

Please read all instructions before installing

# CSD1000

360° Dual Technology  
Low Voltage Occupancy Sensor



# Installation Instructions

## Specifications

Voltage .....	24VDC
Current Consumption.....	35mA nominal
Power Supply .....	Pass & Seymour Power Packs
Operating Temperature .....	32° to 131°F (0° to 55°C)
Time Delay Adjustment .....	15 sec to 30 minutes
Test mode .....	Use 15 sec time setting
PIR Coverage (Typical).....	120m <sup>2</sup> (1290ft <sup>2</sup> )
Sensitivity Adjustment ..	30% to 100% (DIP switch setting)
Ultrasonic Coverage (Typical) .....	100m <sup>2</sup> (1076ft <sup>2</sup> )
Sensitivity Adjustment .....	Min to Max (trim pot)
Frequency .....	40 kHz

**Pass & Seymour**

 **legrand**

## UNIT DESCRIPTION

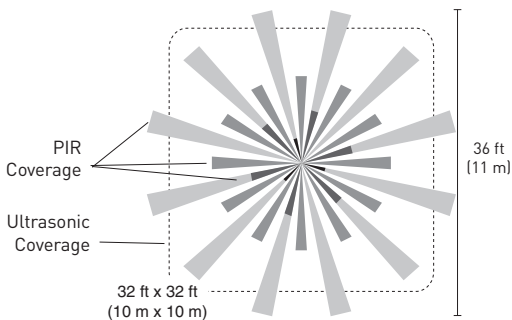
The CSD1000 360° Dual Technology occupancy sensors combine advanced passive infrared (PIR) and ultrasonic technologies into one unit. The combination of these technologies helps to eliminate false triggering problems even in difficult applications.

The CSD1000 turns lighting systems on and off based on occupancy. The sensor can be configured to turn lighting on, and hold it on as long as either or both technologies detect occupancy. After no movement is detected for a user specified 15 seconds to 30 minutes, the lights are switched off.

The CSD1000 operates on 24V supplied by Pass & Seymour PWP Power Pack(s).

## COVERAGE PATTERN

The CSD1000 provides a 360° coverage pattern. The coverage shown represents walking motion at a mounting height of 10 feet. For building spaces with lower levels of activity or with obstacles and barriers, coverage size may decrease.



**Call 800.223.4185 for Technical Support**

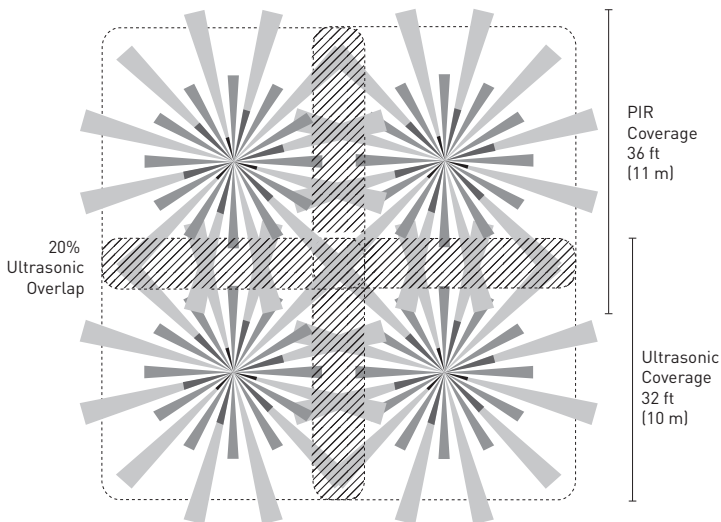
## PLACEMENT GUIDELINES

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 sensors 4 to 6 feet away from air supply ducts.

Mount the sensor to the ceiling (see "mounting the sensor"). The CSD1000 is designed for a ceiling height of about 8-10 feet. Mounting above or below this range will significantly affect the coverage patterns. As a general rule, each occupant should be able to clearly view the sensor.

**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. The Ultrasonic coverage cannot be masked, but you can adjust its sensitivity to reduce the coverage area.

**Open Office Area Coverage:** To get complete coverage in an open office area, install multiple sensors so that there is approximately 20% overlap with each adjacent sensor's ultrasonic coverage area.



## WIRING DIRECTIONS



**CAUTION**



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

Each Pass & Seymour PWP series power pack can supply power for up to 3 CSD1000 sensors. When using more sensors than this, multiple power packs are required.

Refer to the wiring diagram(s) below for the following procedures:

Connect the **low voltage**:

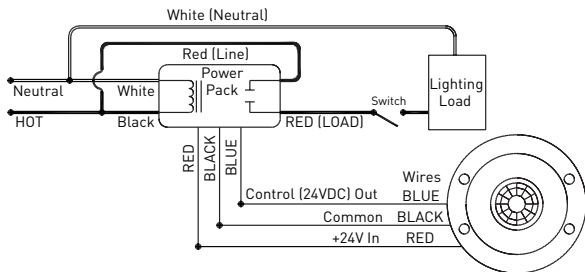
- RED wire (+24VDC) from power pack to the **+24V** terminal on the sensor.
- BLACK wire (Return) from power pack to **Common** terminal on the sensor.

