



FOCUS ON LIGHTING CONTROL

With each product or new technology we develop, our objective is to continually achieve greater energy savings with outstanding user convenience. Our particular focus on lighting control technologies and applications has led to our unique and deep expertise in their application. As a result, Sensor Switch offers the widest selection of occupancy sensors and photocell devices of any industry manufacturer. This assures we can provide lighting control solutions for any application or building type.

ROI BY DESIGN

Since our founding, Sensor Switch has developed a reputation for delivering energy savings along with return on investment (ROI). This has made us a respected partner in the green building industry, engineering lighting control systems that maximize energy efficiency and user convenience, while also delivering maximum ROI.

MADE IN AMERICA

All Sensor Switch products are manufactured in the USA in our own state-of-the-art facility. Besides ensuring product quality and reliability, in-house production allows for maximum responsiveness to our customers. Additionally, it provides us with manufacturing agility, which, coupled with our intense engineering drive, enables us to bring advanced products to market quickly and efficiently.



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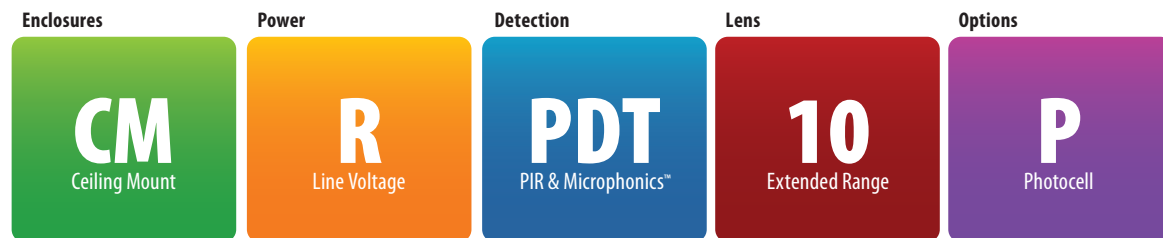
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The ABCs to WSDs of Occupancy Sensors

SENSORPEDIA

Sensor Selection Guide

This guide is intended to assist with choosing the appropriate Sensor Switch occupancy sensor for your space and application. Each character or group of characters in a Sensor Switch model number indicates a specific feature or option for that particular sensor. The sections of this guide describe the choices available for each of the feature categories. The example below explains the categories that make up the model number **CMR PDT 10 P**.



By dividing up any Sensor Switch occupancy sensor model number into the parts described in this guide, the sensor's full functionality can be determined. This guide will also better enable you to build your own model numbers by choosing from each category the features and options your project requires.

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ENCLOSURES

Sensor Switch occupancy sensors come in a variety of different enclosure styles that are both functional and attractive, while still being easy to mount. The enclosure style for most sensors is indicated by the first few letters in its model number. These

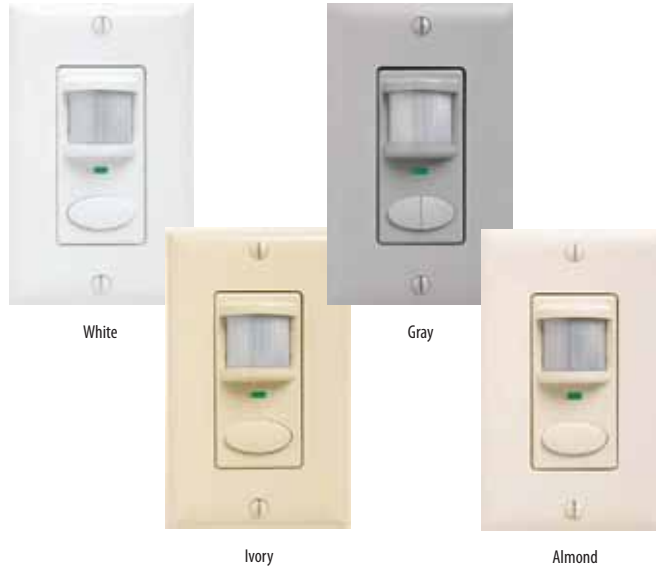
letter combinations (shown in bold green) and their corresponding enclosure styles are presented on the following pages, along with the physical specifications and mounting options for each style.

WSD

Wall Switch Decorator

Physical Specs:

Size: NOT INCLUDING GROUND STRAP
H: 2.74" (6.96 cm)
W: 1.68" (4.27 cm)
D: 1.63" (4.14 cm)
Weight: 5 oz
Mounting: Single gang switch box
Color: White, Ivory, Gray, Almond, Black



CM

Ceiling Mount

Physical Specs:

Size: Diameter: 4.55" (11.56 cm)
Depth: 1.55" (3.94 cm)
Weight: 6 oz
Mounting: Ceiling tile surface (low voltage), 3.5" octagon box, Single gang handy box
Color: White

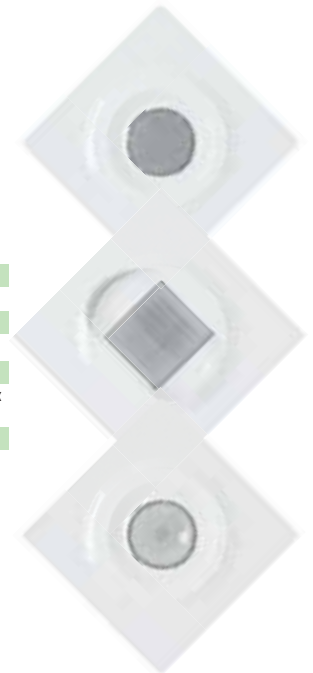


RM

Recessed Mount

Physical Specs:

Size: Width (square): 4.40" (11.18 cm)
Weight: 6 oz
Mounting: Mounts to/in a 4" square junction box (minimum box depth 2.125")
Color: White



CMB
CMRB¹

Fixture Mount Box

Physical Specs:

Size:	
H:	3.63" (9.22 cm)
W:	3.63" (9.22 cm)
D:	1.50" (3.81 cm)
Weight:	6 oz
Mounting:	Extended chase nipple fits 1/2" knockout in fixture or junction box
Color:	White



HMB
HMRB²

Fixture Mount Box

Physical Specs:

Size:	
H:	3.63" (9.22 cm)
W:	3.63" (9.22 cm)
D:	1.50" (3.81 cm)
Weight:	6 oz
Mounting:	Extended chase nipple fits 1/2" knockout in fixture or junction box
Color:	White



HM
HMR³

Surface Mount

Physical Specs:

Size:	
H:	4.96" (12.60 cm)
W:	3.10" (7.87 cm)
D:	1.70" (4.32 cm)
Weight:	7 oz
Mounting:	Single gang handy box
Color:	White Ivory



• Buttons used for programming only

HW
HWR⁵

Surface Mount

Physical Specs:

Size:	
H:	4.96" (12.60 cm)
W:	3.10" (7.87 cm)
D:	1.70" (4.32 cm)
Weight:	7 oz
Mounting:	Single gang handy box
Color:	White Ivory



• Buttons used for programming only

WV
WVR⁴

Corner/Wall Mount

Physical Specs:

Size:	
H:	3.00" (7.62 cm)
W:	3.60" (9.14 cm)
D:	1.75" (4.45 cm)
Weight:	4 oz
Mounting:	Directly to corner or to ceiling using WV BR bracket
Color:	White



WVBR

Ceiling Mount Bracket

Physical Specs:

Size:	
Diameter:	4.70" (11.94 cm)
Height:	3.30" (8.38 cm)
Weight:	3 oz
Mounting:	Ceiling tile surface 3.5" octagon box Single gang handy box
Color:	White



Notes

- 1 CMRB is the line voltage enclosure of the CMB.
- 2 HMRB is the line voltage enclosure of the HMB.
- 3 HMR is the line voltage enclosure of the HM.
- 4 WVR is the line voltage enclosure of the WV.
- 5 HWR is the line voltage enclosure of the HW.

PRODUCT INFORMATION

POWER TYPE

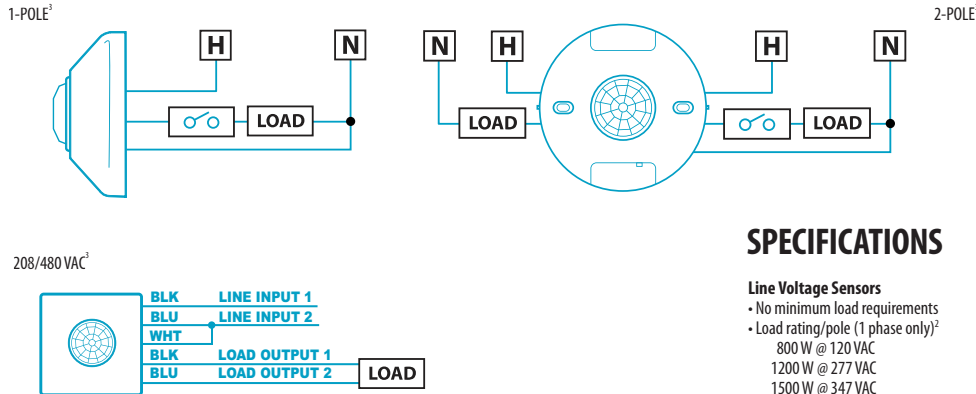
Line Voltage

This category specifies how a sensor is powered, as well as its switching capabilities. By default, sensors are powered by low voltage and require a power pack to switch a circuit; therefore, no special characters need to be added to the model number. In con-

trast, line voltage sensors are powered by and can switch line voltage without a power pack. Line voltage model numbers have the letter "R" inserted with the enclosure designation (e.g. **CMR**).¹

- Sensors contain line voltage switching relays
- Ideal for retrofit applications with concrete or inaccessible ceilings
- Interchangeable line and load wires (Sensor Switch patented)

- Sensors capable of switching two poles independently are indicated by adding **2P** to the model number (e.g. **CMR 6 2P**)
- Sensors capable of switching 208/480 VAC are indicated by adding **208** or **480** to the model number (e.g. **CMR 6 480**)



SPECIFICATIONS

Line Voltage Sensors

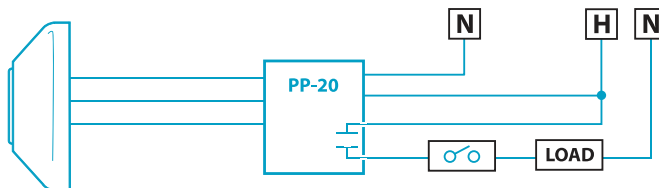
- No minimum load requirements
- Load rating/pole (1 phase only)²
 - 800 W @ 120 VAC
 - 1200 W @ 277 VAC
 - 1500 W @ 347 VAC
 - 5 Amps @ 208/480 VAC
- 1/4 HP motor load
- Frequency 50/60 Hz

POWER TYPE

Low Voltage

- Powered via power pack or other low-voltage source
- Used with a power pack to enable complete 20 Amp circuits to be switched

- Enables multiple sensors to be used together to cover space
- Allows sensor mounting without a junction box and utilizes convenient low voltage wiring



SPECIFICATIONS

Low Voltage Sensors

- Operating voltage 12-24 VAC/VDC
- Output: Drives up to 200 mA of connected load
- Current draw
 - Standard Sensor 4 mA
 - w/ -R option 16 mA
- Wire lead connections are Class II, 20 AWG

Power Packs

- Operating voltage 120 / 277 VAC (PP-20) or 347 VAC (PP-20-3)
- Load rating (Max): 20 Amps
- Motor load (Max): 1 HP
- Wiring:
 - Low voltage, Class II 20 AWG
 - Line voltage, 16 & 18 AWG
- Plenum rated
- Powers up to 14 sensors
- Patented relay circuit protection up to 400K Cycles (Except MP-20 & MSP-20 Series)

Notes

- ¹ For fixture mount box (CMB) sensors, the "R" is placed before the "B" to indicate line voltage (e.g. **CMRB**).
- ² Load ratings not applicable for **LWS** and **WVR** Series sensors.
- ³ Actual wire colors are not represented in diagrams.

