

Dual Relay Multi-Technology Wall Switch Occupancy Sensors

The OSSMD line of dual relay multi-technology Decora style wall switch occupancy sensors features several models to provide automatic lighting control for energy savings and convenience in a variety of commercial applications. OSSMD combines multi-technology with all-digital architecture in a dual relay switch occupancy sensor to minimize false triggering. The OSSMD automatically analyzes room conditions and adapts to changing environments. The result is a code compliant, trouble-free, "install-and-forget" solution for bi-level switching and lighting control.

- PIR and US technology for performance and sensitivity
- Controls two separate lighting loads from a single unit
- Manual-ON only for the secondary relay
- Features self-adjusting occupancy sensor technology with automatic "walk-through" sensing
- PIR can be disabled
- 30-minute maximum time-out delay
- CEC Title 24 Compliant

APPLICATIONS

- Private and Executive offices
- Conference rooms
- Classrooms
- Restrooms
- Storage areas
- Training areas
- Multimedia rooms
- Day care centers
- Lounges
- Retrofits

The OSSMD provides automatic switching of two separate loads from a single unit. It is compatible with incandescent fluorescent, low-voltage lighting, and fan loads. 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 OSSMD 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. The sensor has an adjustable 30 minute time-delay setting for both relays with a shorter 30-second vacancy confirmation built in. To comply with California Energy Commission's Title 24, the second relay is a manual-ON only.



OSSMD

The OSSMD line offers flexibility in unique application conditions that may require the use of US technology only with the ability to disable the PIR function when there are extreme changes in airflow or temperature. In addition, the OSSMD-GD does not require a neutral wire for installation, perfect for retrofit applications.

The OSSMD-FT is ideal for use in commercial restrooms with exhaust fans when the user requires a delayed-OFF for the second relay. Featuring a single pushbutton switch with two relays, the OSSMD-FT uses auto-ON or manual-ON to keep the exhaust fan on for 10 minutes longer than occupancy to clear air odor in public restrooms found in coffee shops, restaurants, and similar establishments.



Leviton Mfg. Co., Inc. Lighting Management Systems

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PRODUCT DATA



OPERATION

The PIR is used to detect motion and turn lights on, while either technology is used to keep lights on while occupied. This allows the US to be set to higher sensitivity levels minimizing false OFF conditions. The PIR portion gives immunity to false ON through a specialized lens that 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. The US sensors give maximum sensitivity and range in difficult spaces with irregular shaped rooms and partitions that can block the PIR field-of-view. A pair of US sensors will detect Doppler shifts caused by motion in a space. These sensors are more sensitive to small movements since they do not rely on zones. Sensitivity can be field adjusted to Low-Medium-High. This flexibility makes the OSSMD perfect for a wide variety of room sizes and configurations.

A delayed-OFF time adjustment limits the length of time the lights will remain on after the room becomes unoccupied. 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.

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.

PUSHBUTTON MANUAL OVERRIDE CONTROL

For manual control of primary and secondary lighting loads, both the OSSMD-MD and the OSSMD-GD feature dual pushbutton switches that will "toggle" the ON/OFF status of each load. Pushbutton 1 controls the primary relay, and pushbutton 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.

"WALK-THROUGH" SENSING

In Auto-Adaptive mode, an exclusive Walk-Through feature addresses the common situation where personnel may only enter a room momentarily. The Walk-Through feature provides increased energy savings by not leaving the lights ON for the full delayed-OFF period after only momentary occupancy. The Walk-Through period is 2-1/2 minutes long. The unit will switch lights ON when it detects a person entering the area it is monitoring. However, if the OSSMD does not continue to detect activity during the Walk-Through period, the OSSMD will turn the lights OFF. If the person stays in the room for longer than 2-1/2 minutes, the OSSMD will operate as normal.

MANUAL-ON/AUTO-OFF MODE

In this mode, the unit will not turn lights ON automatically when motion is detected. Lights can only be turned ON manually by pressing the pushbutton. The lights will remain ON as long as the unit detects activity in the sensor zones. It 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 pushbutton. This mode is ideal for areas where manual-ON switching is required but automatic OFF switching is desired for energy savings.



