

LightAlert!

Installation Manual

LOS1000

SMART SWITCH

OCCUPANCY

SENSOR

Features:

Maximum Energy Savings:

- Sensitive 180° view passive infrared motion detector keeps lights on only when rooms are in use.
- No ON switch so lights are never left on by mistake.
- Meets new energy code standards.
- Meets California Title 24.
- Suitable for all utility rebate programs.

Maximum Coverage:

- 180° wide angle detection pattern.
- Picks up people entering doorways quickly with standard next to doorway location.
- Covers 1000 square feet, eliminates need for multiple sensors.
- Superb small movement sensitivity within 18 feet. Great for sedentary office use.
- No dead spots with 18 sensing fingers.

Maximum Reliability:

- “ZAP” (Zero Arc Point) Sensor switches only at the zero arc point of an electrical cycle. Protects relay contacts from high inrush and kickback currents and lengthens ballast and sensor life.

Easy Installation:

- Works with **dimmers and programmed rapid start electronic ballasts**.
- No minimum load requirement.
- Replaces single pole wall switches without additional wiring.
- Fits decorator style, rectangular opening switchplates.
- Only 1/2" protrusion from switch plate.
- No adjustments required for most installations.
- Compact design fits standard switch boxes with plenty of room for wiring.
- LED Detection Indicator aids walk testing and adjustments.
- 30 second minimum delay time speeds testing procedure.
- Tamperproof control panel cover reduces callbacks for tampering.

Maximum Versatility:

- Switches most types of fluorescent and/or incandescent lighting. **Instant Start fluorescent ballasts may not be rated for use with any kind of occupancy sensor.**
- Fits single or multi-gang locations without special adapters.
- Wide time delay choice adjust to active or sedentary movement.
- Does not interfere with computers.
- Superior RF immunity.

Specifications:

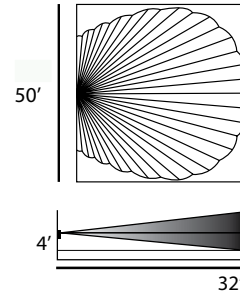
Coverage:

1000 square feet,
up to 35' from the sensor.

Detection Zone:

180° in 18 zones
32' range
Vertical beam 5" wide

Detection Pattern:



Note:

Detection of sedentary small movement desk work within 18'

Time Adjustment:

30 seconds to 30 minutes
after motion stops

Detection Indicator:

Red LED

Energy Codes:

Meets new energy code standards.
Complies with California Title 24

Switching Capacity:

120 VAC: Max 1000W ballast
Max 800W incandescent
60 Hz, 1/8 HP
277 VAC: Max 1800W ballast
60Hz, 1/8 HP

Minimum Load:

None

Warning: Not compatible with Instant Start Ballasts

Power Consumption:

Less than 500 microamps

Wiring:

Replaces single pole wall switch,
2 wire system

Temperature Range:

-30° to + 122°F
(-1° to + 50°C)

Humidity Range:

20% to 90% non-condensing

Approvals:

UL Listed
Appliance Control Specification Grade
UL Standard 508
Industrial Control Equipment

Weight:

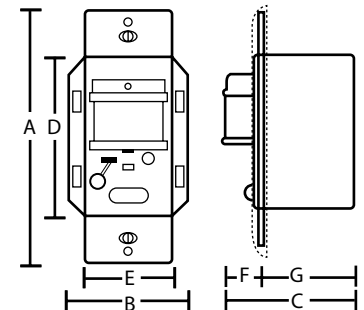
8 ounces (266 grams)

Parts List:

LOS1000 Sensor
Matching wall plate
2 matching wall plate screws
Bypass key

Dimensions:

A = 4.06" (103mm) B = 1.69" (43mm)
C = 2.25" (57mm) D = 2.56" (65mm)
E = 1.25" (32mm) F = 5" (13mm)
G = 1.68" (43mm)



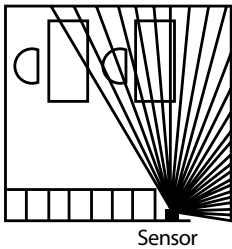
Selecting A Location

Locate the LightAlert LOS1000 where it has an unobstructed view of the room, particularly the areas normally occupied by people. Ideal mounting height is 3.5 to 4.5 feet above the floor.