All of our sensors utilize passive infrared (PIR) technology to detect changes in the infrared energy given off by occupants as they move within the field-of-view. As heat given off by the human body moves in and out of the beams, the detector sees this and triggers the occupancy mode. Our lens designs

create a continuous array of beams that provide an even coverage. Additionally, we fine-tune our sensors to detect small motions even at great distances, while still preventing false trips.

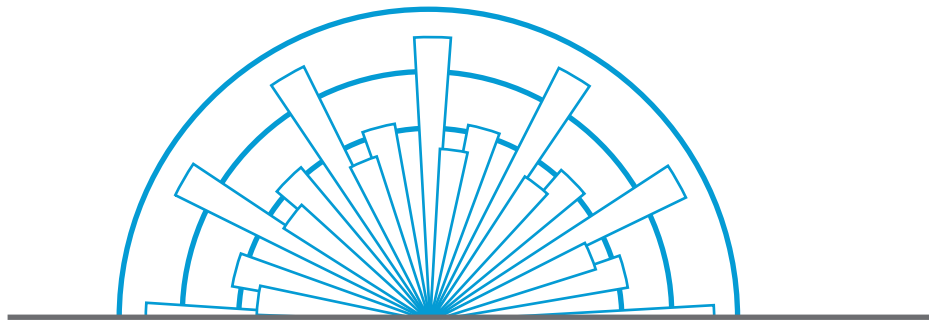
Microphonics™ technology uses a microphone inside the sensor in order to hear

sounds indicating occupancy in rooms with obstructions, such as bathrooms with stalls or open-office cubicle areas. By using Automatic Gain Control (AGC), the sensor can dynamically self-adapt to its environment by filtering out constant background noise and detecting only leading edge noises typical of

human activity. Additionally, sensors with Microphonics use advanced digital acoustic filtering, so that the prolonged presence of persistent noises without any PIR events do not keep the lights on, nor do sounds with periodicity (such as from a time clock).

PIR+ MICROPHONICS™

= PDT PASSIVE DUAL TECHNOLOGY



Passive Dual Technology (PDT) combines both of these detection technologies. It requires sensors to first see motion using **Passive Infrared**, and then engages the **Microphonics™** to hear sounds that indicate continued occupancy. Patented by Sensor Switch, Passive Dual Technology using PIR and Microphonics is superior to alternatively used ultrasonic technology in that it provides better and more reliable occupancy detection performance, requires less power, and does not transmit sound waves into the space, thus eliminating all potential for interference.

All sensors utilize **PIR** technology by default. Including the suffix “-PDT” after the enclosure model number adds **Microphonics™** detection to the sensor.

PRODUCT INFORMATION

LENS TYPE

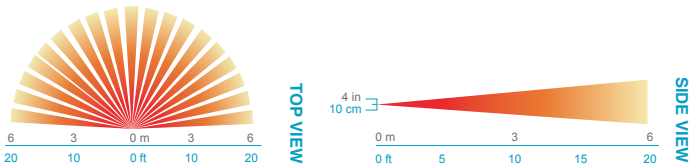
Passive Infrared

It is important to select a lens type with a PIR coverage pattern that not only accommodates the space's area requirements, but also its application. The following pages diagram the PIR coverage pattern of each lens style and describe the applications for which they are best suited.

WSD

Wall Switch Decorator Lens

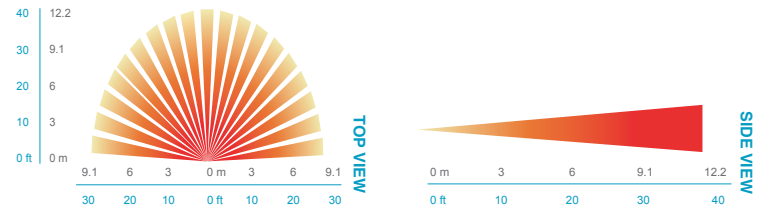
- Small motion (e.g. hand movements) detection up to 20 ft (6.10 m)
- Large motion (e.g. walking) detection up to 50 ft (15.24 m)
- Wall-to-wall coverage
- Vandal-resistant option (V) decreases range by 50%



LWS

Large Area Wall Switch

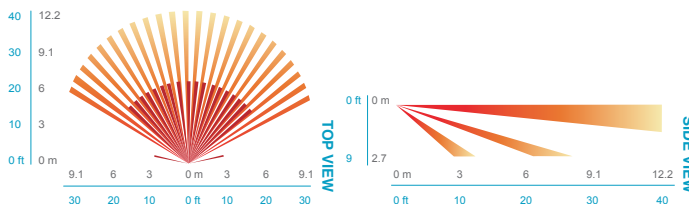
- Small motion (e.g. hand movements) detection up to 40 ft (12.19 m)
- Wall-to-wall coverage
- 30 to 48 in (76.20 to 121.92 cm) high mounting



LWSH

Large Area Wall Switch

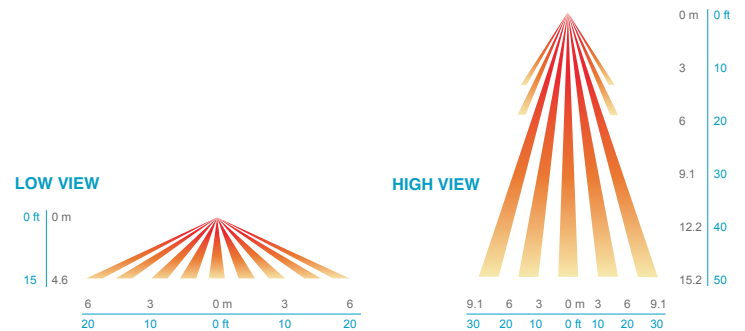
- Small motion (e.g. hand movements) detection up to 40 ft (12.19 m)
- Wall-to-wall coverage
- 48 to 84 in (121.92 to 213.36 cm) high mounting



6

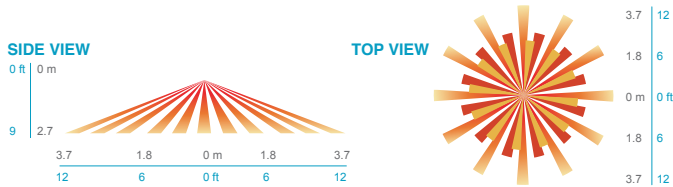
High Bay 360° Lens

- Best choice for 15 to 45 ft (4.57 to 13.72 m) mounting heights
- 15 to 20 ft (4.57 to 6.10 m) radial coverage overlaps area lit by a typical high bay fixture
- Excellent large motion (e.g. walking) detection up to a 35 ft (10.76 m) mounting height
- Excellent extra large motion (e.g. forklifts) detection up to a 45 ft (13.72 m) mounting height



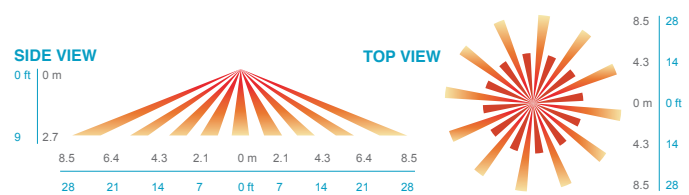
9 Standard Range 360° Lens

- Best choice for small motion (e.g. hand movements) detection
- Viewing angle of 56° in a 360° conical shaped pattern
- Provides 12 ft (3.66 m) radial coverage when mounted to standard 9 ft (2.74 m) ceiling
- 8 to 15 ft (2.44 to 4.57 m) mounting heights provide 10 to 20 ft (3.05 to 6.10 m) radial coverage



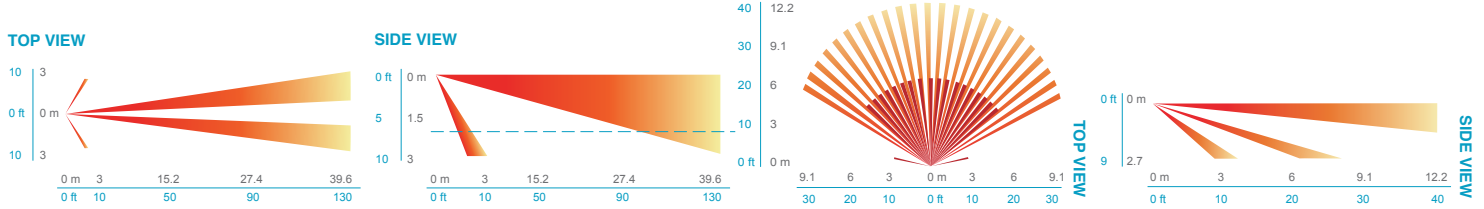
10 Extended Range 360° Lens

- Best choice for large motion (e.g. walking) detection
- Viewing angle of 67° in a 360° conical shaped pattern
- Provides 28 ft (8.53 m) radial coverage when mounted to standard 9 ft (2.74 m) ceiling
- 7 to 15 ft (2.13 to 4.57 m) mounting heights provide 16 to 36 ft (4.88 to 10.97 m) radial coverage



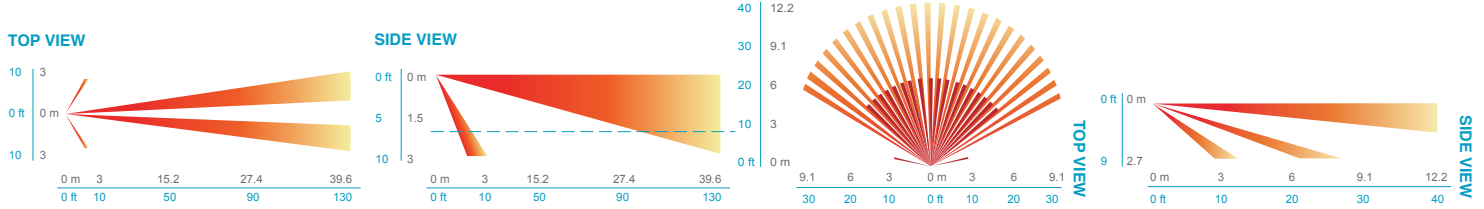
13 Hallway View Lens

- Large motion (e.g. walking) detection up to 130 ft (39.62 m)
- Designed for 7 ft (2.13 m) high mounting at end of hall



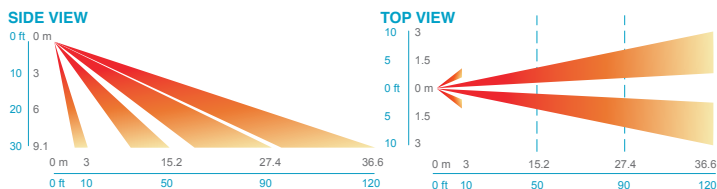
16 Wide View Lens

- Small motion (e.g. hand movements) detection up to 40 ft (12.19 m)
- Large motion (e.g. walking) detection up to 70 ft (21.34 m)
- Designed for 8 to 10 ft (2.44 to 3.05 m) high mounting in room corner



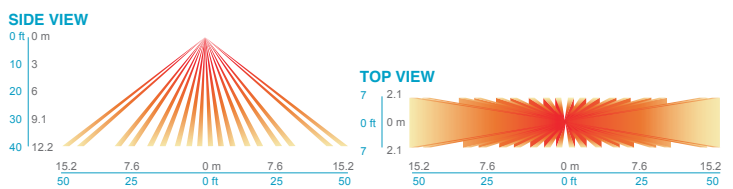
HM 10 High Bay End-of-Aisle Lens

- Detects motion from the end-of-aisles up to 110 ft (33.53 m) long
- Designed to mount 30 ft (9.14 m) high and 10 ft (3.05 m) back from end-of-aisle
- Should always be applied in pairs



50 High Bay Bi-Directional Aisleway Lens

- Provides 50° bi-directional and 10° wide coverage pattern
- 1.2x mounting height equals approximate detection range in either direction
- Typical 40 ft (12.19 m) mounting detects 50 ft (15.24 m) in either direction



OPTIONS

The previous sections of this guide define the portion of the model number referred to as a sensor's "Series" number. Following this series number, there may be additional characters in the model number that define the

optional features included on the sensor. This section describes each option and its model number character suffix. The datasheet for each sensor series lists its available options.