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AMBIENT LIGHT OVERRIDE

To maximize energy savings, the Ambient Light Override feature prevents the OSSMD from switching the primary relay lights ON when there is ample natural sunlight in the room, regardless of occupancy. The pushbutton can be used to turn lights ON at any time, regardless of the override setting.

The sensor will take a measurement of the ambient light in the room when it first detects motion. If there is enough light in the room, the sensor will leave the lights OFF. If there is not enough light in the room, the sensor will turn the lights connected to the primary relay ON. Note that the sensor will time out and turn the lights OFF after no motion is detected, regardless of mode of operation.

ENHANCED ADJUSTMENT OPTIONS

The OSSMD is factory preset to deliver optimum performance in a wide variety of commercial applications. Factory settings are:

- 10-minute time-out time delay
- Ultrasonic setting on High
- PIR setting mid-range
- No ambient light override in effect
- Auto-adaptive mode disabled (no 2-1/2 minute walk-through)
- Manual-ON for secondary relay
- Blinders open

To meet specific installation requirements, the OSSMD provides enhanced adjustment options for sensitivity, ambient light override, delayed-OFF time, field-of-view, 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 fingertip operated. Controls are labeled as follows:

- **Blinders**--Integral sliding blinders on each side of the lens may be used to restrict the 180° field-of-view down to 32°. Adjust these to 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 (recommended for walking test purposes only), 10, 20, and 30 minutes for fixed time and auto adapting. The LED will flash amber when the adjusting knob is set to the indicated time value.

- **Self-Adjusting Delayed-OFF Time**—OSSMD provides convenience and energy savings by optimizing the delayed-OFF time based on the use pattern for the monitored space. The self-adjusting delayed-OFF time feature will track the occupancy patterns and adjust accordingly. If the occupant frequently returns to the monitored space after only a short absence, the sensor will decrease the delayed-OFF time. If the occupant frequently returns near the end of the delayed-OFF time, the sensor will extend the delayed-OFF time.

- **Non-Adaptive Mode**—Both the Self-Adjusting Delayed-OFF Time and Walk-Through Features can be disabled for installations where they are not required.

- **Range (PIR)**--Adjusting the range 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 35% of the total coverage area. PIR can also be disabled.

- **Sensitivity (US)**--Users can adjust internal ultrasonic operation to maximize detection of motion while minimizing the effects of environmental noise (electrical noise, air currents, temperature changes, etc.). Adjustment is made by pushing the ON-OFF button in a prescribed sequence to Low-Medium-High sensitivity (see installation sheet).

- **Light**—To maximize energy savings, the Ambient Light Override feature will prevent the unit from switching the primary relay 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. When this mode is active, the pushbutton can be used to turn lights ON at any time, regardless of the override setting.

FEATURES

- Self-Adaptive technology eliminates callbacks for adjustments. Time delay and sensitivity settings are continually adjusted to occupant patterns of use in auto adapt mode.
- Exclusive Walk-Through feature provides increased energy savings by not leaving the lights ON for an extended period after only momentary occupancy.
- 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.
- All digital circuitry uses a minimum of components for maximum reliability and low cost.
- Convenient pushbutton provides manual-ON/OFF light switching of each load at any time.
- Fits in a standard single-gang wall box and replaces two single-pole wall-switches for fast and easy installation; neutral and ground connection required for OSSMD-MD and OSSMD-FT. OSSMD-GD does not require a neutral for installation.
- Adjustable horizontal field-of-view (PIR) may be adjusted between 180° and 32° of arc by using integral blinders located on either side of the lens.
- Ultrasonic technology provides excellent small motion sensitivity.
- True zero-cross relay switches at the zero crossing point of the AC power curve to ensure maximum contactor life and compatibility with electronic ballasts.
- To comply with California Title 24, the second relay is a manual-ON only with a maximum 30 minute time-out.
- Ambient Light Override feature measures the ambient light in the room when it first detects motion and leaves the lights OFF if there is enough light in the room or turns the lights connected to the first relay ON if there is not enough light in the room.
- The OSSMD-FT is intended to control a light circuit and a fan. The single button on the sensor provides ON control for both circuits and OFF for lighting circuits only. The sensor will automatically turn on both when occupancy is detected. When no movement is detected, the primary relay will turn off after the delay off time expires. The fan will remain on for an additional 10 minutes after the time-out or button press.
- Viewing Mode feature for slide or film presentations allows pushbuttons to turn lights OFF and keep them OFF even if room is occupied.
- Non-Adaptive Mode disables self-adjusting delayed-OFF Time and walk-through feature in applications where these feature are not desired. Optional manual adjustment for delayed-OFF time settings allows customized adjustments to maximize energy savings.
- Uses Decora wallplates and coordinates with Leviton's popular line of Decora wiring devices.
- 180° field-of-view provides approximately 2400 square feet of coverage, suitable for a variety of commercial areas.
- Optional manual adjustment for delayed-OFF time settings of 30 seconds (for walking test), 10 minutes, 20 minutes, and 30 minutes. Allows customized adjustments to maximize energy savings.
- 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. Green flashes for ultrasonic, red flashes for PIR.
- One unit can be used for either 120V or 277V lighting. Compatible with both electronic and magnetic ballasts.
- ETL/CETL Certified, complies with California Title 24 Energy Code and FCC Regulations.
- Limited Five-Year Warranty

