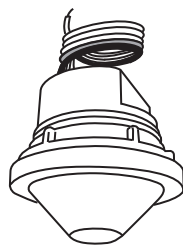


# TRANS

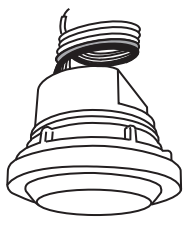
## LBD-509 series

Line Voltage SmartDIM Occupancy Sensor

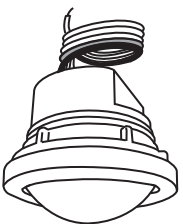
## INSTALLATION INSTRUCTIONS



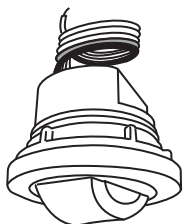
w/Lens A/B/C



w/Lens D



w/Lens F



w/Lens G/L

\*More lens options are available for this sensor.  
Please refer to the Lens Datasheet for more details.

## OVERVIEW

The LBD-509 series member of the TRANS family is a Bluetooth enabled line voltage occupancy sensor featuring multiple control schemes with 0-10V output for dimmable ballast or LED driver control. The sensor is capable of providing top-notch energy efficient lighting control with fully programmable multi-level high/low StepDIM or continuous SmartDIM control. All sensing control schemes and parameters can be set via IRTEC Sensor Config app capable of storing all sensor data and control profiles.

The sensor will turn on the connected lighting to the high dim or SmartDIM level as programmed when it detects the presence of an occupant or vehicle, and automatically dim the light to the low level or shut off as programmed after the area is vacated for a period of time. An iOS® or Android® app allows you to configure sensor control settings, or download the existing settings of the installed sensor from the floor. In addition, an exclusive Hybrid Switching technology protects the relay contacts from the high inrush current generated while switching on the LED driver.

## SPECIFICATIONS

Power supply	100/120/230/277VAC, 50/60Hz		
Maximum load	100-120VAC	230VAC	277VAC
-Fluorescent Ballast/CFL	800/*500W(VA)	5A	1200/*750W(VA)
-Incandescent/Halogen	800/*500W(VA)	5A	1200/*750W(VA)
-Ballast Electronic (LED)	540/*500VA	5A	1200/*750VA
Infrared sensor	Omni-directional pyroelectric		
Photo sensor	Digital ambient light sensor		
HIC protection	Max. 80A for 16.7msec.		
Dim control output	0-10V, ±5%, isolated, max 25mA		
Detectable speed	0.3 ~ 3 m/sec. (1 ~ 10 ft./sec.)		
Mounting height	Subject to the lens applied		
Detection range	Subject to lens type and mounting height		
Remote range	10 m (33 ft), indoor with no backlight		
Op. humidity	Max. 95% RH		
Op. temperature	-40°C~70°C (-40°F~158°F)		
Dimensions	Ø60 x H37mm (Ø2.36"x H1.45")		
*Max load for operating temperature at 55°C~70°C(131°F~158°F)			

## Federal Communication Commission Interference Statement FCC ID : SH6MDBT42Q

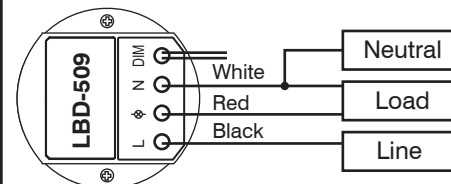
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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:

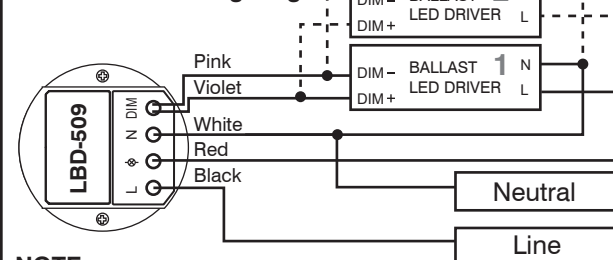
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## WIRING DIAGRAM

### Non-dimmable Lighting (ON-OFF Switching only)



### 0-10V Dimmable Lighting



### NOTE:

1. The driver/ballast MUST be 0-10V dimmable to achieve dimming control.
2. Ensure connection of LINE and NEUTRAL are not reversed to avoid damaging the sensor.
3. Ensure TOTAL isolation between DIM+/DIM- and GROUND to avoid damaging the sensor.
4. Conduct test with GROUND connected.

