



LightHawk™ Wall Switch Occupancy Sensors Installation and Operating Instructions

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Description

The LightHAWK is an intelligent self-adapting occupancy sensor that is designed to replace existing wall switches.

Specifications

- 1000 sq. ft coverage area (Models: LHIR and LHMT)
- 400 sq. ft. coverage area (Models: LHUS)
- Single or Dual circuit 120/277VAC, 50/60Hz operation
- Single or Dual circuit 347VAC 60Hz operation (Canadian version)
- Electrical Ratings: (Each Output Separately)
120VAC – 800W Incandescent, 1000W Ballast, 1/6 HP
277VAC – 1800W Ballast, 1/6 HP
347VAC – 3470W Ballast (Canadian version)
- Adjustable Time Delay: 4-30 minutes, self-adapts based on occupancy
- Light Level Adjustment (Circuit B output on Dual Circuit versions): 10-500+FC
- UL, cUL listed

Precautions

CAUTION: RISK OF ELECTRICAL SHOCK. Turn power off at service panel before beginning installation. Never wire energized electrical components.

Read and understand all instructions before beginning installation.

NOTICE: For installation by a licensed electrician in accordance with National and/or local Electrical Codes and the following instructions.

NOTICE: For indoor use only.

CAUTION: USE COPPER CONDUCTOR ONLY.

Confirm that device ratings are suitable for application prior to installation.

NOTICE: Do not install if any damage to product is noticed.

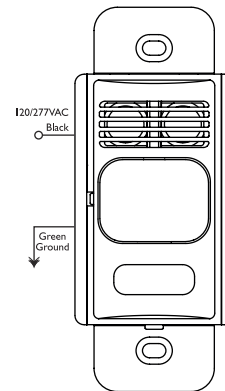
Installation

1. Turn power off at the service panel.
2. Remove the old switch(es) if applicable.
3. Wire as shown in the Wiring Diagram section. A secure connection to ground is necessary for the sensor to function properly.
4. Install sensor in wall box using mounting screws provided.
5. Restore power to the sensor and allow it to warm up (up to 2 min.).
6. Remove the sensor's cover – see Adjustments section.
7. If desired, calibrate the photocell sensor and adjust the sensor's configuration switch settings as described below.
8. Reinstall the sensor's cover.
9. Install a Decorator style wall plate (not included).

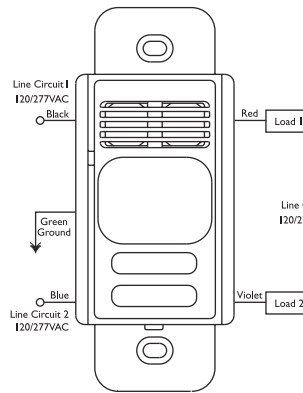
Test Mode – to enter test mode:

1. Make sure lights are on.
2. Press and hold the ON/OFF button until the lights cycle off then back on. For dual circuit sensors, press and hold the ON/OFF button for Circuit A. For No-button sensors, press and hold the Test Button. See Sensor Operation Diagram.

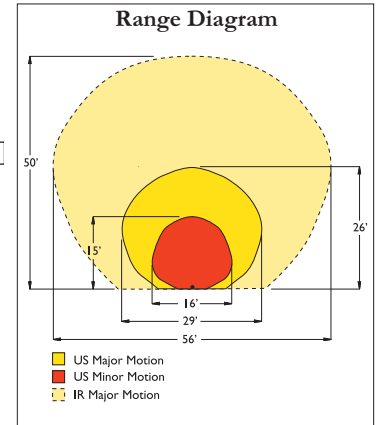
Wiring Diagram



Single Circuit

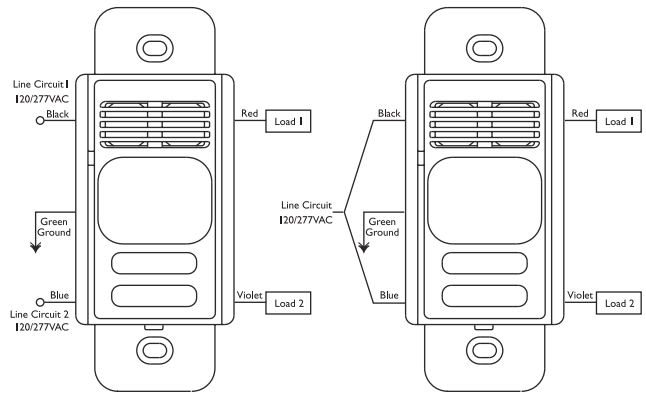


Dual Circuit Sensor
(Wired for Dual Circuits)



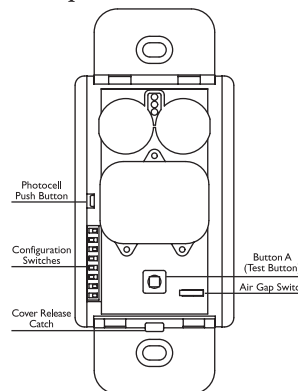
Range Diagram

- US Major Motion
- US Minor Motion
- IR Major Motion

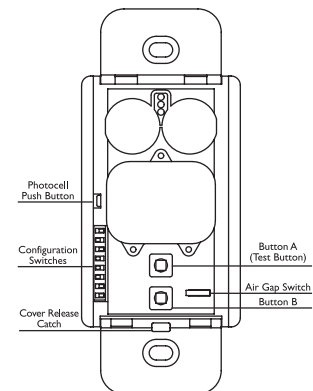


Dual Circuit Sensor
(Wired for Single Circuit)

Sensor Operation



One/No Button Sensors



Two Button Sensors

- Sensor is now in test mode. Vacate room, lights should turn OFF after 5 seconds. Wait 5 seconds after turn OFF before re-entering space, for US only sensors wait 15 seconds. Step back into room (sensing zone), lights will turn back on. Repeat as necessary to confirm sensor is operating and detecting in the lighting zone as desired. Sensor will flash red or green LED while occupied to indicate Passive Infrared or Ultrasonic occupancy detection respectively.
- To exit Test Mode, press any button. Note: Sensor will automatically exit Test Mode after 1 hour.

