

# MSC SERIES

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## Ceiling Mounted Occupancy Sensors



### Installer's Specifications

Input Voltage	24 VDC
<i>Current Consumption @ 24 VDC:</i>	
PIR	21 mA nominal
Ultrasonic	34 mA nominal
Dual	37 mA nominal
Isolated Relay	Contact rating: 1A @ 24 VDC resistive
Operating Temperature Range	0° to 50°C (32° to 122°F)
Operating Humidity Range	Max. 90% RH non-condensing
Agency Approvals	UL and cUL listed; FCC part 15 for home and office use (Class B)

## NOTICE

- This product is not intended for life or safety applications.
- Do not install this product in hazardous or classified locations.
- Read and understand the instructions before installing this product.
- Turn off all power supplying equipment before working on it.
- The installer is responsible for conformance to all applicable codes.

## OPERATION

MSC ceiling-mounted occupancy sensors are ideal for use in business and office environments to accurately detect occupancy and automatically control lighting. The ceiling-mount design allows the greatest possible motion sensitivity. An adjustment panel is on the front of the sensor provides easy access to controls after the sensor is installed.

## PRODUCT IDENTIFICATION

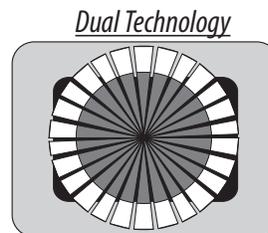
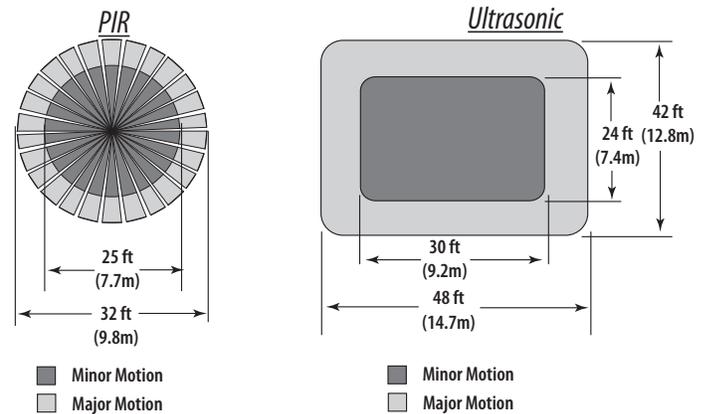
Sensing Technology	Coverage
MSC	
U = Ultrasonic	1000 = 1000 Sq. Ft. (Passive Infrared only)
D = Dual (PIR + Ultrasonic)	2000 = 2000 Sq. Ft. (Ultrasonic or Dual technology only)
P = Passive Infrared (PIR)	

## COVERAGE FEATURES

Model	MSCP1000	MSCU2000	MSCD2000
Technology	PIR	Ultrasonic	Dual
Coverage area	1000 sq. ft.	2000 sq. ft.	2000 sq. ft.
Field of view	360°		
Ambient light level sensing	0.5 to 250 foot candles		
Adjustable time delay	15 sec. to 30 min.		
Adjustable sensitivity	600 to 1000 sq. ft. (60% to 100% of max. coverage)	200 to 2000 sq. ft. (10% to 100% of max. coverage)	200 to 2000 sq. ft. (10% to 100% of max. coverage)
Isolated relay	Form C contacts for Class 2 signaling		
LED motion indicators	1 (red)	1 (red)	2 (red/green)

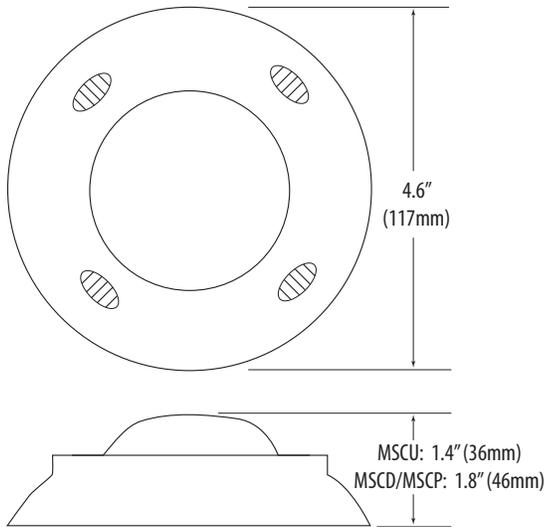
## COVERAGE PATTERNS

For a 9 ft. ceiling



- Ultrasonic Major Motion
- Ultrasonic Minor Motion
- PIR Major Motion
- PIR Minor Motion

