

PLC Multipoint



0-10V DIMMING WALL SWITCH SENSOR

LOW VOLTAGE

PROJECT

LOCATION

OVERVIEW

The **Cadence** family of wall switch occupancy/vacancy sensors provides a simple and cost effective lighting control solution for many applications. Just like its line voltage counterpart, the low voltage **Cadence** 0-10V dimming wall switch sensor is designed with contractors in mind. Less than 1" deep, the unit is 25-40% shallower than typical dimmers and sensors, resulting in less crowded wall boxes. **Cadence** products utilize the latest passive infrared technology and digital signal processing techniques to provide unmatched motion detection performance. These units are also available with an integrated microphone to provide overlapping passive acoustic occupancy detection for rooms with obstructions or where occupant motion is limited. For dimming adjustment, intuitive raise and lower buttons are present in addition to an on/off button.

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 signals a connected power/relay pack to switch on the connected lighting. All units can also be configured to operate in Vacancy Mode (e.g., require lights be manually switched on). Once lights are on and if equipped with passive dual technology (PIR/Acoustic), the unit's microphone is enabled to further enhance detection. 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. Ambient daylight detection can also be enabled in equipped units so that lights are held off in rooms with sufficient light contribution from windows or skylights.

SPECIFICATIONS

ELECTRICAL

OPERATING VOLTAGE

12-24 VAC/VDC

CURRENT DRAW

2mA (PIR model)
10mA (Dual Tech. models)

OUTPUT

Logic High VDC (Occupied Mode)

DIMMING COMPATIBILITY

0-10 VDC ballasts or drivers compliant with IEC 60929 Annex E.2

DIMMING LOAD

- 50 mA (sink only)

RECOMMENDED POWER PACK

PP-900 (for Stand Alone apps.)
PP-900-AX (for Multi-Way apps.)

ENVIRONMENTAL

OPERATING TEMP

32°F to 122°F (0°C to 50°C)

RELATIVE HUMIDITY

0-95% Non-Condensing,
Indoor Use Only

PHYSICAL

SIZE

2.74"H x 1.68"W x 1.39"D
(6.96 x 4.27 x 3.53 cm)
Not Including Mounting Strap

WEIGHT

4.5 oz

MOUNTING

Single Gang Switch Box



FEATURES

PHYSICAL FEATURES

- Enclosure is 25-40% Shallower than Other Sensors (< 1" Depth into Wallbox)
- Unique Bat-Wing Shaped Lens Provides Enhanced Peripheral Detection
- Modern Look and Intuitive Easy-Tap Buttons for On/Off, Raise, & Lower
- Rugged Vandal Resistant Lens
- Settings are Adjustable Without Removing Cover Plate

OPERATIONAL FEATURES

- Compatible with 0-10V Dimmable LED, and Fluorescent Lighting
- Wall-To-Wall Passive Infrared Small Motion Detection
- Passive Acoustic Detection (Optional) - Prevents False Offs when No Motion is Present
- 100% Passive Detection Methods - No Interference Potential from External Devices

- Configurable Sensor Settings Including Time Delays and Occupancy/Vacancy Operating Modes
- Configurable Dimming Parameters including High/Low Trims, Turn on Levels, and Curve Types
- Blue Locator LED when Lights are Off
- Multi-Way/Multi-Sensor Option

ORDERING INFO

SAMPLE MODEL # OCS-101-1-D-WH

	PRODUCT		DETECTION		DEFAULT OPERATIONAL MODE	VOLTAGE	DIMMING	APPLICATION	COLOR*
OCS	Wall Switch Sensor	- 1	Passive Infrared (PIR) 0 Passive Infrared (PIR) + Daylight 1 ¹ Dual Technology (PIR/Acoustic) 2 Dual Technology (PIR/Acoustic) + Daylight 3 ¹		Auto On to 50% (Partial On) 1 Manual On (Vacancy) 3 ² Vacancy Only (CA Title 20/24) 4 ²	12-24V - 1	0-10V Dimming - D	Stand Alone <blank> Multi-Switch or Multi-Sensor - MS ^{1,2}	White - WH Ivory - IV Lt. Almond - LA Gray - GY Red - RD Black - BK

NOTES 1: DAYLIGHT DETECTION NOT AVAILABLE WITH MULTI-SWITCH/SENSOR (-MS) OPTION
2: FOR MULTI-SWITCH/SENSOR (-MS) UNITS, VACANCY OPERATION MUST BE CONFIGURED ON THE CONNECTED PP-900-AX POWER PACK
* WALLPLATE NOT INCLUDED
** THE CONTRACTOR PACK OPTION (-J10) REDUCES JOB SITE WASTE AND INVENTORY TIME

