LOS-509 series

Line Voltage Occupancy Sensor

OVERVIEW

The LOS-509 series member of the TRANS family is a line voltage switching occupancy sensor designed for all-purposes energy efficient lighting control.

This occupancy sensor employs a cutting edge quad element pyroelectric infrared sensor to provide omni-directional sensing capability of occupant's presence and movements. The Accu-Set digital potentiometer makes the sensor setting easier, faster and more accurate than the conventional analog potentiometer. An exclusive Hybrid Switching technology makes LOS-509 series ideal to control the lighting with exceptionally high inrush current (HIC) while switching on, such as multiple LED or CFL lightings connected in parallel.

Like all sensors in the TRANS family, the LOS-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.

The LOS-509 series comes with an ambient light sensor (ALS) to inhibit the lighting if ambient light levels are higher than required. The LOS-509 is designed to provide complete occupancy sensing for automatic lighting control, ease of use, and the simplest installation possible.

FEATURES

- Omni-directional quad element infrared sensor
- 120/277VAC multiple line voltage operation
- Hybrid switching for controlling loads with HIC
- Accu-Set potentiometer for quick and easy setting
- Walk test and sensor operation LED indicator
- Direct lead wires for easy wiring connection
- Available with a variety of mounting options
- Available with interchangeable lens options

APPLICATION

☑ Light Control

The LOS-509 series occupancy sensor can be used to directly control the connected light, or other loads, by sensing the presence and movements of the occupant. Various control modes can be achieved by different wiring connections. Basic wiring diagrams are included. Consult with an IR-TEC team member if a more complex wiring diagram is required.

LOS-509 series

Line Voltage Occupancy Sensor

TRANS

Mounting Options

The LOS-509S**X**x series provides multiple mounting options for versatile applications. The bracket will be shipped with the sensor when ordered with the respective code. Codes F and W allow the LOS-509S**X**x to be directly integrated with OEM light fixtures in any environment

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

*Available for IP-66 fixture integration

Lens Options

The LOS-509Sx**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.

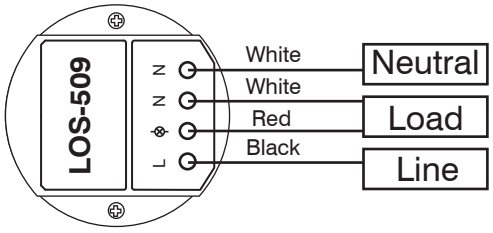
Lens		Shape	Mounting Height		Coverage
A	Standard	Cone	8~15 ft.	2.4~4.5m	2X height
B	Extra wide	Cone	8~10 ft.	2.4~3.0m	6X height
C	High bay	Cone	15~30 ft.	4.5~9.0m	3X height
D	Standard	Round	8~20 ft.	2.4~6.0m	2X height
F	Extra wide	Dome	8~20 ft.	2.4~6.0m	4X height
G	Aisle way	Arch	8~40 ft.	2.4~12.0m	3X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

Example: LOS-509SWB

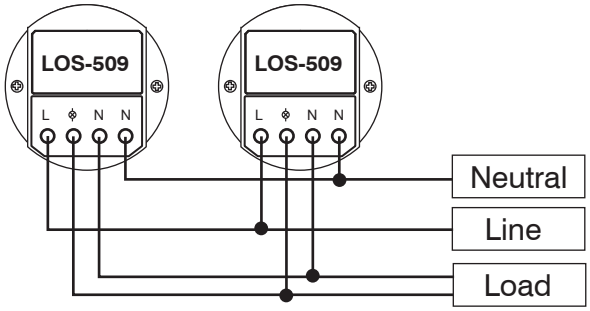
This sensor would come with ambient light sensor built-in and lens with extra wide detection for wet location control. Specific mounting bracket or lens may be order separately if needed. For help selecting sensors with proper mounting and lens options please visit www.irtec.com, send your inquiry to info@irtec.com or contact an IR-TEC team member directly.