R

Isolated Low Voltage Relay

- Enables low voltage sensors to interface with a building management system
- Provides dry contact closure via a SPDT, 1 amp, 40 volt relay
- The relay is energized when ALL connected sensors register unoccupied
- When using multiple sensors, only one sensor per zone needs to have a relay

Note: Sensor must have power at all times for the relay to function

D

Occupancy Controlled Dimming

- Provides dimming output to control 0-10 VDC dimmable ballasts
- Provides a second occupancy time-out period, enabling the lights to go to a dim setting before turning off
- Adjustable max/min dim setting

P

On-Off and/or Inhibit Photocell

- Ideal for public areas, such as vestibules, corridors or restrooms

On/off mode:

- Full on/off control of lighting based on daylight conditions during periods of occupancy

Inhibit mode:

- Prevents lights from turning on during periods of occupancy with adequate daylight, but cannot turn lights off
- Once the lights are needed and turn on, they stay on until the occupancy sensor timer expires

ADC

Automatic Dimming Control Photocell

- Perfect for classrooms and private offices
- Allows sensor to adjust the level of 0-10 VDC dimmable ballasts as the daylight contribution changes
- Provides two user-selectable time-out periods that enable the lights to go to a dim setting after one time-out, and then turn fully off after a second time-out

DZ

Dual Zone Photocell

- Provides more advanced daylighting control for 2-pole line voltage occupancy sensors
- Single shared set-point is used for both poles

Stepped dimming (DUO) mode

- Ideal for A/B (also called inboard/outboard) switching applications
- Determines the necessary on/off combination of the two poles in order to maintain adequate lighting

Percentage offset (dual zone) mode

- Ideal for classrooms with individually controlled parallel rows of lights
- Uses a relative set-point for the second pole that is a percentage of the first pole's set-point

347

347 VAC Option

- Allows sensor to be powered from and switch 347 VAC
- Used primarily in Canada

SH

Start-to-High

- Designed for use with HID bi-level fixtures
- Provides 20-minute warm-up timer, during which sensor stays in On state

LT

Low Temperature / High Humidity

- During manufacturing, the circuit board goes through a conformal coating process, making it corrosion-resistant to moisture
- Enables operating temperatures down to -40° F (-40° C) for PIR sensors and -4° F (-20° C) for PDT sensors
- Ideal for cold storage applications or bath/shower rooms with condensing steam

WALL SWITCH

Decorator Sensors

Features [All]

- Small motion detection up to 20 ft (6.10 m)
- 30 sec to 20 min time delay
- Push-button programmable
- Multiple operating modes
 - Auto-on
 - Manual-on
 - Predictive off
 - Switch disable
- Green LED indicator
- 3-way and 4-way switching

Features [Line voltage]

- Self-contained relay(s)
- No minimum load
- Interchangeable hot and load wires

Overview

Wall switch decorator sensors are the most convenient method of adding occupancy detection to a room. A wall switch decorator replaces an existing toggle switch and is ideal for private offices, copy rooms, closet or any small en-

closed space. For rooms that need independent control of two circuits, 2-pole units are available. These sensors are perfect for applications such as inboard/outboard switching, or controlling a light and fan with different time delays.

Wall switch decorator sensors are available with either passive infrared (PIR) detection or dual technology (PIR/

Microphonics™) detection for rooms with obstructions. These stylish sensors are offered in five colors and have multiple operational modes that can be selected via the front push-button. Optional features include: a vandal-resistant lens (V), a photocell (P), and low-temperature/high-humidity (LT) resistance.

ENCLOSURE



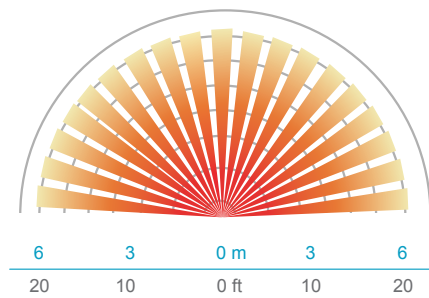
DECORATOR ENCLOSURE

SIZE	H: 2.74" (6.96 cm)
	W: 1.68" (4.27 cm)
	D: 1.63" (4.14 cm)
WEIGHT	5 oz
MOUNTING	Single gang switch box
COLOR	White
	Ivory
	Gray
	Almond
	Black

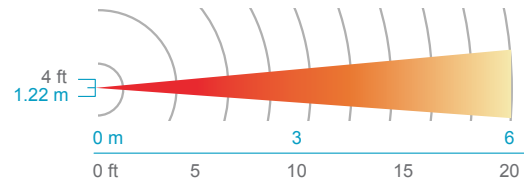
COVERAGE PATTERN

WSD Wall Switch Decorator Lens

- Small motion (e.g. hand movements) detection up to 20 ft (6.10 m)
- Large motion (e.g. walking) detection up to 50 ft (15.24 m)
- Microphonics™ detects normal human activity up to 20 ft (6.10 m), but will detect greater distances in spaces with hard floors or very quiet rooms with little or no background noise
- Wall-to-wall coverage
- Vandal-resistant option (V) decreases PIR range by 50%



TOP VIEW



SIDE VIEW

ADDITIONAL INFORMATION

V Vandal-resistant lens

- Designed for use in high abuse or public area
- Decreases detection ranges by 50%

R Low voltage relay

- Enables low voltage sensors to interface with other systems (e.g. BMS, lighting panels)
- Provides dry contact closure via a SPDT, 1 amp, 40 volt relay

P Inhibit photocell

- Inhibit operation: Prevents lights from turning on if adequate daylight is available, but cannot turn light off
- 2-pole units enable separate set-points per pole

347 347 Voltage

- Allows sensor to be powered from and switch 347 VAC
- Cover plate for 347 VAC sensors included

LT Low temp/high humidity

- Sensor is corrosion-resistant to moisture
- Operates down to -40° F/C (-4° F/20° C for PDT)

LOW VOLTAGE

Wall Switch Decorator Sensor : Low Voltage

Electrical Specs

Operating Voltage

12-24 VAC/VDC

Current Draw

Standard, 4 mA
w/ -R option, 16 mA

Recommended Power Pack

PP20

KEY SPECS		
SERIES	DEFAULT ON-MODE	DETECTION
ELA RTS3	Auto-on	PIR
ELA PSTS	Auto-on	Dual technology (PDT)



ORDERING INFORMATION

Example: WSD LV V R WH LT

Series	Lens	Low voltage relay	Color	Temp / humidity
WSD LV	(blank) None	(blank) None	WH White	(blank) Standard
WSD PDT LV	V Vandal resistant	R w/ relay	IV Ivory GY Gray AL Almond BK Black	LT Low temp

LINE VOLTAGE

Wall Switch Decorator Sensor : Line Voltage

Electrical Specs

Load Rating / Pole (1 Phase Only)

800 W @ 120 VAC
1200 W @ 277 VAC
1500 W @ 347 VAC

Frequency 50/60 Hz

Motor Load 1/4 HP / Pole

KEY SPECS			
SERIES	DEFAULT ON-MODE	DETECTION	# OF POLES
WSD	Auto-on	PIR	1
WSD PDT	Auto-on	Dual technology (PDT)	1
WSD SA	Manual-on (semi-auto)	PIR	1
WSD PDT SA	Manual-on (semi-auto)	Dual technology (PDT)	1
WSD 2P	Auto-on (both poles)	PIR	2
WSD PDT 2P	Auto-on (both poles)	Dual technology (PDT)	2



ORDERING INFORMATION

Example: WSD V P WH LT

Series	Lens	Photocell	Voltage	Color	Temp / humidity
WSD	(blank) None	(blank) None	(blank) 120/277 VAC	WH White	(blank) Standard
WSD PDT	V Vandal resistant	P Inhibit photocell	347 347 VAC	IV Ivory GY Gray AL Almond BK Black	LT Low temp
WSD SA					
WSD PDT SA					
WSD 2P					
WSD PDT 2P					

NIGHTLITE

Nightlite Wall Switch Decorator Sensor

Overview

As the name implies, the NightLite Sensor is a combination 24/7 night light and occupancy sensor capable of turning the lights off when the room is vacant. The NightLite sensor is the perfect solution for hotel and hospital bathrooms, where guests tend to leave the light

on all night. A user-programmable time delay ensures that once the room is vacated the sensor will time out and turn off the lights. Available with either passive infrared (PIR) detection or dual technology (PIR/Microphonics™) detection for rooms with obstructions, the NightLite sensor comes factory set in

semi-automatic (manual-on) mode, meaning the button needs to be pressed in order to turn on the lights. Besides semi-automatic operation, several other On modes and switch modes can be programmed into the sensor using the front push-button. The NightLite sensor comes with a vandal-resistant

lens and low-temperature / high-humidity resistance as standard features.



NIGHTLITE
Decorator Sensor



ORDERING INFORMATION

Example: WSD NL 277 WH

Series	Voltage	Color
WSD NL	(blank) 120 VAC	WH White
WSD PDT NL	277 277 VAC	IV Ivory GY Gray AL Almond BK Black

STANDARD RANGE

360° Sensors

Features [All]

- 30 sec to 20 min time delay
- Push-button programmable
- 100 hr. lamp burn-in timer
- Green LED indicator

Features [Line voltage]

- Self-contained relay(s)
- No minimum load
- Interchangeable hot and load wires

Overview

Standard range 360° occupancy sensors offer amazing performance and sensitivity to small motions (e.g. hand movements). Available in low voltage and line voltage models, these sensors are capable of covering an entire private office or small room by themselves. Multiple low

voltage sensors can also work together to supply the ideal solution for oddly shaped rooms or large open office areas. A line voltage sensor provides one relay for a single-level control, while the 2-pole version provides a second relay for an additional level of control. For rooms with obstructions, these sensors are also offered with

dual technology, which adds Microphonics™ detection to the passive infrared (PIR) detection. For longer range detection of walking type motions, see the section on extended range 360° sensors.

