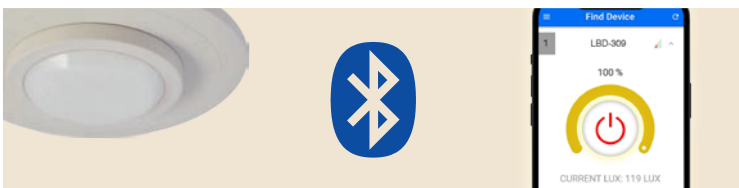


## BBD-510 series

### Low Voltage SmartDIM Occupancy Sensor



## OVERVIEW

The BBD-510 series member of the TRANS family is a Bluetooth enabled low voltage occupancy sensor featuring an isolated dry contact for power pack switching and 0-10V output for dimming control. The sensor is capable of providing fully programmable multi-level high/low dim or SmartDIM control in a variety of control schemes to achieve top-notch energy efficient lighting control. All sensing control parameters can be set via IR-TEC Sensor Config App from an iOS or Android mobile phone or tablet.

The sensor will turn on the lights controlled by an IR-TEC power pack to the preset high dim or SmartDIM level 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.

**SmartDIM** is an automatic dimming control technology with the capability of maintaining the overall ambient light level within the preset range through a smooth, flawless continuous dimming control to the connected lighting.

Like all PIR sensors in the TRANS family, the BBD-500 series is also 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°C /°F.



## FEATURES

- Omni-directional pyroelectric infrared sensor
- Digital data control ambient light sensor built-in
- Bluetooth enabled remote sensor configuration
- Isolated dry contact and 0-10V control outputs
- SmartDIM or multi-level high/low dim control
- Remote programmable SmartDIM level setting
- Occupancy/vacancy/daylight sensing controls
- Simple and intuitive sensor configuration app
- Tap-to-Flash the light for sensor identification
- 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 BBD-510 series sensor can be used to provide occupancy/vacancy 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 scheme and settings can be configured via IR-TEC Sensor Config App. Within the maximum load allowed by the power pack, one BBD-500 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.

## BBD-510 series

### Low Voltage SmartDIM Occupancy Sensor

#### 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 BBD-510 series can be programmed to control the light 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 BBD-510xX series can be mounted into the ceiling or integrated with an OEM lighting fixture by combining a specific mounting bracket (if required) from the table 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
R	Ceiling Recess	RMB-500

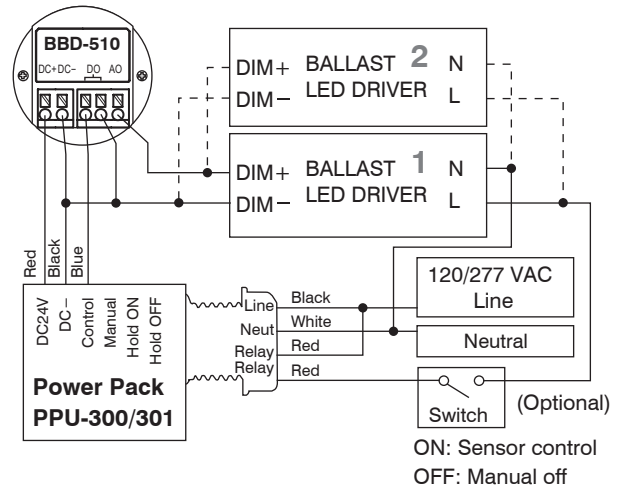
#### LENS OPTIONS

The BBD-510xX 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

SmartDIM control with power pack



NOTE: Each IR-TEC PPU-300/301 power pack can supply power for up to 4 BBD-510 sensors. When more sensors are connected, multiple power packs may be required.

#### SPECIFICATIONS

Power voltage	12-24VDC
Current drain	10/25mA @ 24 VDC, vacant/occupied
Infrared sensor	Omni-directional pyroelectric infrared sensor
Photo sensor	Digital ambient light sensor
Sensor output	Isolated dry contact, 48 VDC, 1A max.
Dim control	0-10V, max 25 mA sinking current
Detectable speed	0.15 ~ 3 m/sec. (0.3~10 ft./sec.)
Mounting height	Subject to the lens type applied
Detection range	Subject to the lens applied and height
Remote range	33 ft (10m) indoor
Op. humidity	Max. 95% RH
Op. temperature	-40°C~55°C (-40°F~131°F)
Dimensions	Ø60 x H37mm (Ø2.36"x H1.45")