GLS-ODT-C-CN and GLS-ODT-C-NS

Occupancy Sensor, Dual Technology, Ceiling Mount

Product Manual

Crestron Electronics, Inc.

The original language version of this document is U.S. English.
All other languages are a translation of the original document.

Regulatory Model: GLS-ODT-C-CN and GLS-ODT-C-NS

Contents

Overview

The GLS-ODT-C-CN and GLS-ODT-C-NS sensors feature accurate, dual-technology occupancy detection in a large room or space and deliver a powerful and cost-effective solution for reducing energy consumption and enhancing the functionality of lighting and environmental systems. The low-profile, ceiling-mounted occupancy sensors are designed for areas up to 2,000 square feet, making them great for use in large spaces such as auditoriums, warehouses, and building lobbies.

The GLS-ODT-C-CN occupancy sensor uses Cresnet® wired communications for Crestron control system integration of lighting, climate, and other devices in the room.

The GLS-ODT-C-NS sensor connects directly to a contact closure in a standalone lighting system to provide occupancy and vacancy status. For integration with a Crestron control system using the Cresnet® network, add a sensor integration module (GLS-SIM, sold separately).

> **NOTE:** The GLS-ODT-C-CN and GLS-ODT-C-NS are functionally similar. For simplicity within this documentation, the term "occupancy sensor" is used except where otherwise noted.

Specifications

This section provides the following information:

GLS-ODT-C-CN Specifications

Product specifications for the GLS-ODT-C-CN.

Product Specifications

Sensing

Motion Detection Technology	Passive infrared (PIR) motion detection; Ultrasonic (US) (40 kHz)
Ambient Light Recognition	Built-in photosensor (0-1000 lux)
Coverage Area	2,000 sq ft
Coverage Pattern	360°

LED Indicators

PIR	(1) Red LED; Lights to indicate PIR detection
Ultrasonic	(1) Green LED; Lights to indicate ultrasonic detection

Controls

(1) Pushbutton located behind the front cover for testing the unit

IR Remote (Sold Separately)

Parameters and Settings Available Via IR Remote:

Separate occupancy and vacancy sensitivity settings

(1) Pushbutton located behind the front cover for testing the unit

Timeout (30s, 2m, 5m, 10m, 15m, 30m)

Walk-Through mode "Short Timeout" (Enable/Disable)

LEDs (Enable/Disable)

PIR sensitivity (High, Med, Low, OFF), with the option to set separate occupancy and vacancy settings

US sensitivity (High, Med, Low, OFF), with the option to set separate occupancy and vacancy settings

US detection (Side A only, Side B only, Both)

ID of sensor

Factory Reset

Force Vacancy

(4) Custom buttons for future additional features

Connections

(1) 5-pin 3.5 mm detachable terminal block;
Cresnet® network secondary port (**24V Y Z G**) and external photosensor (**EXT**) input

Power Requirements

Current Consumption	60mA @ 24VDC
Cresnet Power Usage	1.5 W

Environmental

Temperature	32° to 104°F (0° to 40°C)
Humidity	10% to 90% RH (noncondensing)

Construction

Housing	Plastic, white
Mounting	Mounts to a 4 in. (102 mm) octagon box or 3-1/2 in. (88 mm) diameter hole created by provided cutout template; Includes mounting screws and integral toggle clamps; A 1-1/2 in. (38 mm) minimum mounting depth is recommended

Dimensions

Diameter	4.80 in. (122 mm)
Depth	2.29 in. (58 mm) overall; Projects 0.97 in. (25 mm) from the surface when installed

Weight

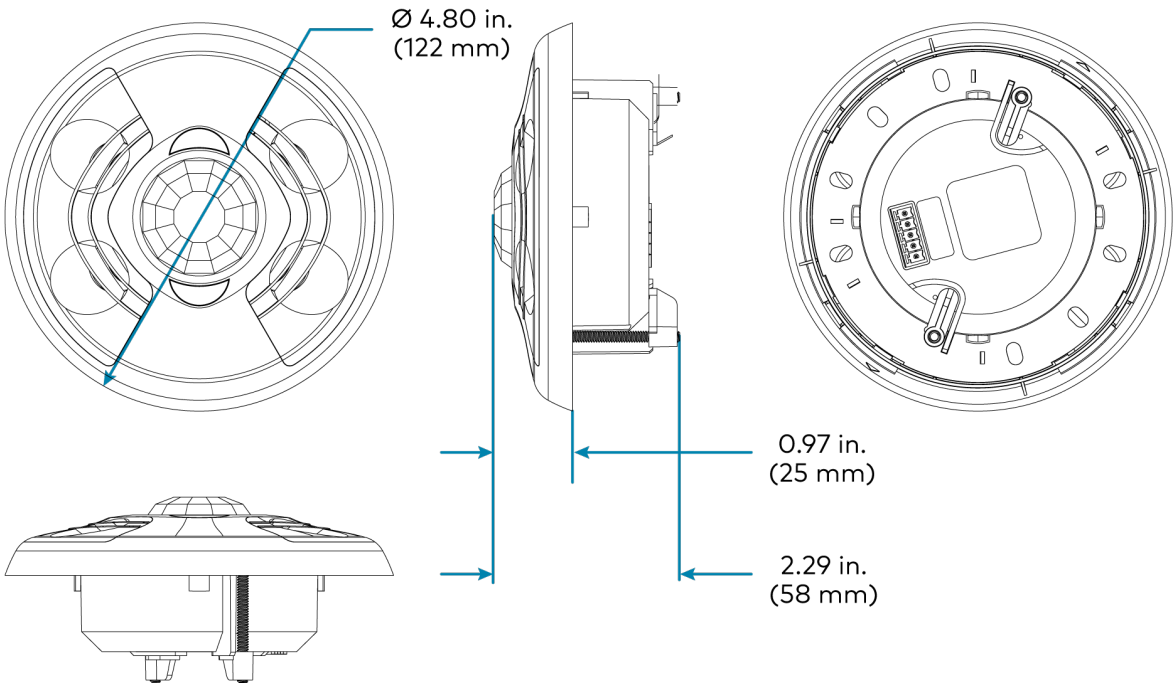
0.4 lb (200 g)

Compliance

UL® Listed in the US and Canada, CE, FCC Class B, CAN ICES-3(B)/NMB-3(B)

To search for product certificates, refer to support.crestron.com/app/certificates.