ENCLOSURES



CEILING MOUNT

SIZE 4.55" dia. (11.56 cm)
1.55" deep (3.94 cm)
WEIGHT 6 oz
MOUNTING 3.5" octagon box, or single gang handy box
COLOR White



RECESSED MOUNT

SIZE 4.40" (11.18 cm) square
WEIGHT 6 oz
MOUNTING Recessed into a 4" x 4" square junction box
COLOR White



FIXTURE MOUNT BOX

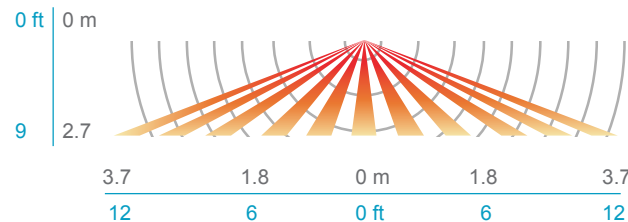
SIZE 3.63" H x 3.63" W x 1.50" D
(9.22 cm x 9.22 cm x 3.81 cm)
WEIGHT 6 oz
MOUNTING .5" knockout
COLOR White

COVERAGE PATTERN

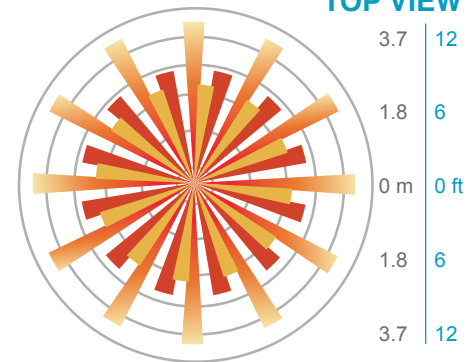
Standard Range 360° Lens

- Best choice for small motion (e.g. hand movements) detection
- Viewing angle of 56° in a 360° conical shaped pattern
- Provides 12 ft (3.66 m) radial coverage when mounted to standard 9 ft (2.74 m) ceiling
- 8 to 15 ft (2.44 to 4.57 m) mounting heights provide 10 to 20 ft (3.05 to 6.10 m) radial coverage
- Microphonics™ detects normal human activity up to 20 ft (6.10 m), but will detect greater distances in spaces with hard floors or very quiet rooms with little or no background noise

SIDE VIEW



TOP VIEW



OPTION INFORMATION

R Low voltage relay

- Enables sensors to interface with other systems (e.g. BMS, lighting panels)
- Provides dry contact closure via a SPDT, 1 amp, 40 volt relay

P Photocell

- Auto set-point calibration
- On/off mode: Full on/off control of lighting during periods of occupancy with adequate daylight
- Inhibit mode: Prevents lights from turning on if adequate daylight is available, but cannot turn lights off
- 2-pole units operate in inhibit mode only

ADC Automatic dimming control photocell

- Allows sensor to control level of 0-10 VDC dimmable ballasts
- Provides a second time-out period that enables the lights to go to a dim setting before off

LT Low temp / high humidity

- Sensor is corrosion-resistant to moisture
- Operates down to -40° F/C (-4° F/20° C for PDT)

DZ Dual zone photocell

- Provides more advanced control than P option
- DUO operation: Determines necessary on/off combination of poles in inboard/outboard applications
- Percentage offset operation: Uses relative set-point for second pole in dual zone applications

D Occupancy controlled dimming

- Provides dimming output to control 0-10 VDC dimmable ballasts
- Provides a second occupancy time-out period, enabling the lights to go to a dim setting before turning off
- Adjustable max/min dim setting

347 347 Voltage

- Allows sensor to be powered and switch 347 VAC

Electrical Specs
Operating Voltage
 12-24VDC/VAC

Recommended Power Supply
 PP20

Current Draw
 Standard, 4 mA
 w/ R option, 16 mA

KEY SPECS			
SERIES	ENCLOSURE	DETECTION	POWER TYPE [VDC/VAC]
CM 9	Ceiling mount	PIR	12-24
CM PDT 9	Ceiling mount	Dual technology (PDT)	12-24
RM 9	Recessed mount	PIR	12-24
RM PDT 9	Recessed mount	Dual technology (PDT)	12-24
CMB 9	Fixture mount box	PIR	12-24
CMB PDT 9	Fixture mount box	Dual technology (PDT)	12-24



ORDERING INFORMATION

Example: CM 9 R P LT

Series	Relay	Dimming / photocell <small>choose one only</small>	Temp / humidity
CM 9	(blank) None	(blank) None	(blank) Standard
CM PDT 9	R Low voltage relay	D Occupancy controlled dimming	LT Low temp
RM 9		P Photocell	
RM PDT 9		ADC w/ Dimming photocell	
CMB 9			
CMB PDT 9			

LINE VOLTAGE

Standard Range 360° Sensor : Line Voltage

Electrical Specs
Load Rating (1 Phase Only)
 800 W @ 120 VAC
 1200 W @ 277 VAC
 1500 W @ 347 VAC
Motor Load 1/4 HP
Frequency 50/60 Hz

KEY SPECS				
SERIES	ENCLOSURE	DETECTION	POWER TYPE [VDC/VAC]	POLES
CMR 9	Ceiling mount	PIR	120/277	1
CMR PDT 9	Ceiling mount	Dual technology (PDT)	120/277	1
RMR 9	Recessed mount	PIR	120/277	1
RMR PDT 9	Recessed mount	Dual technology (PDT)	120/277	1
CMRB 9	Fixture mount box	PIR	120/277	1
CMRB PDT 9	Fixture mount box	Dual technology (PDT)	120/277	1



ORDERING INFORMATION

Example: CMR 9 P 347 LT

Series	Dimming / photocell <small>choose one only</small>	Voltage	Temp / humidity
CMR 9	(blank) None	(blank) 120/277 VAC	(blank) Standard
CMR PDT 9	D Occupancy controlled dimming	347 347 VAC	LT Low temp
RMR 9	P Photocell		
RMR PDT 9	ADC Photocell w/ dimming		
CMRB 9			
CMRB PDT 9			

2-POLE LINE VOLTAGE

Standard Range 360° Sensor : 2-pole, Line Voltage

Electrical Specs
Load Rating / Pole
 800 W @ 120 VAC
 1200 W @ 277 VAC
 1500 W @ 347 VAC
Motor Load 1/4 HP
Frequency 50/60 Hz

KEY SPECS				
SERIES	ENCLOSURE	DETECTION	POWER TYPE [VDC/VDAC]	POLES
CMR 9 2P	Ceiling mount	PIR	120/277	2
CMR PDT 9 2P	Ceiling mount	Dual technology (PDT)	120/277	2
RMR 9 2P	Recessed mount	PIR	120/277	2
RMR PDT 9 2P	Recessed mount	Dual technology (PDT)	120/277	2
CMRB 9 2P	Fixture mount box	PIR	120/277	2
CMRB PDT 9 2P	Fixture mount box	Dual technology (PDT)	120/277	2



ORDERING INFORMATION

Example: CMR 9 2P DZ LT

Series	Photocell <small>choose one only</small>	Voltage	Temp / humidity
CMR 9 2P	(blank) None	(blank) 120/277 VAC	(blank) Standard
CMR PDT 9 2P	P Photocell (inhibit only)	347 347 VAC	LT Low temp
RMR 9 2P	DZ Dual zone photocell		
RMR PDT 9 2P			
CMRB 9 2P			
CMRB PDT 9 2P			

EXTENDED RANGE

360° Sensors

Features [All]

- 30 sec to 20 min time delay
- Push-button programmable
- 100 hr. lamp burn-in timer
- Green LED indicator

Features [Line voltage]

- Self-contained relay(s)
- No minimum load
- Interchangeable hot and load wires

Overview

Extended range 360° occupancy sensors provide maximum viewing area from the ceiling. Available in low voltage and line voltage models, these sensors are designed to detect walking type motion. They are also ideal for placement along corridors or in rooms with ceiling heights as low as 7 ft

(2.13 m). Multiple low voltage sensors can tie together to cover larger or oddly shaped areas. A line voltage sensor provides one relay for a single level of control, while the 2-pole version provides a second relay for an additional level of control.

For rooms with obstructions, these sensors are also offered

with dual technology. This adds Microphonics™ detection to the passive infrared (PIR). Adding dual technology makes these sensors perfect for classrooms. For mounting above 15 ft (4.57 m), see the section on high bay sensors.

ENCLOSURES



CEILING MOUNT

SIZE 4.55" dia. (11.56 cm)
1.55" deep (3.94 cm)
WEIGHT 6 oz
MOUNTING 3.5" octagon box, or single gang handy box
COLOR White



RECESSED MOUNT

SIZE 4.40" (11.18 cm) Square
WEIGHT 6 oz
MOUNTING Recessed into a 4" x 4" square junction box
COLOR White



FIXTURE MOUNT BOX

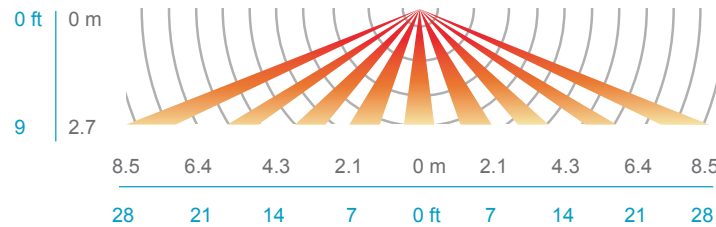
SIZE 3.63" H x 3.63" W x 1.50" D
(9.22 cm x 9.22 cm x 3.81 cm)
WEIGHT 6 oz
MOUNTING .5" knockout
COLOR White

COVERAGE PATTERN

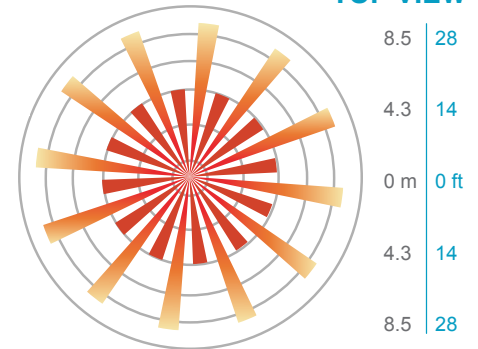
Extended Range 360° Lens

- Best choice for large motion (e.g. walking) detection
- Viewing angle of 67° in a 360° conical shaped pattern
- Provides 28 ft (8.53 m) radial coverage when mounted to standard 9 ft (2.74 m) ceiling
- 7 to 15 ft (2.13 to 4.57 m) mounting heights provide 16 to 36 ft (4.88 to 10.97 m) radial coverage
- Microphonics™ detects human activity up to 20 ft (6.10 m), but will detect farther in spaces with hard floors or areas with low background noise

SIDE VIEW



TOP VIEW



OPTION INFORMATION

R Low voltage relay

- Enables sensors to interface with other systems (e.g. BMS, lighting panels)
- Provides dry contact closure via SPDT, 1 amp, 40 volt relay

P Photocell

- Auto set-point calibration
- On/off mode: Full on/off control of lighting during periods of occupancy with adequate daylight
- Inhibit mode: Prevents lights from turning on if adequate daylight is available, but cannot turn lights off
- 2-pole units operate in inhibit mode only

ADC Automatic dimming control photocell

- Allows sensor to control level of 0-10 VDC dimmable ballasts
- Provides a second time-out period that enables the lights to go to a dim setting before off

LT Low temp / high humidity

- Sensor is corrosion-resistant to moisture
- Operates down to -40° F/C (-4° F/20° C for PDT)

DZ Dual zone photocell

- Provides more advanced control than the P option
- DUO operation: Determines necessary on/off combination of poles in Inboard/Outboard applications
- Percentage offset operation: Uses relative set-point for second pole in dual zone applications

D Occupancy controlled dimming 347 347 Voltage

- Provides dimming output to control 0-10 VDC dimmable ballasts
- Provides a second occupancy time-out period enabling the lights to go to a dim setting before turning off
- Adjustable max/min dim setting
- Allows sensor to be powered by and switch 347 VAC

