

INSTALLATION INSTRUCTIONS

MPC-50L 360° Passive Infrared Low Voltage Occupancy Sensor With Light Level feature



SPECIFICATION

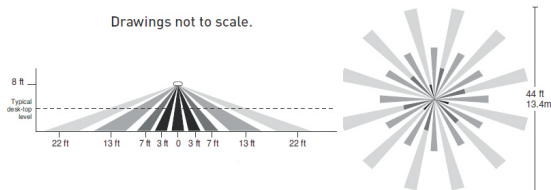
Voltage.....	24VDC
Current Consumption9mA
Power Supply	MPP-24 Power Packs
Operating Temperature	32° to 131°F (0° to 55°C)
Adjustable Light Level	10FC—150FC
Adjustable Time Delay5sec.-30min (DIP switch)
Walk-Through Mode.....	3 minutes if no activity after 30 sec.
Test Mode.....	5 sec. upon initial power-up or DIP switch reset
PIR Coverage:	
Sensitivity Adjustment.....	Automatic or Low (DIP switch)
Coverage.....	Up to 1200 ft ²

DESCRIPTION

The MPC-50L 360° passive infrared (PIR) occupancy sensors turn lighting systems on and off based on occupancy and ambient light levels. The light level feature keeps lights from turning on if the ambient light level is sufficient. The sensors can be configured to turn lighting on, and hold it on as long as the sensor detects occupancy. After no movement is detected for a user specified or SmartSet time (5 to 30 minutes) the lights are switched off. A "walk-through" mode can turn lights off after only 3 minutes, if no activity is detected after 30 seconds of an occupancy detection. The MPC-50L operates on 24V supplied by MPP-24 Power Packs.

COVERAGE PATTERN

The MPC-50L provides a 360° coverage pattern, up to 1200 square feet. The coverage shown represents walking motion at a mounting height of 8 feet. For building spaces with lower levels of activity or with obstacles and barriers, coverage size may decrease.



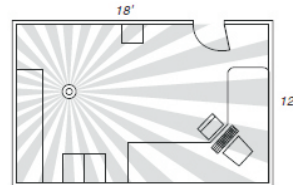
PLACEMENT GUIDELINES

Depending upon obstacles such as furniture or partitions, the area of coverage may be less or more than the sensing distances shown in the coverage pattern. This must be considered when planning the number of sensors and their placement. It is also recommended to place the sensor 4 to 6 feet away from air supply ducts as rapid air currents or the differences in temperatures may cause false activations.

Mount the sensor to the ceiling. The MPP-50L are designed for a ceiling height of about 8-10 feet. Mounting above or below this range will significantly affect the coverage patterns. Be aware that as you decrease the mounting height, you decrease the range and increase the sensitivity to smaller motions. Conversely, when you

increase the height, you increase the range and decrease the sensitivity to smaller motions. At heights of more than 12-14 feet, you may start to significantly reduce sensitivity. As a general rule, each occupant should be able to clearly view the sensor.

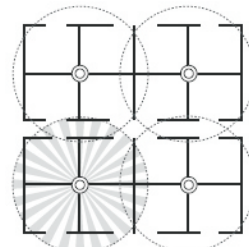
Often the best location to install a MPP-50L in a closed office is off-center. Avoid placing a sensor directly in line with an open door through which it has a clear view out, as the sensor may detect people walking by.



Masking the PIR Lens: Opaque adhesive tape is supplied so that sections of the PIR lens can be masked. This restricts the sensor's view and allows you to eliminate PIR coverage in unwanted areas such as hallways outside of the desired coverage area. Since masking removes bands of coverage, remember to take this into account when troubleshooting coverage problems.

Open Office Area Coverage: To get complete coverage in an open office area, install multiple sensors so that there is an overlap with each adjacent sensor's coverage area.

For open office areas with partitions it is best to place sensors over intersection of four workstations.



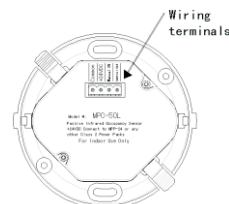
For large areas of coverage use multiple sensors.

WIRING DIRECTIONS

CAUTION!!
TURN POWER OFF AT THE CIRCUIT BREAKER
BEFORE INSTALLING POWER PACKS OR SENSORS.