Dimension Drawings



GLS-ODT-C-NS Specifications

Product specifications for the GLS-ODT-C-NS.

Product Specifications

Sensing

Motion Detection Technology	Passive infrared (PIR) motion detection; Ultrasonic (US) (40 kHz)
Coverage Area	2,000 sq ft
Coverage Pattern	360°

LED Indicators

PIR	(1) Red LED; Lights to indicate PIR detection
Ultrasonic	(1) Green LED; Lights to indicate ultrasonic detection

IR Remote (Sold Separately)

Parameters and Settings Available Via IR Remote:

Separate occupancy and vacancy sensitivity settings

(1) Pushbutton located behind the front cover for testing the unit

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PIR sensitivity (High, Med, Low, OFF), with the option to set separate occupancy and vacancy settings

US sensitivity (High, Med, Low, OFF), with the option to set separate occupancy and vacancy settings

US detection (Side A only, Side B only, Both)

ID of sensor

Factory Reset

Force Vacancy

(4) Custom buttons for future additional features

Connections

5-pin 3.5 mm detachable terminal block;
16 AWG maximum wire width supported, includes the following terminals

(1) Crestron secondary port:

+24V	DC power input
OCC	Occupancy sensor control signal output; Provides 24VDC high logic signal when occupancy is detected (both PIR and US must sense occupancy to provide 24V signal if room is transitioning from a vacant to occupied state; After initial occupancy is detected, either PIR or US detection will trigger the 24V signal to maintain the occupied state); Short circuit protected; Connects to a GLS-SIM Integration Module (sold separately) on any Crestron® control system
NC	Unused
G	Ground
IR	IR single direction, transmits information read from remote by IR receiver on sensor

Power Requirements

Current Consumption	60mA @ 24VDC
Cresnet Power Usage	1.5 W

Environmental

Temperature	32° to 104°F (0° to 40°C)
Humidity	10% to 90% RH (noncondensing)

Construction

Housing	Plastic, white
Mounting	Mounts to a 4 in. (102 mm) octagon box or 3-1/2 in. (88 mm) diameter hole created by provided cutout template; Includes mounting screws and integral toggle clamps; A 1-1/2 in. (38 mm) minimum mounting depth is recommended

Dimensions

Diameter	4.80 in. (122 mm)
Depth	2.29 in. (58 mm) overall; Projects 0.97 in. (25 mm) from the surface when installed

Weight

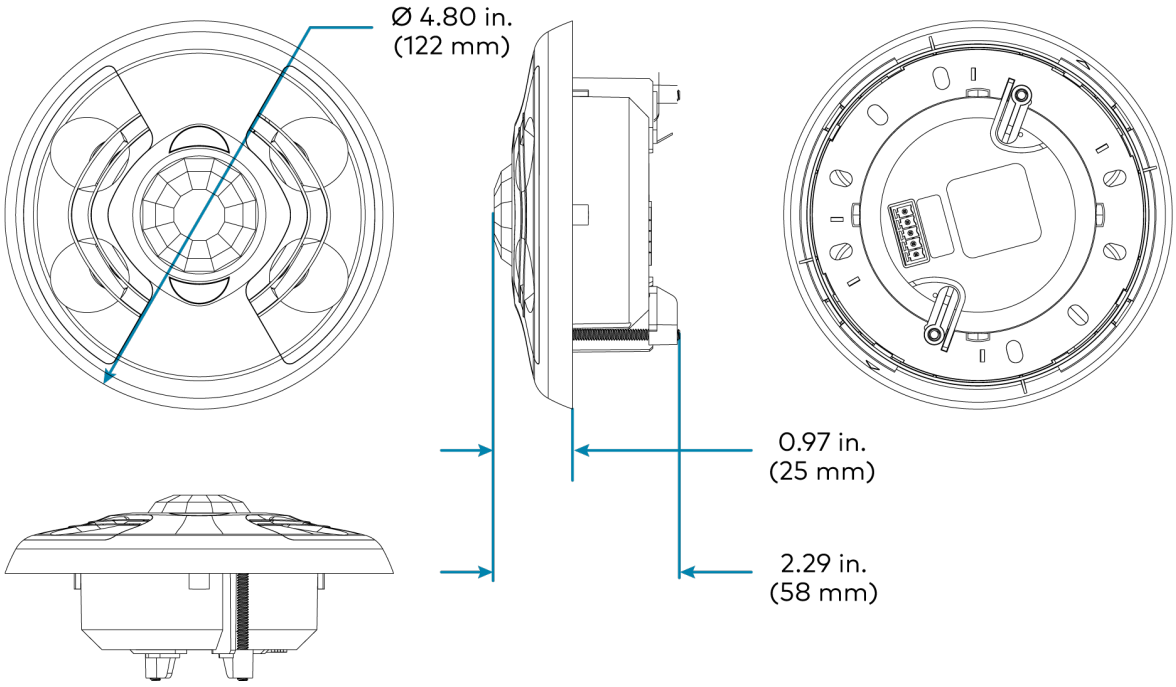
0.7 lb (309 g)

Compliance

UL® Listed in the US and Canada, CE, FCC Class B, CAN ICES-3(B)/NMB-3(B)

To search for product certificates, refer to support.crestron.com/app/certificates.

Dimension Drawings



Installation

This section provides the following information:

- Determine the Mounting Location
- Mounting
- Wiring
- Testing

Determine the Mounting Location

Use the following information to help determine the ideal mounting location.

