

# CEILING MOUNT OCCUPANCY SENSOR

Line Voltage



## OVERVIEW

The PLC Multipoint family of line voltage ceiling mount occupancy sensors provides a compact control solution capable of switching lighting loads without requiring a powerpack. PLC Multipoint products utilize the latest passive infrared technology and digital signal processing techniques to provide unmatched detection performance. Additionally PLC Multipoint units are available with an integrated microphone to provide overlapping passive acoustic occupancy detection for rooms with obstructions. Enhanced options for this sensor family include a photocell that will override lights off if sufficient ambient light is present and active daylight harvesting for 0-10V lighting.

## BASIC OPERATION

Sensors detect movement in the infrared energy that radiates from occupants as they move within the devices field-of-view. Once occupancy is identified, the sensor's internal relay switches power on to the connected lighting. If equipped with passive acoustic detection, the unit's microphone is then also enabled to further enhance detection while the lights are on. An internal timer is set to keep lights on during brief periods of inactivity, and is reset every time occupancy is signaled by either the passive infrared or acoustic detection technologies.

## SPECIFICATIONS

### ELECTRICAL

**Operating Voltage:**  
MVOLT (120-277 VAC)

**Load Ratings:**  
800W @ 120 VAC  
1200W @ 277 VAC

**Load Types:**  
Tungsten, Ballast, LED

**Dimming Capacity (-D Option)**  
50mA

**Dimming Compatibility:**  
0-10 VDC Ballasts or Drivers  
Compliant with IEC 60929  
Annex E.2

### ENVIRONMENTAL

**Operating Temp:**  
32°F to 122°F (0°C to 50°C) -  
Standard  
-40° F/C (with -HE Option)

**Relative Humidity:**  
0-95% Non-Condensing  
*Indoor Use Only*

### PHYSICAL

**Size:**  
4.00" Diameter x 1.25" H  
(10.16 x 3.17 cm)

**Weight:** 4.75 oz.

**Color:** White or Black

**Mounting Options:**  
3.5" Trade Size Octagon Box  
Mud Ring w/ 2.75" Spaced  
Ears

### OPERATION

**Time Delays:**  
30 sec to 30 min (Typical)  
10 Minute Default

**Test Mode:**  
5 sec Time Delay  
Expires After 10 min

### CODE COMPLIANCE

Sensors can be used to meet  
ASHRAE 90.1, IECC, & Title 24  
energy code requirements.



# APPLICATIONS

- Private Restrooms
  - Copy Rooms
  - Vestibules
  - Small Offices
- Conference Rooms
  - Break Rooms
  - Walk-In Closets

# FEATURES

- Digital Passive Infrared (PIR) Detection
  - Passive Acoustic Detection (optional)
  - 360° Coverage Pattern
  - Field Changeable Lens
- Compact Size and Matte Finish
  - Convenient Test Mode and Adjustable Time Delays
  - Electronically Timed Switching Designed for LED Fixture Control
  - Optional Override Phototcell & Daylight Harvesting

# ORDERING INFO

Sample Model# OCS-221-2

| Model# | Product                | Detection                                           |   | Voltage           | Options        |              |                            |                  |
|--------|------------------------|-----------------------------------------------------|---|-------------------|----------------|--------------|----------------------------|------------------|
| OCS    | Ceiling Mount Sensor 2 | Passive Infrared (PIR)                              | 0 | Small Motion 360° | 1              | MVOLT (120-  | High Humidity Environment  | —HE              |
|        |                        | Passive Infrared (PIR)                              |   | Large Motion 360° | 2              | 277 VAC) - 2 | Daylight Harvesting (0-10) | —D <sup>2</sup>  |
|        |                        | + Photocell                                         | 1 | High Bay 360°     | 3 <sup>1</sup> |              | Black Cover & Lens         | —BK <sup>3</sup> |
|        |                        | Passive Dual Technology (PIR/ Acoustic)             | 2 |                   |                |              | Low Temp / High Humidity   | —HE              |
|        |                        | Passive Dual Technology (PIR/ Acoustic) + Photocell | 3 |                   |                |              |                            |                  |

Note 1: Not available on Dual Tech. units  
Note 2: Only available on units w/ Photocells  
Note 3: Not available on units w/ Photocells

| Accessory # | Description                                                                                |
|-------------|--------------------------------------------------------------------------------------------|
| OCS-299-JP  | Ceiling Sensor Trim Ring for Mounting to Single Gang Mudring, Handy Box, or 4" Octagon Box |

# COVERAGE PATTERNS

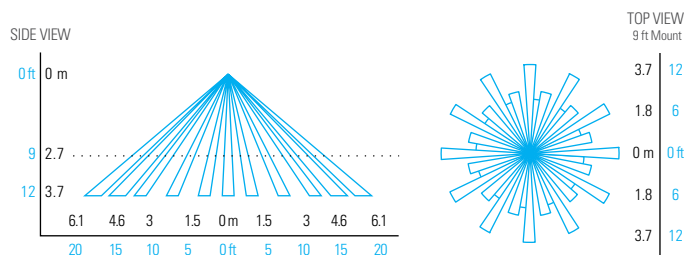
## PASSIVE INFRARED (PIR)

- 8 to 15 ft (2.44 to 4.57 m) mounting height recommended for small and large motion lenses. For 15 to 40 ft (2.44 to 12.20 m) mounting heights use high bay lens.
  - Detection range improves when walking across beams as compared to into beams.
- Lenses can be swapped in field if necessary, contact technical support for assistance.