## MOUNTING OPTIONS

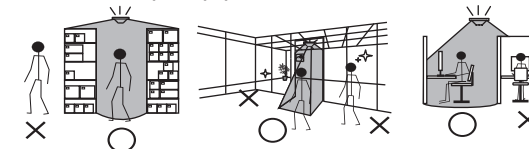
The sensor can be mounted on the ceiling, or integrated with a lighting fixture in various formats via specific mounting bracket. Please refer to the mounting instruction sheet separately attached for more details.

## LENS OPTIONS

Different lenses can be applied to provide specific coverage at different mounting heights. Please refer to the lens datasheet attached for more details.

## APPLICATION NOTES

1. PIR sensor is more sensitive to the movements "crossing" the detection zones than "toward" or "away" the sensor. To obtain optimal sensitivity, avoid placing the sensor in line with occupant path if possible.
2. Ensure to place the sensor at least at 1.5m (5 ft.) away from air supply ducts as strong air flow may interfere sensor operation.
3. PIR sensor cannot "see" the movement behind obstacles, such as furniture, shelf, glass or partitions. Avoid placing the sensor where obstructions may block the sensor's line of sight.
4. For open office with partition which could block the sensor view to occupant's movement, it is best to place the sensor over the intersection of multiple workstations. For large areas of open office, place multiple sensors so that there is overlap coverage with each adjacent sensor.
5. IRTEC Sensor Config app should be available on the mobile device for sensor configuration. **If no configuration steps have been taken, the sensor will operate with factory default control and parameters.**
6. Typical Bluetooth radio range of mobile device is about 10 m (30 ft), the actual range may vary due to environmental characteristics.



## Industry Canada statement:

IC : 8017A-MDBT42Q

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 greater than 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 à plus de 20 cm entre le radiateur et votre corps.

**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.

Install the sensor at least 1ft. away from any occupant.

www.irtec.com

P/N: 058-50924-005

Printed in Taiwan

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.

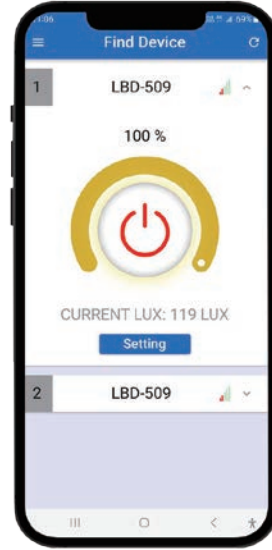


## SETTING CONFIGURATION APP

The LBD-509 can be configured via IR-TEC sensor configuration app to control the associated lighting as the scheme and parameters set. The app allows bi-directional communication between the sensor and the mobile device connected. All sensor settings can be configured via app with simple and intuitive operations.

**NOTE:** If necessary, multiple mobile devices can be used to configure “multiple sensors” simultaneously. However, categorizing the sensors in zone basis for different persons to conduct configuration respectively is recommended. Please note that a sensor can only be configured by the “connected” mobile device.