NOTE: When determining the mounting location:

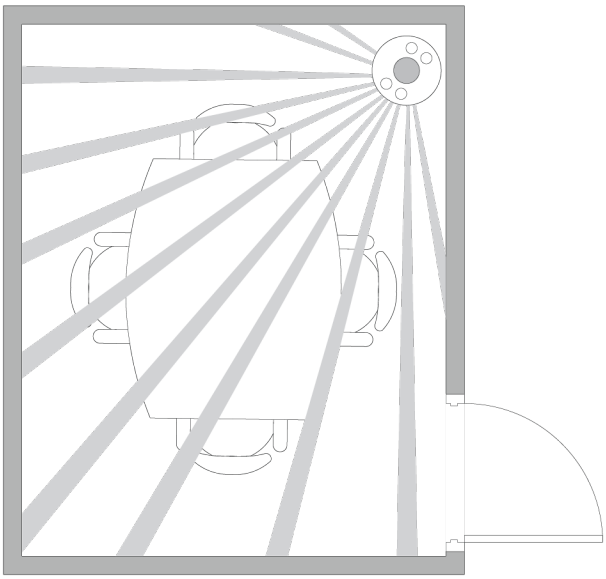
- Avoid areas where false tripping may occur due to outside motion such as an open door.
- Identify and avoid areas of possible vibrations and air currents (for example, projectors, fans, vents) and mount the sensor at least 5 feet (2 meters) away from these items.

PIR Masking

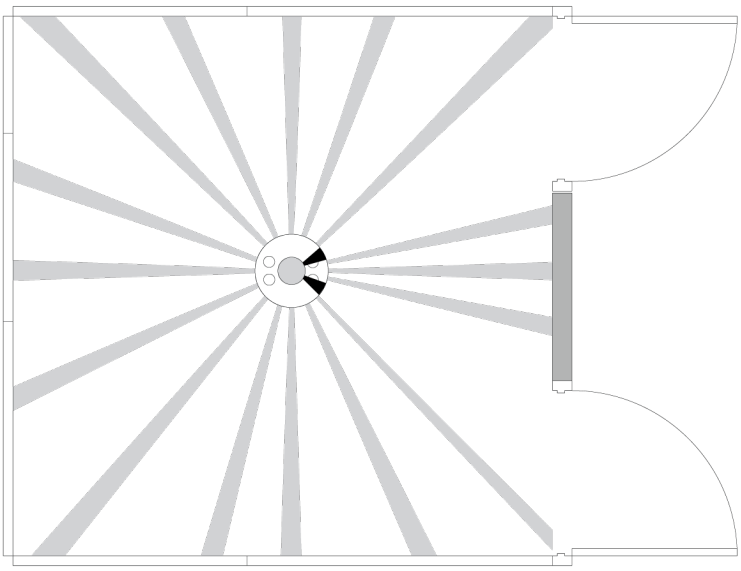
Use the included masks to block part of the PIR sensor and prevent it from detecting motion in that area. Insert the half mask into the dome of the occupancy sensor to block 180° of the detection area or remove any of the twelve 30° perforations from the full mask for a custom detection area.

The following images provide typical illustration examples.

Occupancy Sensor Mounted in a Corner



Occupancy Sensor Mounted in Center of Room, Perforated Mask Used to Block Doorways