Electrical Specs
Operating Voltage
12-24 VDC/VAC

Recommended Power Supply
PP20

Current Draw
Standard, 4 mA
w/ R option, 16 mA

KEY SPECS			
SERIES	ENCLOSURE	DETECTION	POWER TYPE [VDC/VAC]
CM 10	Ceiling mount	PIR	12-24
CM PDT 10	Ceiling mount	Dual technology (PDT)	12-24
RM 10	Recessed mount	PIR	12-24
RM PDT 10	Recessed mount	Dual technology (PDT)	12-24
CMB 10	Fixture mount box	PIR	12-24
CMB PDT 10	Fixture mount box	Dual technology (PDT)	12-24



ORDERING INFORMATION

Example: CM 10 R P LT

Series	Relay	Dimming / photocell <small>choose one only</small>	Temp / humidity
CM 10	(blank) None	(blank) None	(blank) Standard
CM PDT 10	R Low voltage relay	D Occupancy controlled dimming	LT Low temp
RM 10		P Photocell	
RM PDT 10		ADC w/ dimming photocell	
CMB 10			
CMB PDT 10			

LINE VOLTAGE

Extended Range 360° Sensor : Line Voltage

Electrical Specs
Load Rating (1 Phase Only)
800 W @ 120 VAC
1200 W @ 277 VAC
1500 W @ 347 VAC
Motor Load 1/4 Hp
Frequency 50/60 Hz

KEY SPECS				
SERIES	ENCLOSURE	DETECTION	POWER TYPE [VDC/VAC]	POLES
CMR 10	Ceiling mount	PIR	120/277	1
CMR PDT 10	Ceiling mount	Dual technology (PDT)	120/277	1
RMR 10	Recessed mount	PIR	120/277	1
RMR PDT 10	Recessed mount	Dual technology (PDT)	120/277	1
CMRB 10	Fixture mount box	PIR	120/277	1
CMRB PDT 10	Fixture mount box	Dual technology (PDT)	120/277	1



ORDERING INFORMATION

Example: CMR 10 P 347 LT

Series	Dimming / Photocell <small>choose one only</small>	Voltage	Temp / Humidity
CMR 10	(blank) None	(blank) 120/277 VAC	(blank) Standard
CMR PDT 10	D Occupancy controlled dimming	347 347 VAC	LT Low temp
RMR 10	P Photocell		
RMR PDT 10	ADC Photocell w/ dimming		
CMRB 10			
CMRB PDT 10			

2-POLE LINE VOLTAGE

Extended Range 360° Sensor : 2-pole, Line Voltage

Electrical Specs
Load Rating / Pole
800 W @ 120 VAC
1200 W @ 277 VAC
1500 W @ 347 VAC
Motor Load 1/4 HP
Frequency 50/60 Hz

KEY SPECS				
SERIES	ENCLOSURE	DETECTION	POWER TYPE [VDC/VAC]	POLES
CMR 10 2P	Ceiling mount	PIR	120/277	1
CMR PDT 10 2P	Ceiling mount	Dual technology (PDT)	120/277	1
RMR 10 2P	Recessed mount	PIR	120/277	1
RMR PDT 10 2P	Recessed mount	Dual technology (PDT)	120/277	1
CMRB 10 2P	Fixture mount box	PIR	120/277	1
CMRB PDT 10 2P	Fixture mount box	Dual technology (PDT)	120/277	1



ORDERING INFORMATION

Example: CMR 10 2P DZ LT

Series	Photocell <small>choose one only</small>	Voltage	Temp / humidity
CMR 10 2P	(blank) None	(blank) 120/277 VAC	(blank) Standard
CMR PDT 10 2P	P Photocell (inhibit only)	347 347 VAC	LT Low temp
RMR 10 2P	DZ Dual zone photocell		
RMR PDT 10 2P			
CMRB 10 2P			
CMRB PDT 10 2P			

WIDE VIEW & HALLWAY

Sensors

Features [Low voltage]

- 30 sec to 20 min time delay
- Push-button programmable
- 100 hr. lamp burn-in timer
- Green LED indicator

Features [Line voltage]

- 30 sec to 20 min time delay
- No neutral required
- Self-contained relay(s)
- No power pack(s) needed
- Interchangeable hot and load wires
- No minimum load
- Green LED indicator

Overview [Low voltage]

Low voltage wide view sensors are designed to mount in a corner and detect small motions up to 40 ft (12.19m) away and larger motions up to 70 ft (21.34 m) away. This makes them ideal for 30 x 30 ft (9.14 x 9.14 m) classrooms or corridors up to 70 ft (12.19 m) long.

Low voltage hallway units detect occupants entering a hallway up to 130 ft (39.64 m) away. The enclosure's convenient tilting feature enables the sensor to be mounted at any height from 8 to 10 ft (2.44 to 3.05 m). When corner or wall mounting is not possible, the

WV-BR ceiling bracket accessory can be used to mount the sensor to the ceiling.

These sensors can be used in combination with other low voltage sensors to cover oddly shaped rooms. For rooms with obstructions, wide view sensors are available with dual technology, which adds Microphonics™ detection to the passive infrared (PIR) detection.

Overview [Line voltage]

Line voltage wide view and hallway sensors are ideal for retrofit applications. Line voltage sensors are powered by and directly switch

line voltage; therefore, no power packs are needed. Additionally, these sensors do not require a neutral, making wiring directly off local switches with wiremold a convenient option. Together, these features make them perfect for retrofit applications, where running new wiring is difficult.

For rooms with obstructions, wide view sensors are available with dual technology, which adds Microphonics™ detection to the passive infrared (PIR) detection. For rooms that need independent control of two circuits, 2-pole units are available.

OPTIONS



WALL / CORNER MOUNT : LOW VOLTAGE

SIZE	H: 3.00" (7.62 cm)
	W: 3.60" (9.14 cm)
	D: 1.75" (4.45 cm)
WEIGHT	4 oz
MOUNTING	Directly to corner or to ceiling using WV-BR bracket
COLOR	White



WALL MOUNT : LINE VOLTAGE

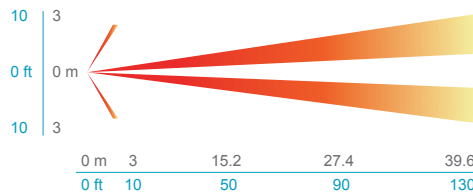
SIZE	H: 4.96" (12.60 cm)
	W: 3.10" (7.87 cm)
	D: 1.70" (4.32 cm)
WEIGHT	7 oz
MOUNTING	Single gang handy or wiremold corner box #V5719
COLOR	White Ivory

OPTIONS

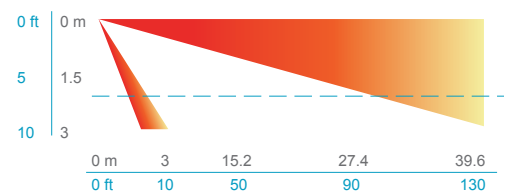
Hallway View Lens

- Large motion (e.g. walking) detection up to 130 ft (39.62 m)
- Designed for 7 ft (2.13 m) high mounting at end of hall
- Always should be applied in pairs

TOP VIEW

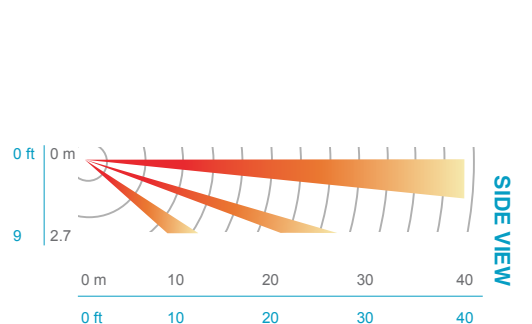
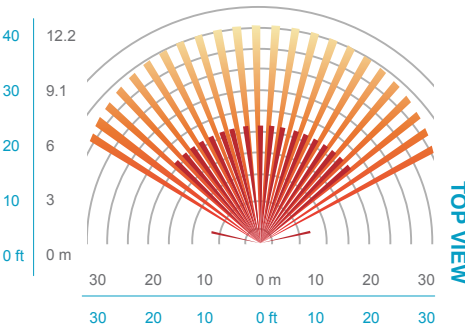


SIDE VIEW



Wide View Lens

- Small motion (e.g. hand movements) detection up to 40 ft (12.19 m)
- Large motion (e.g. walking) detection up to 70 ft (21.34 m)
- Designed for 8 to 10 ft (2.44 to 3.05 m) high mounting in room corner



Electrical Specs

Operating Voltage

12-24 VDC/VAC

Recommended Power Pack
PP20

Current Draw 4 mA
w/ R option 16 mA

KEY SPECS			
SERIES	COVERAGE PATTERN	DETECTION	POWER TYPE [VDC/VAC]
WV 16	Wide view	PIR	12-24
WV PDT 16	Wide view	PDT	12-24
HW13	Hallway	PIR	12-24



OPTIONS

R Low voltage relay

- Enables low voltage sensors to interface with other systems (E.G. Bms, lighting panels)
- Provides dry contact closure via a SPDT, 1 amp, 40 volt relay

P Photocell

- Auto set-point calibration
- On/off mode: Full on/off control of lighting during periods of occupancy with adequate daylight
- Inhibit mode: Prevents lights from turning on if adequate daylight is available, but cannot turn lights off

LT Low temp/high humidity

- Sensor is corrosion resistant to moisture
- Operates down to -40° F/C

WV BR Ceiling mount bracket

- Ceiling mountable bracket is an alternative to wall mounting
- Sold separately



LOW VOLTAGE

Example: WV PDT 16 R P LT

Series	Relay	Photocell	Temp/humidity
WV 16	(blank) None	(blank) None	(blank) None
WV PDT 16	R Low voltage relay	P Photocell	LT Low Temp

LOW VOLTAGE

Example: HW13 R P LT

Series	Relay	Photocell	Temp/humidity
HW 13	(blank) None	(blank) None	(blank) None
	R Low voltage relay	P Photocell	LT Low Temp

Electrical Specs

Load Rating

13 Amps @ 120-347 VAC

Motor Load 1/4 HP

Frequency 50/60 Hz

KEY SPECS			
SERIES	ENCLOSURE	DETECTION	POWER TYPE [VAC]
WVR 16	Wide view	PIR	120/277
WVR PDT 16	Wide view	PDT	120/277
HWR13	Hallway	PIR	120/277



OPTIONS

2P 2-pole

- Provides a second line voltage switching relay

P Inhibit photocell

- Inhibit operation: Prevents lights from turning on if adequate daylight is available, but cannot turn lights off

347 347 VAC

- Allows sensor to be powered from and switch 347 VAC

LT Low temp/high humidity

- Sensor is corrosion-resistant to moisture
- Operates down to -40° F/C

SN No switch

- Removes manual override button

LINE VOLTAGE

Example: WVR 16 2P P WH LT

Series	Poles	Photocell	Voltage	Color	Temp/humidity
WVR 16	(blank) 1-pole	(blank) None	(blank) 120/277 VAC	WH White	(blank) Standard
WVR PDT 16	2P 2-pole	P Inhibit photocell	347 347 VAC	IV Ivory	LT Low temp

LINE VOLTAGE

Example: HWR13 347 WH LT

Series	Switch	Voltage	Color	Temp/humidity
HWR13	(blank) Switch	(blank) 120/277 VAC	WH White	(blank) None
	SN No switch	347 347 VAC	IV Ivory	LT Low temp

HIGH BAY

360° Sensors

Features [All]

- 30 sec to 20 min time delay
- Push-button programmable
- 100 hr. lamp burn-in timer
- Green LED indicator

Features [Line voltage]

- Self-contained relay(s)
- No minimum load
- Interchangeable hot and load wires

Overview

Designed for mounting heights of up to 45 ft (13.72 m), high bay 360° occupancy sensors have a 15-20 ft (4.57-6.10 m) radial coverage pattern that overlaps the area lit by a typical high bay fixture. Applications include: warehouses, racquetball courts and gymnasiums. Individual fixture control is best handled by line

voltage sensors, while multiple fixture control is best handled by one or more low voltage sensors and a power pack. These sensors are ideal for on/off control of T5/T8 fluorescent lighting. However, HID bi-level fixtures can also be controlled when the start-to-high option is included, or a **PP20 SH** power pack is used.