## COVERAGE PATTERNS CONTINUED

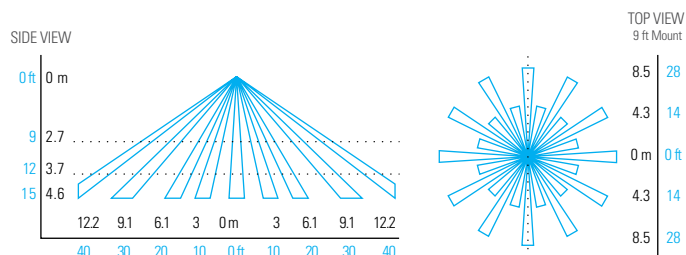
### SMALL MOTION 360°

- Best choice for detection of small motions from sitting occupants (e.g., hand motion).
- ~500 ft<sup>2</sup> of coverage



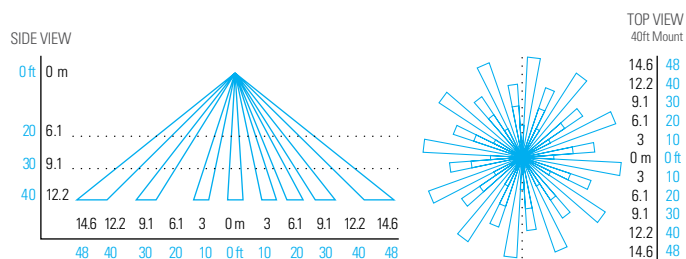
### LARGE MOTION 360°

- Best choice for detection of larger motion (e.g., walking).
- ~2000 ft<sup>2</sup> of coverage
- Longest segment of coverage pattern aligns with screw hole axis on sensor (shown as dotted line on Top View diagram below).



### HIGH BAY 360°

- Best choice for mounting heights above 15ft
- Recommended for gyms, warehouses, and other high ceiling areas
- Not recommended for areas where occupants are sitting
- Gaps between outer segments get larger as mounting height increases
- Not available with acoustic (dual technology)



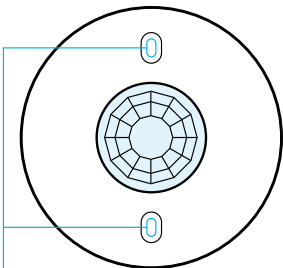
### DUAL TECHNOLOGY (PIR/ACOUSTIC)

- Units with dual technology (OCS-221-2 and OCS-222-2) have overlapping acoustic detection of the complete PIR coverage area.
- A PIR event is required to initially enable acoustic detection.
- Sounds indicating occupancy reset the sensor's time delay while non-occupant noises are filtered out.
- Occupant sounds alone will not keep lights on indefinitely, PIR motion must be periodically detected for lights to remain on for an extended time.
- After sensor time out expires, acoustic detection remains enabled for 15 seconds to enable voice reactivation of lights for additional convenience and safety.

# INSTALLATION OPTIONS

## BASIC MOUNTING OPTIONS

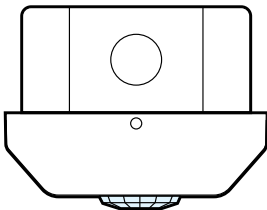
FRONT



- SCREW HOLES FOR DIRECTLY MOUNTING TO:
- CEILING SURFACE
  - 3-1/2" (TRADE SIZE) OCTAGON BOX
  - MUD RING WITH 2-3/4" SPACED EARS