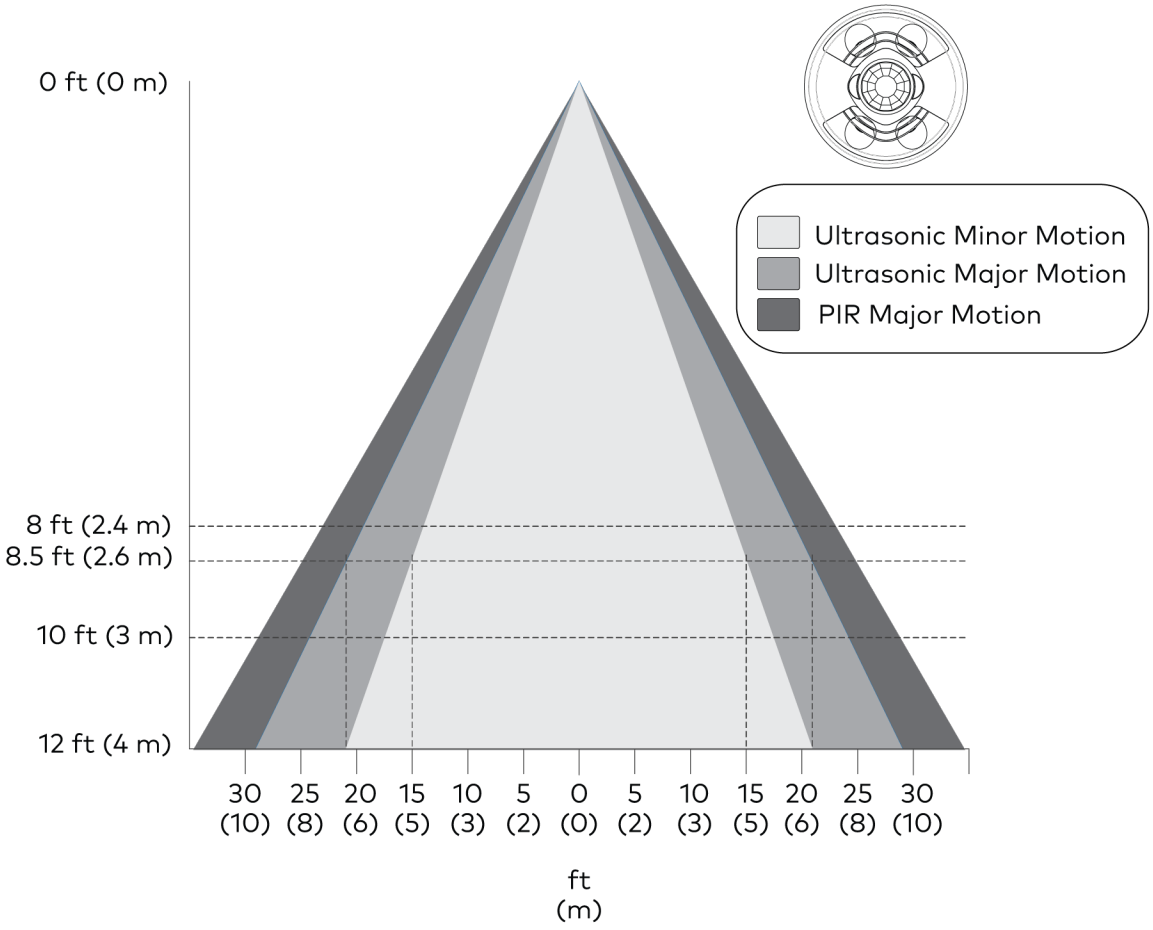


Motion Detection Range

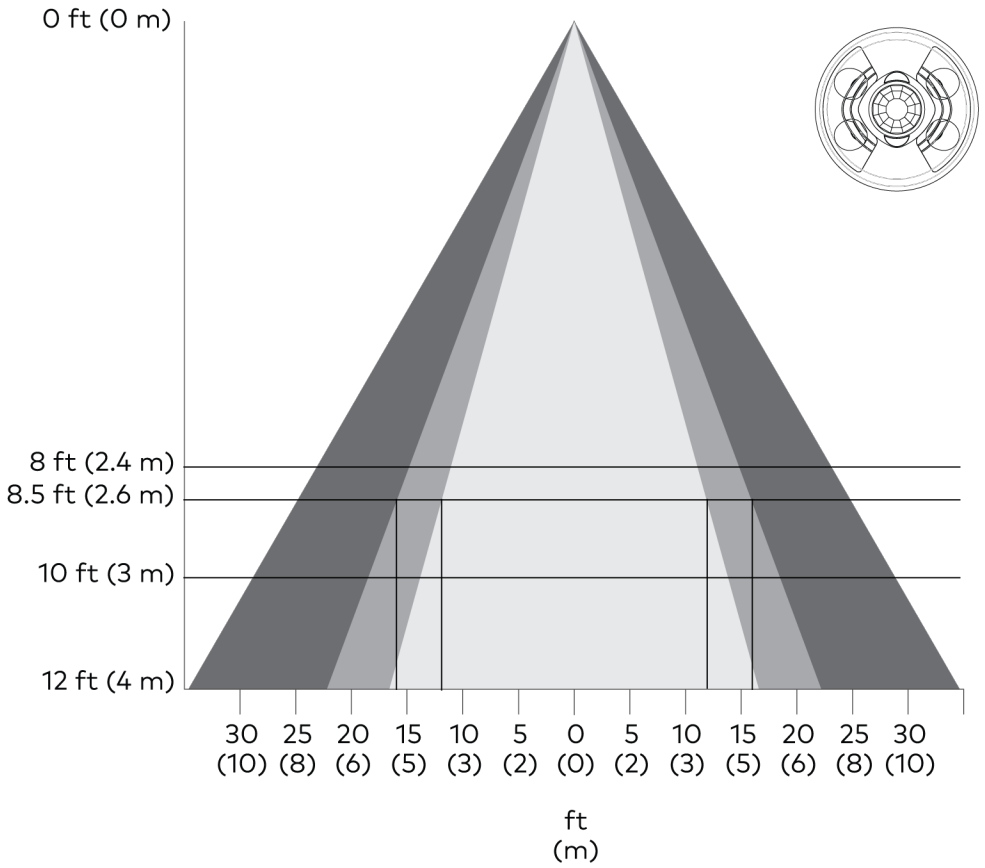
The detection pattern for the sensitivity settings are shown in the illustrations that follow.