INSTALLATION

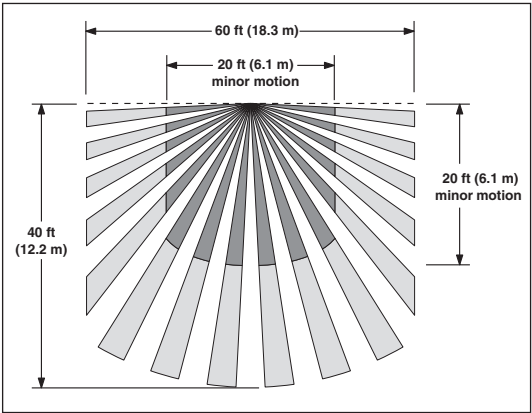
The OSSMD mounts in a standard single-gang wall box and replaces two single-pole wall switches that control two separate lighting loads. The unit must be properly grounded in order to operate. The unit's integral blinders may be used to restrict the field-of-view to prevent unwanted detection of hallway traffic. The OSSMD should be positioned at least 4 feet away from HVAC registers. Note that whenever the unit is powered up, it will take approximately 1 minute to begin normal operation.

PRODUCT DATA

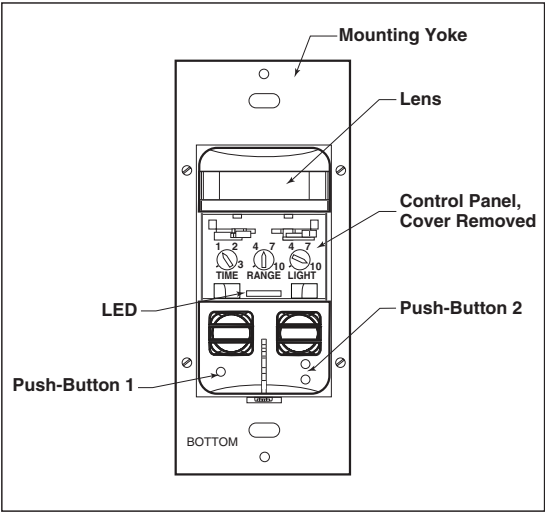
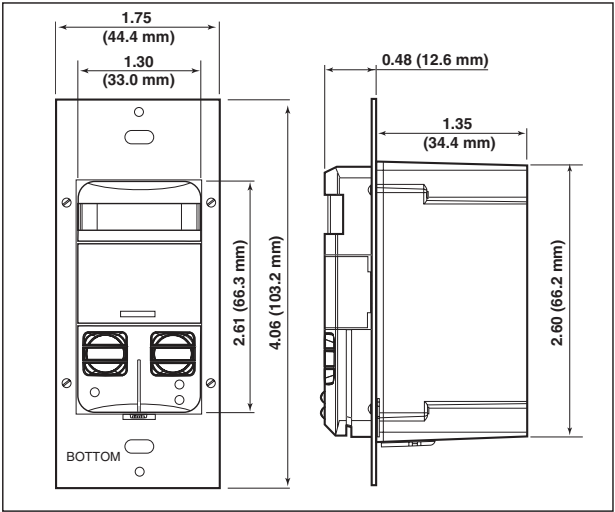


