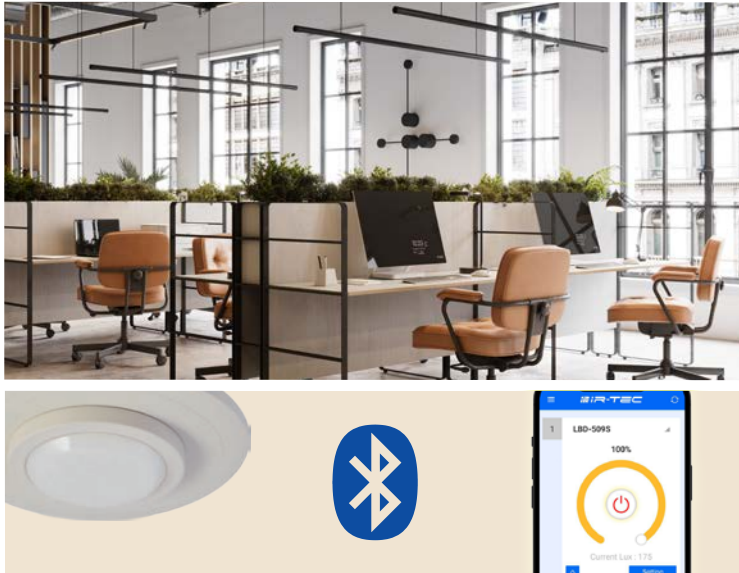


## LBD-509 series

### Line Voltage SmartDIM Occupancy Sensor



## OVERVIEW

The LBD-509 series of the TRANS sensor family is a Bluetooth enabled occupancy sensor featuring multiple control schemes with 0-10V output for dimmable ballast or LED driver control. The sensor is designed for providing top-notch energy efficient lighting control with fully programmable multi-level high/low StepDIM or continuous SmartDIM control. All sensing control parameters can be set via IR-TEC Sensor Config App with capability of storing all sensor data and control profiles.

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 iOS or Android App allows you to configure sensor control settings, or download the existing settings of the installed sensor from the floor. In addition, an exclusive Hybrid Switching technology protects the relay contacts from the high inrush current generated while switching on the LED driver.

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

## FEATURES

- Omni-directional digital pyroelectric infrared sensor
- Digital data control ambient light sensor built-in
- Bluetooth enabled remote sensor configurations
- Intuitive Sensor Config App delivers easy setting
- Available for on/off switching and 0-10V dimming
- Hybrid switching protect relay contacts from HIC
- SmartDIM or multi-level high/low StepDIM control
- Multiple fixture integration and ceiling mount options
- Multiple lens selection for different mounting heights



## APPLICATION

- Occupancy Sensing with 0-10V Dimming Control**

The LBD-509 series sensor can be used to provide occupancy sensing based, multi-mode, continuous or high-low dimming control by sensing the presence and movements of the occupant and the daylight available in the space. Specific control scheme and settings can be configured via IR-TEC Sensor Config App. Within the maximum load allowed, one LBD-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.

# LBD-509 series

## Line Voltage SmartDIM Occupancy Sensor

# 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 SCHEMES

The LBD-509 series can be programmed to control the luminaries in one of the following schemes. For more details of specific control scheme, please visit [www.irtec.com](http://www.irtec.com) or contact an IR-TEC team member directly.

Mode	Day <sup>1</sup>	Night <sup>2</sup>	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 all the time for purpose

- 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

<sup>1</sup> While ambient light level is higher than the threshold.  
<sup>2</sup> While ambient light level is lower than the threshold.

### MOUNTING OPTIONS

The LBD-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.

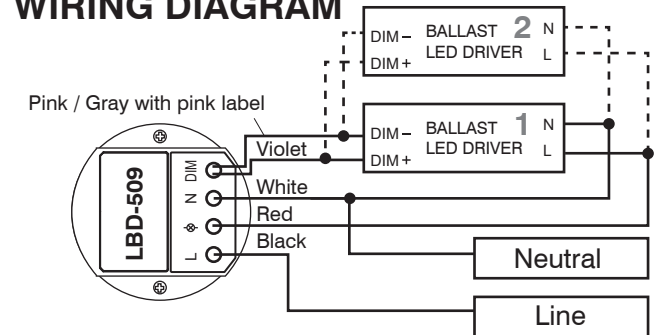
Code	Mounting Option	Mounting Bracket
F	Fixture Integrated	---
W	IP-66 Fixture Integrated	---
E	Fixture External	EMB-500
P	IP-66 Fixture External	PMB-500
S	Ceiling Surface	SMB-500
C	Junction Box	CMB-500

### LENS OPTIONS

The LBD-509xxX series is available with following lens options which provide different coverage for various mounting height (H). When specifying the lens code, the lens will be 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 quad element 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)