L legrand®

Wattstopper®

Passive Infrared Wall Switch Occupancy Sensor (v3)

Installation Instructions • Instructions d'Installation • Instrucciones de Instalación

Catalog Number • Numéro de Catalogue • Número de Catálogo: WS-250

Country of Origin: Made in China • Pays d'origine: Fabriqué en Chine • País de origen: Hecho en China

SPECIFICATIONS

Voltages... 120 or 240/277VAC, 60Hz
Load Requirements
    @ 120VAC, 60Hz ......0-1000VA Tungsten, Ballast, E-Ballast and LED Driver, 1/4 hp
    @ 240/277VAC, 60Hz ....0-1800VA Ballast, E-Ballast and LD Driver
Time Delay Adjustment ....30 seconds - 30 minutes
Sensitivity Adjustment .... Minimum-Maximum
Light Level Adjustment ....10 - 200 + FC

UNIT DESCRIPTION AND OPERATION

The WS-250 PIR Wall Switch Occupancy Sensor turns lighting or fan loads ON and OFF based on occupancy and ambient light level. They are designed to replace a standard light switch. The WS-250 operates with 120 or 240/277VAC line voltage. All other features are the same in both models. (Throughout this manual, "WS" is used to indicate either sensor.)

The sensor uses passive infrared technology to sense human motion and defines it as occupancy. A green LED on the sensor blinks upon occupancy and then resets. It will blink again when it detects motion after the 2-second reset.
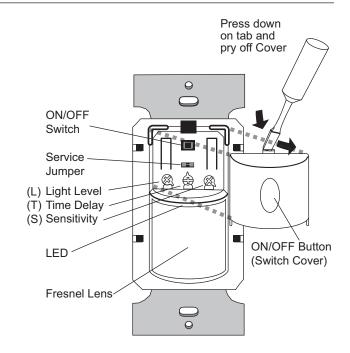
The sensor turns ON the load automatically when it detects occupancy. Once the space is vacant and the time delay elapses, it turns OFF the load automatically.

If adequate ambient light is already present in the area, the sensor will hold OFF the load it controls. When the light drops below a field selectable level and the sensor detects occupancy, the sensor turns ON the load. Once turned ON, the load remains ON until the space is vacant or the light level rises above the setpoint and the time delay expires.

Manual Operation:

The occupant can press the ON/OFF button to turn the load ON and OFF. When the load is turned OFF or ON manually, it stays OFF or ON as long as the sensor detects motion. After no motion is detected for the length of the time delay, the sensor goes back to automatic operation. If the load was ON, it turns OFF. The next time the sensor detects occupancy and the ambient light is lower than the set level, the sensor automatically turns ON the load.

Walk-test feature:

When the Time Delay trimpot is fully in the counterclockwise position, the sensor has a 30-second time delay. This allows you to quickly check the sensor coverage area.
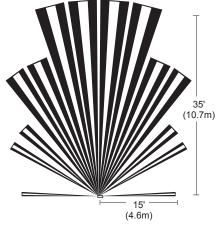
Service function:

In the event of unit failure or if it is necessary to leave the load ON, remove the Service Jumper plug. This disables all automatic ON and OFF functions and the load can only be operated using the ON/OFF button.

Press down on tab and pry off Cover

ON/OFF Switch

Service Jumper

(L) Light Level
(T) Time Delay
(S) Sensitivity

LED

ON/OFF Button (Switch Cover)

Fresnel Lens

Maximum = clockwise
Minimum = counterclockwise

COVERAGE PATTERNS

The WS detects motion in areas up to 900 sq. ft. and up to 35 feet from the sensor. Ideally, the sensor is designed for small amounts of motion in spaces up to 300 sq. ft. The Fresnel lens on the sensor is a multiple segment viewing lens with a field of view of 180°.

The sensor must have a clear view of the people in the space in order to detect occupancy. Obstructions, such as furniture blocking the sensor's lens, may prevent occupancy detection.
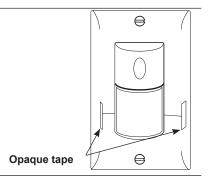
Side View

4.0' (1.2m)

floor

35' (10.7m)

Top View

35' (10.7m)

15' (4.6m)

MASKING THE LENS

Opaque adhesive tape is supplied so that sections of the sensor's view can be masked. This allows you to eliminate coverage in unwanted areas.

Since masking removes bands of coverage, remember to take this into account when troubleshooting coverage problems.
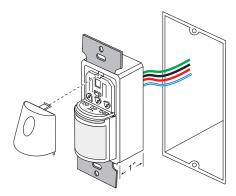
Opaque tape

INSTALLATION

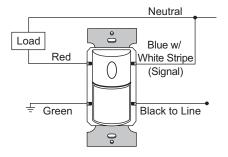⚡ **CAUTION: TURN THE POWER OFF AT THE CIRCUIT BREAKER BEFORE INSTALLING THE SENSOR.** ⚡

1"