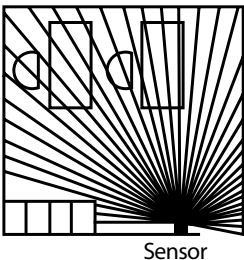
If people can not see the sensor lens from their normal positions in the room, the sensor will not detect their presence.

High cabinets, walls, doors and other obstructions may limit the sensor's view of the entire room. If obstructions can be moved the sensor will have a better view. If the areas obstructed are not areas normally occupied, the sensor will still be able to see normal occupancy.

Cabinet obstructs sensor's view of active area

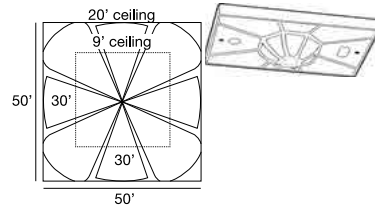


Obstruction moved, sensor has full view



If the room is L shaped or the sensor's view is badly obstructed from the door switch location, use the LightAlert LOS2400 ceiling mounted sensor instead of the LOS1000.

Ceiling mounted LOS2400 sensor with 360° detection

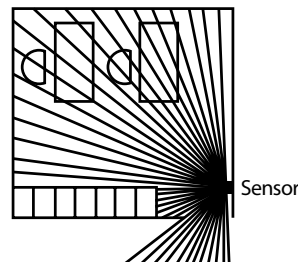


Do not locate sensor over or looking at heating vents, baseboard heaters, hanging plants or air conditioners.

Do not locate sensor where it will view direct sunlight.

If the sensor's location gives it a view of other rooms or hallways, lights will be turned on when movement is detected in these adjacent areas. If this is undesirable, the sensor's detection zone may be restricted by covering a portion of the lens with a white paper label or tape.

Sensor has view of adjacent area



Installation

Caution:

- TURN OFF ALL POWER BY REMOVING THE POWER FUSE OR TURNING OFF THE CIRCUIT BREAKER FOR YOUR SAFETY AND TO PREVENT DAMAGE TO THE UNIT.

- Please read this entire Owner's Manual before proceeding.

- All wiring should comply with local electrical codes and may require a qualified electrician.

- Make sure the total lighting load connected to the LightAlert LOS1000 does not exceed the following:

120 VAC: Max 1000W ballast

Max 800W incandescent

277 VAC: Max 1800W ballast

Exceeding the wattage limits may damage the unit. To switch more wattage, an electrician can install a relay to handle the load.

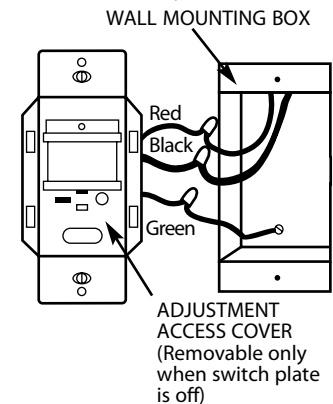
- Do not use LightAlert LOS1000 to control high intensity discharge lights, fans, heaters or motors. Small bathroom exhaust fans may be used with LOS 1000.

- The LOS 1000 may be used with both standard and program rapid start electronic fluorescent ballasts.

- When the LOS1000 is initially installed and the main power circuit is restored, it will take 3 min before the LOS1000 will automatically switch the light off when no one is present. It takes 3 min for all circuits, including timer and memory to stabilize.

Installation Step by Step:

1. Remove the existing switch, if necessary.
2. Connect green ground lead from LOS1000 to system ground.
3. Connect hot incoming power line to black sensor wire. Connect lighting load to the red sensor wire.
4. Twist on wire nuts. Secure with electrical tape. Mount LOS1000 in wall box with two screws provided.
5. Place switch in OFF position before turning on power.
6. Press the Auto/Off switch IN to "Auto". After a short delay, the lights will turn ON. When the room is vacated, the lights will turn OFF after the time delay you set.
7. See "Adjustments" section for control options. Only make adjustments after a 3 minute warmup period.
8. Attach the wall plate.



