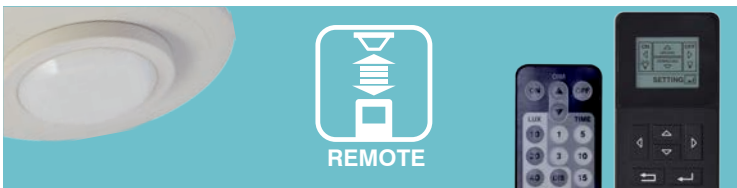# TRANS

BRD-500 series

Low Voltage SmartDIM Occupancy Sensor

OVERVIEW

The BRD-500 series member of the TRANS family is a two-way IR remote programmable low voltage occupancy sensor with an isolated dry contact for power pack switching and 0-10V output for dimming controls. The sensor is capable of providing fully programmable multi-level high/low dim or SmartDIM control in various modes to achieve top-notch energy efficient lighting 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 light connected via an IR-TEC power pack 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.

Like all PIR sensors in the TRANS family, the BRD-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.

APPLICABLE REMOTE (order separately)

Model	Description	Remarks
SRP-280	TRANS Remote Programmer	Full functionality
URP-100	User Remote	Manual ON/OFF/DIM TIME/LUX setting

FEATURES

- Omni-directional digital pyroelectric infrared sensor
- Digital data control ambient light sensor built-in
- 2-way IR remote programmable sensor setting
- 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
- Up to 10 m 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 BRD-500 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 mode and sensor setting can be configured via the SRP-280 remote sensor programmer (optional). Within the maximum load allowed by the power pack, one BRD-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.

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IR-TEC
Specializing in Building Sensors

BRD-500 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 MODES

The BRD-500 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 BRD-500x**X**x 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 table below. The bracket will be shipped with the sensor when ordered with the respective code.

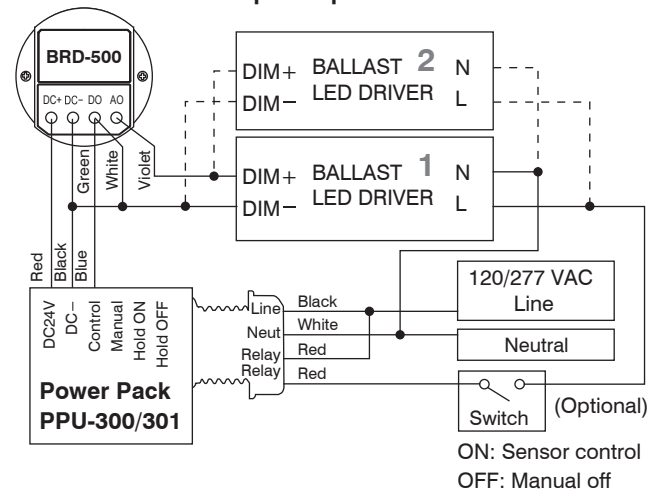| Code	Mounting Option	Mounting Bracket
F	Fixture Integrated	---
W	IP-66 Fixture Integrated	---
E	Fixture External	EMB-500
P	IP-66 Fixture External	PMB-500
S	Ceiling Surface	SMB-500
C	Junction Box	CMB-500
R	Ceiling Recess	RMB-500

LENS OPTIONS

The BRD-500xx**X** 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

ON: Sensor control
OFF: Manual off

NOTE: Each IR-TEC PPU-300/301 power pack can supply power for up to 6 BRD-500 sensors. When more sensors are connected, multiple power packs may be required.

SPECIFICATIONS

Power voltage	12-24 VDC
Current Drain	11/23 mA @ 24 VDC, vacant/occupied
Infrared sensor	Omni-directional pyroelectric
Photo sensor	Digital ambient light sensor
Sensor output	Isolated dry contact, 48 VDC, 1A max.
Dim control	0-10V, ±5%, max. 25 mA sinking current
Detectable speed	0.3 ~ 3 m/sec. (1~10 ft./sec.)
Mounting height	Subject to the lens type applied
Detection range	Subject to the lens applied and height
Remote range	10 m (33 ft) 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")