ADDITIONAL OPTIONS

PACKAGE COUNT

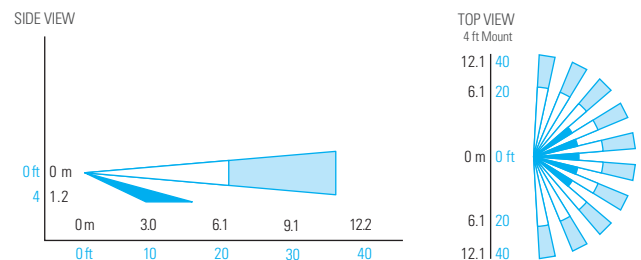
Single Pack **Blank**
10 Pack** **-J10**

ACCESSORIES

WALL PLATE	COLOR
OCS-199 Single Gang Wall Plate	White - WH Ivory - IV Light Almond - LA Gray - GY Red - RD Black - BK

COVERAGE PATTERNS

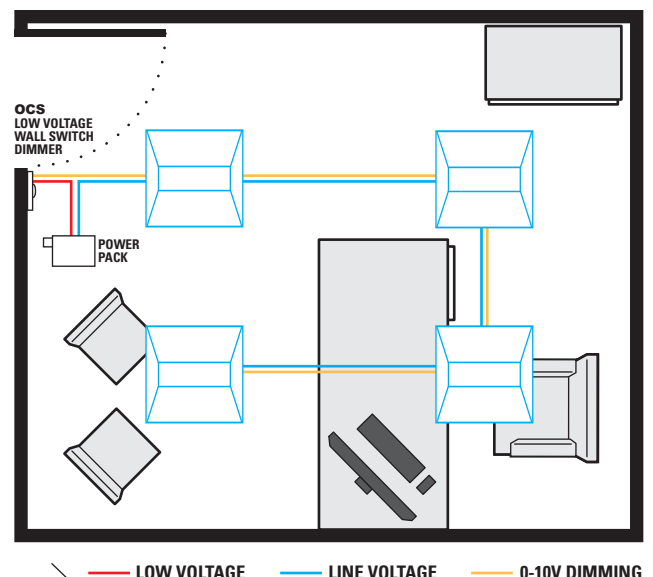
- 30" to 48" (0.76 - 1.22 m) recommended mounting height
- Wall to wall (~180 degree) coverage
- Small motion (e.g., hand movement) detection up to 20 ft (6.10 m), ~625 ft²
- Large motion (e.g., walking) detection greater than 36 ft (10.97 m), ~ 2025 ft²
- Overlapping acoustic detection of occupants over entire coverage area
- Advanced signal processing filters out nuisance noises while not effecting overall sensitivity



APPLICATIONS

A wall switch sensor is typically used in a small room or enclosed space. A Passive Infrared (PIR) only sensor is sufficient for spaces where line of site is maintained and occupants are periodically moving (e.g., copy rooms, storage rooms). Dual technology sensors are necessary where occupants may be partially blocked from the sensor's direct view or where they may be stationary (e.g., private offices or restrooms with stalls).

- Private Restrooms
- Small Meeting Room
- Storage Room
- Copy Rooms
- Small Office
- Break Room
- Restroom with Stalls
- Vestibule



MODEL NUMBER DETAIL TABLE

MODEL #	DETECTION TYPE		DEFAULT OPERATING MODE ^{1,2}		APPLICATION	WIRING DIAGRAM
	PIR	ACOUSTIC	NAME	DESCRIPTION		
OCS-101-1-D	•		Partial On	Auto-On to 50%	Stand Alone	A
OCS-101-1-D-MS	•		Partial On	Auto-On to 50%	Multi-Switch / Sensor	B
OCS-103-1-D	•		Vacancy	Manual On to Last Level	Stand Alone	A
OCS-111-1-D	•		Partial On	Auto-On to 50%	Stand Alone	A
OCS-121-1-D	•	•	Partial On	Auto-On to 50%	Stand Alone	A
OCS-121-1-D-MS	•	•	Partial On	Auto-On to 50%	Multi-Switch / Sensor	B
OCS-123-1-D	•	•	Vacancy	Manual On to Last Level	Stand Alone	A
OCS-131-1-D	•	•	Partial On	Auto-On to 50%	Stand Alone	A

1. ALL MODES ARE ENERGY CODE COMPLIANT
2. MODES ON ALL UNITS ARE FIELD CONFIGURABLE

CODE COMPLIANCE

This wall switch sensor can be used to meet many requirements of ASHRAE 90.1 (2016), IECC (2015), and Title 24 (2016).

