LightAlert!®

# Installation Manual

## LOS1000
## Occupancy Sensor

RAB

# Features

**Maximum Energy Savings**
- Sensitive 180° view passive infrared motion detector keeps lights on only when rooms are in use.
- Short delay times (10 seconds minimum to 15 minutes maximum) turn lights off quickly after motion ceases.
- Built-in ambient light sensor keeps lights off in bright daylight.
- No ON switch so lights are never left on by mistake.
- Meets California Title 24 specs.
- Suitable for all utility rebate programs.

**Maximum Coverage**
- Double dual detectors for 180° wide angle detection pattern.
- Picks up people entering doorways quickly with standard next to doorway location.
- Covers 1000 square feet, eliminates needs for multiple sensors
- No dead spots due to dual detectors and 18 sensing fingers.

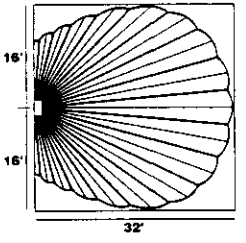
**Easy Installation**
- Replaces single pole wall switches without additional wiring.
- Fits decorator style, rectangular opening switchplates.
- Only ½" protrusion from switch plate.
- Just two wires, no ground or common required.
- No adjustments required for most installations.
- Works with dimmers and electronic ballasts.
- Compact design fits standard switch boxes with plenty of room for wiring.
- LED Detection Indicator aids walk testing and adjustment
- 10 second minimum delay time speeds testing procedure
- Tamperproof control panel cover reduces call backs for tampering.

**Maximum Versatility**
- One model for 120VAC through 277VAC.
- Switches all types of fluorescent and/or incandescent lighting.
- Fits single or multi-gang locations without special adaptors.
- Ambient light sensing keeps lights off in bright daylight.
- Wide time delay choice adjusts to active or sedentary movement.
- Does not interfere with computers.
- Post threshold integration for superior RF immunity.

# Specifications

**Coverage:**
1000 square feet
(305 square meters)
**Detection Zone:**
180° in 18 zones
32' range
Vertical beam 5° wide

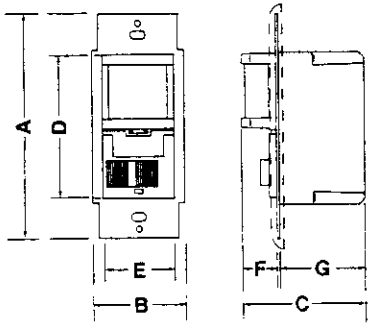
**Detection Pattern**




**Ambient Light Sensing:**
Turns lights off at 50 footcandles ambient (switchable)
**Time Adjustment:**
10 seconds to 15 minutes after motion stops
**Detection Indicator:**
Red LED
**California Title 24:**
Full Compliance
**Switching Capacity:**
80 - 1000 watts, 120 VAC
160 - 1500 watts, 277 VAC
Fluorescent and/or Incandescent
Usable with dimmers, and electronic ballasts
Load relay TV5 rating
**Voltage:**
Any voltage 100 thru 277VAC
50 or 60 hertz

**Power Consumption:**
Less than 500 microamps
**Wiring:**
Replaces single pole wall switch,
2 wire system,
No common or ground necessary
**Temperature Range:**
– 30°F to + 122°F
( – 1°C to + 50°C)
**Humidity Range:**
20% to 90% non-condensing
**Approvals:**
UL Listed
UL Standard 508
Industrial Control Equipment
**Weight:**
8 ounces (226 grams)
**Parts List:**
LOS1000 Sensor
Matching wall plate
2 matching wall plate screws

**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)



# 1 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.

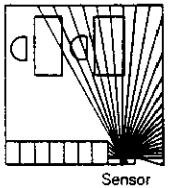
If the room is L shaped or the sensor's view is badly obstructed from the door switch location, use the LightAlert LOS2400 ceiling mounted sensor instead of the LOS1000.

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

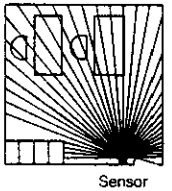
Do not locate sensor where it will view direct sunlight.

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.

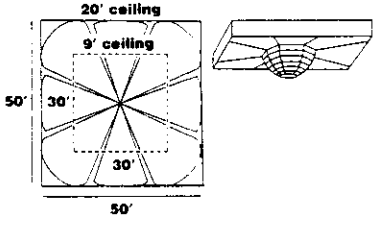
**Cabinet obstructs sensor's view of active area**



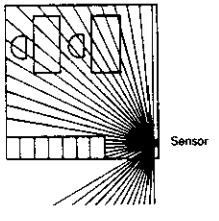

**Obstruction moved, sensor has full view**




**Ceiling mounted LOS2400 sensor with 360° detection**




**Sensor has view of adjacent area**




# 2 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 is within the following limits:

120 VAC: 80 - 1000 watts
277 VAC: 160 - 1500 watts

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

If load is less than minimum wattage, lights will not turn on or may stay on.