Wiring Diagram

A. Single sensor control



B. Multiple sensors control



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
Load switching	Zero-cross Hybrid-Switching
HIC protection	Max. 80A for 16.7msec.
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 applied and height
Ambient light level	7 levels Accu-Set digital potentiometer
Delay time setting	10"/1'/3'/5'/10'/20'/30' selectable
Op. humidity	Max. 95% RH
Op. temperature	-40°F~158°F (-40°C~70°C)
Dimensions	Ø2.36"x H1.45"(Ø60 x H37mm)

MOUNTING OPTIONS

TRANS

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

Type				Series			Option		
A	B	C	-	1	2	3	d	e	f

Mounting option

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

*Line voltage sensors not applicable

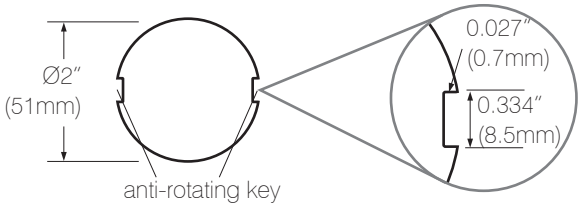
F/W-mount Sensor

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.

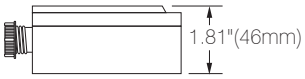
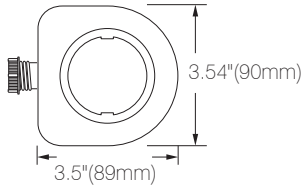
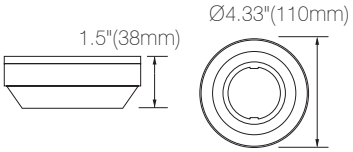
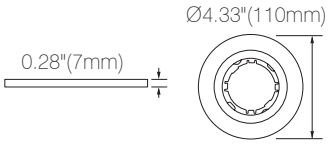
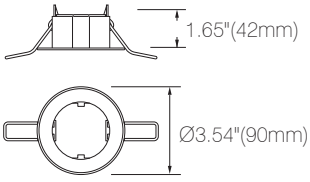
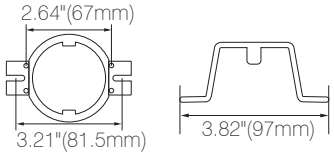
Assembly Hole



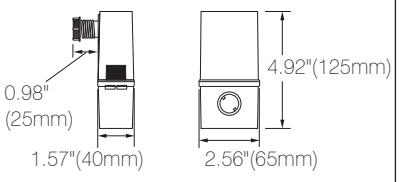
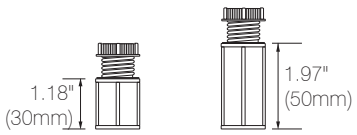
Occupancy sensor - PIR	Occupancy sensor - HFD	Daylight sensor

TRANS

Mounting Brackets

Bracket	Code	Description	Dimensions
EMB-500	E	**Fixture External** The **EMB-500** is a mounting bracket for mounting the sensor with indoor lighting fixture through a 1/2" knockout hole.	
PMB-500	P	**IP-66 Fixture External** The **PMB-500** is a mounting bracket for mounting the sensor with IP-66 lighting fixtures or outdoor pole mount through a 1/2" knockout hole.	
SMB-500	S	**Ceiling Surface** The **SMB-500** 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.	
CMB-500	C	**Junction Box** The **CMB-500** is a ceiling mounting bracket designed to mount the sensor with an octagonal or square junction box.	
RMB-500	R	**Ceiling Recess** The **RMB-500** is for recess mounting the sensor through a 2.8" (70mm) hole on the ceiling. An optional back cover (**BC-500**) is available for seperate purchase if cable strain relief is required.	
IMB-500	I	**Fixture Internal** The **IMB-500** is a mounting bracket exclusively designed for mounting the HFD sensor inside of an OEM lighting fixture.	