Sensor Config App  
User Guide



## SENSOR SETTINGS

Settings	Description	Options	Default
<b>Control</b>	The mode that the sensor will control.	ON/OFF, OSO, OSLA, OSLATO, OFF	OSLATO
<b>Photocell</b>	For measuring ambient light level.	Enabled/Disabled	Disabled
<b>Ambient lux</b>	The ambient light level that sensor will perform the control.	10~2000 LUX/CURRENT LUX	80 LUX
<b>Delay time</b>	The delay time that sensor is set to turn off or dim the light.	10 sec.~30 min.	10 min.
<b>Time off</b>	The delay time that sensor will keep the light at low dim level after the off delay time elapsed. Only available if OSLATO is selected.	10 sec.~30 min.	10 min.
<b>SmartDIM</b>	The sensor will automatically regulate the lighting to maintain overall lighting.	Enabled/Disabled	Disabled
<b>High dim</b>	The output level set to control the light during occupancy.	30~100%	100%
<b>Low dim</b>	The output level set to dim the light when space is vacant for bi-level control.	10~70%	30%
<b>Ramp up</b>	The speed of increasing the lighting output to High dim level.	Instant/Soft/Slow	Instant
<b>Fade down</b>	The speed of decreasing the lighting output to Low dim level or off.	Instant/Soft/Slow	Soft
<b>Sensitivity</b>	The sensitivity of occupancy sensor.	High/Normal/Low	High
<b>LED indicator</b>	Enable/disable the LED indicator of sensor.	Enabled/Disabled	Enabled
<b>Minimum dim</b>	The lowest dim level applicable on the sensor.	12%/15%/Disabled	Disabled
<b>Daylight o'ride</b>	Enable/disable daylight override control. Sensor will shut off the light when ambient lux exceeds the override level set below. Only available if Photocell is enabled.	Enabled/Disabled	Disabled
<b>Override level</b>	The ambient lux level to enable daylight override. Only available if Daylight o'ride is enabled.	High/Normal/Low	Normal

## CONTROL SCHEME

The LBD-509 offers multiple occupancy sensor control schemes and parameter settings for selection.

**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

Scheme	Description
<b>ON/OFF</b>	<ol style="list-style-type: none"> <li>While ambient lux is <b>higher</b> than the level set, light stays <b>OFF</b>.</li> <li>While ambient lux is <b>lower</b> than the level set, and <b>occupancy detected</b>, switch the light to <b>High dim</b>.</li> <li>Turn <b>OFF</b> the light after occupant leave and delay time elapses.</li> </ol>
<b>OSO</b>	<ol style="list-style-type: none"> <li>Ambient light sensor disabled.</li> <li>Dim the light to <b>Low dim</b> at <b>all time</b> under vacancy.</li> <li>Switch the light to <b>High dim</b> under occupancy.</li> <li>Dim the light to <b>Low dim</b> after occupant leave and delay time elapses.</li> </ol>
<b>OSLA</b>	<ol style="list-style-type: none"> <li>While ambient lux is <b>higher</b> than the level set, light stays <b>OFF</b>.</li> <li>While ambient lux is <b>lower</b> than the level set, dim the light to <b>Low dim</b> under vacancy.</li> <li>While ambient lux is <b>lower</b> than the level set, and <b>occupancy detected</b>, switch the light to <b>High dim</b>.</li> <li>Dim the light to <b>Low dim</b> after occupant leave and delay time elapses.</li> </ol>
<b>OSLATO</b>	<ol style="list-style-type: none"> <li>While ambient lux is <b>higher</b> than the level set, light stays <b>OFF</b>.</li> <li>While ambient lux is <b>lower</b> than the level set, and <b>occupancy detected</b>, switch the light to <b>High dim</b>.</li> <li>Dim the light to <b>Low dim</b> after occupant leave and delay time elapses.</li> <li>Turn <b>OFF</b> the light when <b>Time off</b> delay elapses.</li> <li>When <b>occupancy detected</b> during <b>Time off</b>, switch the light to <b>High dim</b>.</li> </ol>
<b>OFF</b>	All light controlled by the sensor will stay <b>OFF</b> before other scheme is selected.

## SETTING ACKNOWLEDGEMENT

The sensor will acknowledge setting success or failure with different indications by sensor LED or connected lighting.

Acknowledgement	Sensor LED	Lighting
Sensor setting upload complete	-	Flash
Sensor resume to factory default	-	Flash
SmartDIM level set completed	-	Flash
Motion detected	Slow flashing	High dim
Bluetooth connected	Blinking	-