FIELD-OF-VIEW

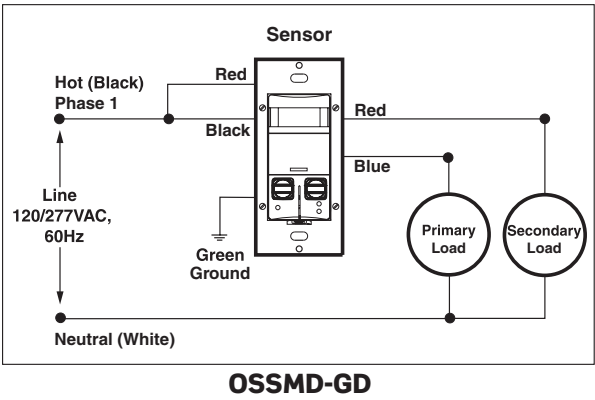
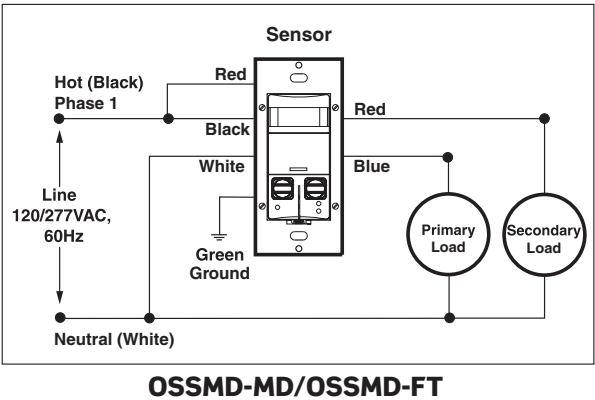
The OSSMD provides a 180° field-of-view with a maximum coverage area of approximately 2400 square feet. The maximum large motion sensing distance in front of the sensor is 40 feet, and at each side is 30 feet. A “small-motion” zone detects relatively small body movements and allows the lights to stay ON even though a person may not be moving or walking around the room. This zone is approximately 20 feet by 20 feet.



DIMENSIONAL DIAGRAMS



WIRING DIAGRAMS



PRODUCT DATA**SPECIFICATIONS****ELECTRICAL**

Line Voltage	120/277 VAC	
Operational Frequency	60Hz	
US Operating Frequency	40kHz	
Wire Designation	Primary Relay-No. 16 AWG leads: Line-Black Load-Blue Ground-Green White-Neutral (where provided)	Secondary Relay-No. 16 AWG isolated contact leads: (2) Red
Load Rating	Primary Relay: Fluorescent: 1200VA @ 120V 2700VA @ 277V Incandescent: 800W @ 120V 60Hz AC only Motor: 1/4 HP @ 120V	Secondary Relay: Fluorescent: 800VA @ 120V 1200VA @ 277V Incandescent: 800W @ 120V 60Hz AC only Motor: 1/4 HP @ 120V

ENVIRONMENTAL

Operating Temperature Range	0° C to 50° C
Storage Temperature Range	0° C to 50° C
Relative Humidity	20% to 90% non-condensing

PHYSICAL

Size	4.06" H x 1.75" W x 1.85" D (103.2mm x 44.4mm x 47.2mm)
Colors	White, Ivory, Almond, Light Almond, Gray, Black
Listings	ETL/cETL Listed UL508/CSA C22.2 No. 14, CEC Title 24 Compliant, FCC Compliant, Meets ASHRAE Standard 90.1 Requirements

ORDERING INFORMATION

CAT. NO.	DESCRIPTION
OSSMD- MDx	Dual Relay Multi-Tech Wall Switch Occupancy Sensor, 120/277V
OSSMD- GDx	No Neutral, Dual Relay Multi-Tech Wall Switch Occupancy Sensor, 120/277V
OSSMD- FTx	Dual Relay Multi-Tech Wall Switch Occupancy Sensor with 10-minute Delayed-OFF for Second Relay, 120/277V

x = (W) White, (I) Ivory, (A) Almond, (T) Light Almond, (G) Gray, (B) Black

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