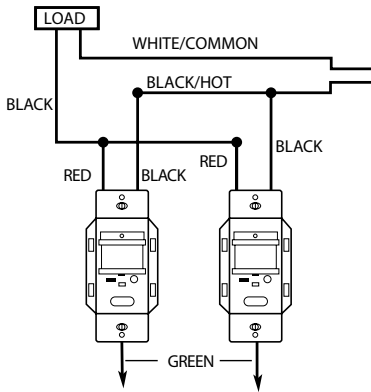
Wiring Diagrams

Caution:

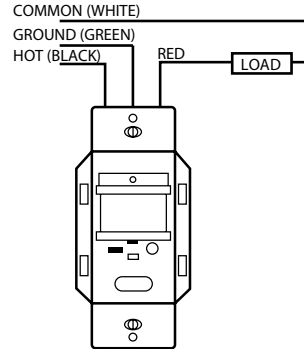
■ TURN OFF ALL POWER BY REMOVING THE POWER FUSES OR TURNING OFF THE CIRCUIT BREAKER FOR YOUR SAFETY AND TO PREVENT DAMAGE TO THE UNIT.

■ The ground wire must be tightly secured to ground.

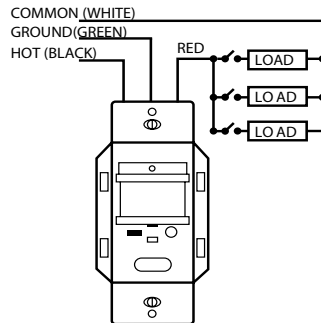
3-Way Switch Wiring Diagram



Basic Wiring Diagram Single Level Lighting



Multiple Level Lighting Wiring Diagram



Adjustments

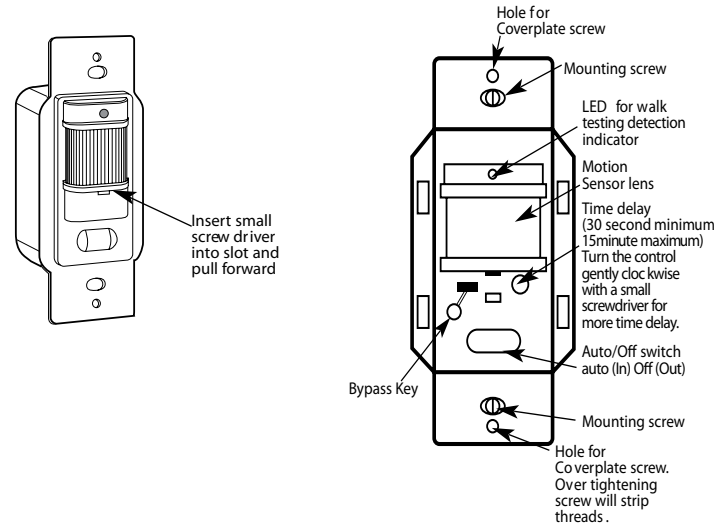
Field of View Adjustment

If the sensor is "seeing" out through a doorway into a hallway or "seeing" undersired areas, simply cover part of the sensor lens with opaque white tape or a paper label. Clear tape may be used, but it limits detection only partially. Test that the portion of the lens covered limits detection as desired and does not reduce detection in other areas.

Removing the Adjustment

Access Cover:

This cover is tamperproof and cannot be removed if the switch cover plate is attached. The cover has two "ears" that hook under the cover plate and prevent tampering. To remove the cover, insert a screwdriver into the latch and pull forward.



Time Delay Adjustment

The time delay adjustment can be set so the lights turn off from 30 seconds minimum to 30 minutes maximum after the room is vacated.