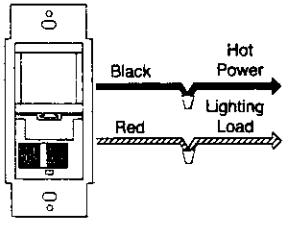
■ Do not use LightAlert LOS1000 to control high intensity discharge lights, fans, heaters or motors.

■ The LOS1000 may be used with both standard and electronic fluorescent ballasts.

**Installation Step by Step**

1. Remove the existing switch.
2. Connect hot incoming power line to black sensor wire. Connect lighting load to the red sensor wire.
3. If a green ground lead is present in the box, just cap it with a wire nut.
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. Turn on power. Move the switch to AUTO. The lights will now be on. Unit may take one minute to stabilize.
7. Attach the wall plate. Controls have been factory preset for normal applications. Time Delay is set for 15 minutes. Sensitivity is high and Ambient Light Control is off. See Section 3 – Special Applications Adjustments for control options.

**Basic Wiring Diagram**



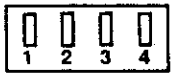
# 3 Special Application Adjustments

**Field of View Adjustment**
If the sensor is "seeing" out through a doorway into a hallway or "seeing" undesired areas, simply cover part of the sensor lens with opaque tape. Test that the portion of the lens covered limits detection as desired and does not reduce detection in other areas.

**Removing the Tamperproof Control Cover:**
Remove the control panel cover by squeezing the latch and pulling forward. This cover is tamperproof and can not be removed if the switch cover plate is attached. The cover has two "ears" that hook under the cover plate and prevent tampering.

Removing the cover reveals 4 programming switches:

**Programming Switches**




The switches have been factory set as follows:

| Switch | Function | Setting | |
|---|---|---|---|
| 1 | Ambient Light | DOWN | (OFF) |
| 2 | Sensitivity | UP | (HIGH) |
| 3 | | DOWN | |
| 4 ▶ | Time | UP | ▶ (15 MIN.) |

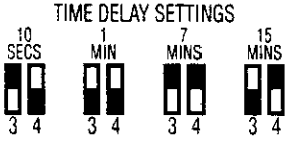
**Switch # 1**
**Ambient Light Adjustment**
If bright daylight regularly enters the room, energy can be saved by turning the LOS1000's Ambient Light Control ON by setting switch #1 in the UP position.

If the ambient light levels at the sensor exceed 50 footcandles the lights will not turn on when someone enters the room. Should light levels decrease below 50 footcandles while the room is occupied, the lights will turn on.

If switch #1 is DOWN, the ambient light control will be off and lights will be on any time the space is occupied regardless of the ambient light level.

**Switch # 2:**
**Sensitivity Adjustment**
For most applications, leave the Sensitivity control, switch #2 set at high (UP position). To reduce sensitivity by 30%, push switch #2 DOWN. To further reduce sensitivity, cover all or part of the sensor lens with cellophane tape.

**Switch # 3 and 4:**
**Time Adjustment**
The Time setting should be high enough to prevent lights turning off when the room is occupied. In rooms with sedentary activity like individual offices, the Time should be set high (15 minutes). Time should only be reduced (7 minutes) in heavy traffic areas such as hallways, kitchens, copier rooms, etc.



# 4 Trouble Shooting

**Lights Do Not Turn On**

1. Check that:
   - the lamps and fixtures work;
   - wiring exactly matches the wiring diagram;
   - power is on;
   - sensor has warmed up for 2 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 ambient light control is "off". If it is "on" and light at sensor is bright (brighter than 50 foot-candles) lights will not turn on.

4. 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.

3. Make sure sensor is not seeing movement in an adjacent area through a doorway or other opening.

4. 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.

5. Make sure line voltage has not "browned out" to below 100 volts. This might happen on a day with heavy air conditioner use.

6. Check that wattage controlled is between minimum and 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 using lower sensitivity switch setting or by masking the lens with tape in the direction of the reflection (see section 3 on Sensitivity Adjustment).

3. Check that wattage controlled is between minimum and maximum limits (see "Specifications").

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.

## Limited Warranty

A LightAlert LOS1000 requires no maintenance other than keeping the lens area clean and free of obstructions. Do not attempt to open or repair the unit. There are dangerous voltages inside the case and no user serviceable parts.

Your LightAlert! LOS1000 will be replaced or repaired, at our option, if it proves to be defective in workmanship or materials within one year from the date of original purchase.

For repair or replacement, return the product freight prepaid and insured to the address below. The LOS1000 should be packed carefully. Please include your sales receipt and a description of the problem.

If your unit is out of warranty or the damage is unrelated to the original manufacture, return your unit directly to RAB with a check for $20.00 (payable to RAB Electric). We will repair or replace the unit.

Under no circumstances shall we be liable for any incidental or consequential damages arising out of or in connection with the use or performance of this product or other indirect damages with respect to loss of property or revenue or cost of installation, removal or re-installation. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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