Accessories

Accessory	Description	Dimensions
EMA-500	**Extension Mounting Adaptor** The **EMA-500** is an extension mounting adaptor for lowering the position of E-mount sensor to avoid the coverage being blocked by the fixture body.	
EJ-30 EJ-50	**Extension Joint** The **EJ-30** and **EJ-50** 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 **EJ-30F** or **EJ-50F.**	

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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.

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
H		High bay	Dome	30~50 ft.	9.0~15.0m	1X height

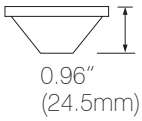
NOTE:

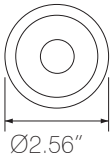
- Lens G can be rotated to change the direction of coverage. Its 3X height coverage refers only to the total length, the width of coverage will vary with the mounting height (see table of Lens G section). This lens is not IP-66 rated.
- Lens C/G may be mounted up to 40/50 ft. (12/15m) or higher at the 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 DATASHEET

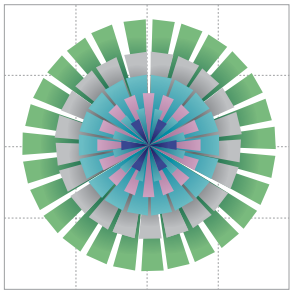
TRANS

LENS A — 2X Standard



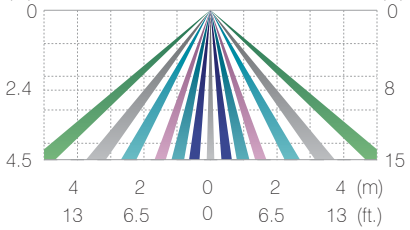


Top View

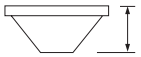


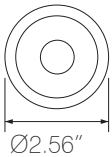
Mounting Height	ft. (m)	8 (2.4)	10 (3.0)	12 (3.6)	15 (4.5)
Max. Coverage Diameter	ft. (m)	16 (4.8)	20 (6.0)	24 (7.2)	30 (9.0)

Side View

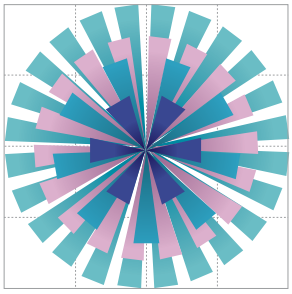


LENS B — 6X Extra wide



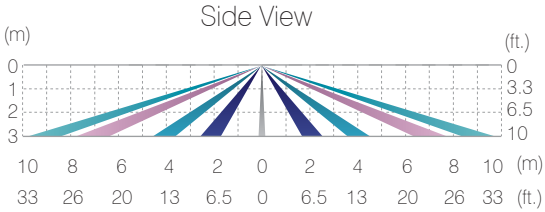


Top View

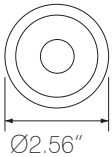


Mounting Height	ft. (m)	8 (2.4)	8.5 (2.6)	9 (2.8)	10 (3.0)
Max. Coverage Diameter	m (ft.)	48 (14.4)	51 (15.6)	54 (16.8)	60 (18.0)

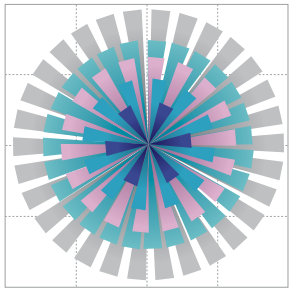
Side View



LENS C — 3X High bay

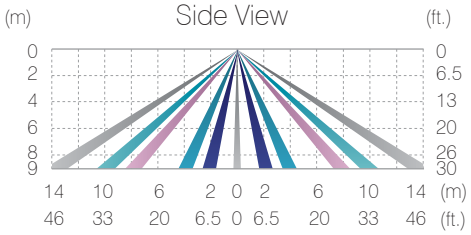


Top View

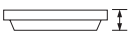


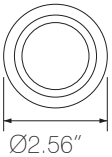
Mounting Height	ft. (m)	15 (4.5)	20 (6.0)	26 (8.0)	30 (9.0)
Max. Coverage Diameter	ft. (m)	45 (13.5)	60 (18.0)	78 (24.0)	90 (27.0)

