

## LOD-500 series

### Line Voltage Bi-Level Occupancy Sensor



## OVERVIEW

The LOD-500 series member of the TRANS family is a line voltage switching occupancy sensor with 0-10V output for dimmable ballast or LED driver control. The sensor is capable of providing bi-level light control for energy efficient building management.

This sensor will provide full power output for dimmable ballast or an LED module when it detects the presence of an occupant, or vehicle, and switch back to the low dim level after the area is vacated for a period of time. The Accu-Set digital potentiometer makes the sensor setting work easier, faster and more accurate than conventional analog potentiometers.

The LOD-500 series offers 8 different control modes set via a rotary DIP switch. Additionally the sensor has 7 delay times and low dim levels both pre-settable via Accu-Set digital potentiometers. The LOD-500 is designed to provide complete occupancy sensing dimmable ballasts/LED lighting control, ease of use, and the simplest installation.

Like all sensors in the TRANS family, the LOD-500 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 quad element infrared sensor
- 120/277VAC universal line voltage powered
- Frequency detection zero-cross relay switching
- 0-10V selectable output for low dim control
- Walk test and sensor operation LED indicator
- Direct lead wires for easy wiring connections
- 8 rotary DIP switch selectable control modes
- 7 low dim levels changeable via Accu-Set
- Available with variety of mounting options
- Available with interchangeable lens options

## APPLICATION

- Lighting Control
- 0-10V Bi-level Dimming
- LED Control

The LOD-500 series occupancy sensor can be used to directly control lighting with 0-10V dimmable ballast or LED driver, by sensing the presence and movements of the occupant. Various control modes can be achieved with rotary switch setting. Basic wiring diagrams are included. Consult with an IR-TEC team member if a more complex wiring diagram is required.

# LOD-500 series

## Line Voltage Bi-Level Occupancy Sensor

# TRANS

### Control Modes

The LOD-500 series can be set to control the lighting in one of the following modes. For more details of specific control modes, please visit [www.irtec.com](http://www.irtec.com) or contact a IR-TEC team member directly.

**OSO** : Occupancy Sensing Only

**OSLA/OSMA/OSHA** : Occupancy Sensing at Low/Medium/High Ambient

**OSLATO/OSMATO/OSHATO** : Occupancy Sensing at Low/Medium/High Ambient with Time-Off

Mode	Day <sup>1</sup>	Night <sup>2</sup>	Remarks
<b>A TEST</b>	Turns ON light for 5 sec. at every motion detected. DIM the light for 10 sec. and then turn OFF.		
<b>B OSO</b>	Vac: DIM Occ: ON	Vac: DIM Occ: ON	
<b>C OSLA</b>	Vac: OFF	Vac: DIM	
<b>D OSMA</b>	Occ: OFF	Occ: ON	
<b>E OSHA</b>			
<b>F OSLATO</b>	Vac: OFF	Vac: OFF	DIM during Time-Off delay
<b>G OSMATO</b>	Occ: OFF	Occ: ON -DIM	
<b>H OSHATO</b>			

**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 LOD-500SX series can be mounted on the ceiling or attached to a fixture 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. Codes F and W allow the LOD-500SX to be directly integrated with OEM light fixtures in any environment.

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

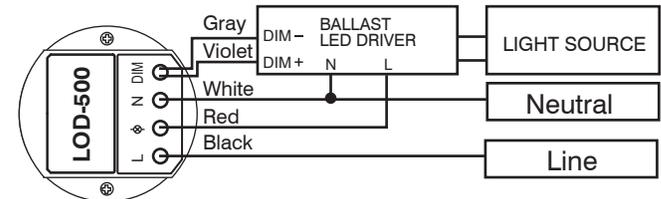
\*Available for IP-66 fixture integration

### Lens Options

The LOD-500SX series is available with the following lens options which provide different coverage at different mounting heights (H). When adding the lens code, the lens is then shipped with the sensor.

