ECOELER®

User Guide

Installation Instructions for YM2108 Series
180° Occupancy and Vacancy Sensor Switch

⚠ **IMPORTANT:** If you have any doubts about your specific wiring configuration or installation requirements, please consult a licensed electrician.

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SPECS

Voltage	120V/277VAC, 60Hz
Max Lamp Load	120V 800W Incandescent Lamp 800VA Fluorescent Lamp (Rapid Start) 277V 1200VA Fluorescent Lamp (Rapid Start)
Max motor load	1/6 hp
Time Delay Adjustment	Preset intervals of 15 sec (Test),1 min, 5 min, 15 min, and 30 min
Environment	Indoor use only
Operating Temperature	32° to 131°F (0° to 55°C)
Humidity Range	95% RH, non-condensing
Coverage Range	180° (at optimal temperature of 20° to 25°C)
Coverage Area	720 ft² (47 m²)

TOOLS NEEDED

You will need an insulated flathead screwdriver, wire strippers, and a small flathead screwdriver to adjust the sensor dials.

DESCRIPTION

The YM2108 Series switch is designed to replace a standard light or fan switch. This device can automatically turn lights or a fan on and off by detecting motion from a heat-emitting source such as a person entering an area. The lights or fan will stay on until no motion is detected and the time delay has expired. This product is ideal for private offices, conference rooms, break rooms, lounges, hallways, stairways or any areas that would benefit from automatic light control. Use indoors only.

COVERAGE AREA

The sensor must have a clear and unobstructed view of the area. If an object blocks the sensor's lens, the sensor may not detect motion and may turn the lights or fan off even if someone is in the area. **Windows, glass doors, and other transparent barriers will obstruct the sensor's view and prevent motion detection**.

The coverage area data is measured under the best temperature condition (20 to 25° C), and a higher or lower temperature may not lead to an ideal coverage area (see figures 1 and 2).
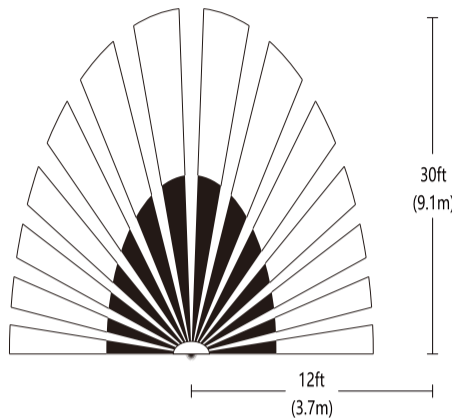

30ft (9.1m)

12ft (3.7m)

Figure 1: Sensor coverage area (top view)

4ft (1.2m) — Floor — 6ft (1.8m) — 30ft (9.1m)
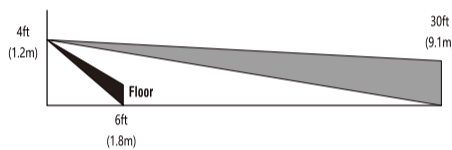
Figure 2: Sensor coverage area (side view)

SWITCH OVERVIEW

6. Time Delay Dial   7. Sensor Sensitivity Range dial   8. Ambient Light Level Dial

VAC   OCC
9. Operation Mode Button

1. Mounting Yoke
2. Fresnel Lens
3. Control Panel Cover
4. On/Off Button
5. LED Indicator
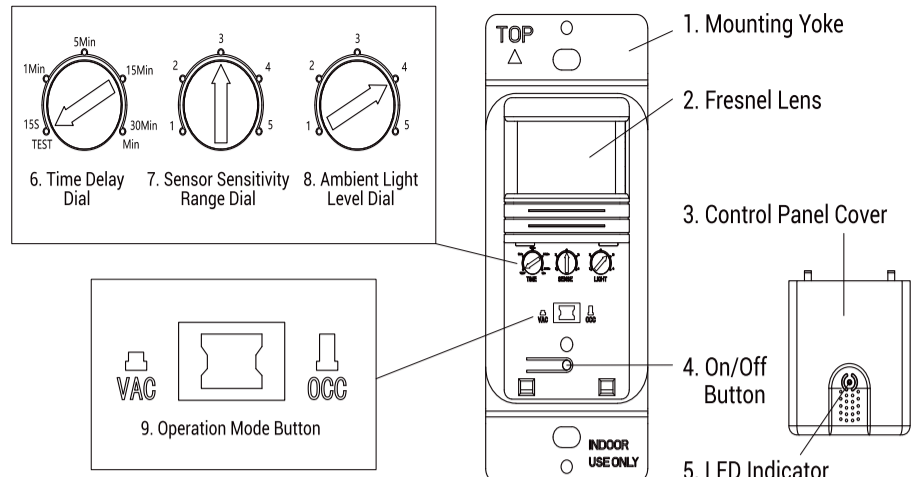
Figure 3: YM2108 Series switch diagram