2-pole high bay 360° sensors are also available, as are units designed for switching 208 and 480 VAC lighting.

ENCLOSURES



CEILING MOUNT

SIZE 4.55" dia. (11.56 cm)
1.55" deep (3.94 cm)
WEIGHT 6 oz
MOUNTING 3.5" octagon box, or single gang handy box
COLOR White



RECESSED MOUNT

SIZE 4.40" (11.18 cm) Square
WEIGHT 6 oz
MOUNTING Recessed into a 4" x 4" square junction box
COLOR White



FIXTURE MOUNT BOX

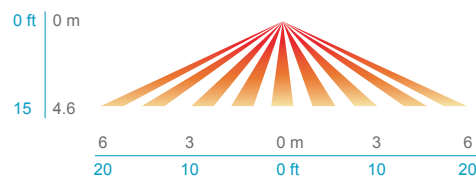
SIZE 3.63" H x 3.63" W x 1.50" D
(9.22 cm x 9.22 cm x 3.81 cm)
WEIGHT 6 oz
MOUNTING .5" knockout
COLOR White

COVERAGE PATTERN

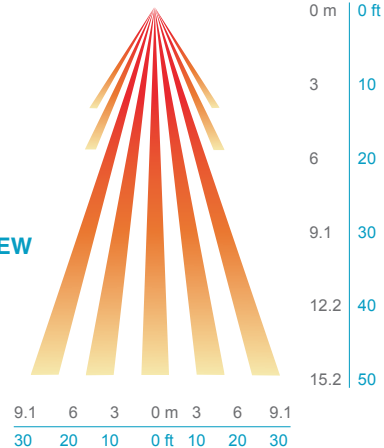
High Bay 360° Lens

- Best choice for 15 to 45 ft (4.57 to 13.72 m) mounting heights
- 15 to 20 ft (4.57 to 6.10 m) radial coverage overlaps area lit by a typical high bay fixture
- Excellent detection of large motion (e.g. walking) up to a 35 ft (10.76 m) mounting height
- Excellent detection of extra large motion (e.g. forklifts) up to a 45 ft (13.72 m) mounting height

LOW VIEW



HIGH VIEW



OPTION INFORMATION

R Low voltage relay

- Enables sensors to interface with other systems (e.g. BMS, lighting panels)
- Provides dry contact closure via a SPDT, 1 amp, 40 volt relay

SH Start-to-high

- Upon power up, sensor holds lights on and high for 20 min

ADC Occupancy controlled dimming

- Provides dimming output to control 0-10 VDC dimmable ballasts
- Provides a second occupancy time-out period that enables the lights to go to a dim setting before turning off
- Adjustable max/min dim setting

P Photocell

- Photocell with P option views up through rear of fixture mount box sensors and down through lens of ceiling and recessed mount sensors
- Down-viewing photocell option (**PD**) also available for **CMB 6**, **CMRB 6**, **CMRB 6 2P** and **CMRB 6 480** series sensors

- On/off mode: Full on/off control of lighting during periods of occupancy with adequate daylight
- Inhibit mode: Prevents lights from turning on if adequate daylight is available, but cannot turn lights off
- 2-pole units with down-viewing photocells operate in inhibit mode only

347 347 VAC

- Allows sensor to be powered from and switch 347 VAC

LT Low temp / high humidity

- Sensor is corrosion-resistant to moisture
- Operates down to -40°F/C

LOW VOLTAGE

High Bay 360° Sensors : Low Voltage

Electrical Specs

Operating Voltage

12-24 VDC/VAC

Recommended Power Supply

Fluorescent **PP20**

HID **PP20 SH**

Current Draw 4mA

w/ R option 16mA

KEY SPECS

SERIES	ENCLOSURE	DETECTION	POWER TYPE [VDC/VAC]
CM 6	Ceiling mount	PIR	12-24
RM 6	Recessed mount	PIR	12-24
CMB 6	Fixture mount	PIR	12-14



ORDERING INFORMATION

Example: CM 6 R P LT

Series	Relay	Dimming	Photocell	Temp / humidity
CM 6	(blank) None	(blank) None	(blank) None	(blank) Standard
RM 6	R Low voltage relay	D Occupancy controlled dimming	P (PD) Photocell	LT Low temp
CMB 6				

LINE VOLTAGE

High Bay 360° Sensors : Line Voltage

Electrical Specs

Load Rating

800 W @ 120 VAC

1200 W @ 277 VAC

1500 W @ 347 VAC

5 Amps @ 208/240 VAC

5 Amps @ 480 VAC

Motor Load 1/4 HP

Frequency 50/60 Hz

KEY SPECS

SERIES	ENCLOSURE	DETECTION	POWER TYPE [VAC]
CMR 6	Ceiling mount	PIR	120/277
CMR 6 208	Ceiling mount	PIR	208
CMR 6 480	Ceiling mount	PIR	480
RMR 6	Recessed mount	PIR	120/277
RMR 6 208	Recessed mount	PIR	208
RMR 6 480	Recessed mount	PIR	480
CMRB 6	Fixture mount	PIR	120/277
CMRB 6 208	Fixture mount	PIR	208
CMRB 6 480	Fixture mount	PIR	480



ORDERING INFORMATION

Example: CMR 6 SH P 347 LT

Series	Start-to-high ¹	Dimming ¹	Photocell	Voltage ¹	Temp / humidity
CMR 6	(blank) None	(blank) None	(blank) None	(blank) None	(blank) None
CMR 6 208	SH w/STH	D Occupancy controlled dimming	P (PD) Photocell	347 347 VAC	LT Low temp
CMR 6 480					
RMR 6					
RMR 6 208					
RMR 6 480					
CMRB 6					
CMRB 6 208					
CMRB 6 480					

2-POLE LINE VOLTAGE

High Bay 360° Sensors : 2-pole, Line Voltage

Electrical Specs

Load Rating / Pole

800 W @ 120 VAC

1200 W @ 277 VAC

1500 W @ 347 VAC

Motor Load 1/4 HP

Frequency 50/60 Hz

KEY SPECS

SERIES	ENCLOSURE	DETECTION	POWER TYPE [VAC]	POLES
CMR 6 2P	Ceiling mount	PIR	120/277	2
RMR 6 2P	Recessed mount	PIR	120/277	2
CMRB 6 2P	Fixture mount	PIR	120/277	2



ORDERING INFORMATION

Example: CMRB 6 2P P LT

Series	Photocell	Voltage	Temp / humidity
CMR 6 2P	(blank) None	(blank) 120/277 VAC	(blank) Standard
RMR 6 2P	P (PD) Photocell	347 347 VAC	LT Low temp
CMRB 6 2P			

Note

¹ Not available with 208/480 vac devices.

HIGH BAY

Aisleway Sensors

Features [All]

- 30 sec to 20 min time delay
- Push-button programmable¹
- 100 hr. lamp burn-in timer¹
- Green LED indicator

Features [Line voltage]

- Self-contained relay(s)
- No minimum load
- Interchangeable hot and load wires

Overview

High bay aisleway sensors provide bi-directional coverage extending 70-110 ft (21.33-33.53 m) when mounted at heights of 30-45 ft (9.14-13.72 m). The sensors' view pattern covers the area lit by three typically spaced high bay fixtures. Therefore, when mounted at a fixture, the coverage area extends out to the area that is lit by

the neighboring fixtures. This effect is useful with some ballasts that have a delay, such that when traveling in a fork-lift truck, lighting needs to be initiated ahead of the truck. Individual fixture control is best handled by line voltage sensors, while multiple fixture control is best handled by one or more low voltage sensors

and a power pack. 2-pole high bay aisleway sensors are also available, as are units designed for switching 208/480 VAC lighting. While ideal for on/off control of T5/T8 fluorescent lighting, HID bi-level fixtures can also be controlled when the start-to-high (SH) option is added to line voltage models, or a **PP20 SH** power pack is used with low voltage models.

ENCLOSURES



SURFACE MOUNT

SIZE H: 4.96" (12.60 cm)
W: 3.10" (7.87 cm)
D: 1.70" (4.32 cm)
WEIGHT 7 oz
MOUNTING Single gang handy box
COLORS White
Ivory



RECESSED MOUNT

SIZE 4.40" (11.18 cm) Square
WEIGHT 6 oz
MOUNTING Recessed into a 4" x 4" square junction box
COLOR White



FIXTURE MOUNT BOX

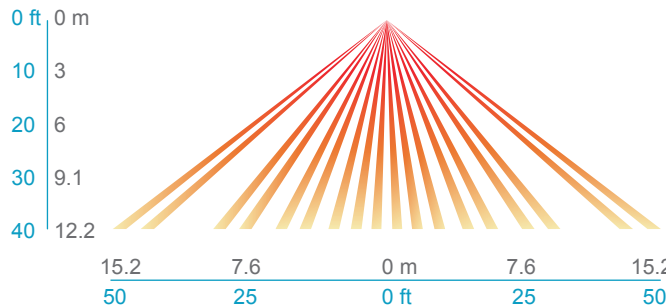
SIZE 3.63" H x 3.63" W x 1.50" D
(9.22 cm x 9.22 cm x 3.81 cm)
WEIGHT 6 oz
MOUNTING .5" knockout
COLOR White

COVERAGE PATTERN

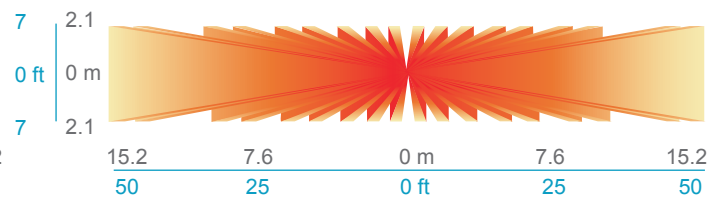
High Bay Bi-Directional Aisleway Lens

- Provides 50° bi-directional and 10° wide coverage pattern
- 1.2x mounting height equals approximate detection range in either direction
- Typical 40 ft (12.19 m) mounting detects 50 ft (15.24 m) in either direction

SIDE VIEW



TOP VIEW



OPTION INFORMATION

R Low voltage relay

- Enables sensors to interface with other systems (e.g. BMS, lighting panels)
- Provides dry contact closure via a SPDT, 1 amp, 40 volt relay

SH Start-to-high

- Upon power up, sensor holds lights on and high for 20 min

D Occupancy controlled dimming

- Provides dimming output to control 0-10 VDC dimmable ballasts
- Provides a second occupancy time-out period that enables the lights to go to a dim setting before turning off
- Adjustable max/min dim setting

P Photocell

- Ideal for high bay applications w/ skylights
- Photocell looks out through rear of sensor enclosure
- On/off mode: Photocell has full on/off control during periods of occupancy
- Inhibit mode: Photocell can prevent lights from turning on if adequate daylight is available, but cannot turn lights off

347 347 VAC

- Allows sensor to be powered from and switch 347 VAC

LT Low temp / high humidity

- Sensor is corrosion-resistant to moisture
- Operates down to -40°F/C

Notes

- 1 Not applicable for **HM[R] 50** Series.

