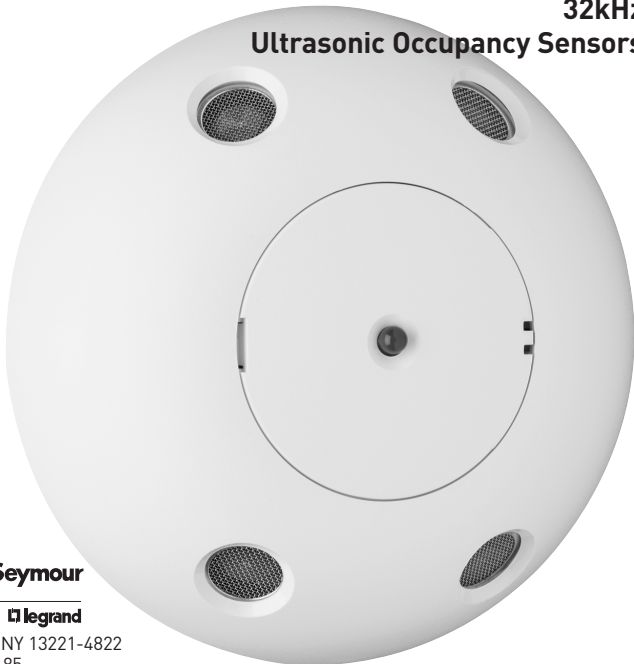


CSU Series

32kHz

Ultrasonic Occupancy Sensors



Installation Instructions

Pass & Seymour



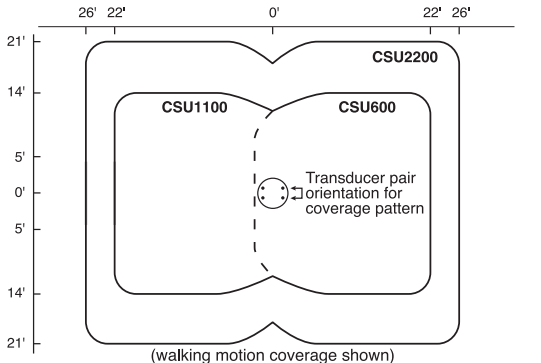
Syracuse, NY 13221-4822
800.223.4185


www.passandseymour.com

UNIT DESCRIPTION

The Pass & Seymour ultrasonic occupancy sensors operate on 24VDC and automatically turn lighting systems on and off based on occupancy. The sensors use Doppler technology to sense occupancy. They broadcast high frequency sound waves into the controlled area. Movement in the area will cause the sound waves to return to the sensor at a faster or slower rate resulting in a doppler shift and occupancy detection. When the ultrasonic sensor detects occupancy, it switches lighting on through a Pass & Seymour Power or Slave Pack.

COVERAGE PATTERNS



- CSU600:** up to 600 sq ft for walking motion.
up to 300 sq ft for desktop motion.  (sensor orientation)
- CSU1100:** up to 1100 sq ft for walking motion.
up to 550 sq ft for desktop motion.
- CSU2200:** up to 2200 sq ft for walking motion.
up to 1100 sq ft for desktop motion.

Visit our web site at www.passandseymour.com

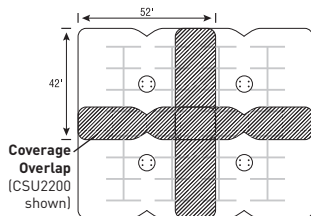
UNIT PLACEMENT

Placement of ultrasonic sensors is critical for proper operation. It is best to place the sensor so that it has a clear view of all desktops and work surfaces within the coverage area. Orientation of the sensor is also important. The CSU600 offers 360° one-sided coverage while the CSU1100 and CSU2200 provide 360° two-sided coverage.

Transducers (the two or four small round openings on the cover of the sensor) operate in pairs (see the Coverage Patterns graphic, previous page), and the centerline of the pair must be oriented correctly for proper coverage.

Note:

- The transducer pairs orientation determines the coverage pattern.
- Sensors should not be mounted so that transducers point toward a wall that is within 4 feet of the sensor.
- Ultrasonic sensors may false trigger when exposed to high volumes of air flow. Sensors should be installed at least 4 feet from supply ducts and a minimum of 6 feet from horizontal discharge ducts.
- Do not mount sensors within 6 inches of a power pack.
- Always mount the sensor on a rigid vibration free surface.
- When mounting multiple sensors in a large room, do not mount the sensors within 10 feet of each other.



