

Dual-Relay Decora Wall Switch Occupancy Sensor

ODSOD-ID

The ODSOD-ID Occupancy Sensor—

- Controls two separate lighting loads from a single unit
- Features new self-adjusting occupancy sensor technology with automatic “walk-through” sensing
- Choice of “Conference Room” or “Class Room” modes for maximum performance in a variety of installations

APPLICATION

Leviton’s Cat. No. ODSOD-ID Dual-Relay Decora Wall Switch Passive Infrared (PIR) Occupancy Sensor is used to provide automatic lighting control for energy savings and convenience in a variety of commercial applications, including:

- Class rooms
- Conference rooms
- Offices
- Multimedia rooms
- Day care centers
- Lounges

The ODSOD-ID provides automatic switching of two separate lighting loads from a single unit. It is compatible with incandescent, fluorescent and low-voltage lighting. The unit features dual manual-override switches that can be used to toggle the ON/OFF status of each lighting load while an area is occupied. The ODSOD-ID can be installed in place of two single-pole wall switches and fits in a standard single-gang wall box. The unit requires a ground connection for proper operation.

BASIC OPERATION

The ODSOD-ID uses passive infrared (PIR) detection technology to monitor a room for occupancy through a segmented Fresnel lens. This specialized lens divides the field of view into sensor zones. When a person passes into or out of a sensor zone, the sensor detects motion and switches two separate lighting loads ON. The lights will remain ON as long as there is an occupant moving through the sensor zones.

A delayed-OFF time adjustment prevents the lights from switching OFF when the space is occupied. In order to keep the lights ON, a person must pass through a sensor zone at least once during the selected delayed-OFF time interval. A **self-adjusting delayed-OFF time feature** compensates for real-time occupancy patterns to prevent unnecessary ON/OFF switching. An LED indicator blinks each time the unit detects activity in the sensor zones. When the space being monitored by the sensor is unoccupied for the length of the delayed-OFF time interval, the unit will beep 3 times. Ten seconds after the last warning beep, the unit will switch the lights OFF.

To ensure longer service life and compatibility with electronic ballasts, the device carefully times the primary relay switching contact opening and closing with the zero crossing point of the AC power curve. This minimizes contact wear caused by in-rush currents from electronic ballasts.



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An exclusive walk-through feature addresses the typical situation where personnel may only enter a room momentarily. The walk-through feature provides increased energy savings by preventing the lights from remaining ON for an extended period after only momentary occupancy.

The **walk-through feature** operates as follows: The ODSOD-ID will switch lights ON when it detects a person entering the area it monitors. However, if there is no occupant activity detected during the 2-1/2 minutes immediately following the initial entry, the unit recognizes that a person was just “walking through” the area. It will then automatically time out. After the initial 2-1/2 minute time interval expires, the unit will beep 3 times and then wait 10 seconds before switching the lights OFF.

NOTE: The Self-Adjusting Delayed-OFF Time and the Walk-Through features are factory-preset features in the ODSOD -ID. These features can be disabled if required—See “Non-Adaptive Mode.”

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Ambient Light Override

To maximize energy savings, the Ambient Light Override feature prevents the ODS0D-ID from switching lights ON when there is ample natural sunlight in the room, regardless of occupancy. The push-button can be used to turn lights ON at any time, regardless of the override setting. Refer to Conference Room and Classroom Mode sections for further explanation of this feature.

Push-button Manual Override Control

For manual control of primary and secondary lighting loads, the ODS0D-ID features dual push-button switches that will "toggle" the ON/OFF status of each load. Push-button 1 controls the primary relay, and push-button 2 controls the secondary relay. If the lights are OFF, pressing either button 1 or 2 will turn the respective lighting loads ON and keep them ON for as long as the room is occupied. The lights will be turned OFF once the room is vacant, after the delayed-OFF time expires.

The dual manual-override switches provide a **viewing mode feature**: If the lights are ON, pressing the push buttons will turn lights OFF and keep them OFF even if the room is occupied. This feature is particularly useful for viewing slide or film presentations. The lights can be turned back ON as needed by simply pressing the buttons. The lights will remain OFF when the room becomes vacant. After the delayed-OFF time expires, the unit will resume motion detection operation. Refer to Conference Room and Classroom Mode sections for further explanation of this feature.