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

### Wiring Diagram



### SPECIFICATIONS

Power supply	120/277VAC, 50/60Hz
Maximum load	800W (VA)
Infrared sensor	Omni-directional quad element pyroelectric
Detectable speed	0.5~10 ft./sec. (0.15~3m/sec.)
Mounting height	Subject to the lens type applied
Detection range	Subject to the lens applied and height
Zero crossing	Automatic frequency detection
Low dim control	0-10V
Dim output current	Max. 2mA @ 120VAC Max. 5mA @ 277VAC
Low dim level	0/5/10/20/25/33/50% selectable
Ambient light level	L:20~50 lux, M:80~130 lux, H:500~600 lux
Delay time setting	1'/3'/5'/10'/15'/20'/30' selectable
Time-off delay	10 min., <b>TO</b> modes only
Op. humidity	Max. 95% RH
Op. temperature	-40°F~-131°F (-40°C~55°C)
Dimensions	Ø2.36"x H1.45" (Ø60 x H37mm)

\*10 lux equals to approximately 1 ft. candle

## MOUNTING OPTIONS

### OVERVIEW

Each member of IR-TEC's TRANS sensor family is available with multiple mounting options with or without a mounting bracket. These mounting options allow the sensor to be integrated with lighting fixture or mounted on the ceiling in various ways. All applicable sensors can be supplied in specific mounting option as ordered with the respective code.

### Sensor Product Code



Mounting Option	Code	Bracket Model
Fixture Integrated	<b>F</b>	---
IP-66 Fixture Integrated	<b>W</b>	---
Fixture External	<b>E</b>	EMB-500
IP-66 Fixture External	<b>P</b>	PMB-500
Ceiling Surface	<b>S</b>	SMB-500
Junction Box	<b>C</b>	CMB-500
Ceiling Recess*	<b>R</b>	RMB-500
Fixture Internal	<b>I</b>	IMB-500

\*Line voltage sensors not applicable

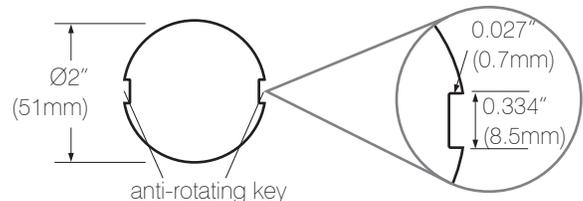
### F/W-mount Sensor

#### Fixture Integrated

The sensors in **F** and **W**-mount are original form factor of TRANS family. Both options can be directly integrated with OEM lighting fixture through a 2" (51mm) diameter hole.

For IP-66 fixture integration, ensure to place the rubber gasket of **W**-mount sensor in between the fixture enclosure and sensor unit. Apply proper torque (0.3 lb-ft) to tighten the plastic screw nut while assemble the sensor.

### Assembly Hole



Occupancy sensor - PIR	Occupancy sensor - HFD	Daylight sensor

# TRANS PIR Occupancy Sensor LENS DATASHEET

## OVERVIEW

All TRANS PIR based Occupancy Sensors feature with interchangeable lens options. Each lens provides different sensing coverage which varies with the actual mounting height.

The specified detection coverage and mounting height of each lens are based on the test result of human motion walking across the detection zones. The actual coverage may be reduced if the motion is moving toward or away the sensor. High ambient temperature (above 82°F/28°C) could reduce the coverage of PIR sensor. If ambient temperature at the covered area are expected to be high sometimes, consider adding more sensors or reduce the mounting height, if possible.

The followings are all available lens options and their respective detection patterns at printing time. For details of latest lens options available, please visit [www.irtec.com](http://www.irtec.com).



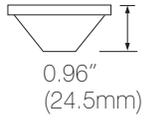
## LENS OPTIONS

Lens		Shape	Recommended 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 flat	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

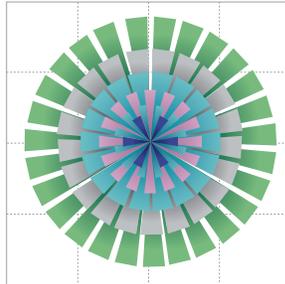
### NOTE:

- Lens G can be rotated to change the direction of coverage. Its 3X height coverage refers only to the total length, the width of coverage will vary with the mounting height (see table of Lens G section). This lens is not IP-66 rated.
- Lens C/G may be mounted up to 40/50 ft. (12/15m) or higher at the area, providing with large moving object such as forklift trucks. Before installing all sensors, please ensure that the sensor can have optimal detection at desired height.