Manual Override – Press button(s) to toggle lights ON or OFF. Lights will remain in the last state determined by the buttons while occupancy is detected. Sensor will return to automatic mode when the sensor’s unoccupied timer value is reached. Note: No-button sensors cannot be manually turned off.

Air-Gap Override – If it is necessary to service the controlled circuits without de-energizing them at the breaker panel (this is not recommended as a standard procedure):

- Remove the sensor’s cover plate (see Adjustments section).
- With the circuit(s) on, turn the air-gap switch to OFF (toward the outside of the sensor).
- Push the button(s) to turn the circuit(s) OFF.
- Push the button(s) again to verify override.

The air-gap switch will now interrupt sensor operation, preventing output(s) from turning on again, regardless of occupancy or pushbutton conditions. To return the sensor to normal operation, flip the air-gap switch to the ON position and push the button(s) to return the circuit(s) to Automatic mode. Re-install the sensor cover. Note: Sensor cover cannot be re-installed unless the air-gap switch is in the ON position.

Adjustments

Open the sensor cover by inserting a small blade screwdriver into the catch at the bottom of the sensor and gently snap the cover loose. Set the adjustment switches as desired (see Configuration Switch Settings below). To re-install cover, insert catches at top of cover into recesses in sensor housing and gently snap cover into catch at bottom of housing.

Photocell

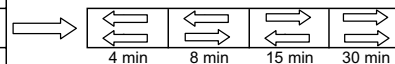
The photocell is used to detect if other light sources such as sunlight, are enough to illuminate the space without turning on the lights. For Dual Circuit versions, only Circuit B is controlled by the photocell. The sensor is shipped from the factory with the photocell control disabled. If use of the photocell is desired, calibrate the photocell set points as follows:

- Remove the sensor’s cover plate.
- With the sunlight at the desired level where the controlled lights should be off, press the photocell button.
- Step back from the sensor to avoid changing ambient light levels in the room. Note: During calibration the sensor will turn the lights off and on.
- After the calibration process is complete (approx. 7 min.), reinstall sensor cover. (Calibration is over when LED’s blink in response to motion.)

Configuration Switch Settings

Switch Settings (as seen on front of sensor)

Switch	Function	switch toggle direction	
		←	→
8	Sensitivity/Timer/Photocell	Enable Adaptation	Restore Factory Defaults
7	Hallway Mode	Disable	Enable
6	Timer Mode	Automatic	Fixed
5	Timer Select 1		
4	Timer Select 0		
3	Photocell Control Mode	One Way	Continuous
2	Relay Override B	Automatic	Manual
1	Relay Override A	Automatic	Manual



Switch 1 – Auto/Manual

Controls selection between Auto ON/Auto OFF Mode and Manual ON/Auto OFF Mode. For Dual Circuit versions, this switch controls Auto/Manual Mode for Circuit A only. (Manual ON/Auto off mode requires A button push to turn lights ON.)

Switch 2 – Auto/Manual B (Dual Circuit Versions Only)

Controls selection between Auto ON/Auto OFF Mode and Manual ON/Auto OFF Mode for Circuit B.

Switch 3 – Photocell Mode

Controls selection between One Way Mode and Continuous Mode. In One Way Mode, the sensor turns lights on in response to occupancy when light levels are below the photocell set point then maintains them in the on condition regardless of light level. In Continuous Mode, the sensor functions the same as One Way Mode, except that during periods of occupancy it will turn the lights off if ambient light levels increase sufficiently to illuminate the space. Note: For Dual Circuit versions, the photocell controls the operation of Circuit B only.

Switches 4 and 5 – Timer 1 and Timer 0

Use to set the initial timer value that the sensor will maintain lights on without detecting occupancy. See Auto/Fixed Timer below for additional information.

Switch 6 – Auto/Fixed Timer

Controls selection between Adaptive Timer Mode and Fixed Timer Mode. In Automatic Adaptive Timer Mode, the sensor will use the timer interval setting from switches Timer 0 and Timer 1 above. It will then begin adjusting it’s timer settings as appropriate for the lighted space to optimize performance based on occupancy patterns. In Fixed Timer Mode, the sensor’s self-adapting timer functions are disabled and the sensor maintains the lights in the space according to the switch settings of Timer 0 and Timer 1.

Switch 7 – Hallway

Disables or enables the sensor’s hallway algorithm. When enabled, this feature reduces false tripping of the lights associated with hallway traffic outside the room where the sensor is controlling the lights. This feature should be enabled when the sensor’s range of detection extends into a hallway or adjoining areas with occupancy.

Switch 8 – Adaptive Reset

When toggled on then off, this switch resets the sensor’s adaptive timer and sensitivity settings. The adaptive timer is reset according to Timer 0 and Timer 1 above. The adaptive sensitivity (both PIR and Ultrasonic as applicable) are reset to factory default. The Photocell Sensor is also reset to factory default (disabled) such that the sensor will turn on the light(s) in response to occupancy regardless of ambient light levels in the lighted space.

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