SIDE

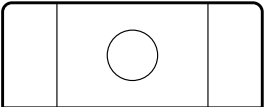
3.5" TRADE SIZE OCTAGON JUNCTION BOX



SENSOR MOUNTED  
DIRECTLY TO  
3.5" TRADE SIZE  
OCTAGON BOX

SIDE

4" JUNCTION BOX

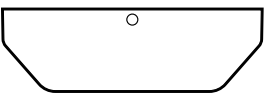


MUDRING

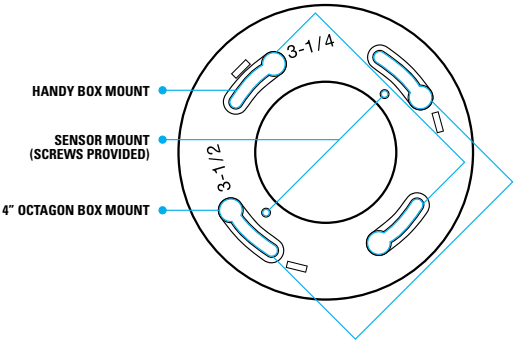
SENSOR

PROGRAMMING  
BUTTON

COVER

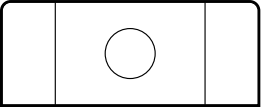


## ADDITIONAL MOUNTING OPTIONS USING OCS-299 TRIM RING



SIDE

4" OCTAGON BOX

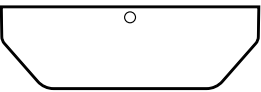


TRIMRING

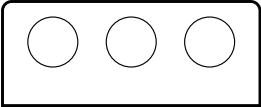
SENSOR

PROGRAMMING  
BUTTON

COVER



4" HANDY BOX (or SINGLE GANG MUDRING)

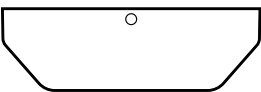


TRIMRING

SENSOR

PROGRAMMING  
BUTTON

COVER



# PHOTOCELL & DAYLIGHT HARVESTING & OPERATION

Units with the integrated photocell option can provide on/off or inhibit only control of lighting. Units with the daylight harvesting option can also directly dim 0-10V lighting.

## DAYLIGHT HARVESTING

- Lights will gradually dim in order to maximize energy savings while maintaining desired overall lighting level.
- Recommend for spaces where it is important to not distract occupants (e.g., offices, classrooms).
- Option to dim to low trim or turn lighting completely off.

## ON/OFF PHOTOCELL CONTROL

- Lights are switched off if ambient light level surpasses threshold and back on if level drops.
- Recommended for public spaces (hallways, entryways, etc) where fully switching of lighting off and on will not cause distraction of occupants.

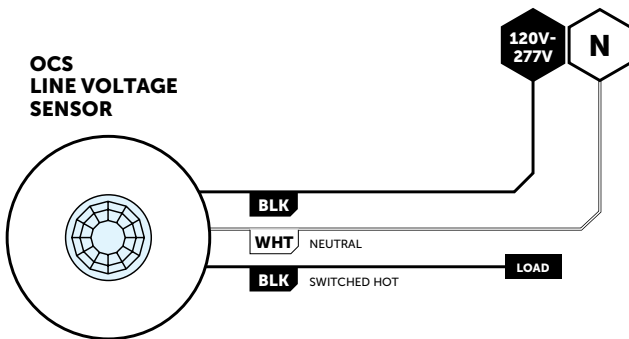
## INHIBIT ONLY PHOTOCELL CONTROL

- Lighting is held off if sufficient ambient light level is present upon initial occupancy.
- Lighting will turn on if light level drops below setpoint.
- Once on, lighting will only turn off from vacancy or a manual switch, never from daylight.

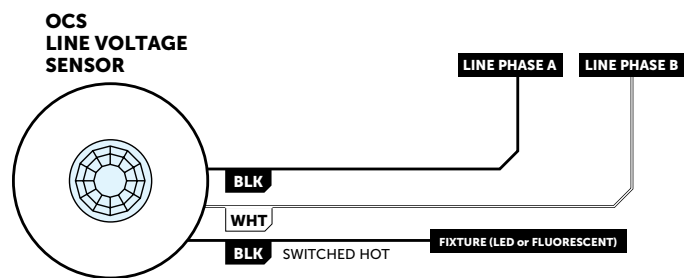
## WIRING

- Sensors can be wired in parallel, although the total switching load remains the same.
- When wired in parallel, both sensors must time out for connected lighting to turn off.
- If wiring in an additional toggle switch for override off control, connect between the sensor and the load.

## SINGLE PHASE WIRING

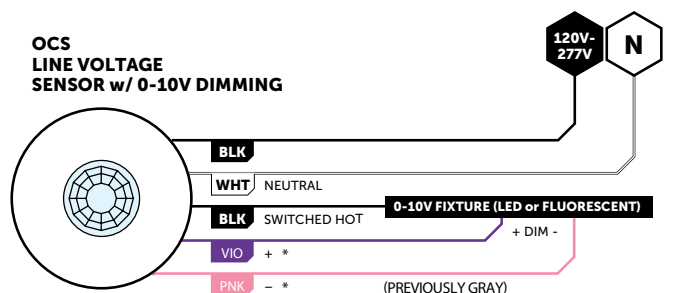


## 2-PHASE WIRING (208 VAC)



## SINGLE DIMMING WIRING

- Dimming wires are present on daylight harvesting models with -D option.



\* VIO/PNK DIMMING WIRES (0-10V) SHOULD BE TREATED AS CLASS 1