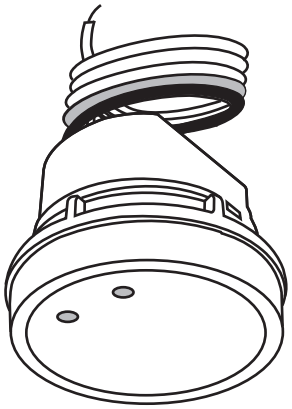
TRANS

LMD-509 series

Line Voltage Bi-Level Occupancy Sensor

INSTALLATION INSTRUCTIONS



This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1)This device may not cause harmful interference,
(2)This device must accept any interference received,

Including interference that may cause undesired operation.
Install the sensor at least 1ft. away from any occupant.

⚠ CAUTION

- **Risk of Electric Shock - Disconnect power supply before servicing.**
- **Open Type Photoelectric Switches.**

⚠ PRUDENCE

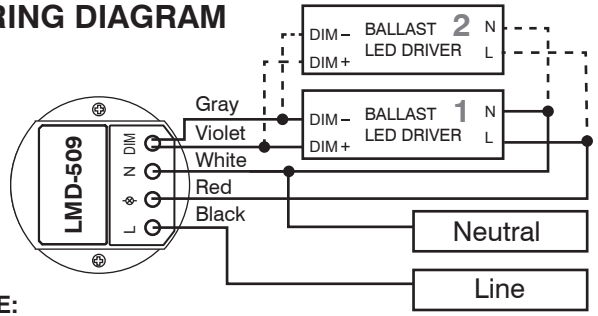
- **Risque de choc électrique - Débranchez l'alimentation avant l'entretien.**
- **Ouvrir Type commutateurs optoélectroniques.**

OVERVIEW

The LMD-509 series member of the TRANS family is a line voltage occupancy sensor with 0-10V output for bi-level dimming control. This occupancy sensor employs an advanced High Frequency Doppler (HFD) sensing technology to provide superior sensing performance of minor motion, such as typing, writing, or reading. The HFD technology is operating with high frequency radio waves which are capable of detecting the occupant's presence and movements without requiring unobstructed line-of-sight like a PIR sensor. Thus, the HFD sensor can detect through non-metallic material, such as plastic, glass, plywood or plaster board.

The Accu-Set digitalized potentiometers make the sensor setting easier, faster and more accurate than the conventional analog ones. Four levels of sensitivity and control modes can be selected via DIP switch setting. An exclusive Hybrid Switching technology makes the LMD-509 series perfect to control lighting with exceptionally high inrush current (HIC) during switching, such as multiple LED lightings connected in parallel. The sensor comes with an ambient light sensor (ALS) to inhibit switching on the light if the ambient light level is higher than the threshold set. Like all sensors in the TRANS family, the LMD-509 series is also available in various mounting options.

WIRING DIAGRAM



NOTE:

1. The driver/ballast MUST be 0-10V dimmable to achieve dimming control.
2. Ensure connection of LINE and NEUTRAL are not reversed to avoid damaging the sensor.
3. Ensure TOTAL isolation between DIM+/DIM- and GROUND to avoid damaging the sensor.
4. Conduct test with GROUND connected.

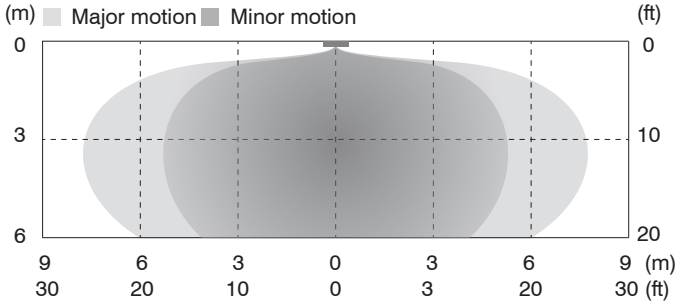
APPLICATION NOTES

- Avoid placing the sensor in an area surrounded with metallic wall which may block or absorb the radio wave. If possible, place the sensor to the opening as close as possible.
- Fluorescent light may cause interference to the HFD sensor operation, and result in lighting permanent on. If possible, avoid placing the HFD sensor within 3 ft. of fluorescent light.
- Avoid sensor placement facing doors, corridors or exits as HFD sensor may detect the traffics at adjacent area.
- HFD sensors are best for use in areas with partitions and high dividers, or high level of minor motion activities.
- The HFD sensor is more sensitive to the movements “toward” than “across” the sensor, so ensure to place the sensor at the position “toward” the movements of occupant.

DETECTION PATTERN

Mounting Height	3 m (10 ft)	6 m (20 ft)
Coverage*	180 m² (2,000 ft²)	100 m² (1,200 ft²)

*Sensitivity 100%



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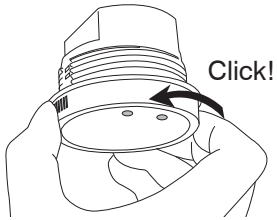
INSTALLATION

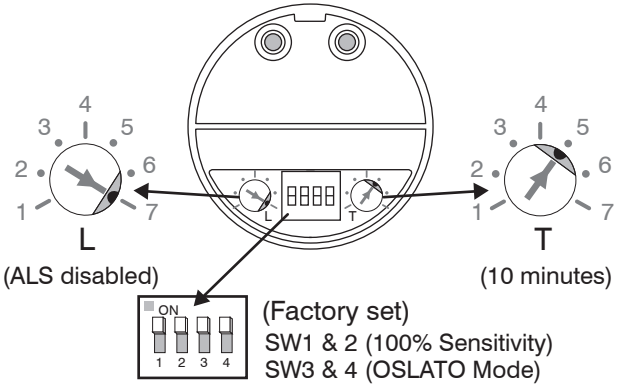
The LMD-509 series can be mounted with a junction box into the ceiling, internally integrated or externally attached to a fixture to control the lighting with specific mounting bracket. Please refer to the mounting instructions separately attached for details of mounting options available.