High Sensitivity Detection Range

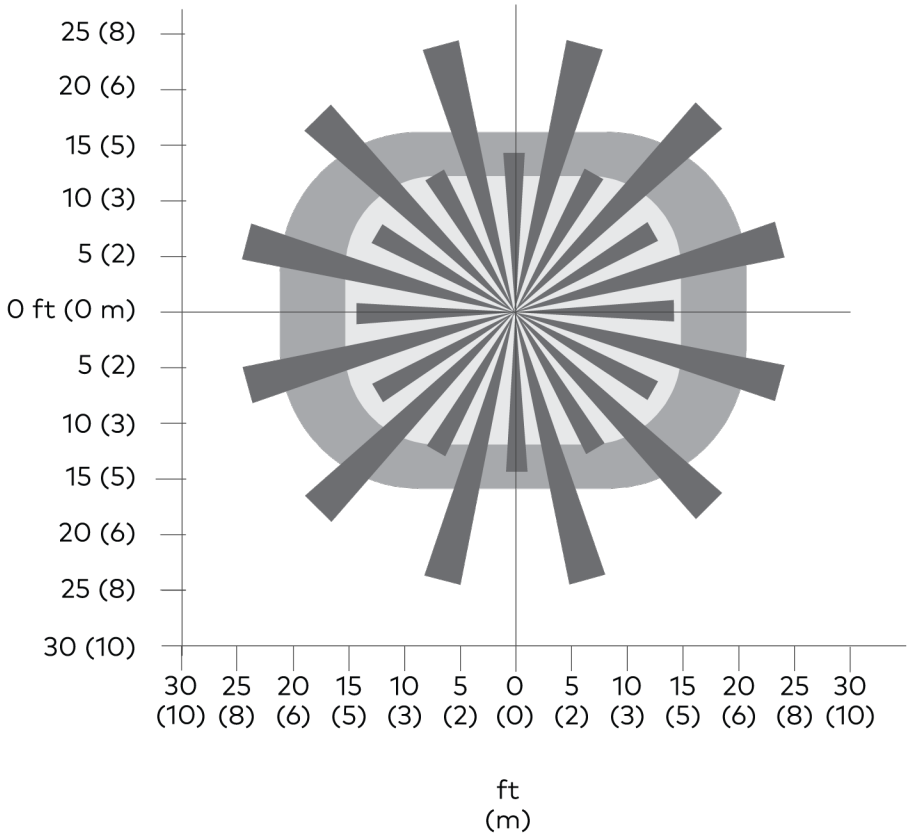
Side View A



Side View B

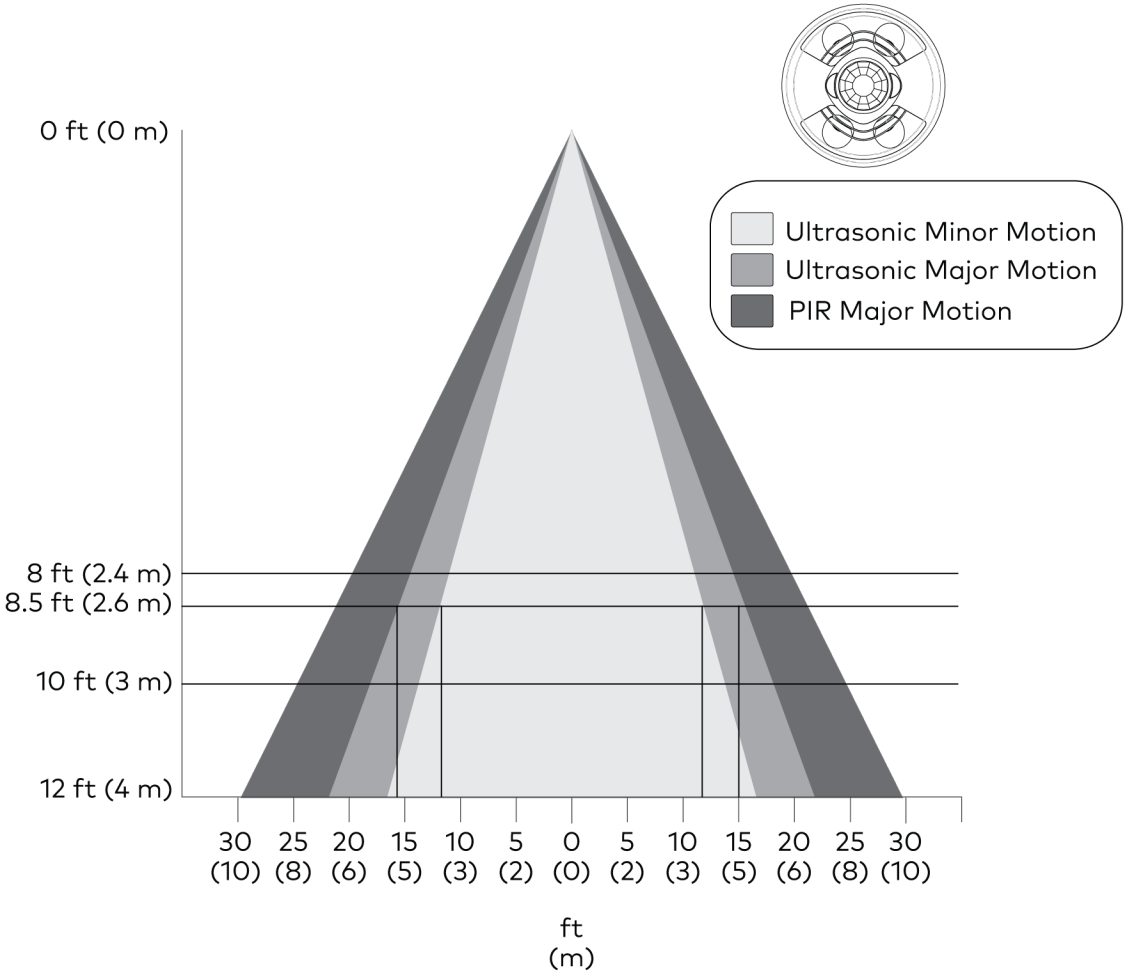

0 ft (0 m)
8 ft (2.4 m)
8.5 ft (2.6 m)
10 ft (3 m)
12 ft (4 m)
30 (10)
25 (8)
20 (6)
15 (5)
10 (3)
5 (2)
0 (0)
5 (2)
10 (3)
15 (5)
20 (6)
25 (8)
30 (10)
ft
(m)

