

LRD-509 series

Line Voltage SmartDIM Occupancy Sensor



OVERVIEW

The LRD-509 series member of the TRANS family is a two-way IR remote programmable line voltage switching occupancy sensor with 0-10V output for dimmable ballast or LED driver control. The sensor is capable of providing top-notch energy efficient lighting control in multiple modes with fully programmable multi-level high/low dim or SmartDIM control. **SmartDIM** is a state-of-the-art automatic dimming control technology developed by IR-TEC, which is capable of maintaining the overall ambient light level within the preset range through a smooth, flawless continuous dimming control to the connected lighting.

The sensor will turn on the connected lighting to the high dim or SmartDIM level as programmed when it detects the presence of an occupant or vehicle, and automatically dim the light down to the low level or shut off as programmed after the area is vacated for a period of time. An exclusive two-way handheld remote programmer allows you to configure sensor setting, or download the existing settings of the installed sensor from the floor. In addition, an exclusive Hybrid Switching technology makes the LRD-509 series perfect sensor to control a group of LED lightings with exceptionally high inrush current (HIC) while switching on.

Like all sensors in the TRANS family, the LRD-509 series is available with various mounting options and interchangeable lenses. This provides a second-to-none design and complete installation flexibility. The sensor is designed to operate in the coldest of environments, down to -40°F/°C.

FEATURES

- Omni-directional infrared sensor
- Digital data control ambient light sensor built-in
- 2-way IR remote programmable sensor setting
- Hybrid switching for controlling loads with HIC
- SmartDIM or multi-level high/low dim control
- Remote programmable SmartDIM level setting
- Up to 30 ft of remote programmable range
- Beeping or light flashing acknowledgement
- Available with a variety of mounting options
- Available with interchangeable lens options

APPLICATION

0-10V Continuous Dimming Control

0-10V Multi-level Dimming Control

The LRD-509 series sensor can be used to provide occupancy sensing based, multi-mode, continuous dimming control by sensing the presence and movements of the occupant and the daylight available in the space. Specific control mode and sensor setting can be configured via the SRP-280 remote sensor programmer (optional). Within the maximum load allowed, one LRD-509 sensor can control up to 50 dimmable ballasts/drivers with sinking current less than 0.5mA each. Basic wiring diagram is included at next page for reference. Consult with an IR-TEC team member if a more complex control is required.

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TRANS

SmartDIM

SmartDIM is an exclusive continuous dimming control algorithm developed by IR-TEC to provide a smooth and flawless automatic dimming performance. The output of the controlled lighting will be constantly adjusted to maintain the overall ambient light level within the pre-programmed range by sensing the daylight available in the space.

CONTROL MODES

The LRD-509 series can be programmed by SRP-280 to control the lighting in one of the following modes with various conditions as set. For more details of specific control mode, please visit www.irtec.com or contact an IR-TEC team member directly.

Mode	Day ¹	Night ²	Remarks
ON/OFF	Vac: OFF Occ: ON/OFF*	Vac: OFF Occ: ON	For non-dimmable lighting *ALS enabled
OSO	Vac: LD Occ: SD/HD	Vac: LD Occ: SD/HD	LD: Low Dim, HD: High Dim SD: SmartDIM
OSLA	Vac: OFF Occ: SD/OFF	Vac: LD Occ: SD/HD	
OSLATO	Vac: OFF Occ: SD/OFF	Vac: LD*-OFF Occ: SD/HD	*Low Dim during Time Off delay
OFF	Vac: OFF Occ: OFF	Vac: OFF Occ: OFF	Light stays off

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

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

MOUNTING OPTIONS

The LRD-509xX series can be mounted into the ceiling or integrated with an OEM lighting fixture. The mounting options are available by combining a specific mounting bracket (if applicable) from the chart below. The bracket will be shipped with the sensor when ordered with the respective code.

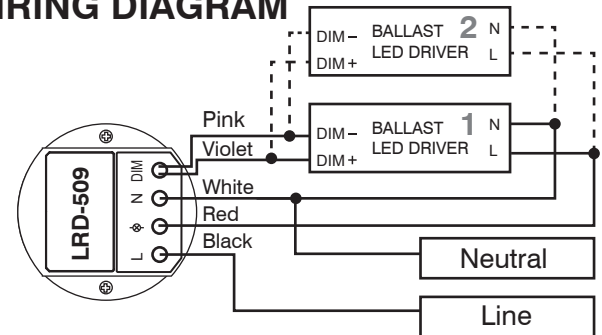
Code	Mounting Option	Mounting Bracket
F	Fixture Integrated	---
W	IP-66 Fixture Integrated	---
E	Fixture External	EMB-500
P	IP-66 Fixture External	PMB-500
S	Ceiling Surface	SMB-500
C	Junction Box	CMB-500

LENS OPTIONS

The LRD-509xxX series is available with following lens options which provide different coverage at different mounting height (H). When adding the lens code, the lens is then automatically shipped with the sensor.

Lens	Shape	Mounting Height	Coverage	
A	Standard	Cone	8~15 ft. 2.4~4.5m	2X height
B	Extra wide	Cone	8~10 ft. 2.4~3.0m	6X height
C	High bay	Cone	15~30 ft. 4.5~9.0m	3X height
D	Standard	Round	8~20 ft. 2.4~6.0m	2X height
F	Extra wide	Dome	8~20 ft. 2.4~6.0m	4X height
G	Aisle way	Arch	8~40 ft. 2.4~12.0m	3X height
H	High bay	Dome	30~50 ft. 9.0~15.0m	1X height
L	Long aisle	Arch	8~10 ft. 2.4~3.0 m	6X height

WIRING DIAGRAM



SPECIFICATIONS

Power supply	120/277VAC, 50/60Hz
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
Infrared sensor	Omni-directional pyroelectric
Photo sensor	Digital ambient light sensor
HIC protection	Max. 80A for 16.7msec.
Dim control output	0-10V, ±5%, isolated, max. 25mA
Detectable speed	1~10 ft./sec. (0.3 ~ 3 m/sec.)
Mounting height	Subject to the lens type applied.
Detection range	Subject to the lens type and mounting height
Remote range	33 ft. (10m) indoor, no backlight
Op. humidity	Max. 95% RH
Op. temperature	-40°F~158°F (-40°C~70°C)
Dimensions	Ø2.36" x H1.45" (Ø60 x H37mm)