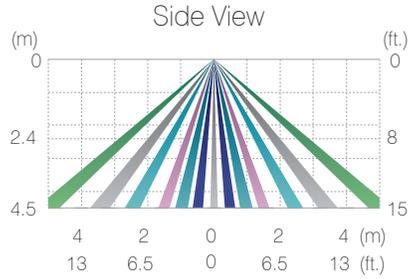
## LENS A 2X Standard



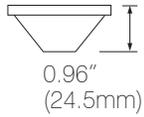
Top View



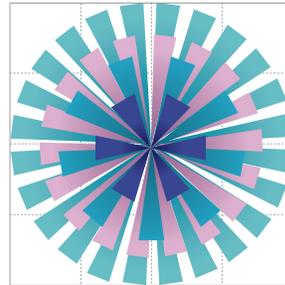
Mounting Height	ft. (m)	8 (2.4)	10 (3.0)	12 (3.6)	15 (4.5)
Max. Coverage Diameter	ft. (m)	16 (4.8)	20 (6.0)	24 (7.2)	30 (9.0)



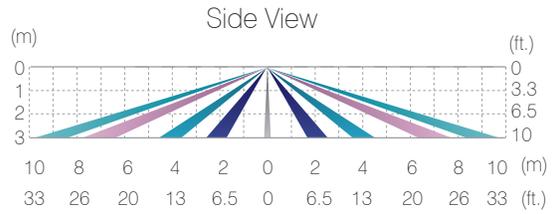
## LENS B 6X Extra wide



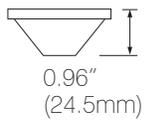
Top View



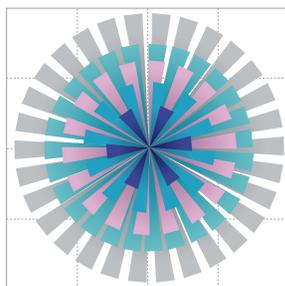
Mounting Height	ft. (m)	8 (2.4)	8.5 (2.6)	9 (2.8)	10 (3.0)
Max. Coverage Diameter	m (ft.)	48 (14.4)	51 (15.6)	54 (16.8)	60 (18.0)



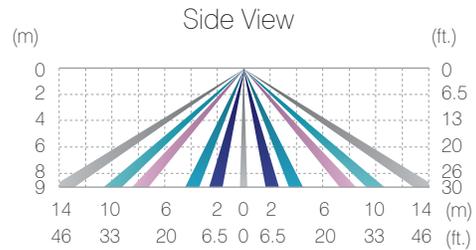
## LENS C 3X High bay



Top View



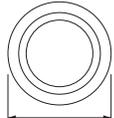
Mounting Height	ft. (m)	15 (4.5)	20 (6.0)	26 (8.0)	30 (9.0)
Max. Coverage Diameter	ft. (m)	45 (13.5)	60 (18.0)	78 (24.0)	90 (27.0)



## LENS D 2X Standard

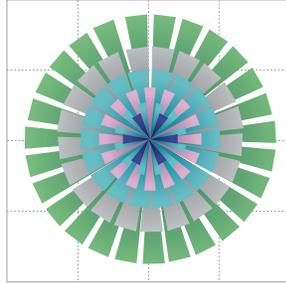


0.47"  
(12mm)



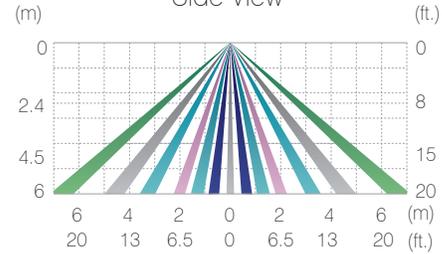
Ø2.56"  
(Ø65mm)

Top View



Mounting Height	ft. (m)	8 (2.4)	10 (3.0)	15 (4.5)	20 (6.0)
Max. Coverage Diameter	ft. (m)	16 (4.8)	20 (6.0)	30 (9.0)	40 (12.0)

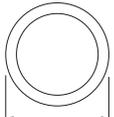
Side View



## LENS F 4X Extra wide

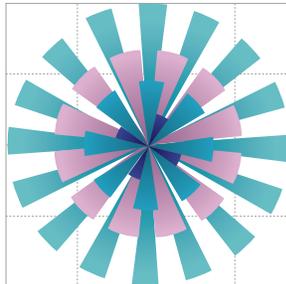


0.79"  
(20mm)



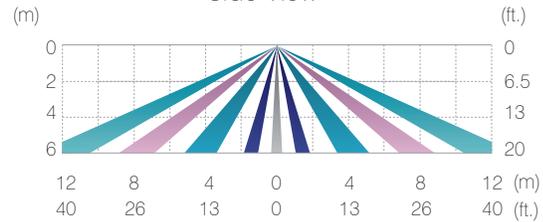
Ø2.56"  
(Ø65mm)

Top View



Mounting Height	ft. (m)	8 (2.4)	10 (3.0)	15 (4.5)	20 (6.0)
Max. Coverage Diameter	ft. (m)	32 (9.6)	40 (12.0)	60 (18.0)	80 (24.0)