Walk Test

To test the detection pattern of the LOS1000 make no motion for 30 seconds. Move sideways up to 12". The red LED should blink. If you move continuously, the LED will blink once every 2 seconds. The LOS1000 is factory set at optimum detection, so no field adjustment is required.

Bypass Key

When the bypass key is inserted into the slot, the lights will always be on. This key is recommended for emergency use only.

Trouble Shooting

Lights Do Not Turn On

1. Check that:
 - The lamps and fixtures work
 - wiring exactly matches the wiring diagram;
 - wiring polarity is correct;
 - power is on;
 - sensor has warmed up for 3 minutes;
 - off/auto switch is not OFF
2. Make sure that sensor is not “looking” at direct sunlight or an extremely bright light.
3. Make sure sensor’s view of the room is not blocked.

Lights Do Not Turn Off

1. Check that the Time delay control is set to minimum.
2. Stay completely out of the protection pattern to avoid activation. Make sure sensor is not seeing movement in an adjacent area through a doorway or other opening.
3. Make sure unit is not aimed at something that would move or cause a temperature change such as plants, hot water pipes, air conditioners or heating vents.
4. Check that the wattage controlled does not exceed the maximum limits.

Lights Go On and Off Quickly

1. Make sure lights are not shining directly into the sensor. Check for white or reflective surfaces in the protection pattern.
2. Reduce sensor sensitivity by masking the lens with tape in the direction of the light or reflection (see section number 4 on Field of View Adjustment).
3. Check the wattage controlled does not exceed maximum limits.
4. Certain energy saving fluorescent lamps strobe when turned on within a minute of being turned off.
5. Make sure sensor can not “see” a light that it is controlling.

Lights Go On for “No Reason”

1. Look for sources of electrical noise such as fans or air conditioners on the same circuit or nearby. If possible unplug or move the noise sources.
2. Check if sensor is “seeing” into adjacent rooms or hallways. Mask sensor lens in that direction with opaque tape.
3. Check if sensor is “seeing” heaters or air conditioning vents. Mask sensor lens if necessary.
4. Make sure unit is at room temperature. If it was installed immediately after being in an extremely hot or cold environment, wait an hour for it to adjust.

RAB Sensor Warranty

LightAlert LOS1000 Smart Switch will be free from defects in materials and workmanship for a period of one (1) year from the date of delivery to the end-user.

Sensors must be installed by a properly insured and licensed electrician or under the supervision of a licensed electrician and the product must be in its original, unopened and new condition at the time of installation. The information provided in the RAB Sensor Owner’s Manual is critical in determining the location, conditions, intended use and other requirements with respect to the use and installation of a sensor product. Using a sensor product in any manner other than as disclosed in the RAB Owner’s Manual automatically voids the warranty.

Exceptions. The above warranties shall not apply and RAB makes no representations or warranties with respect to:

- a. problems caused by acts of God including without limitation lightning strikes; and
- b. problems caused by any improper action or failure to act by any person or entity other RAB, including without limitation problems caused by improper installation by the buyer, an authorized RAB distributor, or any other person or entity; and
- c. using or installing a sensor product in any manner other than as disclosed in the RAB Owner’s Manual.
- d. use with Instant Start ballasts; use with Instant Start ballasts will void the RAB warranty.

Out of warranty sensors replacement program.

If your sensor is out of warranty or if damage is unrelated to its original manufacture, return your sensor (freight prepaid and insured) directly to us (at RAB Lighting Inc. 170 Ludlow Ave. Northvale, NJ 07647) with a check for \$25.00 made payable to RAB Lighting Inc. We will repair or replace your sensor promptly.