Side View

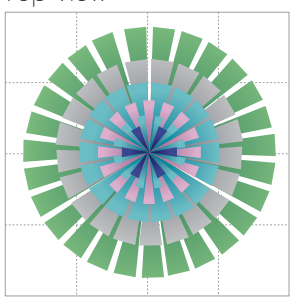


LENS D — 2X Standard



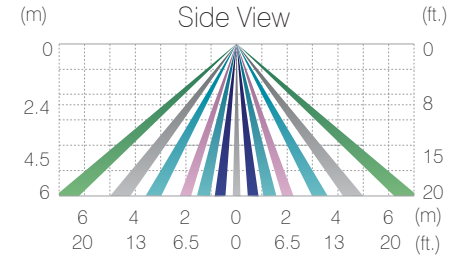


Top View



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



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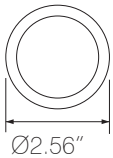
LENS DATASHEET

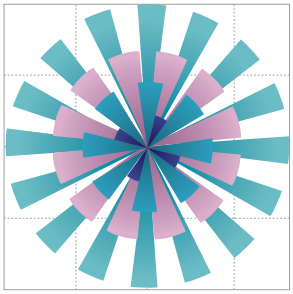
TRANS

LENS F — 4X Extra wide

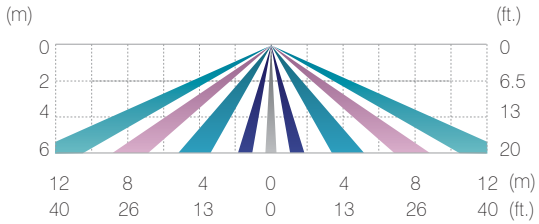
Mounting Height	ft. (m)	8 (2.4)	10 (3.0)	15 (4.5)	20 (6.0)
Max. Coverage Diameter	ft. (m)	32 (9.6)	40 (12.0)	60 (18.0)	80 (24.0)



Top View

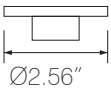


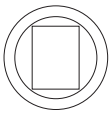
Side View



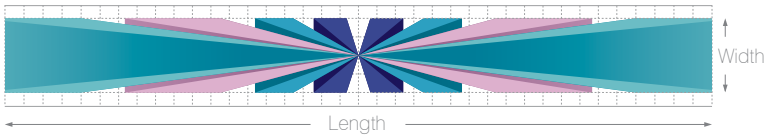
LENS G — 3X Aisle way

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)

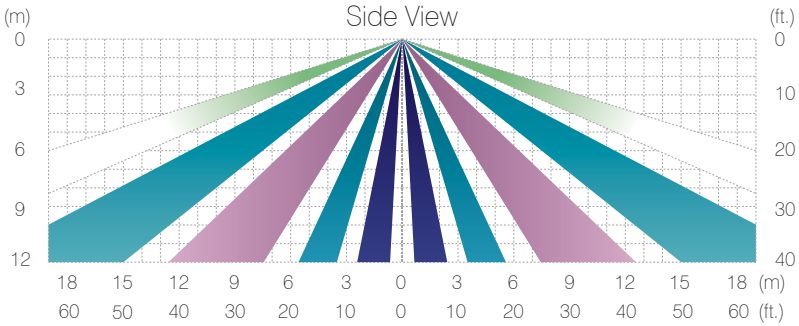




Top View

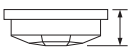


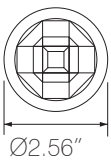
Side View



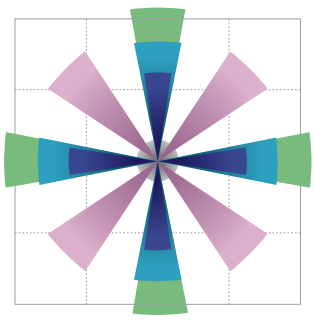
LENS H — 1X High bay

Mounting Height	ft. (m)	30 (9.0)	36 (11.0)	43 (13.0)	49 (15.0)
Max. Coverage Length x Width	ft. (m)	20 (9.0)	36 (11.0)	43 (13.0)	49 (15.0)

