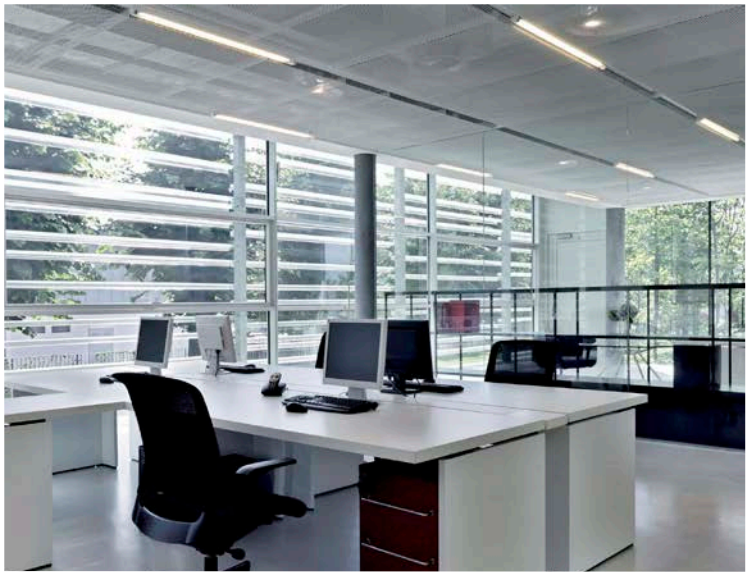
LMD-109

Line Voltage Bi-Level Occupancy Sensor

iR-TEC
Specializing in Building Sensors



OVERVIEW

The LMD-109 is a line voltage occupancy sensor designed for OEM lighting fixture integration with 0-10V outputs to provide multi-mode bi-level dimming control.

This occupancy sensor employs an advanced High Frequency Doppler (HFD) sensing technology to provide superior sensing performance of minor motion like typing, writing, or reading. The HFD technology operates with high frequency radio waves which are capable of detecting the occupant's presence and movement 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 setting the sensor easier, faster and more accurate than conventional analog ones. Four different sensitivity levels and control modes can be selected via DIP switch settings. An exclusive Hybrid Switching technology makes the LMD-109 perfect to control lighting with exceptionally high inrush current (HIC) during switching, such as having multiple LED lights 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.

FEATURES

- High Frequency Doppler sensing technology
- 120/277 VAC line voltage operation
- 0-10V output for multi-mode bi-level dimming
- Hybrid switching for controlling loads with HIC
- Accu-Set potentiometer for quick and easy setting
- 4 levels of programmable HFD sensitivity settings
- 4 control modes selectable via DIP switch settings
- Ambient light sensor to inhibit unneeded lighting
- Low profile case for slim lighting fixture assembly

APPLICATIONS

☑ On/Off Switching Control

☑ Bi-Level Dimming Control

The LMD-109 occupancy sensor can be assembled in an OEM fixture with 0-10V dimmable driver to control the light by sensing the presence of the occupant without requiring unobstructed line-of-sight.

NOTE: Do NOT mount the sensor behind a metal plate or within an enclosure surrounded by a metallic wall.

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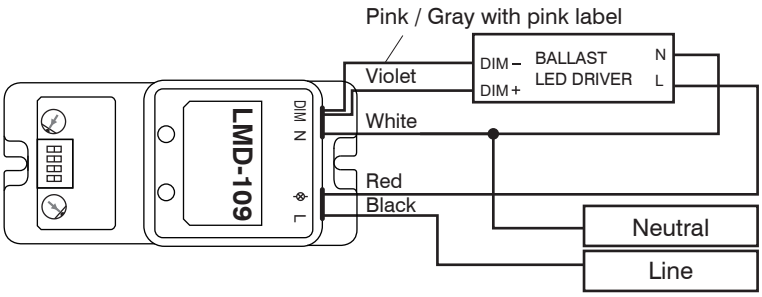
OPERATION

The LMD-109 is a line voltage occupancy sensor featuring a hybrid switching contact output to control the power, and 0-10V to control the output level of connected lighting. The sensor will switch on the light when it detects the presence and movement of a moving object (human, or vehicle) within its coverage, and automatically shut off or dim the light to 30% after the delay time elapses. Different delay times and ambient light levels can be programmed by respective Accu-Set digital potentiometers. The combination of DIP switch #1 and #2 determines the HFD sensitivity, and switches #3 and #4 determine the control mode, as seen below.

Wiring Diagram

Basic wiring diagrams are included as below for reference. Consult with an IR-TEC team member if a more complex control is required.



Control Modes

The sensor can be programmed via DIP switch setting to control the light in specific mode.

Mode	Day[1]	Night[2]	Remarks
OSLATO	Vac: OFF Occ: OFF	Vac: OFF Occ: ON-30%	Dim during Time-Off (TO) delay
OSLA	Vac: OFF Occ: OFF	Vac: 30% Occ: ON	Not applicable for fixture internal integration
OSO	Vac: 30% Occ: ON	Vac: 30% Occ: ON	For spaces require 24-hour lighting
ON/OFF	Vac: OFF Occ: OFF	Vac: OFF Occ: ON	For non-dimmable lighting

ON/OFF : ON-OFF Switching
OSO : Occupancy Sensing Only
OSLA : Occupancy Sensing at Low Ambient
OSLATO : Occupancy Sensing at Low Ambient with Time-Off
Vac : Vacant **Occ** : Occupied

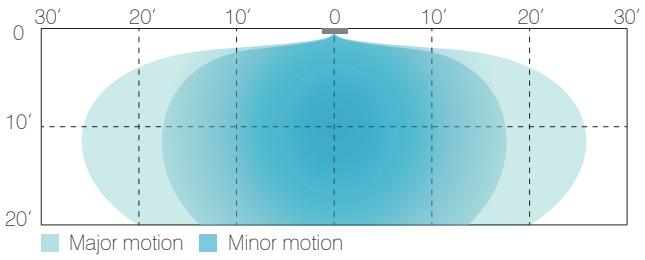
[1] While ambient light level is higher than the threshold.
[2] While ambient light level is lower than the threshold.

DETECTION PATTERN

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

*Sensitivity 100%

Side View



SPECIFICATIONS

Power supply	120/277VAC, 50/60 Hz
Maximum load @ -40°F~131°F (-40°C~55°C)	Incandescent/Halogen – 800/1200W(VA)@120/277V
	Fluorescent Ballast/CFL – 800/1200W(VA)@120/277V
	Ballast Electronic (LED) – 540/1200VA@120/277V
Maximum load @ 131°F~158°F (55°C~70°C)	Incandescent/Halogen – 500/750W(VA)@120/277V
	Fluorescent Ballast/CFL – 500/750W(VA)@120/277V
	Ballast Electronic (LED) – 500/750VA@120/277V
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 2,000 sq. ft @ 10 ft (180 sq. m. @ 3 m)
Mounting height	8 ~ 20 ft (2.4 ~ 6 m)
Ambient light level	7 level Accu-Set digital potentiometer
Delay time setting	T/1'/3'/5'/10'/20'/30' , T=10 sec. for testing
Op. humidity	Max. 95% RH
Op. temperature	-40°F~158°F (-40°C~70°C)
Dimensions	H3.6"x W1.69"x D1.14" (H92 x W43 x D29mm)

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