LUX) and full brightness
- Available in Brown and White



TOP VIEW



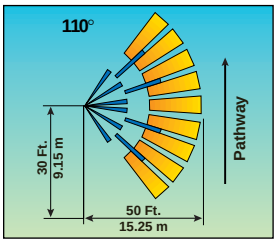
SIDE VIEW


Cat. No. OS120 Wall/Soffett Mount Motion Sensor

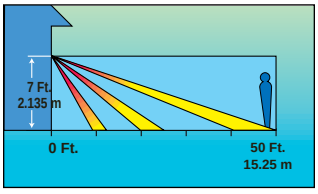
Ideal for controlling outdoor residential or commercial lighting.

OS111 Features

- Sensor and switching relay in one unit; wires directly to fixture(s)
- Adjustable DELAYED OFF time setting between 20 seconds and 10 minutes
- Automatically activates when daylight level falls below 5 footcandles (54 LUX)
- Standard 3/4 inch threaded nipple fits any standard NEMA round or rectangular weatherproof fixture fitting
- 3 color-coded 16 AWG stripped leads extend 6 inches beyond nipple
- In-line switch can be wired to provide manual override option to ON or OFF
- Available in Brown and White
- Also available with lampholders (Cat. No. OS111-C)



TOP VIEW



SIDE VIEW


Cat. No. OS111 Wall Mount Motion Sensor

For Energy Savings in Smaller Areas:

Decora Electronic Timers

For small or walk-through areas where a low-cost control device is preferable. Typical application areas include small storage and equipment rooms, walkways and corridors.

6500 Series Features Lighting Control Timers

- Contemporary designer styling complements fine decors and matches other Decora designer devices
- LED on face indicates the amount of time remaining by illuminating the LED button that corresponds to the time left. Once activated, timing can be easily changed by pushing another time increment or the OFF button
- Quiet, electronic accuracy and reliability — no moving parts to break or wear out
- Operate all types of incandescent, fluorescent and inductive lighting loads
- Ideal for new construction, retrofit and remodeling
- Decora durability — impact-resistant thermoplastic face
- UL Listed, CSA Certified

Cat. No. 6515M-I and 6512H-W

Catalog Number	Description	Rating	Time Increments	Color
6515M-I **6515M-W** **6515M-A**	2-Wire Single-Pole Decora Electronic Timer Switch	500 W 120V Tungsten 5A @ 120V AC Inductive	2-5-10-15 Minutes	Ivory White Almond
6530M-I **6530M-W** **6530M-A**			5-10-15-30 Minutes	Ivory White Almond
6560M-I **6560M-W** **6560M-A**			10-20-30-60 Minutes	Ivory White Almond
6512H-I **6512H-W** **6512H-A**			2-4-8-12 Hours	Ivory White Almond

Decora Electronic Timers

For control of heavier lighting loads and light-duty motors. Typical applications include conference rooms, bathrooms, hot tubs and exhaust fan motors.

6200 Series Features Motor-Load Rated Timers

- Contemporary designer styling complements fine decor and matches other Decora designer devices
- LED on face indicates the amount of time remaining by illuminating the LED button that corresponds to the time left. Once activated, timing can be easily changed by pushing another time increment or the OFF button
- Quiet, electronic accuracy and reliability — no moving parts to break or wear out
- Suitable for controlling all types of lighting and motor loads within rated capacity
- Ideal for new construction, retrofit and remodeling
- Decora durability — impact-resistant thermoplastic face
- UL Listed, CSA Certified

Catalog Number	Description	Rating	Time Increments	Color
6215M-I **6215M-W** **6215M-A**	3-Wire Single-Pole Decora Electronic Timer Switch (Neutral wire required)	1000 W 120V Tungsten 20A @ 120V Inductive 1HP @ 120V Motor	2-5-10-15 Minutes	Ivory White Almond
6230M-I **6230M-W** **6230M-A**			5-10-15-30 Minutes	Ivory White Almond
6260M-I **6260M-W** **6260M-A**			10-20-30-60 Minutes	Ivory White Almond
6212H-I **6212H-W** **6212H-A**			2-4-8-12 Hours	Ivory White Almond

No-Obligation Occupancy Sensor Energy Audit Program

- Computerized analysis generates lighting-energy usage and energy-savings data
- Performed by Leviton specialists
- Assessment of current lighting system performed
- Comprehensive plan and customized proposal provided including projected energy savings and payback; easy-to-read report can be used by financial managers to make purchase decision

Cat. No. ESLOG
Lighting Logger

Lighting Logger Automatically Records Occupancy and Lighting Usage to Calculate Projected Savings

- Uses passive infrared technology to monitor occupancy and lighting usage within an area to establish potential energy-savings
- Downloads data to computer to print report showing amount of time when office is vacant and lights are ON
- Battery-operated; three to five year life
- Adjustable light sensitivity setting

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