1. Connect the existing wires in the wall box to the sensor flying leads. (See Wiring Directions at right).
   - Do not allow bare wire to show below connector.
   - The ground wire must be tightly grounded for the unit to operate properly.
   - Connect Signal Wire to Neutral. In cases of retrofit or replacement where no neutral is present, connect Signal Wire to ground.
2. Attach the sensor to the wall by mounting it in the wall box with the two mounting screws provided.
3. Turn ON power at the circuit breaker.
4. Test the sensor using the procedure in the Sensor Adjustments section.
   - There is an initial warm-up period after installation. It may take up to a minute before the load turns ON due to a sensor warm-up period during initial power-up (this occurs during installation only). The load turns ON after the warm-up period ends if the sensor detects motion.
   - Rapid successive pressing of the ON/OFF button causes a delay in function. A single press of the button causes an immediate response. If the button is pressed again within 2 seconds, the switch ignores it. Wait at least two seconds between button presses.
5. Install industry standard decorator wall switch cover plate (not included).
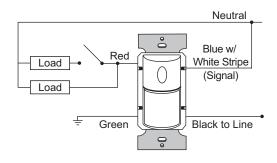
WIRING DIRECTIONS

For normal installation of the WS-250, connect:

1. LOAD to Red.
2. LINE to Black flying lead.
3. NEUTRAL to Signal Wire (Blue wire with White Stripe). In cases of retrofit or replacement where no neutral is present, connect Signal Wire to ground
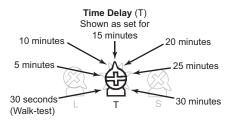4. GROUND to Green

Single-level wiring

Neutral

Load

Red

Blue w/ White Stripe (Signal)

Green

Black to Line

Manual bi-level lighting wiring

Neutral

Load

Load

Red

Blue w/ White Stripe (Signal)

Green

Black to Line

SENSOR ADJUSTMENT

⚠ **CAUTION: DO NOT OVERTURN TRIMPOTS WHEN ADJUSTING THE SENSOR!**

1. To test unit operation, press the ON/OFF button to turn the load ON.
2. Remove the button cover to access the adjustment controls. Use a small, flat blade screwdriver to press down the locking tab at the top of the button, then gently pry it off.
   a. Set the time delay to the "walk test" position (fully counterclockwise).
   b. Leave the room. The load should go OFF after 30 seconds.
3. To test sensitivity:
   a. Make no motion for 3 seconds.
   b. Wave your hand sideways in front of the sensor at a distance of approximately 12". The LED blinks when movement is detected. Typically, the sensitivity should be at maximum (fully clockwise).

Time Delay (T)
Shown as set for 15 minutes

10 minutes
20 minutes
5 minutes
25 minutes
30 seconds (Walk-test)
30 minutes

L   T   S

4. Set the light level when the controlled light would normally be turned OFF due to the presence of sufficient daylight or other electric light. [If this feature is not needed, leave the light level at maximum (fully clockwise)].
   a. Set the Time Delay to at least 5 minutes. This takes the sensor out of Walk-test mode, and enables the light level feature.
   b. Set the Light level to 50% (12 o'clock position) which is approximately 100fc. Let the sensor time out so lights are OFF. Enter the space and lights should remain OFF.
   c. Make sure your body does not cast a shadow on the sensor, and adjust the light level trimpot clockwise in small increments.
   d. After each adjustment, wait 5-10 seconds to see if the lights turn ON. Repeat until the lights turn ON. At this setting the load connected to the sensor will not turn ON if light levels are above the current illumination.
   NOTE: Note: Users can override this function by placing their hand in front of the sensor to block incoming light. The load will then remain ON until the space is unoccupied or the light level rises above the setpoint and the time delay expires.
5. Reset the time delay to the desired setting. The time delay can be set from 30 seconds (see Walk-test feature, light level feature is disabled) to 30 minutes in 5-minute increments.

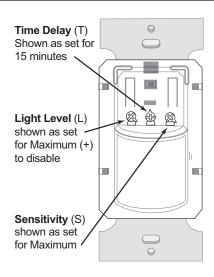# TROUBLESHOOTING

Load will not turn ON:
- LED does not flash:
  - ‣ Check the sensitivity for proper configuration.
  - ‣ Check all wire connections. Verify the ground wire is tightly secured.
- LED does flash:
  - ‣ Press the ON/OFF button. If load does not turn ON, check all wire connections and verify the load wire is tightly secured.
  - ‣ Check the light level trimpot. Turn it fully clockwise
- If load still does not turn ON, call 800.879.8585 for technical support.

Load will not turn OFF:
- The time delay can be set for 30 seconds (Walk Test), 5, 10, 15, 20, 25, or 30 minutes. Ensure that the time delay is set to the desired delay and that there is no movement within the sensor's view for that time period.
- To quickly test the unit for proper operation, turn the time delay to minimum (fully counterclockwise) and move out of the sensor's view. Load should turn OFF after 30 seconds.
- If load still does not turn OFF, call 800.879.8585 for technical support.

Sensing motion outside desired area:
- Opaque adhesive tape is included with the sensor and can be used to limit the detection areas. See Masking the Lens.
- Adjust sensitivity counterclockwise to reduce excessive sensitivity.

Time Delay (T)
Shown as set for 15 minutes

Light Level (L)
shown as set for Maximum (+) to disable

Sensitivity (S)
shown as set for Maximum

COVER PLATES

Wattstopper WS wall switches fit behind industry standard decorator style switch cover plates.

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800.879.8585
www.legrand.us/wattstopper