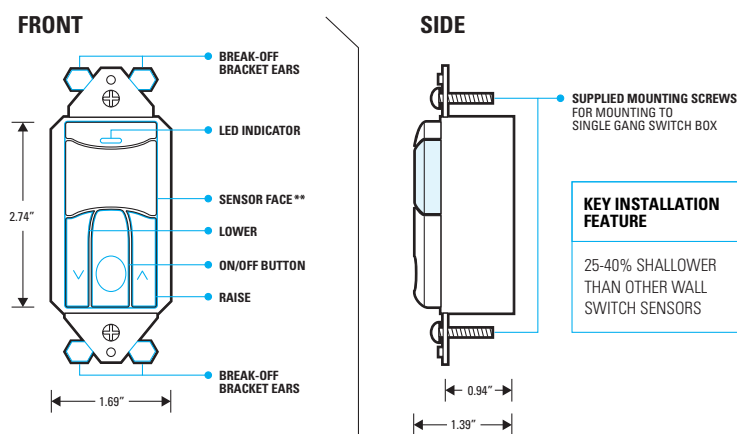
- Occupancy Operation: Auto On/Auto Off
- Vacancy Operation: Manual On/Auto Off
- Partial On Operation:
 - Auto On to 50%
 - Users can raise or lower light level manually
 - Auto Off

ASHRAE®
STANDARD 90.1 - 2016

IECC®
2015 STANDARD



INSTALLATION



** SENSOR FACE IS FIELD REMOVABLE IN ORDER TO CHANGE COLORS. CONTACT FACTORY FOR ADDITIONAL FACES

WIRING

DIAGRAM A: STAND ALONE SENSOR WIRING

It is not recommended to connect a second low voltage sensor to the stand alone model low voltage wall switch sensor as the second sensor will override the switches on/off button when occupied. For multi-sensor applications, models with the **-MS** option should be utilized.

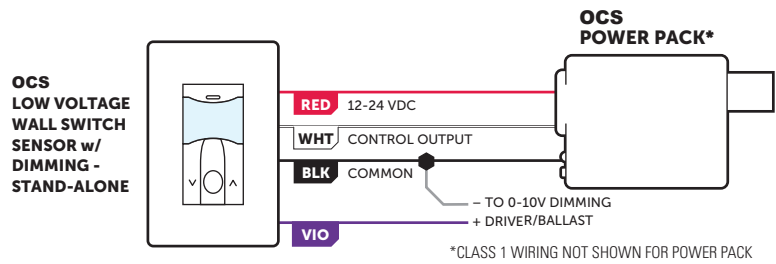
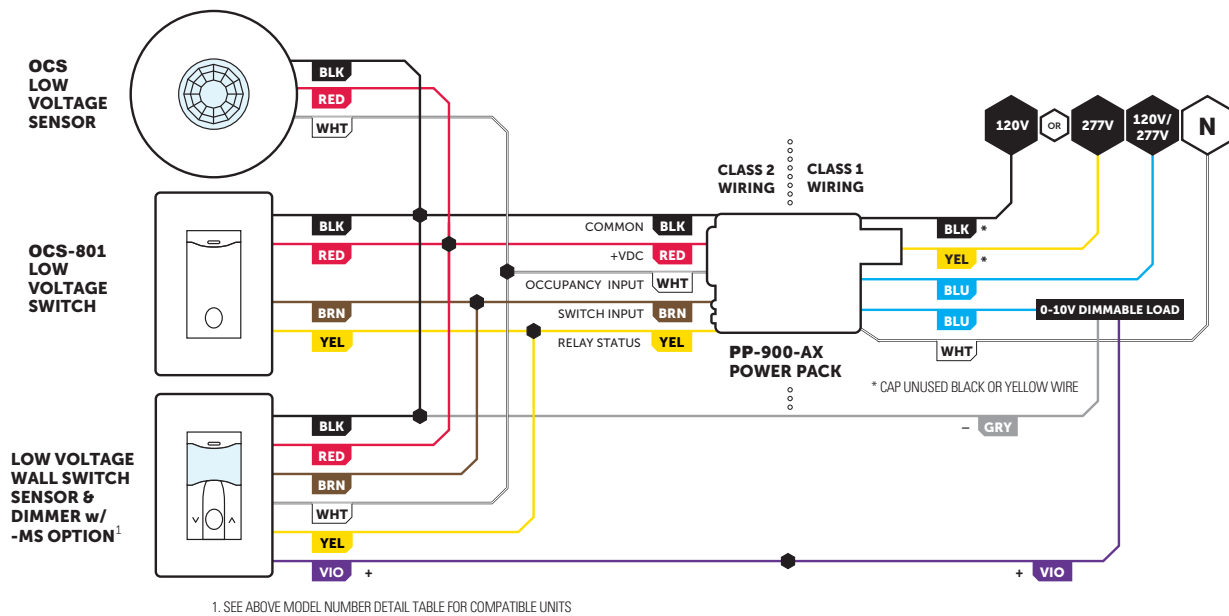