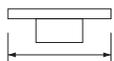
Side View



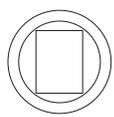
## LENS G 3X Aisle way



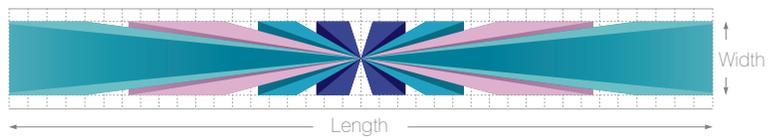
0.83"  
(21mm)



Ø2.56"  
(Ø65mm)

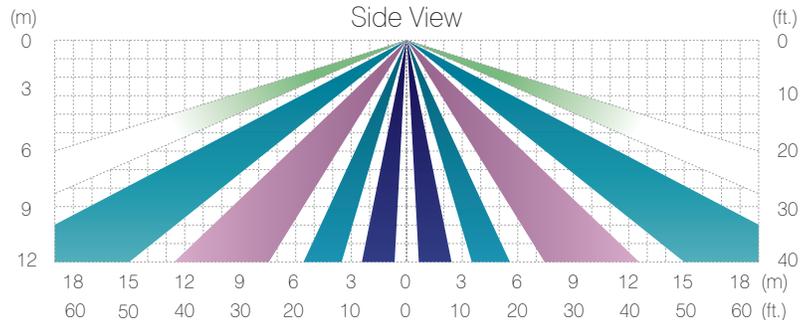


Top View



Mounting Height	ft. (m)	10 (3.0)	20 (6.0)	30 (9.0)	40 (12.0)
Max. Coverage Length x Width	ft. (m)	30 x 3.3 (9.0 x 1)	60 x 6.5 (18.0 x 2)	90 x 10 (27.0 x 3)	120 x 13 (36.0 x 4)

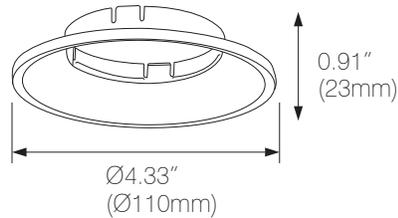
Side View



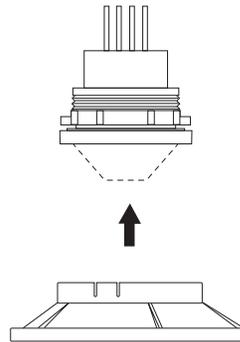
## ACCESSORIES

### LENS HOOD LH-110

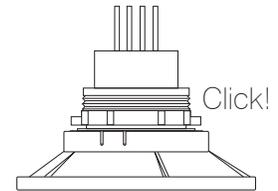
The LH-110 is designed for bi-level control sensors to prevent its ambient light sensor from being saturated by the excessive lighting nearby.



1

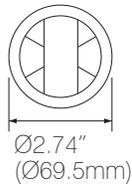
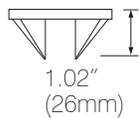


2

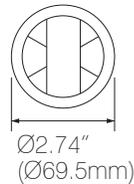
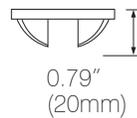