1.	Mounting Yoke	Lets you mount the switch to the wall.
2.	Fresnel Lens	Detects motion.
3.	Control Panel Cover	Covers the switch's adjustment dials. Remove the cover to see the dials.
4.	On/Off Button	Lets you turn the light or fan on or off.
5.	LED Indicator	Indicates when the sensor detects motion. The green LED lights the On/Off button while the lights or fan are off. When they are on, the LED turns off.
6.	Time Delay Dial	Controls how long the light or fan stays on after no motion is detected.
7.	Sensor Sensitivity Range Dial	Adjusts the sensitivity setting to avoid unwanted detection such as hallway traffic or adjacent movement.
8.	Ambient Light Level Dial	Prevents the sensor from automatically turning the lights or fan on if the area has enough ambient lighting.
9.	Operation Mode Button	The sensor has two positions that correspond to operation modes: vacancy (when the button is pressed) and occupancy (when the button is released).

YM2108

INSTALLATION AND WIRING

⚠ **WARNING:** Before installing the YM2108 Series switch, disconnect power to the wall switch box by turning off the circuit breaker or removing the fuse for the circuit.
WARNING: Tightly secure the ground wire to ensure that the sensor functions properly.
IMPORTANT: A neutral wire is required for the switch to work properly. If the existing wiring does not match the description for a single pole circuit, or if you do not have a neutral wire, consult a qualified electrician.

Prepare the Switch Box
1. After the power is turned off at the circuit breaker box, remove the existing wall plate and mounting screws.
2. If applicable, pull the old switch out from the wall box with the attached wires.

Prepare the Wires
1. Tag the wires currently connected to the existing switch, so you can easily identify them later.
2. Disconnect the wires.

Wire the Switch
⚠ **WARNING:** Only connect the YM2108 Series switch to a single pole circuit. For three-way switching, purchase the YM2108T Series switch.

1. Twist the existing wires together with the wire leads on the YM2108 Series switch. Wire according to the following:

Circuit Box Wires	Wires on the YM2108 Series Switch
Power wire (hot)	Black
Load to power light or fan	Red
Green or non-insulated (copper) ground wire	Green
Neutral (required)	White

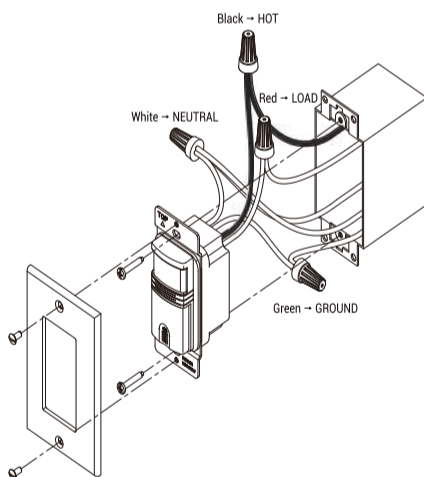2. Cap the wires securely using the wire nuts provided (see figures 4 and 5).

Black → HOT
White → NEUTRAL
Red → LOAD
Green → GROUND

Figure 4: Sensor orientation, wire connections, and wall box assembly

Hot (Black)   Sensor   Black
Green Ground
Line 120V/277VAC,60Hz
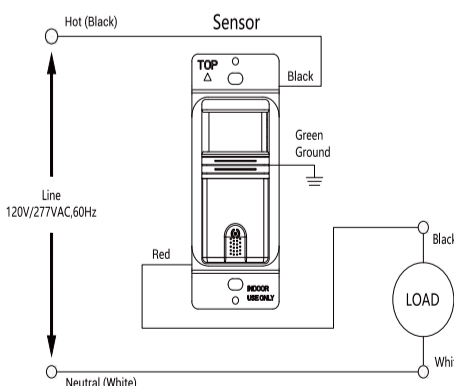Red   Black
LOAD
White
Neutral (White)

Figure 5: Single pole wiring diagram

Finish Installation
1. Insert the switch into the wall box by positioning the lens at the top and the On/Off button at the bottom.
2. Secure the switch to the wall box with the screws provided.
3. Attach the new cover plate and secure it to the wall box with the screws provided.
4. Restore the power to the circuit by turning on the breaker or replacing the fuse.