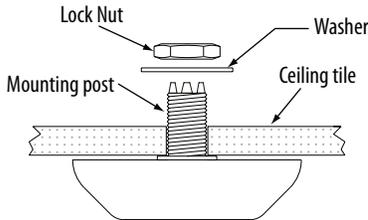
**DIMENSIONS**



**INSTALLATION**

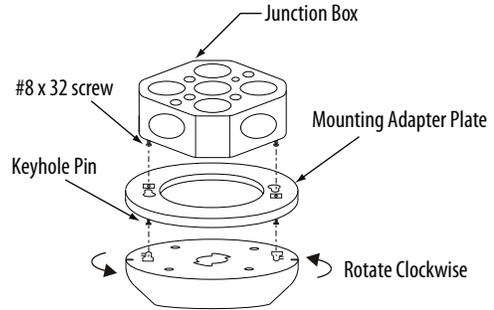
Choose a location at least five feet from air flow sources (HVAC vents, fans, etc.). Three mounting options are available.

**Mounting with Supplied Mounting Post**



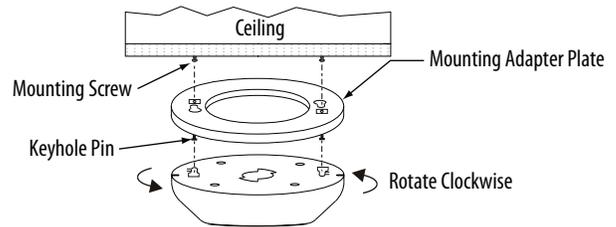
1. Turn off the circuit breaker supplying power to the sensor's power pack.
2. Drill a 7/8" diameter hole at the mounting location. Note: For acoustical tile, use the threaded mounting post to drill the mounting hole. Press the cutter end of the post firmly against the tile and twist the post into the tile.
3. Feed sensor wire through the mounting post, then twist and lock the mounting post to the back of the sensor.
4. Insert the mounting post into the hole drilled in step 2. Secure the sensor assembly away from the top of the ceiling tile using the supplied washer and lock nut.
5. Wire the sensor (see Wiring section). Follow applicable national and local electrical codes.

**Mounting to a Junction Box**



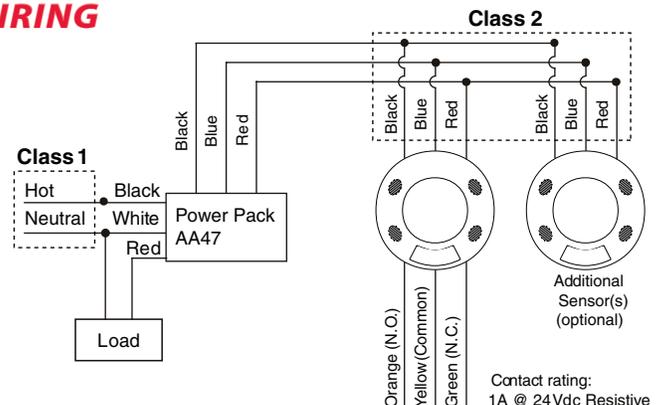
1. Turn off the circuit breaker supplying power to the sensor's power pack.
2. Attach the adapter plate to a standard 4-in. ceiling junction box using the two #8 x 32 screws supplied.
3. Wire the sensor (see Wiring section). Follow applicable national and local electrical codes.
4. Attach the sensor to the adapter plate by inserting the pins on the adapter plate into the keyholes on the back of the sensor. Rotate the sensor clockwise until it locks in place.

**Flush Mounting**



1. Turn off the circuit breaker supplying power to the sensor's power pack.
2. Drill a hole large enough to accommodate wiring at the mounting location.
3. Attach the adapter plate to the ceiling using a secure method, such as with screws and wall anchors (not provided).
4. Wire the sensor (see Wiring section). Follow applicable national and local electrical codes.
5. Attach the sensor to the adapter plate by inserting the pins on the adapter plate into the keyholes on the back of the sensor. Rotate the sensor until it locks in place.