OPERATION MODES

Conference Room Mode (factory default setting)—In the Conference Room Mode, the ODS0D-ID responds to personnel entering a room by switching the primary and secondary loads back to their status during the last period of occupancy, before the delayed-OFF time expired. In other words, whenever the unit detects occupancy after the last time-out, it remembers the previous ON/OFF condition of each load and switches back to that condition. The exception to this is when both the primary and secondary loads were manually switched OFF for a viewing mode. In this case, the primary load only will automatically turn ON the next time occupancy is detected. This avoids the condition of personnel entering a fully darkened room under any circumstance.

The Conference Room Mode is ideal for maximizing energy savings in areas where lighting is only required when natural illumination is inadequate. Both relays in the Conference Room Mode respond to the Ambient Light Override. Therefore, if the Ambient Light Override has been adjusted to keep lights OFF during periods of ample sunlight, both the primary and secondary relays will not switch their loads ON during these periods, regardless of the last state before the delayed-OFF time expired.

The Conference Room Mode Chart No. 1—Provides a complete summary of how the ODS0D-ID performs in this mode.

For Example, No. 3 in the chart is a typical conference room situation where the secondary load is switched OFF with the manual override button. The primary load only provides the desired

lighting level. The room becomes vacant after the meeting and the delayed-OFF time expires. The primary lighting load will turn OFF (the secondary load was already OFF). When personnel re-enter the conference room, the lights automatically switch back to the last condition before the time-out: Primary ON, Secondary OFF. Note that the Ambient Light Override has not been set in No. 3.

Number 4 shows the same lighting condition during occupancy as in No. 3 (Primary ON, Secondary OFF). However, the Ambient Light Override has been set so that the lights will not turn ON if there is adequate natural lighting. When personnel re-enter the conference room and there is a sufficient level of natural light, the Primary Relay will not switch lights ON, even though this was the last condition before the delayed-OFF time expired.

Number 7 is typical of the viewing mode where both the primary and secondary lighting loads are switched OFF. The room becomes vacant after the presentation and the delayed-OFF time expires. Both lighting loads remain OFF. When personnel re-enter the conference room, the primary lighting load automatically turns ON, even though it was not ON during the last period of occupancy. This feature prevents personnel from entering a fully darkened room. Note that the Ambient Light Override has not been set in No. 7.

Number 8 is exactly the same condition as No. 7 (both primary and secondary lighting turned OFF for viewing mode), except the Ambient Light Override has been set. When personnel re-enter the conference room and there is an adequate level of natural lighting, the Primary Relay will not switch ON. However, if the natural lighting is not adequate, the Primary relay will switch ON just as it does in example 7.

FIELD OF VIEW

The ODS0D-ID provides a 180° field of view with a maximum coverage area of approximately 2100 square feet. The maximum sensing distance in front of the sensor is 40 feet, and at each side is 30 feet. A "small-motion" zone detects relatively small body movements and allows the lights to stay ON even though a person may not be moving or walking around the room. The remainder of the field of view, the "large-motion" zone, exhibits a lesser degree of sensitivity and requires larger movements.

ENHANCED ADJUSTMENT OPTIONS

The ODS0D-ID is factory preset to deliver optimum performance in a wide variety of commercial applications. Factory settings are: Conference Room mode, 10-minute delayed-OFF time with self-adjusting delayed-OFF feature, 2-1/2 minute walk-through feature, no Ambient Light Override in effect, maximum range, and blinders open.

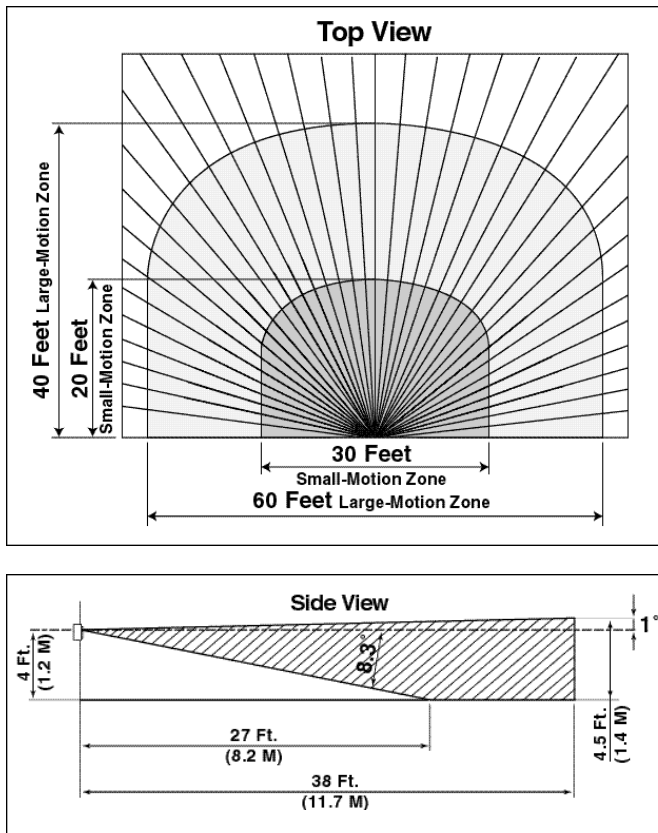
To meet specific installation requirements, the Cat. No. ODS0D-ID provides enhanced adjustment options for sensitivity, Ambient Light Override, delayed-OFF time, field-of-view, Classroom mode, and Non-Adaptive mode. To avoid tampering, all adjustments can only be accessed by removing the control panel cover. A small flat-head screwdriver can be used to adjust the control knobs, and the field-of-view blinders are finger-tip operated.