Toll Free Technical Assistance

If you need technical assistance, please do the following:

1. Re-read the Technical Tips sections of this manual.
2. Call the Tech Help Line at 888 RAB-1000, 8AM to 6PM Eastern Time M-F and we will be glad to help you. Before you call, please have the following information handy:
 - a) Catalog number of your unit;
 - b) Wattage, types and locations of lights connected to the sensor;
 - c) The electrical circuit on which the sensor is installed. What else does it feed? How is the sensor power switched?
 - d) Serial Number (4 digits) on the back of the sensor.
 - e) This installation Manual

RAB Lighting cannot give electrical wiring instructions by phone. Please consult a qualified electrician

RAB Lighting Product Warranties

The following warranties apply to RAB Lighting, Inc. ("RAB") products that meet all of the following conditions: (a) the product was purchased by the contractor or end-user from an authorized RAB distributor who purchased the product directly from RAB and from no other source; (b) if the product has been installed, the entire installation was performed by a licensed electrician or under the supervision of a licensed electrician and the product was in its original, unopened and new condition at the time of installation. RAB LIGHTING DISCLAIMS ALL REPRESENTATIONS AND WARRANTIES WITH RESPECT TO ALL OTHER PRODUCTS, INCLUDING WITHOUT LIMITATION PRODUCTS THAT HAVE BEEN PURCHASED FROM ANY PERSON OR ENTITY OTHER THAN AN AUTHORIZED RAB DISTRIBUTOR, OR INSTALLED BY ANY PERSON OR ENTITY OTHER THAN A LICENSED ELECTRICIAN OR UNDER THE SUPERVISION OF A LICENSED ELECTRICIAN, AND ALL PRODUCTS THAT ARE USED OR ARE OTHERWISE NOT IN THEIR ORIGINAL RAB LIGHTING PACKAGING AT THE TIME OF INSTALLATION.

Remedy. RAB's obligations for breach of warranty shall be limited to repair or replacement, at RAB's option, of any products or parts which prove to be defective, provided that buyer gives RAB written notice and returns the defective product to RAB in accordance with RAB's return material authorization (RMA) policies, and RAB confirms the defect. Buyer is responsible for all costs to de-install defective products and re-install replacement or repaired products and RAB shall not be liable for labor or other costs related to de-installation or re-installation.

DISCLAIMER. THE FOREGOING WARRANTIES ARE IN LIEU OF, AND RAB EXPRESSLY DISCLAIMS, ALL OTHER REPRESENTATIONS, GUARANTEES AND WARRANTIES, EXPRESS OR IMPLIED IN FACT OR BY LAW, INCLUDING WITHOUT LIMITATION ALL WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE. THE FOREGOING WARRANTIES STATE RAB'S ENTIRE AND EXCLUSIVE LIABILITY, AND BUYER'S SOLE AND EXCLUSIVE REMEDY, IN CONNECTION WITH THE PRODUCTS AND ALL PARTS, THEIR DESIGN, SUITABILITY FOR USE, INSTALLATION AND OPERATION.

LIMITATION OF LIABILITY. RAB shall not be liable under any theory of relief, including without limitation breach of warranty, breach of contract, tort (including negligence), strict liability, or otherwise, arising out of or related to any breach of warranty, any RAB products and the use thereof, or any other acts or omissions of RAB for: (i) any indirect, incidental, special or consequential damages, whatsoever (including without limitation, loss of anticipated value of a business or its reputation) or (ii) any damage or loss in excess of the price actually paid by buyer to the authorized RAB distributor for the products that caused the damages. Any action by buyer must be commenced within one year after the cause of action has accrued.

Miscellaneous. These product warranty terms shall be governed by the laws of the State of New York. Buyer consents to the personal jurisdiction and venue of the courts of the State of New York. Any legal or equitable claim of any nature arising hereunder shall be filed and maintained in the state or federal courts in the State of New York and buyer agrees that such courts are a convenient forum for adjudication. In the event that suit is necessary to recover amounts owed RAB, buyer shall be liable for reasonable attorney's fees, interest and costs of collection. No agreement or understanding varying the terms and conditions hereof shall be binding upon RAB or buyer unless in writing and signed by duly authorized representatives of both parties. These product warranty terms shall inure to the benefit of and be binding upon the parties hereto and their respective successors and assigns.

Note: These instructions do not cover all details or variations in equipment nor do they provide for every possible situation during installation operation or maintenance.