ADJUSTMENT AND PROGRAMMING

To program the sensor, first remove the cover:
1. Insert a small flathead screwdriver into the notch located on the bottom of the cover below the sensor.
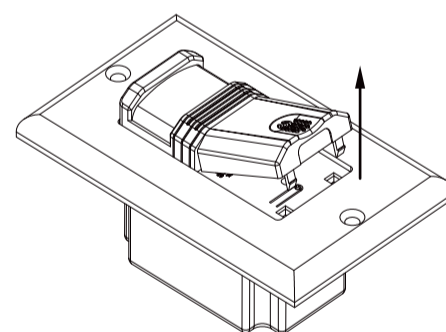2. Gently lift the screwdriver upward to unlatch the cover (see figure 6).

Figure 6: Lift the screwdriver upward to open the cover.

Adjust Operation Modes
The YM2108 Series switch has two operation modes:
• **Vacancy:** In vacancy mode (manual on/off, auto off), press the On/Off button to turn the light or fan on or off like you would a standard switch. The YM2108 Series switch automatically turns off the lights or fan after the time delay.
• **Occupancy:** In occupancy mode (auto on, auto off with auto reset), the lights or fan turn on automatically when the space is occupied. The YM2108 Series switch automatically turns off the lights or fan after the time delay. If the lights or fan are turned off manually, automatic on is re-enabled when no motion is detected for one minute. This way, the lights or fan will remain off if they were deliberately turned off.

Adjust the Time Delay
The Time Delay Dial, labeled as TIME, controls how long the light or fan stays on after no motion is detected. The minimum setting is 15 seconds (fully counterclockwise) and the maximum setting is 30 minutes (fully clockwise). Adjust the setting as desired for your area.

Adjust the Sensitivity Range of the Sensor
The Sensor Sensitivity Range Dial, labeled as SENSE, lets you adjust the sensor to avoid unwanted motion detection such as hallway traffic. To decrease sensitivity, turn the setting counterclockwise. To increase sensitivity, turn the setting clockwise. The sensor's default setting is 3 (75%). You can adjust it from setting 1 (50%) to setting 5 (100%).

Adjust the Ambient Light Level
The Ambient Light Level Dial, labeled as LIGHT, lets you adjust the sensor to detect whether other light sources (such as sunlight) are enough to light the space without turning on the lights. If you would like the sensor to consider the amount of ambient light in your area, turn the dial counterclockwise. If you would rather not use the ambient light level, leave it on the maximum, default setting (5). This will allow the sensor to turn the light on and off regardless of ambient light.

TROUBLESHOOTING

Lights or Fan Will Not Turn On
Push the On/Off button. The load should turn on. If not:
1. Check the light bulb and/or motor switch on the fan.
2. Turn off power to the circuit and check the wire connections.

Lights or Fan Will Not Turn Off
• Ensure that no motion is occurring in the coverage area until the set time period.
• Ensure that the sensor is at least 6 ft (2 m) away from devices that are a significant heat source (e.g., heater, heater vent, and high wattage light bulbs). Hot air currents and heat-radiating devices (such as 100W incandescent bulbs) can cause false detection.
• Push the On/Off button to Off. If the lights or fan do not turn off, turn off power to the circuit and check wire connections.

Lights or Fan Turn Off Too Quickly
The time delay or sensitivity range may be improperly set. Refer to the Adjustment and Programming section.

Lights or Fan Turn on When Movement Is Detected in Adjacent Areas
If the sensor's location gives it a view of other areas or hallways, the lights will turn on when motion is detected in those areas. Try adjusting the sensitivity range (refer to the Adjustment and Programming section). You may need to move the sensor to another location.

Lights or Fan Turn on When the Area is Unoccupied
The sensor may be mounted too closely to an air conditioning or heating vent. Move the sensor to another location or close the vent.

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