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Conference Room/Class Room Modes—To change between Conference Room and ClassRoom Modes, wait one minute after unit is powered up. Adjust "TIME" wheel fully counterclockwise. Press both push-buttons simultaneously. When unit beeps once, it is in the ClassRoom mode; two beeps indicate Conference Room mode. After choosing the desired mode, restore TIME wheel to original setting.

Blinders—Integral sliding blinders on each side of the lens may be used to restrict the 180° field of view down to 32°. This will prevent unwanted detection in areas such as hallways.

Time—The delayed-OFF time is preset at 10 minutes. A choice of four delayed-OFF time settings is available: 30-seconds (for walking test purposes only), 5 minutes, 10 minutes, and 20 minutes. Unit will beep when adjusting knob is set to the indicated time value.

Self-Adjusting Delayed-OFF Time—Provides convenience and energy savings by preventing unnecessary ON/OFF light switching. During periods of occupancy where there is little activity and infrequent motion detection, the delayed-OFF time setting is automatically increased, up to a maximum of 30 minutes. During periods of occupancy where there's more activity and frequent motion detection, the delayed-OFF time setting will automatically be decreased.

The decreased delayed-OFF time setting will be in effect after the unit has timed out and the next period of occupancy begins. The delayed-OFF time will not be reduced beyond the preset 10-minute interval or the custom-selected time interval.

Non-Adaptive Mode—Both the Self-Adjusting Delayed-OFF Time and Walk-Through Features can be disabled for installations where they are not required. Refer to Instruction Sheet enclosed with unit.

Range—Reducing the coverage range of the sensor allows the unit to ignore motion at the far end of its range and avoid unnecessarily switching lights ON. The range can be adjusted from 100% to 36% of the total coverage area.

Light—To maximize energy savings, the Ambient Light Override feature will prevent the unit from switching lights ON when there is ample natural sunlight, regardless of occupancy. The Ambient Light Override adjustment should be made during a period where the ambient light in the room being monitored is at a level where no artificial light is needed. The push-button can be used to turn lights ON at any time, regardless of the override setting. (Reminder: In the Conference Room Mode, both primary and secondary loads are effected by the Ambient Light Override. In the ClassRoom Mode, only the secondary load is effected by the Ambient Light Override.)

Self-Adjusting Ambient Light Override Feature—After the Ambient Light Override level has been set, the ODSOD-ID can compensate for changes in lighting requirements. When the push-button is used to cancel the Ambient Light Override and turn the lights ON, the Ambient Light Override is automatically reset based on the natural light level at that time. To return the Ambient Light Override back to the original setting, press and hold the push button down for approximately three seconds until the unit beeps, indicating the original level is restored. *NOTE:* Either push button 1 or 2 can be used to reset the Ambient Light Override level.

SPECIFICATIONS

The device listed herein shall be Leviton Commercial Specification Grade Dual Relay Decora Wall Switch Occupancy Sensor, capable of detecting infrared emissions from human presence and responding by switching ON two separate loads of incandescent, low-voltage, or fluorescent lighting. If this unit does not detect movement after a preset period of time, it will respond by switching both its assigned load off. The primary relay in the unit shall switch at the zero crossing point of the AC power curve to ensure maximum relay contact life and compatibility with electronic ballasts.

