

**LCS<sub>us</sub>**  
**Pendant**

Ultrasonic Occupancy  
Control Solution for  
Pendant - Mounted Fixtures

### Description

CS/us provides fixture-integrated ultrasonic occupancy sensor control for small office and conference room applications, where an individual pendant fixture or a continuous row controlled by one sensor provides the primary lighting for the room. This solution is not recommended for use in spaces with multiple sensors controlling multiple fixtures. The occupancy sensor automatically switches the fixture "ON" when it detects motion as someone enters the space, keeps the fixture "ON" as long as motion detection is maintained in the space, and switches the fixture "OFF" when motion is no longer detected, after a time delay.

Once the luminaire is installed, occupancy sensor operation is automatic. A 72 hour lamp burn-in period is recommended (see "lamp burn-in" on page 2). The time delay is pre-set at the factory for 30 minutes, and can be field adjusted to 5, 10, 15 or 30 minutes. The sensor has an override function and a test mode for easy confirmation of the coverage area.

### Specifications

**CS/us Sensor.** Watt Stopper FS-505C ultrasonic occupancy sensor with FS-PP power pack installed and wired in the fixture by Litecontrol. One sensor controls a single luminaire or row of luminaires.

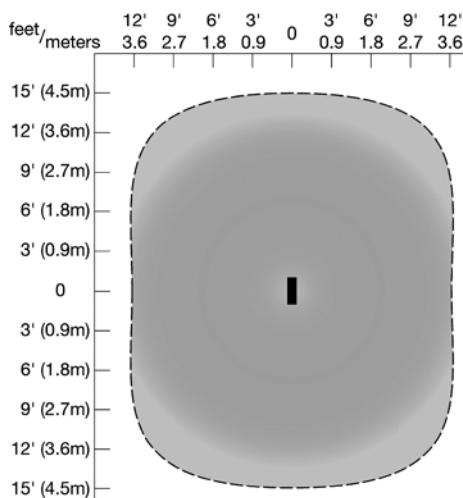
**Ballast.** Unless otherwise specified, a compatible ballast from a UL-listed manufacturer will be selected by Litecontrol. Programmed start ballasts are standard for CS/us systems, based on the possibility of frequent switching.

### Ordering Guide

Compatible fixtures for the CS/us system are listed below. See the individual fixture technical sheet for full ordering details. To have the fixture provided with CS/us, add CS/us in the options column.

Fixture Name	Series Number	Lengths (ft)
Arcos ID	P-ID-5900	8
Arcos Perf II	P-I-5900	4 and 8

### Luminaire / Sensor Placement and Coverage

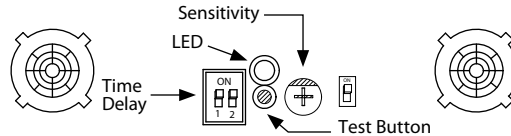


**Coverage pattern based on 8' mounting height**

Optimal operation of the CS/us fixture occurs when the fixture is centered over the area where motion detection is desired. Ultrasonic occupancy sensors do not require direct line-of-sight to the motion, so obstructions between the sensor and the motion should not adversely affect operation. The sensor incorporates directional cones to provide motion detection coverage of a rectangular area that is approximately 30' by 24' when the sensor is mounted 8' to 10' above the floor. Coverage area and pattern may vary widely at mounting heights outside of this range. Rated coverage area is based on full-step walking motion in a carpeted area.

## Operation

Ultrasonic sensors work by transmitting very high frequency waves (40kHz) and then measuring the frequency at which the waves return to the sensor. Movement in the coverage area increases the frequency of the returning waves, indicating occupancy. When the fixture is "OFF" and motion is detected, the sensor automatically turns the fixture "ON," and keeps the fixture "ON" as long as motion detection is maintained. When the sensor no longer detects motion, the fixture remains "ON" until the time delay has elapsed. The time delay countdown starts when no motion is detected, and re-sets whenever motion is detected. The sensor automatically turns the fixture "OFF" after the time delay has elapsed, and the fixture remains off until the sensor detects motion again.



## Lamp burn-in

Some lamp and ballast manufacturers recommend operating lamps at full light output for the initial 72 hours of operation, without switching. To start the burn-in process with CS/us, push and hold the "test mode" button on the sensor for 5 seconds. The fixture will remain "ON" continuously for the next 72 hours, regardless of occupancy status. After 72 hours, the sensor returns to normal function. The LED indicator flashes rapidly and continuously during the 72 hour burn-in period. The burn-in mode can be discontinued by pushing the test mode button again during the 72 hour period.

## Test mode

The purpose of the test mode setting is to be able to determine the coverage area of the sensor once installed, without repeatedly waiting for the time delay. The test mode provides a 5 minute temporary test period, during which the time delay is only 5 seconds. The time delay returns to the pre-set delay after the 5 minute test period.

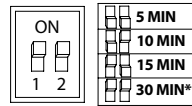
To initiate the test mode setting, momentarily press the test mode button. (Holding the button for 5 seconds or longer initiates the lamp burn-in setting; see Lamp burn-in) Then, move outside of the coverage area until the sensor switches the fixture "OFF." The boundaries of the coverage area can then be determined by gradually walking towards the fixture until the sensor turns the fixture "ON." This test process can be repeated as many times as necessary to confirm the coverage area and sensor sensitivity in the installation.

## Sensitivity adjustment

The occupancy sensor has a built-in sensitivity adjustment, located next to the test mode button. In most applications, the factory pre-set sensitivity level should provide acceptable operation. Sensitivity adjustments should only be made after construction is complete and the space is in "move-in" condition.

If the fixture does not turn "OFF" even after the time delay, or if the fixture is turned "ON" from motion outside of the intended coverage area, the sensitivity can be reduced by turning the sensitivity setting a few degrees counterclockwise. Conversely, if the sensor turns the fixture "OFF" even when there is motion present, the sensitivity may be increased by turning the sensitivity setting a few degrees clockwise.

## Time delay



Set to 30 minutes as shown

The sensor time delay is set using two small switches near the center of the sensor assembly. These two switches enable four possible time delays. When both switches are in the "OFF" (down) position, the time delay is 5 minutes; when switch 1 is "OFF" and switch 2 is "ON," the time delay is 10 minutes; when switch 1 is "ON" and switch 2 is "OFF," the time delay is 15 minutes, and when both switches are "ON" the time delay is 30 minutes. The time delay is pre-set to 30 minutes but can be changed after installation if desired.

"OFF," the time delay is 15 minutes, and when both switches are "ON" the time delay is 30 minutes. The time delay is pre-set to 30 minutes but can be changed after installation if desired.

## Override

To override the sensor function so that the fixture stays on continuously, push and hold the test mode button for 10 seconds. The LED indicator remains on in a steady state when the sensor is in override mode. When in override, the fixture can be manually controlled with a light switch, if one is installed. To discontinue override, momentarily push the test mode button again.