Open Office Sensor Placement

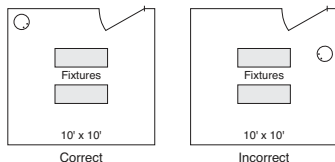
A typical layout for an open office space is to place the ultrasonic sensors so they control the office area in zones that overlap. A 20% coverage overlap is recommended.

Enclosed Office Sensor Placement

For smaller enclosed spaces, a CSU600 is recommended.

Sensors should be placed so that they will not detect motion through an open door.

Transducers must face into the room and not be directed toward the closest walls or doors.



Call 800.223.4185 for Technical Support

INSTALLATION

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

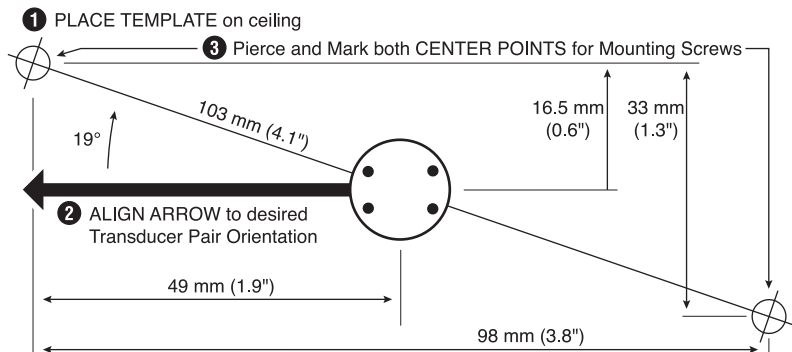
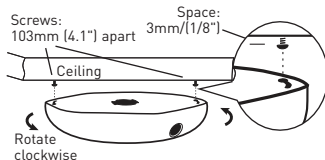
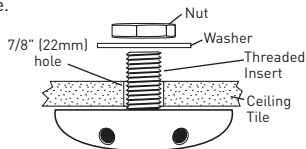
Acoustic Tile Mounting

Install the Threaded Insert, flange side, into the hole on the back of the sensor and turn clockwise until it locks.

Keyhole Mounting

Positioning of keyhole mounting screws is important so that the transducer pairs point in the desired direction.

1. Use the template below to mark the location of mounting screws.
2. Install the provided screws—leaving approximately 3mm (1/8") space from the bottom of the screw head to the ceiling (see diagram).
3. Place the sensor's mounting keyholes over screw heads and rotate sensor clockwise until secured.



Visit our web site at www.passandseymour.com

WIRING DIRECTIONS



CAUTION



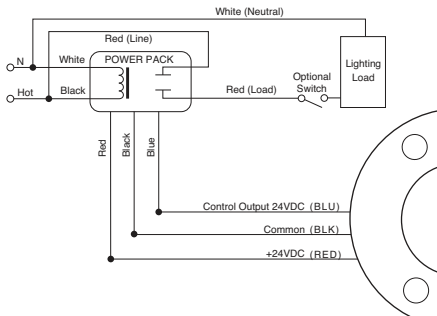
TURN POWER OFF AT THE CIRCUIT BREAKER BEFORE WORKING WITH OR NEAR HIGH VOLTAGE.

Sensor wiring:

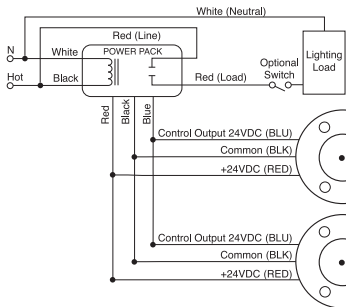
BLUE wire from power pack to BLUE wire from sensor.

RED wire from power pack to RED wire from sensor.

BLACK wire from power pack to BLACK wire from sensor.



Multiple Sensor Wiring



SENSOR ADJUSTMENT

THE SENSORS ARE FACTORY PRESET* TO ALLOW FOR QUICK INSTALLATION IN MOST APPLICATIONS. However, verification of proper wiring, coverage, sensitivity, and time delay adjustments can be made through the following steps.

Call 800.223.4185 for Technical Support

Sensitivity and Time Delay adjustments are both made under the sensor's front cover. Insert a small flat-blade screwdriver in the slot of the front cover to open it.

The **Sensitivity Adjustment Trimpot** (labeled "S") increases or decreases the occupancy detection sensitivity.