Wiring a **SINGLE LIGHTING LOAD CONTROLLED BY OCCUPANCY** – connect:

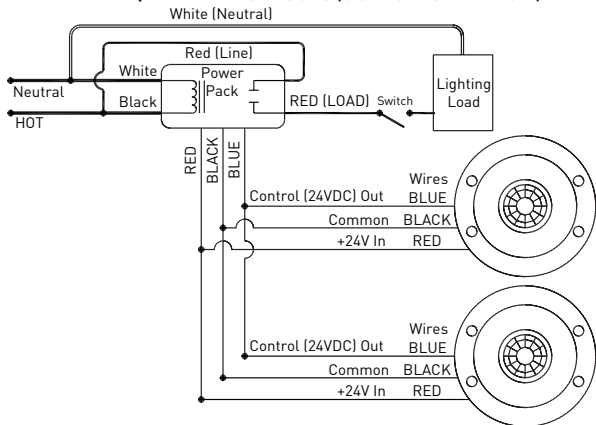
- BLUE wire from power pack to Control Out terminal on sensor.

## WIRING DIAGRAMS

### 1 PACK/ 1 SENSOR



## 1 PACK/ MULTIPLE SENSORS (3 SENSORS MAXIMUM)



## MOUNTING THE SENSOR

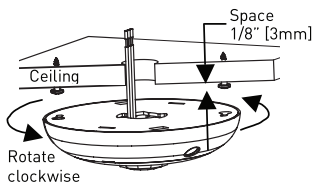
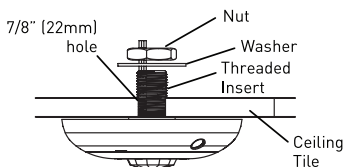
**Note:** Always try to attach the sensor to a vibration free surface.

### Acoustic Tile Mounting

Install the Threaded Insert, flange side, into the hole on the back of the sensor and turn clockwise until it locks. Drill a 7/8" [22mm] hole in the tile and sandwich the ceiling tile with the sensor and the washer and nut.

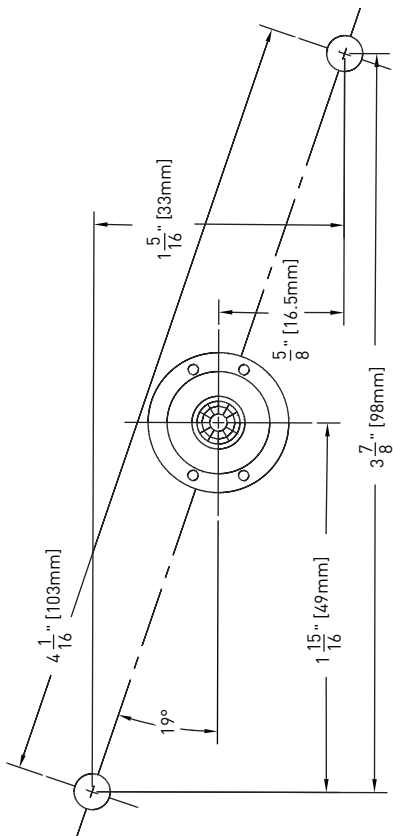
### Keyhole Mounting

1. Use the template on next page to mark the location of mounting screws.
2. Install the provided screws / leaving approximately 1/16" [1.5mm] space from the bottom of the screw head to the ceiling (see diagram).
3. Place the sensor's mounting key-holes over screw heads and rotate sensor clockwise until secure.



**Call 800.223.4185 for Technical Support**

## MOUNTING TEMPLATE



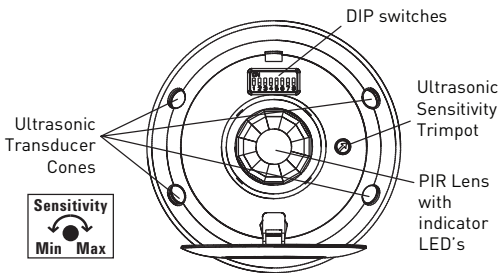
Call 800.223.4185 for Technical Support

## 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 cover with a small screwdriver.

**There is a 30 second warmup 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 Logic Configuration and Time Delay to the desired settings. See "Occupancy Logic" Chart.



### To Test Occupancy Sensors

1. Ensure the PIR Sensitivity is set to MAX (DIP switch #1 ON).
2. Ensure the Time Delay is set for **Test Mode** using the "15 seconds" setting. (DIP switches 4, 5, 6 & 7 are ON).
3. Ensure that the Ultrasonic Sensitivity trimpot is set to about 90%, clockwise.
4. Remain still. The red and green LEDs should not flash. The lights should turn off after 15 seconds. (If not, see "Troubleshooting.")
5. Move about the coverage area. The lights should come on. Adjust the Ultrasonic Sensitivity as necessary to provide the desired coverage (Green LED indicates activation from the ultrasonic sensor).