Each MPP-24 power pack can supply power for 6 MPC-50L sensors. When using more sensors than this, multiple power packs are required.

Refer to the wiring diagram on the next page for the following procedures:



Connect the low voltage:

RED wire (+24VDC) from power pack to the **+24V** terminal on the sensor.
BLACK wire (Return) from power pack to **Common** terminal on the sensor.

Wiring a **SINGLE LIGHTING LOAD CONTROLLED BY OCCUPANCY**—connect: BLUE wire from power pack to Control Out terminal on sensor.

Wiring multiple **SINGLE LIGHTING LOADS CONTROLLED BY OCCUPANCY, DEPENDENT ON LIGHT LEVEL (AMBIENT LIGHT)**—connect: BLUE wire from power pack to Control Out terminal on sensors.

To add a **MANUAL SWITCH** such as the YQDS115M Momentary Toggle Switch, to the above applications—connect:

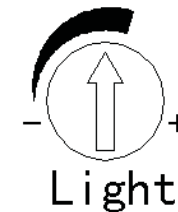
1. Wire from one side of switch to Common terminal on sensor.
2. Wire from other side of switch to Man Switch terminal on sensor.

LIGHT LEVEL FEATURE

Turn the potentiometer on the sensor to the "+" if adequate ambient light exists, the output of sensor will be inhibited, and the load can not be on; only when the ambient light is down to a certain level the sensor will automatically turn on. Therefore, potentiometers require customers to adjust in accordance with the location and the ambient light level. This feature can effectively turn on the load when adequate ambient light exists, in order to achieve energy-saving. Turn the potentiometer on the sensor to the "-", regardless of the ambient light level. The load will be on as long as there are signals from occupancy.

Avoid mounting the sensor close to lighting fixtures.

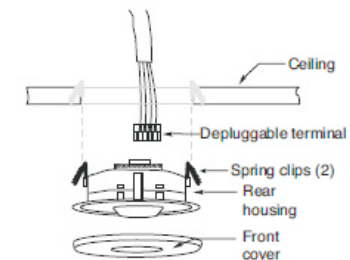
Adjust during daylight hours when ambient light in the area is at desired level. Open the Front Cover and locate the Light Level pushbutton. See Sensor Adjustment.



MOUNTING THE SENSOR

Directly to Ceiling

1. Attach the plastic spring clips to the edge of the sensor in the slots provided.
2. Cut a 3.5" to 4" round hole in the acoustic ceiling tile at the mounting location. A 3.5" hole is recommended for a secure fit.
3. Pull the low voltage wire from the power pack to the sensor through the hole.
4. Connect the low voltage wires to the appropriate terminals on the sensor.
5. Push the sensor up through the hole until the Spring Clips hold the sensor securely in place.
6. Snap the front cover onto the sensor.

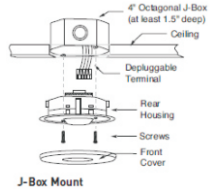


Ceiling Mount

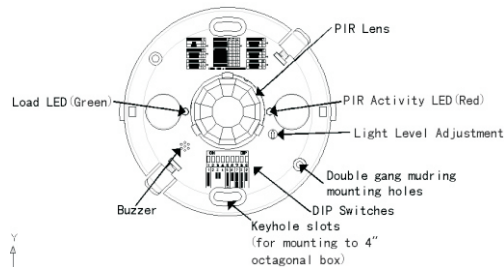
INSTALLATION INSTRUCTIONS

USING AN OCTAGONAL J-BOX

1. Pull the low voltage wires from the power pack into the J-Box through the conduit knockout.
2. Connect the low voltage wires to the appropriate terminals on the sensor.
3. Loosen the appliance mounting screws attached to the J-Box
4. Align the sensor in the J-Box so that the mounting screws on the box match the key holes on the sensor's rear housing.
5. Push the sensor up into the J-Box and twist it so that the mounting screws are seated in the keyhole slots.
6. Tighten the two screws to secure the sensor to the J-Box.
7. Snap the front cover onto the sensor.