Dual Relay Wall Switch Occupancy Sensor shall be equipped with dual push-buttons to provide manual on/off switching for each load. Unit shall provide a walk-through feature to prevent lights from remaining on for extended periods after momentary occupancy in the area being monitored. Leviton Dual Relay Decora Wall Switch Occupancy Sensor shall feature self-adjusting delayed-OFF time and Ambient Light Override capabilities. Non-adaptive mode shall be provided so that walk-through and self-adjusting delayed-OFF time features can be disabled. Wall Switch Occupancy Sensor shall also provide sensitivity

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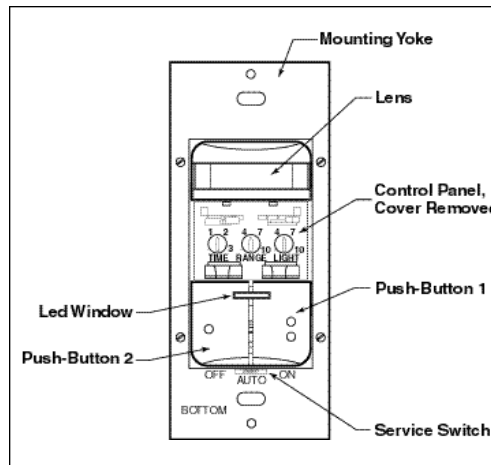
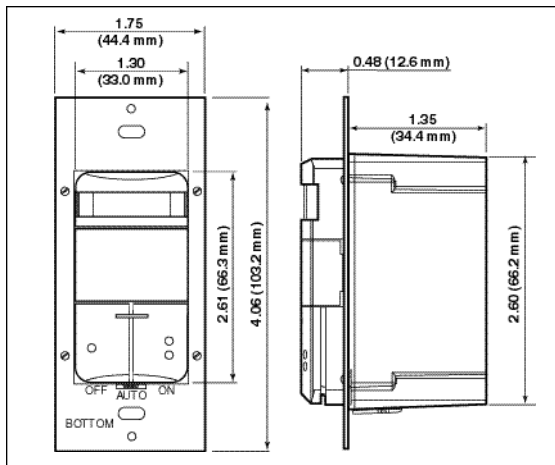
adjustment and integral sliding blinders to customize the horizontal field of view. Unit shall be capable of providing optional manual-on/automatic-off operation.

FEATURES AND BENEFITS

- Provides automatic switching for two separate banks of fluorescent, incandescent, or low-voltage lighting from a single unit. Ideal for classrooms, day care centers, offices, multimedia areas, conference rooms, lounges and other commercial areas.
- Convenient dual push-buttons provide manual ON/OFF light switching of each load at any time.
- Conference Room Mode—Primary and secondary relays switch lighting to last ON/OFF status when personnel enter room, providing a consistent lighting level from one occupancy period to the next. Both relays respond to Ambient Light Override, preventing lights from turning ON automatically during periods of ample natural light, for increased energy savings.
- Class Room Mode—Both primary and secondary relays always switch lighting ON when personnel enter room, regardless of their ON/OFF status during last period of occupancy. Secondary relay only responds to Ambient Light Override—primary does not, ensuring that students and personnel never enter a darkened room.
- Viewing Mode feature for slide or film presentations allows push buttons to turn lights OFF and keep them OFF even if room is occupied.
- Self-adjusting delayed-OFF time interval compensates for real-time occupancy patterns, preventing unnecessary ON/OFF switching.
- Exclusive Walk-Through feature provides increased energy savings by not leaving the lights ON for an extended period after only momentary occupancy.
- Non-Adaptive Mode disables Self-Adjusting Delayed-OFF Time and Walk-Through Feature in applications where these feature are not desired.
- New, low-profile design eliminates obtrusive “scanning-device” look. Elegant Decora styling complements any interior; uses Decora wallplates and coordinates with Leviton’s popular line of Decora wiring devices.