**WIRING**

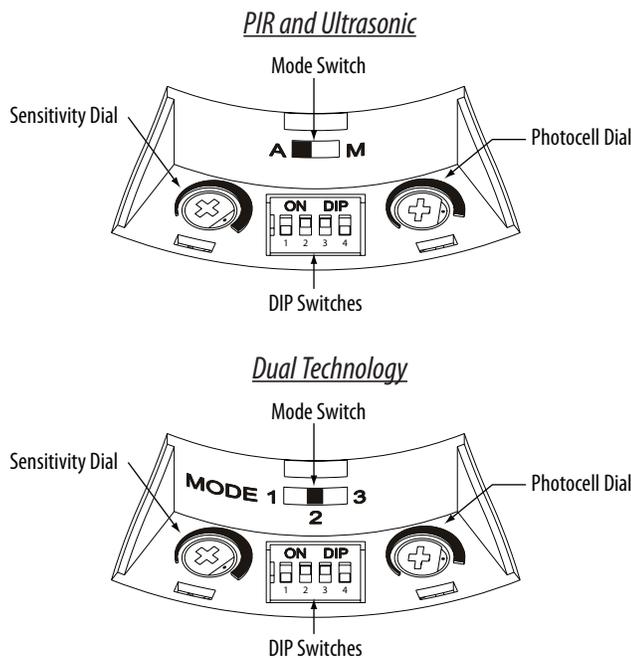


**CONFIGURATION**

1. Turn on the circuit breaker and any wall switches that supply power to the sensor.
2. When first installed, allow the sensor to warm up for a few minutes before it is fully operational. When the sensor detects motion, the LED on the housing flashes for approximately 0.5 seconds, and the lights turn on or remain on.
3. Set the Time Delay to the test setting of 15 seconds.
4. Vacate the room until the lights turn off.
5. Re-enter the room. Lights should turn on immediately. If not, verify correct sensor wiring.
6. Adjust settings as desired.

**SENSOR ADJUSTMENT SETTINGS**

The adjustment panel is located on the front of the sensor housing. Gently pry off the cover with a small flathead screwdriver.



**Mode Switch:** Determines when lights are turned on or remain on.

Sensor	Mode	Description
PIR and Ultrasonic	A	Automatic mode. Normal, default setting. Lights turn on or remain on only when the sensor detects motion.
	M	Manual override ON mode. Lights are always on.
Dual Technology	1	Instant ON setting. Either PIR or ultrasonic detection turns the lights on or causes the lights to remain on.
	2	Normal, default setting. Only PIR detection turns the lights on. Either PIR or ultrasonic detection causes the lights to remain on.
	3	Override ON setting. Lights are always on.

**Sensitivity Dial:** Determines the amount of movement required to trigger the sensor and the distance from which movement is detected. Turn the dial to the desired setting (MSCP1000: 60% to 100% of max.; MSCU2000, MSCD2000: 10% to 100% of max.). The default sensitivity setting is 100%.

Note: Consider the characteristics of the room when adjusting the sensitivity of the Ultrasonic and Dual Technology sensors. Hard surfaces (concrete, tile, glass) are reflective and create a higher sensitivity for ultrasonic detection. Soft surfaces (carpet, drapes, acoustical tile) absorb some of the ultrasonic energy and reduce the unit's sensitivity. Building additions, such as cubicles and walls, may also require a higher sensitivity setting.

**Photocell Dial:** Sets the level above which ambient light will not trigger the sensor. Set the ambient light level from 0.5 to 250 foot-candles. Turn the dial to the desired setting (minimum setting is fully counterclockwise; maximum is fully clockwise). The default photocell setting is 250 foot-candles. This setting also disables the photocell (i.e., ambient light will not inhibit sensor operation).

**Time Delay Switches:** A set of four DIP switches determines how long lights will stay on after motion is no longer detected. Settings range from 15 seconds to 30 minutes. The default time delay setting is 18 minutes. Possible DIP switch settings are shown in the table below.

Time Delay	DIP Switch Number			
	1	2	3	4
15 sec. (test setting)	•	•	•	•
2 min.	•	•	•	—
4 min.	•	•	—	•
6 min.	•	•	—	—
8 min.	•	—	•	•
10 min.	•	—	•	—
12 min.	•	—	—	•
14 min.	•	—	—	—
16 min.	—	•	•	•
18 min. (default setting)	—	•	•	—
20 min.	—	•	—	•
22 min.	—	•	—	—
24 min.	—	—	•	•
26 min.	—	—	•	—
28 min.	—	—	—	•
30 min.	—	—	—	—

— = Off  
• = On

To reduce unwanted detection, such as people moving in adjacent areas, partially mask the lens of the PIR or Dual sensor with the supplied white masking strips.