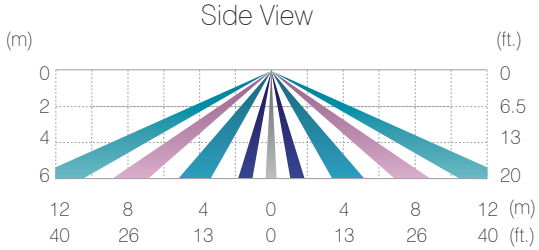




Top View



Side View



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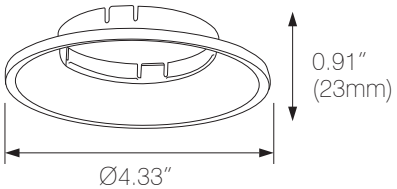
LENS DATASHEET

TRANS

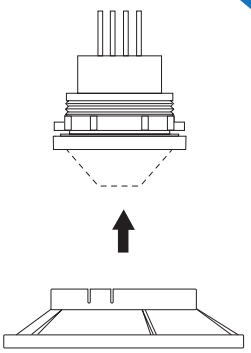
ACCESSORIES

LENS HOOD LH-110

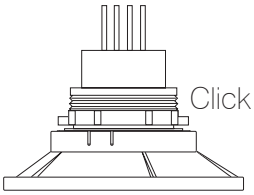
The LH-110 is designed for bi-level control sensors to prevent its ambient light sensor from being saturated by the excessive lighting nearby.



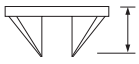
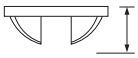
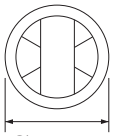
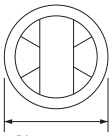
1



2



LENS MASK

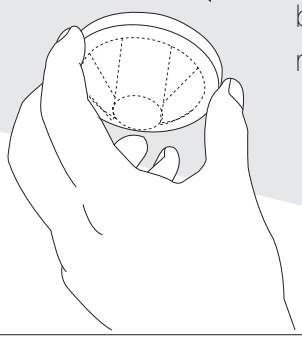
LM-12C For Lens A/B/C	LM-12D For Lens F
 1.02″ (26mm)	 0.79″ (20mm)
 Ø2.74″ (Ø69.5mm)	 Ø2.74″ (Ø69.5mm)

1

① Push the mask onto the installed lens

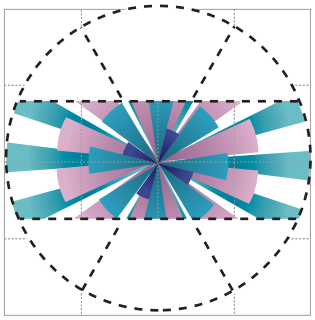
Click!

② Masked area can be changed by rotating the mask

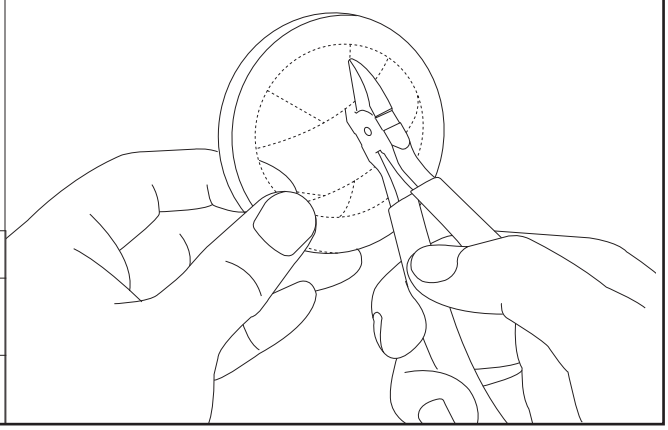


Example: Lens F with LM-12D

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)

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