- 180° field-of-view provides approximately 2100 square feet of coverage, suitable for a variety of commercial areas.
- Segmented Fresnel lens provides optimum sensitivity and performance. Designed with an extensive “small motion” area where even slight body movements will be detected.
- Horizontal field of view may be adjusted between 180° and 32° arc by using integral blinders located on either side of the lens.
- Optional manual adjustment for delayed-OFF time settings of 30 seconds (for walking test), 5 minutes, 10 minutes and 20 minutes. Allows customized adjustments to maximize energy savings.
- Adjustable Ambient Light Override ranges from approximately 2 foot-candles (2 lux) to 500+ foot-candles (500+ lux).
- Self-Adjusting Ambient Light Override compensates for changes in lighting requirements after override level has been set.
- Manual-ON/Automatic-OFF mode for installations where manual ON switching is required but automatic OFF switching is still desired for energy savings.
- LED indicator light flashes when sensor detects motion to verify detection is active.
- Unit beeps 3 times after delayed-OFF time expires, then waits 10 seconds before turning lights OFF.
- One unit can be used for either 120V or 277V lighting. Compatible with both electronic and magnetic ballasts.
- Primary relay switches at the zero crossing point of the AC power curve to ensure longer contact life and compatibility with electronic ballasts.
- Unit fits in standard single-gang wallbox and replaces two single-pole wall switches; ground connection required. Gangable with other devices.
- CUL/US Certified, complies with California Title 24 Energy Code and FCC Regulations.
- Limited Five-Year Warranty

DIMENSIONAL DIAGRAMS



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CHART NO. 1 – OPERATION IN CONFERENCE ROOM MODE

	Lighting status during occupancy	Ambient Light Override	Room vacant, delayed-OFF time expires. Lighting status when personnel re-enter darkened room	Room vacant, delayed-OFF time expires. Lighting status when personnel re-enter room with ample natural lighting
1	Primary: ON Secondary: ON	Not Set	Primary: ON Secondary: ON	Primary: ON Secondary: ON
2	Primary: ON Secondary: ON	Set	Primary: ON Secondary: ON	Primary and Secondary remain OFF due to light override
3	Primary: ON Secondary: OFF	Not Set	Primary: ON Secondary: OFF	Primary: ON Secondary: OFF
4	Primary: ON Secondary: OFF	Set	Primary: ON Secondary: OFF	Primary and Secondary remain OFF due to light override
5	Primary: OFF Secondary: ON	Not Set	Primary: OFF Secondary: ON	Primary: OFF Secondary: ON
6	Primary: OFF Secondary: ON	Set	Primary: OFF Secondary: ON	Primary and Secondary remain OFF due to light override
7	Both Primary and Secondary turned OFF for viewing mode	Not Set	Primary: ON Secondary: OFF	Primary: ON Secondary: OFF
8	Both Primary and Secondary turned OFF for viewing mode	Set	Primary: ON Secondary: OFF	Primary and Secondary remain OFF due to light override

Class Room Mode (Optional Setting)—In the ClassRoom Mode, the ODSOD-ID does not switch the primary and secondary loads based on their status before the last delayed-OFF time expired. In this mode, the Primary Load ALWAYS switches ON, and the Secondary Load is controlled by the Ambient Light Override. The ClassRoom Mode is intended for applications where ambient light control of the Secondary Load only is desired.

This mode is ideal for classrooms, day care centers and other areas where the primary lighting load should always be switched ON for the safety of children and other personnel entering a room. In these applications, the Primary Lighting Load provides sufficient lighting along with the natural lighting in the room. The secondary relay remains OFF to generate energy savings. If natural lighting is not sufficient, the secondary relay will also switch ON.

The ClassRoom Mode Chart No. 2—Provides a complete summary of how the ODSOD-ID performs in this mode.

In the ClassRoom Mode, the lighting status during the last period of occupancy is not a factor. The Primary Relay will always turn ON when personnel re-enter after the delayed-OFF time has expired, as shown in both Numbers 1 and 2. Number 1 shows how the unit responds when the Ambient Light Override has not been set: Both the Primary and Secondary Loads turn ON when personnel re-enter after the delayed-OFF time has expired.

Number 2 shows how the unit responds when the Ambient Light Override has been set, which is typically how the ClassRoom Mode is used. When personnel re-enter the room and there is a sufficient level of natural lighting, the Primary Relay will always switch ON, while the Secondary Relay responds to the Ambient Light Override and remains OFF.

CHART NO. 2 – OPERATION IN CLASS ROOM MODE

	Lighting status during occupancy. NOTE: Previous status does not in Class Room Mode	Ambient Light Override	Room vacant, delayed-OFF time expires. Lighting status when personnel re-enter darkened room	Room vacant, delayed-OFF time expires. Lighting status when personnel re-enter room with ample natural lighting
1	Not applicable	Not Set	Primary: ON Secondary: ON	Primary: ON Secondary: ON
2*	Not applicable	Set	Primary: ON Secondary: ON	Primary: ON Secondary: OFF (Secondary responds to light override)

*Example Number 2, with the Ambient Light Override set, is more typical of the ClassRoom Mode.