The **Time Delay** is the length of time the lights stay on after no motion has been detected. It is set with DIP Switches #1–5.

The **red LED** flashes each time the unit senses motion. It remains on when the sensor is in Override mode.

Override—setting DIP switch #6 to "ON" will bypass (override) all the sensor's occupancy control functions. Lights can still be manually on/off controlled with a light switch.

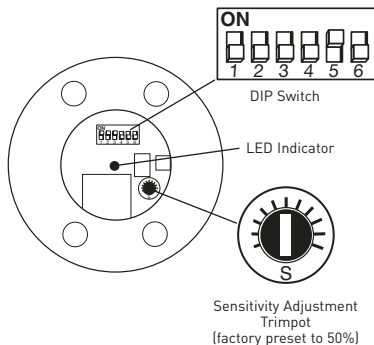
Output Disable—setting all DIP switches to "OFF" will disable the Control Output (see Wiring Directions). This can be used for troubleshooting sensor and power pack problems.

Adjustment:

- Furnishings, carpeting or office structures can affect ultrasonic sensitivity and should be installed before adjustment, if possible.
 - Ultrasonic sensors should have their sensitivity adjusted when interference from air movement is at its maximum. Override the the HVAC and VAV systems to the maximum "ON" position.
1. Set the Sensitivity adjustment trimpot to about mid-range.
 2. Set the Time Delay to 15 seconds for this testing procedure.
 3. Move out of the controlled area—the lights will turn off in about 15 seconds from the last flash of the red LED. If the LED continues to flash, the sensor is detecting some kind of movement. Turn the Sensitivity adjustment trimpot down slightly (counterclockwise) and repeat this step until the LED does not flash and the lights turn off.
 4. Now walk into the controlled area. If the lights don't turn on, increase the Sensitivity slightly (clockwise) and try again. Repeat this procedure until the lights come on when entering the controlled area.
 5. Also, if the lights turn off while the room is occupied, it may be necessary to increase the Sensitivity slightly.
 6. Set the desired Time Delay—16 minutes works well for normal applications.

* Sensitivity = 50% / Time Delay = 16 minutes.

Visit our web site at www.passandseymour.com



DIP Switch Settings Table

● = ON – = OFF

	DIP Switch #					
Time Delay	1	2	3	4	5	6
15 seconds	●	–	–	–	–	–
2 minutes	–	●	–	–	–	–
4 minutes	–	–	●	–	–	–
6 minutes	–	●	●	–	–	–
8 minutes	–	–	–	●	–	–
10 minutes	–	●	–	●	–	–
12 minutes	–	–	●	●	–	–
14 minutes	–	●	●	●	–	–
► 16 minutes	–	–	–	–	●	–
18 minutes	–	●	–	–	●	–
20 minutes	–	–	●	–	●	–
22 minutes	–	●	●	–	●	–
24 minutes	–	–	–	●	●	–
26 minutes	–	●	–	●	●	–
28 minutes	–	–	●	●	●	–
30 minutes	–	●	●	●	●	–
Output Disable	–	–	–	–	–	–
Override						●

► = factory preset

TROUBLESHOOTING



CAUTION



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

- Check that wiring connections are correct and secure.
- Make sure that the line voltage is +/- 10% of rating.

Lights do not turn off after the time delay elapses, and...

... the red LED does **not** flash (does not sense motion)—possible sensor or power pack problem:

—Set DIP switches to Output Disable, or disconnect the blue wire to the sensor.

- If lights go out—possible sensor problem (Call Tech Support).
- If lights do not go out—check wiring, if OK—possible power pack problem (Call Tech Support).

... the red LED flashes (senses motion):

—Set DIP switches to Output Disable, or disconnect the blue wire to the sensor.

- If the lights do not go out—check wiring, if OK—possible power pack problem (Call Tech Support).
- If the lights go out—reset the DIP switch to previous settings, or reconnect the blue wire. Note the sensitivity and time delay settings, then lower the sensitivity and time delay adjustment to minimum.
 - a) If the lights go out after the set time delay period—the sensor may have been adjusted too high, so that vibration, air movement or other minor motion was activating it. Adjust the sensitivity down from its previous setting to a level needed for normal operation, and reset the time delay.
 - b) If the lights still do not go out—possible sensor problem (Call Tech Support).

Lights do not turn on, even with motion in the room, and ...