Top View - 8 1/2 ft (2.6 m) Ceiling Height

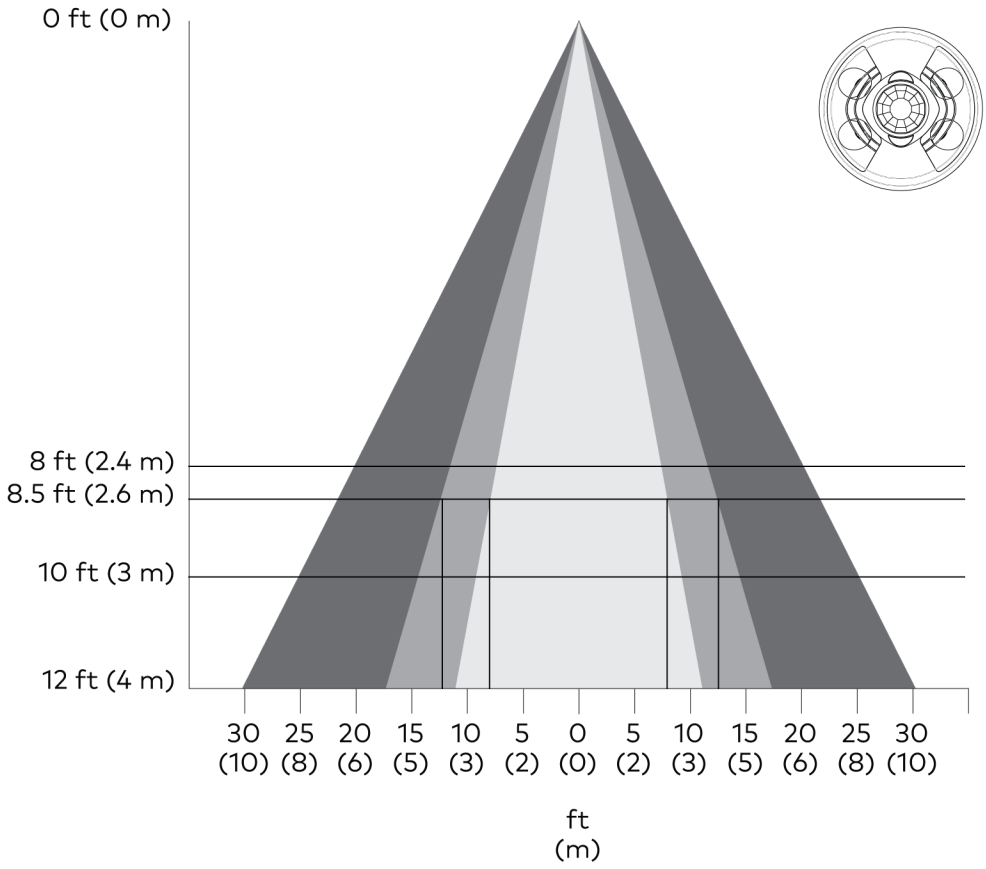


Medium Sensitivity Detection Range

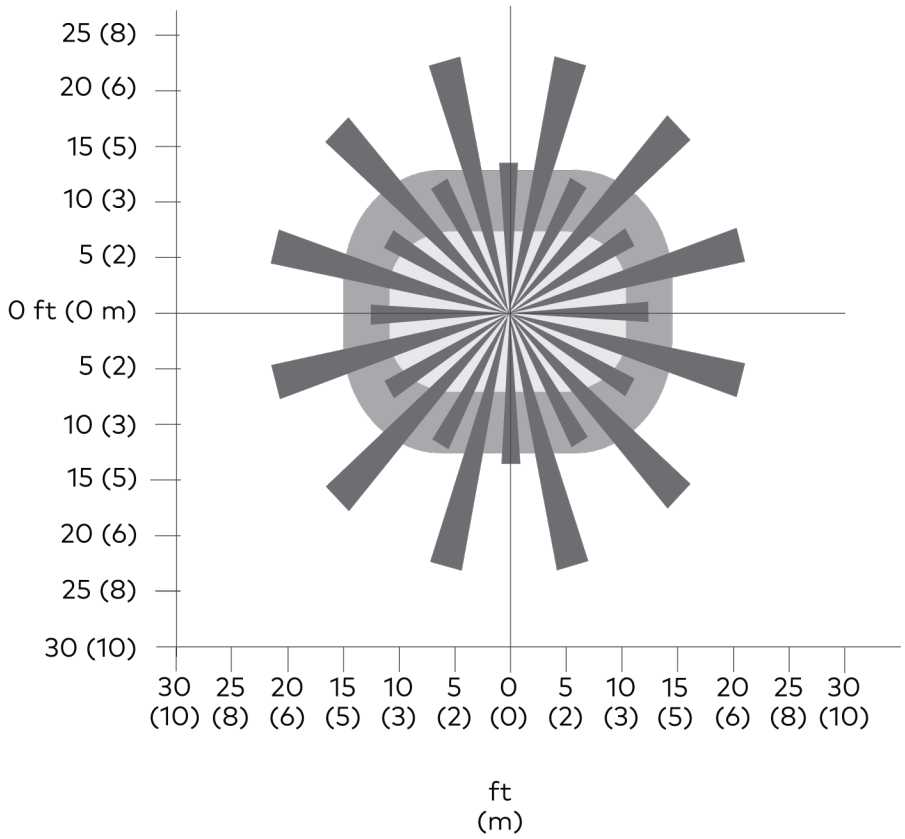
Side View A



Side View B

