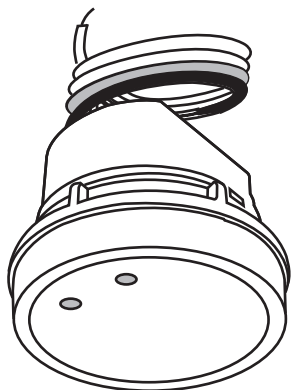


# TRANS

## LMS-509 series

Line Voltage Occupancy Sensor

## INSTALLATION INSTRUCTIONS



### ⚠ WARNING & CAUTION

- Risk of Electric Shock - Disconnect power supply before servicing.
- Open Type Photoelectric Switches.
- Install the sensor at least 1ft. away from any occupant.
- Cycling the power to the sensors will cause failure over time.

### ⚠ AVERTISSEMENT & PRUDENCE

- Risque de choc électrique - Débranchez l'alimentation avant l'entretien.
- Ouvrir Type commutateurs optoélectroniques.

IR-TEC hereby declares that the LMS-509 complies with Directive 2014/53/EU issued by the Commission of the European Community. The complete declaration of conformity is available on our website: [www.irtec.com](http://www.irtec.com)

The frequency and maximum transmitted power in EU are listed as 5800 MHz: -11.29dBm.

### Federal Communication Commission Interference Statement

FCC ID : NRIHS150900

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

## OVERVIEW

The LMS-509 series member of the TRANS family is a line voltage occupancy sensor designed for all-purposes energy efficient lighting control. This occupancy sensor employs an advanced High Frequency Doppler (HFD) sensing technology to provide superior sensing performance of minor motions, such as typing, writing, or reading. The HFD technology is operating with high frequency radio waves which are capable of detecting the occupant's presence and movements without requiring unobstructed line-of-sight like PIR sensor.

The Accu-Set digitalized potentiometers make the sensor setting easier, faster and more accurate than the conventional analog ones. 4 levels of sensitivity can be selected via DIP switch setting to provide different coverage. An exclusive Hybrid Switching technology makes LMS-509 series perfect to control the lighting with exceptionally high inrush current (HIC) while switching on, such as multiple LED or CFL lightings connected in parallel. The sensor comes with ambient light sensor (ALS) to inhibit switching on the light if the ambient light level is higher than the threshold set. Like all sensors in the TRANS family, the LMS-509 series is also available in various mounting options.

## WARRANTY

IR-TEC International Ltd. warranties this product to be free of defects in materials or workmanship for a period of five years from date of shipment. There are no obligations or liabilities on the part of IR-TEC International Ltd. for consequential damages arising out or in connection with the use or performance of this product or other indirect damages with respect to loss of property, revenue, profit, or cost of removal, installation or reinstallation.

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

**Radiation Exposure Statement:** This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

### Industry Canada statement:

IC : 22993-509HS1AC601

This device complies with ISED's licence-exempt RSSs. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Le présent appareil est conforme aux CNR d'ISED applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

### Radiation Exposure Statement:

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

**Déclaration d'exposition aux radiations:** Cet équipement est conforme aux limites d'exposition aux rayonnements ISED établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

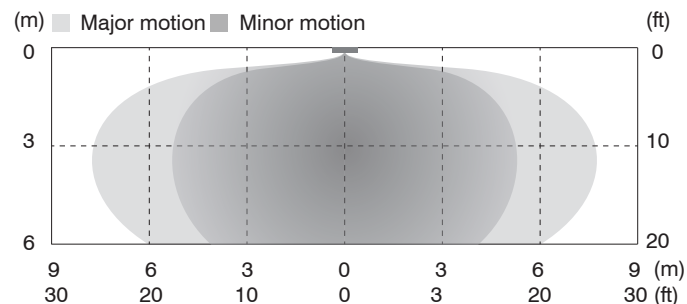
## APPLICATION NOTES

- Avoid placing the sensor in an area surrounded with metallic wall which may block or absorb the radio wave. If possible, place the sensor to the opening as close as possible.
- Fluorescent light may cause interference to the HFD sensor operation, and result in lighting permanent on. If possible, avoid placing the HFD sensor within 1m (3ft.) of fluorescent light.
- Avoid sensor placement facing doors, corridors or exits as HFD sensor may detect the traffics at adjacent area.
- HFD sensors are best for use in areas with partitions and high dividers, or high level of minor motion activities.
- The HFD sensor is more sensitive to the movements "toward" than "across" the sensor, so ensure to place the sensor at the position "toward" the movements of occupant.

## DETECTION PATTERN

Mounting Height	3 m (10 ft)	6 m (20 ft)
Coverage*	180 m <sup>2</sup> (2,000 ft <sup>2</sup> )	100 m <sup>2</sup> (1,200 ft <sup>2</sup> )

\*Sensitivity 100%



[www.irtec.com](http://www.irtec.com)

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This product may be covered by one or more U.S. patents or patent applications. Please visit [www.irtec.com](http://www.irtec.com) for more information.

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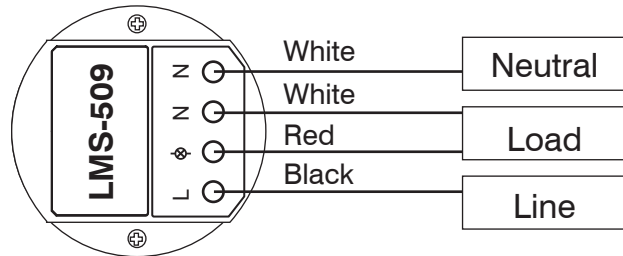
## OPERATION

The LMS-509S is an occupancy sensor designed to provide switched line voltage power to switch on the controlled lighting when it detects the presence of occupant. The sensor will automatically turn off the light after the area is no longer occupied for a period of time. An ambient light sensor (ALS) is built-in to inhibit switching on the light if daylighting level is higher than the threshold set.