... the red LED does **not** flash (does not sense motion):

- Make sure the circuit breaker has been turned back on.
- Check the sensitivity setting and increase as needed.
- Check that 24VDC is at the sensor red wire.
 - If 24VDC is present—possible sensor problem (Call Tech Support).
 - If 24VDC is not present at the sensor:
 - a) Make sure that the power pack has the correct voltage rating for your voltage (120 or 277VAC). Replace with correctly rated power pack.
 - b) If the power pack is correct—check the high-voltage going into the power pack—use proper safety precautions.
 - If 120 or 277VAC is present—possible power pack problem (Call Tech Support).

... the red LED flashes (senses motion):

- Turn the light switch ON, if off. The light switch needs to be on for automatic switching to occur.
- If the light switch is on, check for 24VDC at sensor blue wire.
 - If present, check wiring connections, if OK—possible power pack problem (Call Tech Support).
 - If 24VDC is not present—possible sensor problem (Call Tech Support).

Override:

Setting DIP switch #6 to on will bypass (override) all the sensor's occupancy control functions. Lights can still be manually on/off controlled with a light switch.

Call 800.223.4185 for Technical Support

ORDERING INFORMATION

Catalog #	Description
CSU600	360° one-sided, 32kHz Ultrasonic Occupancy Sensor, up to 600 sq ft coverage
CSU1100	360° two-sided, 32kHz Ultrasonic Occupancy Sensor, up to 1100 sq ft coverage
CSU2200	360° two-sided, 32kHz Ultrasonic Occupancy Sensor, up to 2200 sq ft coverage
PWP2120	Power Pack: 120VAC, 60Hz, 150mA 20A ballast/13A incandescent
PWP2277	Power Pack: 277VAC, 60Hz, 20A ballast, 150mA
AR120/277	Slave Pack: 120/277VAC, 60Hz, 20A ballast/13A incandescent

- All sensors available in white.

Visit our web site at www.passandseymour.com

SPECIFICATIONS

Voltage	24VDC
Current Consumption:	
CSU600	27mA Max.*
CSU1100 and CSU2200	30mA Max.*
Power Supply	Pass & Seymour Power Packs
PWP2 Series series power packs supply power for up to 4 CSU600, 2 CSU1100 or 2 CSU2200.	
Maximum Output Current	100mA
Ultrasonic Frequency	32kHz
Time Delay Adjustment	15 seconds-30 minutes
Sensitivity Adjustment	Trimpot (min. to max.)

*Current consumption can be slightly higher when only one sensor per power pack is used.

Limited FIVE YEAR Warranty

Pass & Seymour/Legrand will remedy any defect in workmanship or material in Pass & Seymour/Legrand products which may develop under proper and normal use within five years from the date of purchase by a consumer:

(1) by repair or replacement, or, at Pass & Seymour/Legrand's option, (2) by return of an amount equal to the consumer's purchase price. Such remedy is IN LIEU OF ANY AND ALL EXPRESSED OR IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Such remedy by Pass & Seymour/Legrand does not include or cover cost of labor for removal or reinstallation of the product. ALL OTHER FURTHER ELEMENTS OF DAMAGE (INCIDENTAL OR CONSEQUENTIAL DAMAGES) FOR BREACH OF ANY AND ALL EXPRESSED OR IMPLIED WARRANTIES INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXCLUDED HEREBY. (Some states do not allow disclaimer or exclusion or limitation of incidental or consequential damages, so the above disclaimers and limitation or exclusion may not apply to you.) ANY IMPLIED WARRANTIES INCLUDING WHERE REQUIRED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL BE LIMITED TO THE FIVE YEAR PERIOD SET FORTH ABOVE. (Some states do not allow limitation on how long an implied warranty lasts, so the above limitation may not apply to you.)

To ensure safety, all repairs to Pass & Seymour/Legrand products must be made by Pass & Seymour/Legrand or under its specific direction. Procedure to obtain performance of any warranty obligation is as follows: (1) Contact Pass & Seymour/Legrand, P.O. Box 4822, Syracuse, NY 13221 for instructions concerning return or repair; (2) return the product to Pass & Seymour/Legrand, postage paid, with your name and address and a written description of the installation or use of the Pass & Seymour/Legrand product, and the observed defects or failure to operate, or other claimed basis for dissatisfaction.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Call 800.223.4185 for Technical Support

Pass & Seymour



P.O. Box 4822, Syracuse, NY 13221-4822
Technical Support: 800.223.4185 • www.passandseymour.com
340785 Rev. B 07931