SENSOR ADJUSTMENT



The sensors are factory preset to allow for quick installation in most applications. Verification of proper wiring or coverage, or customizing the sensor's settings can be done using the following procedures. To make adjustments, open the Front Cover with a small screwdriver.

There is a 40 second warm-up period when power is first applied.

Before making adjustments, make sure the office furniture is installed, lighting circuits are turned on, and the HVAC systems are in the overridden/on position. VAV systems should be set to their highest airflow. Set the DIP switches to the desired settings. See "DIP Switch Setting", next page.

TO TEST OCCUPANCY SENSORS

1. Ensure the PIR Activity is enabled, red LED flashes, Hold ON mode are OFF (DIP switch OFF) and PIR Sensitivity is set to MAX (DIP switch 1 ON).
 2. Ensure the Time Delay is set for Test Mode™ using the "5 seconds/SmartSet" setting. (DIP switches 2, 3 & 4 are OFF).
 3. Ensure that the Light Level is at default (maximum). See the Light Level Feature section of this document for instructions.
 4. Remain still. The red LED should not flash. The green LED and load are ON, and the lights should turn off after 5 seconds. (If not, see "Troubleshooting.")
 5. Move about the coverage area. The lights should come on.
- When testing and adjustment is complete, reset DIP Switches and Light Level to the desired settings, and replace the cover on the sensor.
- * If you need to invoke the Test Mode and the DIP switches are already set for 5 seconds/Smartset, toggle DIP switch #6 ON then back to the OFF position. This provides a 5 minute test period. During the test period, the Time Delay is only 5 seconds.

DIP SWITCH SETTING

The MPC-50L has 9 DIP switches under the cover. They are used to set

sensitivity, time delay, walk through mode, vacancy mode, audible, visual alarm and Hold ON feature settings.

Sensitivity 1	Time Delay 2 3 4	Audible Alert 7
50% ↓	5 Sec/SmartSet ↓ ↓ ↓	Disabled ↓
100% ↑	30 Seconds ↓ ↓ ↑	Enabled ↑
	5 Minutes ↓ ↑ ↑	
	10 Minutes ↓ ↑ ↑	
	15 Minutes ↑ ↑ ↓	
	20 Minutes ↑ ↓ ↓	
	25 Minutes ↑ ↑ ↓	
	30 Minutes ↑ ↑ ↑	
Walk-Through 5		Visible Alert 8
Disabled ↓		Disabled ↓
Enabled ↑		Enabled ↑
Vacancy 6		Hold ON 9
Disabled ↓		Disabled ↓
Enabled ↑		Enabled ↑

↓=OFF ↑=ON ◀=Factory Setting

Sensitivity setting: Switch 1

50%, sensor's coverage is smaller, just about half of the widest range. 100%, the maximum range of sensor's coverage is 1200 square feet, see above coverage map.

Time Delay: Switches 2, 3, 4

The sensor will hold the lights on as long as occupancy is detected. The time delay countdown starts when no motion is detected. After no motion is detected for the length of the time delay, the sensor will turn the lights off. The sensor can select the time delay using SmartSet, or you can select a fixed time delay.

SmartSet records occupancy patterns and uses this history to choose an optimal time delay from 5 to 30 minutes. SmartSet behavior starts immediately and is refined continually as history is collected.

Walk-through mode: Switch 5

Turns the lights off three minutes after the area is initially occupied, if no motion is detected after the first 30 seconds. If motion continues beyond the first 30 seconds, the selected time delay applies. Only when a fixed delay is set greater than or equal to 5-minute the walk mode is effective.

Vacancy Mode : Switch 6

Manual on function is achieved by using a momentary switch, such as the YQDS115M momentary toggle switch. The switch connected to the sensor's "Manual ON" and "Common". Each press the switch, the load will be reverted. The operation of the sensor connected to manual switch depends on the DIP switch 6 setting.

Vacancy ON : In this mode, press the momentary switch again to turn on the load based on the occupancy. This effective occupancy holds the load ON. After the time delay ends the manual switch must be used to turn the load on, if there is no movement detected within the 30 second period.