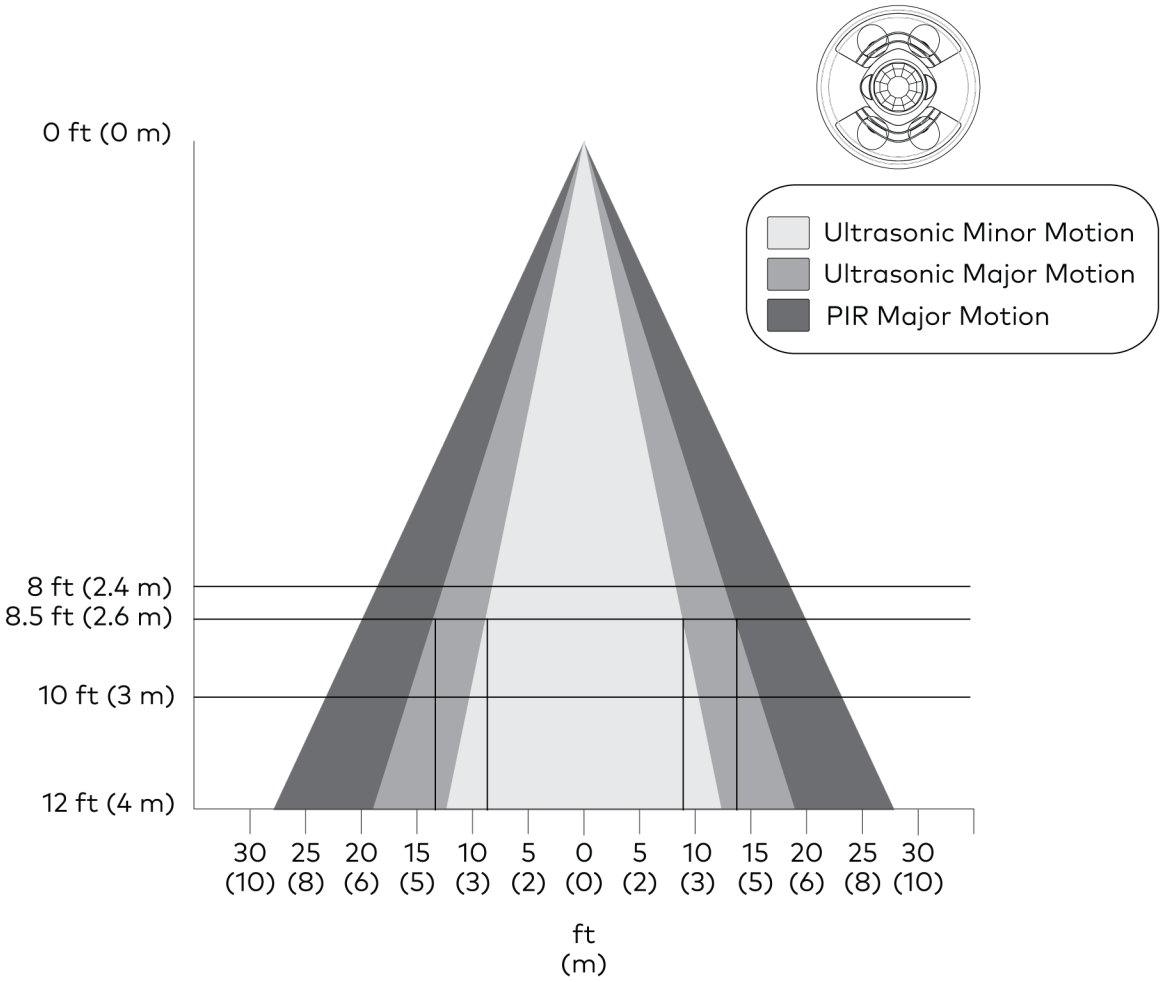

0 ft (0 m)
8 ft (2.4 m)
8.5 ft (2.6 m)
10 ft (3 m)
12 ft (4 m)
30 (10)
25 (8)
20 (6)
15 (5)
10 (3)
5 (2)
0 (0)
5 (2)
10 (3)
15 (5)
20 (6)
25 (8)
30 (10)
ft
(m)