LOW VOLTAGE

Electrical Specs

Operating Voltage

12-24 VDC/VAC

Recommended Power Supply

Fluorescent **PP20**

HiD **PP20 SH**

Current Draw

4mA
w/ R option 16mA

KEY SPECS			
SERIES	ENCLOSURE	DETECTION	POWER TYPE [VDC/VAC]
HM 50	Surface mount	PIR	12-24
RM 50	Recessed mount	PIR	12-24
CMB 50	Fixture mount	PIR	12-24



Example: CMB 50 R P LT

ORDERING INFORMATION

Series	Relay	Dimming	Photocell	Color hm 50 only (required)	Temp / humidity
HM 50 ¹	(blank) None	(blank) None	(blank) None	WH White	(blank) Standard
RM 50 ¹	R Low voltage relay	D Occupancy controlled dimming	P Photocell	IV Ivory	LT Low temp
CMB 50					

LINE VOLTAGE

Electrical Specs

Load Rating

800 W @ 120 VAC

1200 W @ 277 VAC

1500 W @ 347 VAC

5 Amps @ 208/480 VAC

Motor Load 1/4 HP

Frequency 50/60 Hz

KEY SPECS			
SERIES	ENCLOSURE	DETECTION	POWER TYPE [VAC]
HMR 50	Surface mount	PIR	120/277
RMR 50	Recessed mount	PIR	120/277
RMR 50 208	Recessed mount	PIR	208
RMR 50 480	Recessed mount	PIR	480
CMRB 50	Fixture mount	PIR	120/277
CMRB 50 208	Fixture mount	PIR	208
CMRB 50 480	Fixture mount	PIR	480



Example: CMRB 50 P LT

ORDERING INFORMATION

Series	Start-to-high ³	Dimming	Photocell	Voltage ³	Color hmr 50 only	Temp / humidity
HMR 50 ¹	(blank) None	(blank) None	(blank) None	(blank) 120/277 VAC	WH White	(blank) Standard
RMR 50 ¹	SH w/ STH	D Occupancy controlled dimming	P Photocell	347 347 VAC	IV Ivory	LT Low temp
RMR 50 208 ¹						
RMR 50 480 ¹						
CMRB 50						
CMRB 50 208						
CMRB 50 480						

2-POLE LINE VOLTAGE

Electrical Specs

Load Rating / Pole

800 W @ 120 VAC

1200 W @ 277 VAC

1500 W @ 347 VAC

Motor Load 1/4 HP

Frequency 50/60 Hz

KEY SPECS				
SERIES	ENCLOSURE	DETECTION	POWER TYPE [VAC]	POLES
RMR 50 2P	Recessed mount	PIR	120/277	2
CMRB 50 2P	Fixture mount	PIR	120/277	2



Example: RMR 50 2P 347 LT

ORDERING INFORMATION

Series	Photocell ²	Voltage	Temp / humidity
RMR 50 2P ²	(blank) None	(blank) 120/277 VAC	(blank) Standard
CMRB 50 2P	P Photocell	347 347 VAC	LT Low temp

Notes

- 1 Photocell and dimming options not available.
- 2 Photocell not available.
- 3 Not for use with 208/480 devices.

HIGH BAY

End-Of-Aisle Sensors

Features [All]

- 30 sec to 20 min time delay
- 100 hr. lamp burn-in timer¹
- Green LED indicator
- Push-button programmable¹

Features [Line voltage]

- Self-contained relay(s)
- No minimum load
- Interchangeable hot and load wires

Overview

High bay end-of-aisle sensors view up to 110 linear ft (33.53 m) of aisleway space when mounted between 30–45 ft (9.14– 13.72 m). These sensors are perfect for detecting occupants walking or riding in forklift trucks and typically are used in pairs to control an entire aisle of lighting together. For aisles longer than 110 ft (33.53 m), use

end-of-aisle sensors on either end and high bay aisleway or 360° sensors to cover the inner portions.

2-pole high bay end-of-aisle sensors are also available, as are units designed for switching 208/480 VAC lighting. While ideal for on/off control of T5/T8 fluorescent lighting, HID bi-level fixtures can also be

controlled when the start-to-high (SH) option is added to line voltage models, or a PP20 SH power pack is used with low voltage models.

ENCLOSURES



SURFACE MOUNT

SIZE	H: 4.96" (12.60 cm)
	W: 3.10" (7.87 cm)
	D: 1.70" (4.32 cm)
WEIGHT	7 oz
MOUNTING	Single gang handy box
COLORS	White Ivory

FIXTURE MOUNT BOX

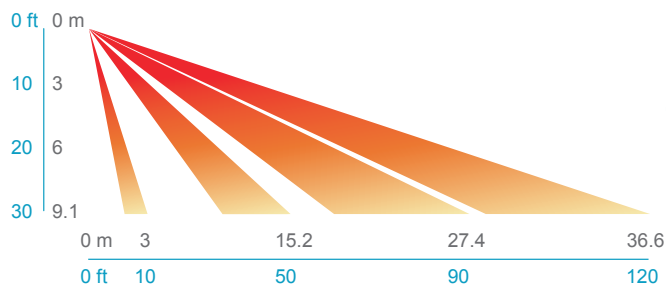
SIZE	3.63" H x 3.63" W x 1.50" D (9.22 cm x 9.22 cm x 3.81 cm)
WEIGHT	6 oz
MOUNTING	.5" knockout
COLOR	White

COVERAGE PATTERN

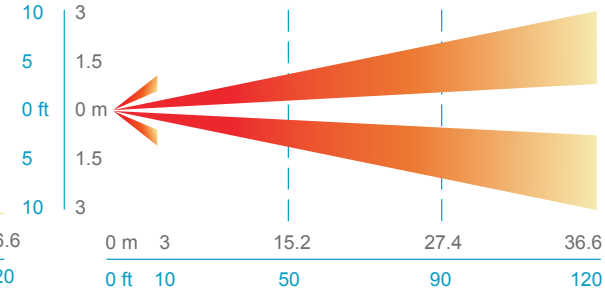
High Bay Bi-Directional Aisleway Lens

- Detects motion from the end of aisles up to 110 ft (33.53 m) long
- Designed to mount 30 ft (9.14 m) high and 10 ft (3.05 m) back from end-of-aisle
- Always should be applied in pairs

SIDE VIEW



TOP VIEW



OPTION INFORMATION

R Low voltage relay

- Enables sensors to interface with other systems (e.g. BMS, lighting panels)
- Provides dry contact closure via a SPDT, 1 amp, 40 volt relay

SH Start-to-high

- Upon power up, sensor holds lights on and high for 20 min

D Occupancy controlled dimming 347 347 VAC

- Provides dimming output to control 0-10 VDC dimmable ballasts
- Provides a second occupancy time-out period that enables the lights to go to a dim setting before turning off
- Adjustable max/min dim setting

LT Low temp / high humidity

- Sensor is corrosion-resistant to moisture
- Operates down to -40°F/C

Notes

- 1 Not applicable for HM[R] 10 Series.

LOW VOLTAGE

High Bay End-Of-Aisle Sensors : Low Voltage

Electrical Specs

Operating Voltage

12-24 VDC/VAC

Recommended Power Supply

Fluorescent **PP20**

HID **PP20 SH**

Current Draw

4mA
w/ R option 16mA

KEY SPECS

SERIES	ENCLOSURE	DETECTION	POWER TYPE [VDC/VAC]
HM 10	Surface mount	PIR	12-24
HMB 10	Fixture mount	PIR	12-24



ORDERING INFORMATION

Example: HMB 10 R LT

Series	Relay	Color ¹ hm 10 only (required)	Temp / humidity
HM 10	(blank) None	WH White	(blank) Standard
HMB 10	R Low voltage relay	IV Ivory	LT Low temp

LINE VOLTAGE

High Bay End-Of-Aisle Sensors : Line Voltage

Electrical Specs

Load Rating

800 W @ 120 VAC

1200 W @ 277 VAC

1500 W @ 347 VAC

5 Amps @ 208/480 Vac

Motor Load 1/4 HP

Frequency 50/60 Hz

KEY SPECS

SERIES	ENCLOSURE	DETECTION	POWER TYPE [VAC]
HMR 10	Surface mount	PIR	120/277
HMRB 10	Fixture mount	PIR	120/277
HMRB 10 208	Fixture mount	PIR	208
HMRB 10 480	Fixture mount	PIR	480



ORDERING INFORMATION

Example: HMRB 10 SH LT

Series	Start-to-high ²	Dimming	Voltage ²	Color ¹ hmr 10 only (required)	Temp / humidity
HMR 10 ¹	(blank) None	(blank) None	(blank) 120/277 VAC	WH White	(blank) Standard
HMRB 10	SH w/ STH	D Occupancy controlled dimming	347 347 VAC	IV Ivory	LT Low temp
HMRB 10 208					
HMRB 10 480					

2-POLE LOW VOLTAGE

High Bay End-Of-Aisle Sensors : 2-pole, Line Voltage

Electrical Specs

Load Rating / Pole

800 W @ 120 VAC

1200 W @ 277 VAC

1500 W @ 347 VAC

Motor Load 1/4 HP

Frequency 50/60 Hz

KEY SPECS

SERIES	ENCLOSURE	DETECTION	POWER TYPE [VAC]	POLES
HMRB 10 2P	Fixture mount	PIR	120/277	2



ORDERING INFORMATION

Example: HMRB 10 2P LT

Series	Voltage	Temp / humidity
HMRB 10 2P	(blank) 120/277 VAC 347 347 VAC	(blank) Standard LT Low temp

Notes

- 1 Dimming option not available.
- 2 Not for use with 208/480 devices.

POWER PACKS

& Slave Packs

Features

- Communicates w/ other sensors

Overview

Power packs are the heart of the low voltage sensor system. A power pack may transform Class I high voltage (120-277 VAC or 347 VAC) to Class II 15 VDC for powering remote sensors. A power pack may also switch a lighting load on and off

using its internal relay. Class II wire leads connect to 18 AWG or smaller low voltage cable running to the sensors, making installation easy and clean. Power packs also have an elongated mounting nipple that allows them to be mounted either directly through a ½ inch knockout into a junction box, or inside an adjacent box for meeting specific local code requirements in ceiling plenums.

There are several different types of power packs, each with a unique combination of features. The most versatile power pack is the **PP20**, which utilizes a patented relay contact protection and can power up to 14 sensors. Multi-circuit control can be handled by multiple **PP20s**, 2-pole power packs (**PP20 2P**), or combination power pack and slave pack (**SP20**) configurations.

ENCLOSURES



SINGLE POLE UNITS

SIZE H: 3.00" (7.62 cm)
W: 2.25" (5.72 cm)
D: 1.88" (4.78 cm)
WEIGHT 6 oz
MOUNTING .5" knockout
COLOR Black



2-POLE UNITS

SIZE H: 4.13" (10.49 cm)
W: 3.00" (7.62 cm)
D: 1.88" (4.78 cm)
WEIGHT 6 oz
MOUNTING .5" knockout
COLOR Black

POWERING CAPACITY

A power pack's transformers can supply up to 150mA of power. Each relay requires 40mA during the on state. Low voltage remote sensors typically require 4 mA when detecting occupants, and 0.15 mA when in standby. Therefore, each transformer can handle up to 3 relays (including the relay(s) inside the power pack). For example, one **PP20** can power its relay (40 mA) and 110mA of external devices. Because of the ultra low current design of the sensors, up to 14 or more sensors can be connected to a single power pack! If multiple power packs are used together, an additional 110mA is available.