DIAGRAM B: MULTI-SWITCH AND MULTI-SENSOR APPLICATIONS

- Multi-Switch (i.e. 3-way) applications include a single low voltage wall switch sensor/dimmer (**-MS** option required) and one or more low voltage switches (OCS-801)
- It is recommended that all low voltage switches be within the line-of-sight of the sensor
- Multi-Sensor applications include a single low voltage wall switch sensor/dimmer (**-MS** option required) and one or more low voltage sensors (e.g. OCS-201-1)
- PP-900-AX model power packs should always be used with sensors with multi-switch/multi-sensor (**-MS**) option



OPERATION SETTINGS

TIME DELAY

- Test mode, 30 sec, 5-30 minutes
- 5 sec test mode expires after 10 minutes

HIGH-END & LOW-END TRIM

- High-end trim enables energy saving task tuning by setting a maximum level (100%-50%) that which users are allowed to raise lights
- Low-end trim enables minimum user level of dimmer to be raised

TURN ON/TURN OFF DIMMING OPERATION

- Sensor turns on lighting to last user level or a preset level (100%, 50%, or custom)
- Sensor can turn off lighting by switching off power (by opening relay) or dimming below electronic off level
- Lighting can also be held at low-end trim level during unoccupied/off state

FADE ON/FADE OFF TIMES

- Adjustable time for level to ramp up to turn-on level (0.75 sec, 1.5 sec, 3 sec, 5 sec, or 15 sec)
- Adjustable time interval for level to ramp down to off (0.75 sec, 1.5 sec, 3 sec, 5 sec, or 15 sec)

DIMMING CURVE

- The dimming curve defines how dimmers adjust their voltage output in response to button commands
- Linear (default), Square Law, Logarithmic

AMBIENT LIGHT (DAYLIGHT) DETECTION

- Sensor holds lights off when ambient light is present
- Manual threshold levels or auto-selection of threshold level
- Disabled when in Vacancy (Manual On) mode
- Available with stand alone versions only

TURN-ON SENSITIVITY

- When enabled, this setting reduces the sensor's PIR sensitivity for initial turn-ons in order to eliminate false on caused by reflective surfaces like windows
- Unit returns to full sensitivity after initial turn-on

OPERATIONAL MODES

Cadence wall switch sensors are intelligent devices that provide both excellent energy savings and enhanced user convenience. In stand alone models, users can choose from several pre-programmed operational modes that best fit their preferences and applicable energy codes. In multi-sensor/switch (**-MS**) models, Vacancy and Occupancy modes are achievable by configuration of the connected PP-900-AX power pack.

Vacancy Mode

Manual On / Automatic Off operation. Lights can also be switched off manually. This mode provides increased energy savings but requires the user to initially turn on the lights. Models OCS-103, OCS-104, OCS-123, and OCS-124 default to Vacancy modes.

Occupancy Mode

Automatic On and Automatic Off operation. If lights are switched off manually, the Automatic On functionality is temporarily disabled to allow the person a few seconds to leave the room before switching back to Automatic On operation. However, if the person remains in the space the unit will stay in a manual on state until the switch is pressed again. This mode is the default operation of OCS-101, OCS-111, OCS-121, and OCS-131 models.

Automatic On w/ Exit Time Mode

Automatic On and Automatic Off operation. If lights are switched off manually, the Automatic On functionality is disabled for a fixed 30 seconds.

Override Off Mode

Automatic On and Automatic Off operation until lights are switched off manually, at which point Automatic On functionality is disabled until the switch is pressed again.

Disabled Switch Mode

Automatic On and Automatic Off operation only. Switch functionality to manually turn on/off lights is disabled.

Presentation Mode

If lights are switched off manually, the Automatic On functionality is disabled until the space becomes unoccupied and the sensor's time delay expires.

LED FUNCTIONALITY

- White LED blinks upon occupancy detection
- Blue LED serves as a switch locator when lights are off
- LED functionality can be disabled