### LENS MASK

#### LM-12C For Lens A/B/C

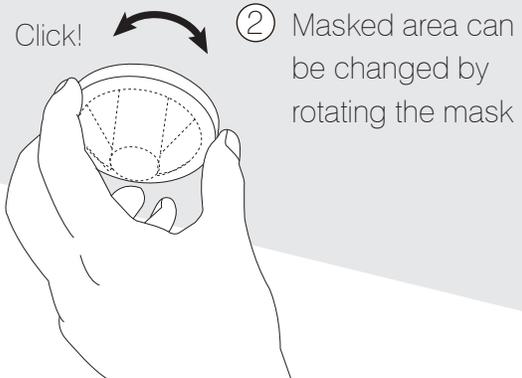


#### LM-12D For Lens F



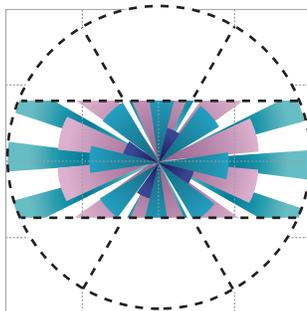
① Push the mask onto the installed lens

1

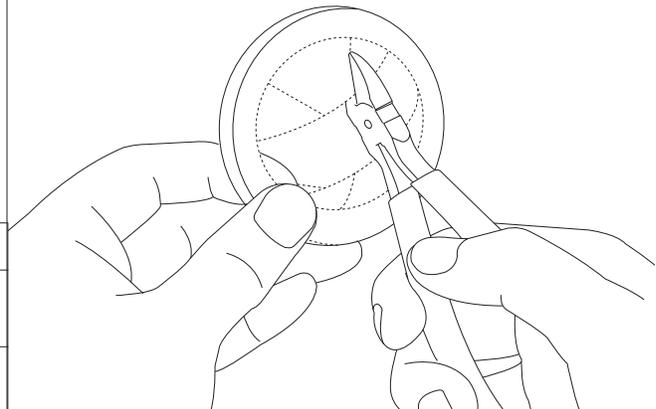


### Example: Lens F with LM-12D

Top View



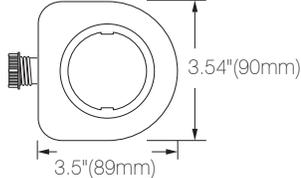
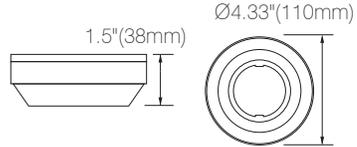
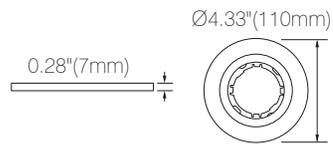
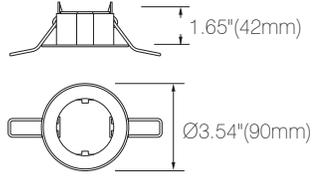
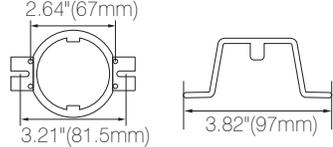
If necessary, the masked area can be altered by cutting off the respective grooved segments with a wire cutter or knife.



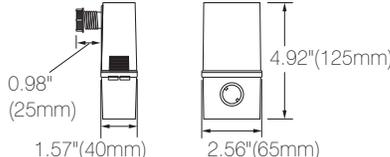
### Coverage Area with Lens F and Mask

Mounting Height	ft. (m)	8 (2.4)	10 (3.0)	15 (4.5)	20 (6.0)
Max. Coverage Length x Width	ft. (m)	32 x 3.3 (9.6 x 1)	40 x 6.5 (12.0 x 2)	60 x 10 (18.0 x 3)	80 x 13 (24.0 x 4)

## Mounting Brackets

Bracket	Code	Description	Dimensions
 <b>EMB-500</b> 	<b>E</b>	<b>Fixture External</b> The <b>EMB-500</b> is a mounting bracket for mounting the sensor with indoor lighting fixture through a 1/2" knockout hole.	
 <b>PMB-500</b> 	<b>P</b>	<b>IP-66 Fixture External</b> The <b>PMB-500</b> is a mounting bracket for mounting the sensor with IP-66 lighting fixtures or outdoor pole mount through a 1/2" knockout hole.	
 <b>SMB-500</b> 	<b>S</b>	<b>Ceiling Surface</b> The <b>SMB-500</b> is a mounting bracket designed to mount the sensor on the surface of hard lid ceiling with or without junction box. Mounting on the surface of lighting fixture is also available.	
 <b>CMB-500</b> 	<b>C</b>	<b>Junction Box</b> The <b>CMB-500</b> is a ceiling mounting bracket designed to mount the sensor with an octagonal or square junction box.	
 <b>RMB-500</b>	<b>R</b>	<b>Ceiling Recess</b> The <b>RMB-500</b> is for recess mounting the sensor through a 2.8" (70mm) hole on the ceiling. An optional back cover ( <b>BC-500</b> ) is available for separate purchase if cable strain relief is required.	
 <b>IMB-500</b>	<b>I</b>	<b>Fixture Internal</b> The <b>IMB-500</b> is a mounting bracket exclusively designed for mounting the HFD sensor inside of an OEM lighting fixture.	

## Accessories

Accessory	Description	Dimensions
 <b>EMA-500</b>	<b>Extension Mounting Adaptor</b> The <b>EMA-500</b> is an extension mounting adaptor for lowering the position of E-mount sensor to avoid the coverage being blocked by the fixture body.	
 <b>EJ-30 EJ-50</b> 	<b>Extension Joint</b> The <b>EJ-30</b> and <b>EJ-50</b> are extension joints that can be used to horizontally extend the E/P mount TRANS sensor position for 30 and 50 mm. If longer extension is required, combine two joints for 60/80/100 mm. For outdoor use, order <b>EJ-30F</b> or <b>EJ-50F</b> .	