SERIES	POWER SPECS	
	SENSORS	SENSORS w/ R OPTION
[1] PP 20 (or MP 20)	14	8
[1] PP 20 2P	7	6
[1] PP 20 w/SP 20 (or MP 20 w/ MSP 20)	7	6
[1] PP 20 2P w/ SP 20	5	5
[2] PP 20 (or [2] MP 20)	28	16
[2] PP 20 2P	14	12

Note: Table information reflects usage with 120/277 or 347 VAC power

Note 1: Only three relays may be controlled with one power pack. If more than three circuits are required, multiple power packs must be used.

Note 2: The **R** option adds an isolated low voltage relay to a sensor. Only one "Sensor with **R** option" is typically needed in a room.

OPTION INFORMATION

347 347 VAC

- Allows power pack to be powered from and switch 347 VAC

LT Low temp / high humidity

- Power pack is corrosion-resistant to moisture
- Operates down to -40°F/C

SYSTEM DESIGNS

The local override switch may be upstream or downstream of a **PP20**. However, if an **SP20** or a **PP20 2P** power pack is being used, the switch(es) should be downstream on the load side of the relay. If power is disconnected to the power pack, all subsequent relays will open, turning off all of the loads. If wiring the local

switches before the power pack and slave pack, use multiple **PP20s**, one for each circuit. This will allow for one circuit to remain powered, keeping the system operational when the other is turned off. When controlling a dimming circuit, **PP20** must be wired before the dimmer, or **SP20** may be wired after the dimmer.

Power packs with relay circuit protection are designed to switch alternating current (AC) only. For switching DC signal inputs to EMS or lighting control systems, use power pack model # **MP20**, or sensors with the **R** option that adds a signal relay to the low voltage sensor.

CONTACT PROTECTION

An AC semi-conductor is used in parallel with a power relay to perform the actual "Turn On" and "Turn Off" functions. The switching life of this semi-conductor is virtually infinite because it has no moving parts. The power relay contacts are then used to carry the current during the On state, thereby preventing in-rush or

inductive kick from damaging the relay contact. The result is extremely long relay life (tested to 400,000 cycles). The **PP20**, **PP20 2P** and **SP20** power pack versions all utilize this technology. When controlling larger loads of electronic ballasts with high in-rush characteristics, relay contact protection is advised.

PLENUM MOUNTING

Power packs and slave packs are plenum rated. Most local codes allow for small plastic controls in return air plenums, though some do not. To meet all local codes, the units can be mounted inside an adjacent (deep) junction box as shown.

SLAVE PACK vs POWER PACK

A slave pack (also called an auxiliary relay) contains the same switching relay as a normal power pack, though it does not contain the transformer. Slave packs can be used in applications where power is supplied from another power pack. Slave packs are available

with (**SP20** version) and without (**MSP20** version) relay contact protection.

A power supply contains the same transformer as a power pack, though it does not contain a relay. Power

supplies are ideal for supplying power to devices, such as the **CM ADC**, which does not need to switch line voltage.

POWER PACKS

Power Packs & Slave Packs

Electrical Specs

Operating Voltage

120, 240, 277 [Single Phase]

Relay Current Requirements

40mA

Switching Load 20 Amps / Pole

Output Voltage / Current

15 VDC, 150 mA

Motor Load 1 HP

KEY SPECS

SERIES	RELAY CONTACT PROTECTION	TRANSFORMER	# OF POLES (RELAYS)
PP20	Yes	Yes	1
PP20 2P	Yes	Yes	2
SP20	Yes	No	1
MP20	No	Yes	1
MSP20	No	No	1
PS150	No	Yes	0

 **UL** US LISTED
TITLE 24
MADE in U.S.A.
5 YEAR WARRANTY

ORDERING INFORMATION

Example: PP20 347 LT

Series	Voltage ¹	Temp / humidity
PP20	(blank) 120/277 VAC	(blank) Standard
PP20 2P ¹	347 347 VAC	LT Low temp
SP20		
MP20		
MSP20 ²		
PS150		

Notes

- 347 option not available on PP20 & MSP20.
- 347 option is integrated in MSP20.

DAYLIGHTING CONTROL

DAYLIGHTING

Control Sensors

Features

- Works as stand-alone unit or with occupancy sensors
- Auto set-point calibration
- Push-button programmable
- 100 hr. lamp burn-in timer
- Green LED indicator
- Fully digital control

Overview

On/off photocell and dimming sensors provide intelligent control of lighting for daylight harvesting applications. Ideal for spaces with windows, such as vestibules, corridors, classrooms or offices, the sensors work by monitoring daylight conditions in a

room, then controlling the lighting so as to ensure that adequate lighting levels are maintained.

Low voltage sensors are powered with 12-24 VAC/VDC. On/off photocell sensors operate with a power pack (Model # **PP20**), enabling complete 20 Amp circuits to be controlled.

Dimming photocell sensors are capable of controlling any 0-10 VDC dimmable ballast. Line voltage versions are also available that integrate a line switching relay and/or power off the line.

ENCLOSURES



CEILING MOUNT

SIZE 4.55" dia. (11.56 cm)
1.55" deep (3.94 cm)
WEIGHT 6 oz
MOUNTING 3.5" octagon box, or single gang handy box
COLOR White



RECESSED MOUNT

SIZE 4.40" (11.18 cm) Square
WEIGHT 6 oz
MOUNTING Recessed into a 4" x 4" square junction box
COLOR White



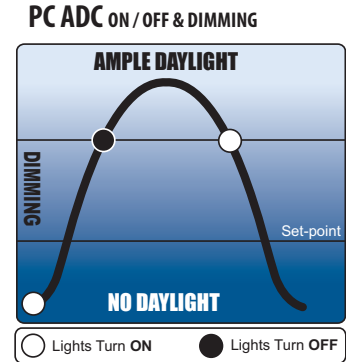
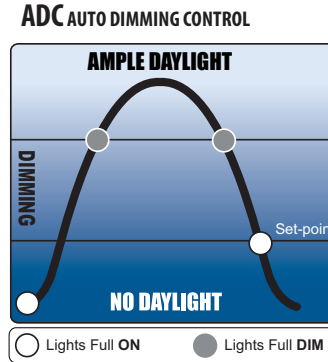
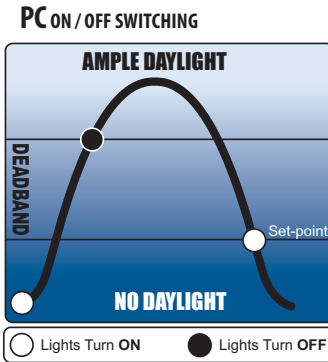
FIXTURE MOUNT BOX

SIZE 3.63" H x 3.63" W x 1.50" D
(9.22 cm x 9.22 cm x 3.81 cm)
WEIGHT 6 oz
MOUNTING .5" knockout
COLOR White

COVERAGE PATTERN

Solution Types

- Automatic on/off switching (**PC**)
- Automatic dimming control (**ADC**)
- Combination on/off and dimming control (**PC ADC**)



OPTION INFORMATION

DZ Dual zone

- Provide second output that can control an additional zone of lighting

Stepped Dimming (Duo)

Operation (PC Only)

- Ideal for A/B (also called inboard/outboard) switching applications
- Determines the necessary on/off combination of the two poles in order to maintain adequate lighting

SH Percentage offset operation

- Ideal for classrooms with individually controlled parallel rows of lights
- **PC** sensors use a relative set-point for the second pole that is a percentage of the first pole's set-point
- **ADC** sensors enable control of an additional 0-10 VDC dimmable ballast at a selected level (voltage) higher than that of the primary zone

347 347 VAC

- Allows sensor to be powered from and switch 347 VAC

LT Low temp / high humidity

- Sensor is corrosion-resistant to moisture
- Operates down to -40°F/C

LOW VOLTAGE

Daylighting Control Sensor : Low Voltage

Electrical Specs

Operating Voltage

12-24 VDC/VAC

Recommended Power Supply

PP20

Current Draw

4 mA

Dimming Load sinks up to 20mA or 40 ballasts @ .5 mA each (0-10 VDC dimmable ballasts only)

KEY SPECS			
SERIES	ENCLOSURE	CONTROL TYPE	POWER TYPE [VDC/VAC]
CM PC	Ceiling mount	On/off	12-24
RM PC	Recessed mount	On/off	12-24
CMB PC	Fixture mount box	On/off	12-24
CM ADC	Ceiling mount	Dimming	12-24
RM ADC	Recessed mount	Dimming	12-24
CMB ADC	Fixture mount box	Dimming	12-24
CM PC ADC	Ceiling mount	On/off & dimming	12-24
RM PC ADC	Recessed mount	On/off & dimming	12-24
CMB PC ADC	Fixture mount box	On/off & dimming	12-24



Example: CM PC DZ LT

ON / OFF SWITCHING

Series	Dual zone	Temp / humidity
CM PC	(blank) Single zone	(blank) Standard
RM PC	DZ Dual zone	LT Low temp
CMB PC		

DIMMING CONTROL

Example: CM ADC DZ LT

Series	Dual zone	Temp / humidity
CM ADC	(blank) Single zone	(blank) Standard
RM ADC	DZ Dual zone	LT Low temp
CMB ADC		

ON/OFF & DIMMING

Example: CM PC ADC DZ LT

Series	Dual zone	Temp / humidity
CM PC ADC	(blank) Single zone	(blank) Standard
RM PC ADC	DZ Dual zone	LT Low temp
CMB PC ADC		

LINE VOLTAGE

Daylighting Control Sensor : Line Voltage

Electrical Specs

Load Rating (1 Phase Only)

800 W @ 120 VAC

1200 W @ 277 VAC

1500 W @ 347 VAC

Motor Load 1/4 HP

Dimming Load sinks up to 20 mA or 40 ballasts @ .5 mA each (0-10 VDC dimmable ballasts only)

KEY SPECS			
SERIES	ENCLOSURE	CONTROL TYPE	POWER TYPE [VAC]
CMR PC	Ceiling mount	On/off	120/277
RMR PC	Recessed mount	On/off	120/277
CMRB PC	Fixture mount box	On/off	120/277
CMR ADC	Ceiling mount	Dimming	120/277
RMR ADC	Recessed mount	Dimming	120/277
CMRB ADC	Fixture mount box	Dimming	120/277
CMR PC ADC	Ceiling mount	On/off & dimming	120/277
RMR PC ADC	Recessed mount	On/off & dimming	120/277
CMRB PC ADC	Fixture mount box	On/off & dimming	120/277



Example: CMR PC DZ LT

ON / OFF SWITCHING

Series	Dual zone	Voltage ¹	Temp / humidity
CMR PC	(blank) None	(blank) 120/277 VAC	(blank) Standard
RMR PC	DZ Dual zone	347 347 VAC	LT Low temp
CMRB PC		480 480 VAC	

DIMMING CONTROL

Example: RMR ADC 347

Series	Voltage	Temp / humidity
CMR ADC	(blank) 120/277 VAC	(blank) Standard
RMR ADC	347 347 VAC	LT Low temp
CMRB ADC		

ON / OFF & DIMMING

Example: CMR PC ADC LT

Series	Voltage	Temp / humidity
CMR PC ADC	(blank) None	(blank) Standard
RMR PC ADC	347 347 VAC	LT Low temp
CMRB PC ADC		

Notes

1 480 option not available w/dual zone (DZ).