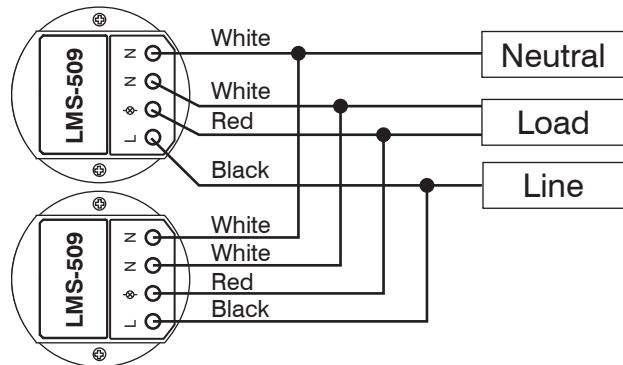
## WIRING DIAGRAM

The LMS-509 series can be mounted with a junction box into the ceiling, internally integrated or externally attached to a fixture to control the lighting with specific mounting bracket. Please refer to the mounting instructions separately attached for details of mounting options available.

A. Single sensor control

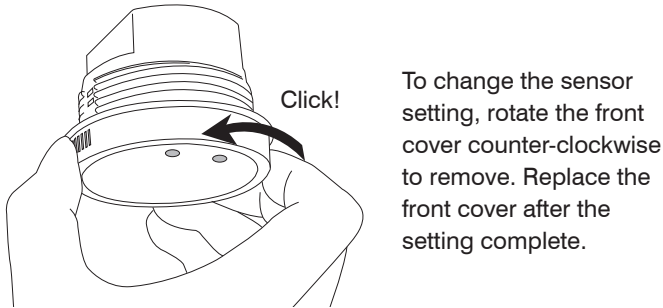


B. Multiple sensors control

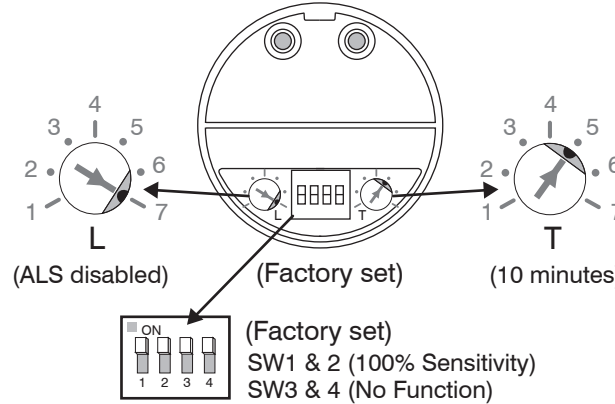


## SENSOR SETTINGS

The LMS-509 provides 7 different light-Off delay time and daylight threshold settings via 2 potentiometers marked T and L respectively. 4 levels of sensitivity can be set via combination DIP switch #1 and #2.



To change the sensor setting, rotate the front cover counter-clockwise to remove. Replace the front cover after the setting complete.



Position	1	2	3	4	5	6	7
<b>T (min.)</b>	T*	1'	3'	5'	10'	20'	30'
<b>L (lux)</b>	5	10	15	20	25	60	24H

Factory Set

\*T=10 seconds shorten delay for testing convenience. The sensor will automatically resume to the factory default delay setting after 10 minutes, if the potentiometer has not been adjusted to other position.

### T - Delay Time

The potentiometer T sets the period of delay time that sensor will turn off the connected lights after the area is vacated.

### L - Ambient Light Level

The potentiometer L sets the ambient light level that the sensor will activate occupancy sensing control.

## Sensitivity

The sensitivity and detection pattern of HFD sensor may vary with the furniture placement, partition layout, wall material, and shape of the space. For example, the detection pattern will become long rectangular if sensor is placed in a long corridor. 4 levels of sensitivity can be set via combinations of DIP switch #1 and #2.

Sensitivity	100%	75%	50%	25%
DIP switch setting	ON-ON	ON-OFF	OFF-ON	OFF-OFF

**NOTE:** DIP switch #3 and #4 are not functional for LMS-509S.

## SPECIFICATIONS

Power supply	120/240/277VAC, 50/60 Hz		
Maximum load	120VAC	240VAC	277VAC
	-Incandescent/Halogen	800/*500W(VA)	5A 1200/*750W(VA)
	-Fluorescent Ballast/CFL	800/*500W(VA)	5A 1200/*750W(VA)
-Ballast Electronic (LED)	540/*500VA	5A	1200/*750VA
HFD sensitivity	25/50/75/100% selectable via DIP switch setting		
Load switching	Zero-cross Hybrid-Switching		
HIC protection	Max. 80A for 16.7msec.		
Detection range	Up to 180 sq. m. @ 3 m (2,000 sq. ft @ 10 ft)		
Mounting height	2.4 ~ 6 m (8 ~ 20 ft)		
Ambient light level	7 level Accu-Set digital potentiometer		
Delay time setting	T/1'/3'/5'/10'/20'/30', T=10 sec. for testing		
Op. humidity	Max. 95% RH		
Op. temperature	-40°C~70°C (-40°F~158°F)		
Dimensions	Ø60 x H42mm (2.36"x H1.65")		

\*Max load for operating temperature at 55°C~70°C (131°F~158°F)