Automatic ON: This mode, which is Vacancy Feature, uses occupancy to turn the load ON. A manual switch provides the following additional functionality:

- a. The load can be turned ON by manual switch activation and it stays on as long as occupancy is detected. The sensor time delay operates as programmed. When the load turns OFF due to lack of occupancy detection, the load can be turned ON again by occupancy detection or switch activation.
- b. Activating the manual switch while the load is ON turns the load OFF.
 - When the load is turned OFF manually, as long as the sensor continues to detect occupancy the load stays OFF. Five minutes after the last occupancy detection, the lights stay off and the sensor reverts to the automatic-on mode.
 - When the load is turned OFF manually, pressing the switch again turns the load ON and the sensor reverts to the automatic-on mode.
 - Once the sensor returns to automatic-on mode, either the switch or occupancy detection can turn the load ON

Audible Alert : Switch 7

When this feature is turned on, 1 minute, 30 seconds, or 10 seconds before the time delay is expires you can hear "tick" from the buzzer, indicate that time delay is over.

Visible Alert : Switch 8

When this feature is turned on, 1 minute delay before the time delay expires the load will flash once, to remind.

Hold ON : Switch 9

To override all sensor functions, set DIP switch 9 to the ON position. The green LED, red LED will come on and stay on for the duration of the override.

This bypasses the light level, occupancy detection, and the manual ON functions will be invalid, only to hold the load ON.

TROUBLESHOOTING

CAUTION!!
TURN POWER OFF AT THE CIRCUIT BREAKER
BEFORE WORKING WITH OR NEAR HIGH VOLTAGE.

Lights do not turn on with occupancy, and the following condition exists:

PIR Activity LED does not flash:

NOTE: When power is initially applied to the sensor, there is a warm-up period of up to 40 seconds before the LED is active.

1. Check that the circuit breaker has been turned back on.
2. Make sure that the PIR Sensitivity is set for Max/Smartset (DIP switch 1).
3. Check all sensor and power pack wire connections.
4. Check for 24V input to the sensor.
 - If 24V is present, replace the sensor.
 - If 24V is not present, check that high voltage is present to power pack. If it is, replace power pack.

PIR Activity LED flashes:

1. If the sensor's Light Level has been turned to "+", the lights connected to the Light Level Output might be held off because of the level of ambient light in the controlled area. To test whether the Light Level adjustment is the problem, cover the PIR lens and PIR Activity LED (see diagram) with your hand to see if the lights turn on. If the lights turn on, the Light Level setting was keeping the lights off (see, "Sensor Adjustment" for readjustment).
2. Check all sensor and power pack wire connections.
3. Check for 24VDC at the power pack's blue wire connection to sensor while sensor is activated. If there is no voltage, replace the sensor. If there is voltage, replace the power pack.

Lights do not turn off automatically:

1. The sensor may be experiencing activations from outside the controlled area or from some type of interference (see "Unwanted Sensor Activations" below).
2. Check all sensor and power pack wire connections.
3. Disconnect power pack's blue wire:
 - If the lights do not turn off, replace power pack. Reconnect blue wire.
 - If the lights turn off, the problem may be in the sensor—to check: Reconnect the blue wire.

Turn sensitivity and time delay to minimum and allow the sensor to time out. If the lights turn off, the sensor is working properly (see "Sensor Adjustment" for readjustment of sensor).

Unwanted Sensor Activations (LED flashes):

Possible causes

1. Improper sensor location or inadequate masking causing detection outside of desired coverage area.
2. The PIR sensitivity may be set too high.
3. Sensor located too close to HVAC or VAV vents with heavy airflow.

Possible solutions

1. Mask the lens to reduce PIR coverage (see "Masking the PIR Lens", under "Placement Guidelines").
2. Set DIP switch 1 to OFF and see if the excess activations stop.
3. Relocate the sensor.

Model	Description
MPC-50L	PIR Occupancy Sensor, low voltage, 360° lens, light level sensor, up to 1200 square ft.,
MPP-24	Power pack: 120/230/277VAC, 50/60Hz, 150mA, 20A ballast or incandescent, 1HP@120/250VAC

MPP-24 power packs supply power for up to 6 MPC-50L sensors.

WARRANTY INFORMATION

Our company warrants its products to be free of defects in materials and workmanship for a period of three (3) years. There are no obligations or liabilities on the part of our company for 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, revenue, or profit, or cost of removal, installation or reinstallation.