SENSOR SETTINGS

The LMD-509 series features 4 different control modes selectable via combination DIP switch #3 and #4, and 4 levels of sensitivity set via combination DIP switch #1 and #2. The LMD-509 series also provides 7 different light-Off delay time and daylight threshold settings via 2 Accu-Set digital potentiometers marked T and L respectively.



To change the sensor setting, rotate the front cover counter-clockwise to remove. Replace the front cover after the setting complete.



(Factory set)
SW1 & 2 (100% Sensitivity)
SW3 & 4 (OSLATO Mode)

Position	1	2	3	4	5	6	7
T (min.)	T	1’	3’	5’	10’	20’	30’
L (lux)	5	10	15	20	25	60	24H

Factory Set

T - Delay Time

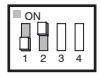
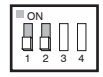
The potentiometer T sets the period of delay time that sensor will turn off the connected lights after the area is vacated.

L - Ambient Light Level

The potentiometer L sets the ambient light level that the sensor will activate occupancy sensing control.

Sensitivity - SW1 & 2

The sensitivity and detection pattern of HFD sensor may vary with the furniture placement, partition layout, wall material, and shape of the space. For example, the detection pattern will become long rectangular if sensor is placed in a long corridor. 4 levels of sensitivity can be set via combinations of DIP switch #1 and #2.

Sensitivity	100%	75%	50%	25%
DIP switch setting	 ON-ON	 ON-OFF	 OFF-ON	 OFF-OFF

Control Mode - SW3 & 4

The combination of DIP switch #3 and #4 determines the sensing control mode.

OSLATO : Occupancy Sensing at Low Ambient with Time-Off
OSLA : Occupancy Sensing at Low Ambient
OSO : Occupancy Sensing Only
ON/OFF : ON-OFF Switching

Mode	Control (LMD-509Sx)
OSLATO  ON-ON	1. While ambient lux is **higher** than the level set, light stays **OFF**. 2. While ambient lux is **lower** than the level set, and **occupancy detected**, switch the light **ON**. 3. Dim the light to **30%** after occupant leave and delay time elapses. 4. Turn **OFF** the lights when 10 minutes **TIME OFF** delay elapses. 5. When **occupancy detected** during **TIME OFF**, switch the light **ON**.
OSLA  ON-OFF	1. While ambient lux is **higher** than the level set, light stays **OFF**. 2. While ambient lux is **lower** than the level set, dim the light to **30%** under vacancy. 3. While ambient lux is **lower** than the level set, and **occupancy detected**, switch the light **ON**. 4. Dim the light to **30%** after occupant leave and delay time elapses.
OSO  OFF-ON	1. Ambient light is disabled with this mode. 2. Dim the light to **30%** at **all time** under vacancy. 3. Switch the light to **ON** under occupancy. 4. Dim the light to **30%** after occupant leave and delay time elapses.
ON/OFF  OFF-OFF	1. While ambient lux is **higher** than the level set, light stays **OFF**. 2. While ambient lux is **lower** than the level set, and **occupancy detected**, switch the light **ON**. 3. Turn **OFF** the light after occupant leave and delay time elapses.

TESTING

To verify sensor control function normal, please proceed with the instructions as below to conduct test;

1. Set the arrow of T (DELAY TIME) potentiometer pointing at position "1" (TEST) and other setting to the desired threshold.
2. Walk within the expected range at normal speed. The sensor will switch ON the light for 10 seconds whenever sensor detects the movement, and then switch OFF or DIM to 30% for 10 seconds as per the selected mode. The LED of sensor will also blink to indicate every motion detected.
3. After testing complete ensure to set the T potentiometer to the position of desired time. NOTE: The sensor will automatically control the light as per the selected mode with factory set time delay (10 minutes) if the T potentiometer has NOT been set to other position.

SPECIFICATIONS

Power supply	120/240/277VAC, 50/60 Hz		
Maximum load	120VAC	240VAC	277VAC
-Incandescent/Halogen	800/*500W(VA)	5A	1200/*750W(VA)
-Fluorescent Ballast/CFL	800/*500W(VA)	5A	1200/*750W(VA)
-Ballast Electronic (LED)	540/*500VA	5A	1200/*750VA
HFD sensitivity	25/50/75/100% selectable via DIP switch setting		
Load switching	Zero-cross Hybrid-Switching		
HIC protection	Max. 80A for 16.7msec.		
Dim control	0-10V, non-isolated, max. 25 mA		
Detection range	Up to 180 sq. m. @ 3 m (2,000 sq. ft @ 10 ft)		
Mounting height	2.4 ~ 6 m (8 ~ 20 ft)		
Ambient light level	7 level Accu-Set digital potentiometer		
Delay time setting	T/1'/3'/5'/10'/20'/30' , T=10 sec. for testing		
TIME OFF delay	10 min., OSLATO mode only		
Op. humidity	Max. 95% RH		
Op. temperature	-40°C~70°C (-40°F~158°F)		
Dimensions	Ø60 x H42 mm (Ø2.36"x H1.65")		

*Max load for operating temperature at 55°C~70°C (131°F~158°F)

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