When testing and adjustment is complete, reset DIP Switches to the desired settings, and replace the cover on the sensor.

## DIP SWITCHES

### PIR Sensitivity: Switch 1

- Off forces a reduced detection range for the PIR to 30% of the coverage area.
- On forces the maximum detection sensitivity to 100% of the coverage area.

Switch #	
PIR Sensitivity	1
Minimum 30%	—
Maximum 100%	•

◀ = Factory Setting

• = ON

— = OFF

### Occupancy Logic: Switch 2, 3

The CSD1000 has 4 logic configurations for occupancy triggers.

Determine the appropriate Occupancy Logic Option using the Trigger matrix, then set the DIP switches accordingly.

**Initial Occupancy:** The method that activates a change from "Standby" (area unoccupied and loads are off) to "Occupied" (area occupied and loads are on).

- **Both** requires motion detected by the PIR and the Ultrasonic.
- **Either** requires motion detected by only one technology.
- **PIR** requires motion detected by the PIR.

Occupancy Logic	Trigger	Initial Occupancy	Maintain Occupancy	Re-trigger	Switch #	
					2	3
Standard	Both	Either	Either	Either	—	—
Option 1	Either	Either	Either	—	•	•
Option 2	PIR	Either	Either	•	—	—
Option 3	Both	Both	Both	•	•	•

**Maintain Occupancy:** The method indicating that the area is still occupied and the lights should remain on.

**Re-trigger:** After the time delay elapses and the lights turn off, detection by the selected technology within 5 seconds turns the lights back on.

### Time Delay: Switches 4, 5, 6, 7

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.

### Override Time Delay: Switch 8

When this switch is on, the time delay function is overridden. Once the sensor is triggered on, it will never go off.

Time Delay	Switch #			
	4	5	6	7
15 sec	•	•	•	•
2 min	—	•	•	•
4 min	•	—	•	•
6 min	—	—	•	•
8 min	•	•	—	•
10 min	—	•	—	•
12 min	•	—	—	•
14 min	—	—	—	•
16 min	•	•	•	—
18 min	—	•	•	—
20 min	•	—	•	—
22 min	—	—	•	—
24 min	•	•	—	—
26 min	—	•	—	—
28 min	•	—	—	—
30 min	—	—	—	—

Switch #	
Override	8
On	•
Off	—



## 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:*

• **Both LEDs do not flash:**

1. Check that the circuit breaker has been turned back on.
2. Check all sensor and power pack wire connections.
3. 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.

• **Red LED does not flash:**

When power is initially applied to the sensor, there is a warm-up period of up to 30 seconds before the red LED is active.

1. Make sure that PIR Sensitivity is set to 100% (DIP switch #1 set to on).
2. If it still does not flash, call 800.223.4185 for Technical Support.

• **Green LED does not flash:**

1. The Ultrasonic Sensitivity setting may need to be increased.  
Turn clockwise as needed.

• **Both LEDs flash:**

1. Check all sensor and power pack wire connections.
2. 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. One or both of the sensor technologies (PIR or ultrasonic) 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 number 1, above, and "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 ultrasonic sensitivity may be too high.
3. The PIR sensitivity may be too high.
4. Sensor located too close to HVAC or VAV vents with heavy air flow.

- ***Possible solutions***

1. Reduce the ultrasonic sensitivity (counterclockwise) as needed (see “Sensor Adjustment”).
2. Mask the lens to reduce PIR coverage (see “Masking the PIR Lens”, under “Placement Guidelines”).
3. Change the logic configuration setting, see (“DIP Switches”).
4. Relocate the sensor.

### **Override**

To override all sensor functions, set DIP switch #8 to on. This bypasses the occupancy control functions of the sensor (Once the sensor is triggered on, it will never go off).



## **WARRANTY INFORMATION**

Pass & Seymour/legrand warrant its products to be free of defects in materials and workmanship for a period of five years. There are no obligations or liabilities on the part of Pass & Seymour/legrand 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 or removal, installation or reinstallation.

**Pass & Seymour**



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P/N 340856 08764

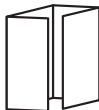
REV.	DESCRIPTION	INT:	REV. DATE	APPROVED
1				
2				

**6-FOLD:**

**MATERIAL:** 16lb (60g/m sq)

**FLAT (cut) SIZE:** 24-3/4"(24.75")W x 6" H

**FOLDED SIZE:** 4-1/8"(4.125")W x 6"H



**— ATTENTION: —**  
**TITLE BOX PAGE ONLY.**  
**DO NOT MAKE FILM FOR**  
**THIS PAGE.**



<b>Drawn by:</b> ROUGEAU	<b>Pass &amp; Seymour</b>   <b>legrand</b>		
PLM:			
MarCom:	<b>Title:</b>  <b>CSD1000 Installation Instructions</b>		
Eng:	<b>Drawing #:</b> 02834	<b>Original Drwg. Date:</b> 26 JUL 07	<b>Rev #:</b> C
QA:		<b>Rev. Date:</b> 17 APR 08	
Scale: 1 : 1			

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