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Non-Adaptive Mode: In some installations, the Self-Adjusting Delayed-OFF Time and the 2-1/2 minute Walk-Through features may not be required. For example, shelving or office dividers may partially block the ODS0D-ID's line of sight to personnel in the certain areas. In this case, a longer delayed-OFF time would always be required and the Walk-Through feature would not be appropriate. Setting the unit for the "Non-Adaptive Mode" can disable these two features. Refer to the Instruction Sheet enclosed with the ODS0D-ID to set the device in the Non-Adaptive Mode.

Manual-ON/Auto-OFF Switching Mode: In this mode, lights will never turn ON automatically when motion is detected. Lights can only be turned ON manually by pressing the push-buttons. The lights will remain ON as long as the unit detects activity in the sensor zones.

The unit will shut lights OFF automatically after the space becomes unoccupied and the delayed-OFF time expires. Lights can also be turned OFF manually at any time by pressing the push-button. This mode is ideal for any area where manual ON switching is required but automatic OFF switching is desired for energy savings. Note that the Manual ON/Auto-OFF Switching Mode is used when the ODS0D-ID is in the Conference Room Mode only.

INSTALLATION:

The ODS0D-ID is designed to control two separate lighting loads (inner and outer banks of fluorescent lighting or separate banks of incandescent lighting) in the area it is monitoring. The photocell-controlled Ambient Light Override is an important energy-saving feature that also distinguishes the functioning of the Conference Room and Classroom modes (see "Operation Modes"). The Ambient Light Override should always be adjusted during the time of day when the ambient light is at a level where no additional lighting is required. Exclusive self-adjusting operating features will automatically compensate for real-time occupancy patterns to provide maximum convenience and energy savings.

The Cat. No. ODS0D-ID mounts in a standard single-gang wallbox and will replace two single-pole wall switches that control two separate lighting loads. The unit must be properly grounded in order to operate. The unit's integral blinders may be used to restrict the field of view to prevent unwanted detection of hallway traffic.

The ODS0D-ID should be positioned at least 4 feet away from HVAC registers. The switch located under the push-button provides three operational setting: "ON" turns the lighting load ON indefinitely (motion detection not active), "OFF" disconnects the lighting load from the power for relamping purposes, and "AUTO" activates automatic motion detection. Note that whenever the unit is powered up, it will take approximately 1 minute to begin normal operation.

WIRING DIAGRAMS

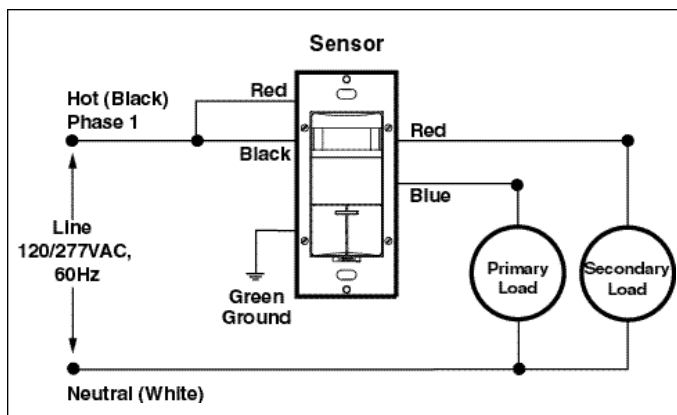


Diagram 1
Cat. No. ODS0D-ID Wiring Diagram for Single Pole Application—Single Phase

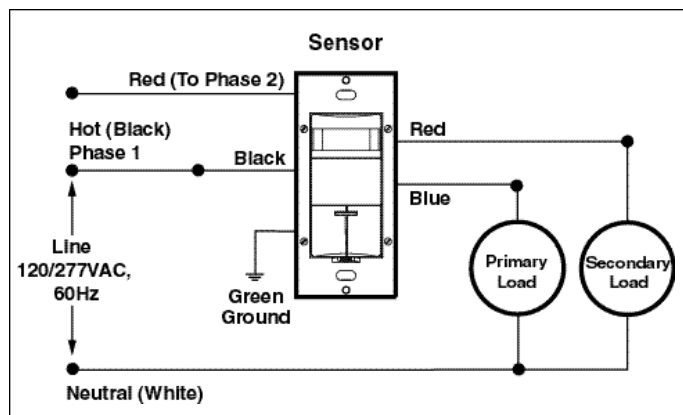


Diagram 2
Cat. No. ODS0D-ID Wiring Diagram for Single Pole Application—2 Phase

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