Top View - 8 1/2 ft (2.6 m) Ceiling Height

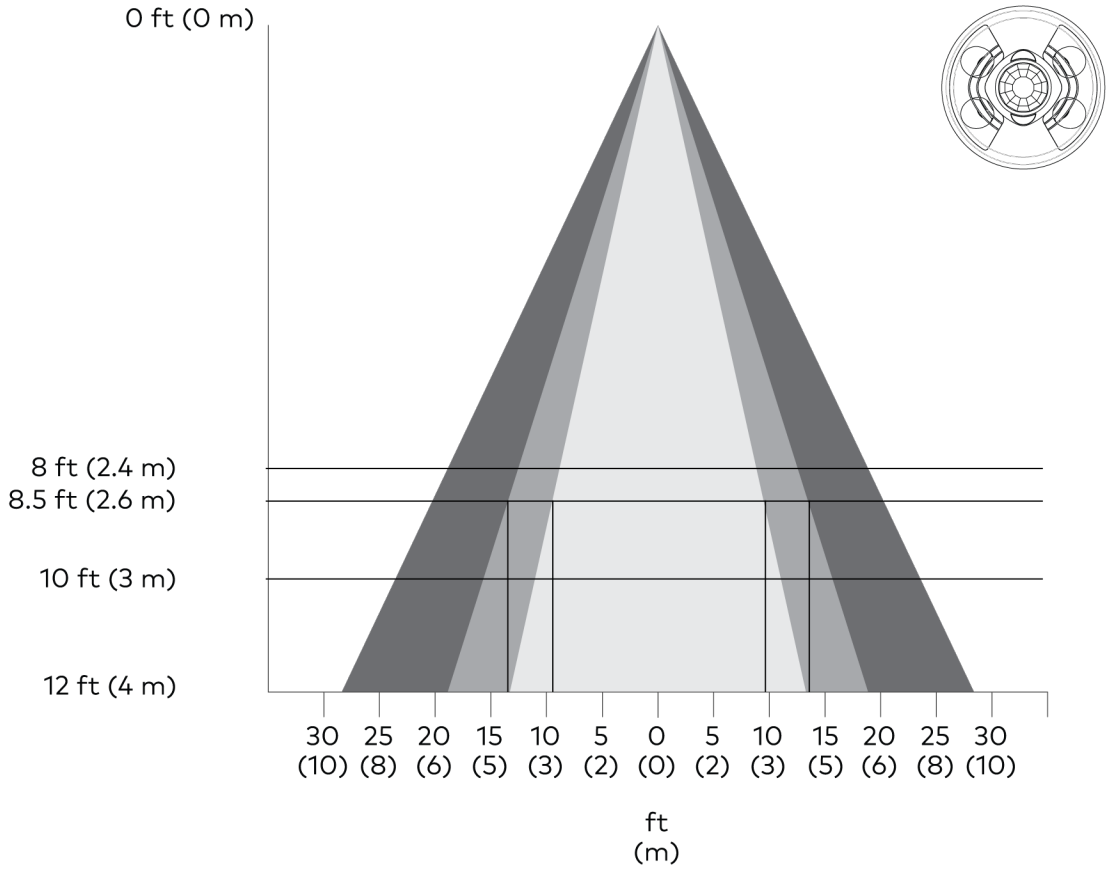


Low Sensitivity Detection Range

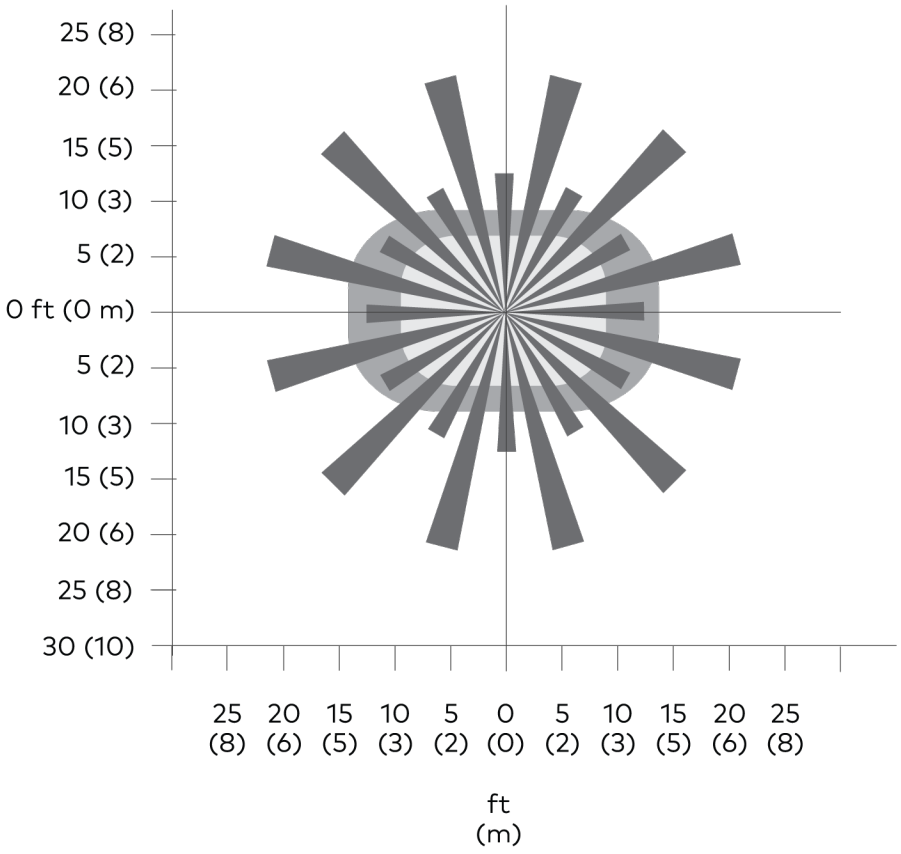
Side View A



Side View B


0 ft (0 m)
8 ft (2.4 m)
8.5 ft (2.6 m)
10 ft (3 m)
12 ft (4 m)
30 (10)
25 (8)
20 (6)
15 (5)
10 (3)
5 (2)
0 (0)
5 (2)
10 (3)
15 (5)
20 (6)
25 (8)
30 (10)
ft
(m)

Top View - 8 1/2 ft (2.6 m) Ceiling Height



Mounting

Install in a drop ceiling or drywall, or into an octagon electrical box. The following items are included with the GLS-ODT-C-CN and GLS-ODT-C-NS for installation.

In the Box

Qty.	Description
1	1/2 Solid PIR Mask
1	Full Perforated PIR Mask
1	Hole Cut Out Template

The following items are required for installation:

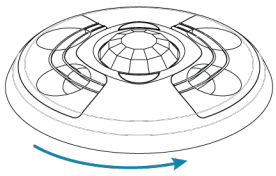
- Slotted or Phillips Screwdriver
- Pencil
- Cutting Tools

> **NOTE:** Ensure that the cover faces in the correct direction when it is installed.

Drop Ceiling or Drywall Installation

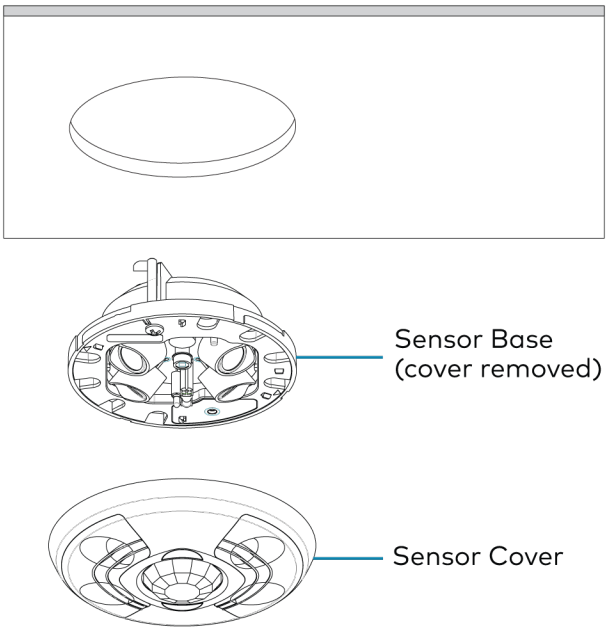
> **NOTE:** To determine the mounting location, refer to Determine the Mounting Location on page 10.

1. Mark the hole for the cut out using a pencil and the hole cut out template.
2. Cut a hole in the drop ceiling or drywall following the marks made in Step 1. Use tools appropriate for the surface type.
3. Twist the sensor cover counterclockwise to separate it from the sensor base.



4. Wire the occupancy sensor. For details, refer to Wiring on page 24.

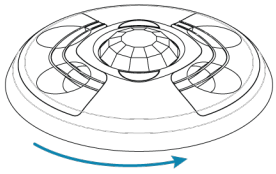
5. Place the sensor base into the hole and secure it to the drywall or ceiling tile by tightening the preinstalled screws. Plastic wings are attached to the preinstalled screws that open when the screws are tightened to secure the sensor base to the drop ceiling or drywall.



6. Align the arrows on the sensor cover with the arrows on the sensor base and then place the sensor cover on the sensor base. Twist clockwise until the sensor cover clicks into place.

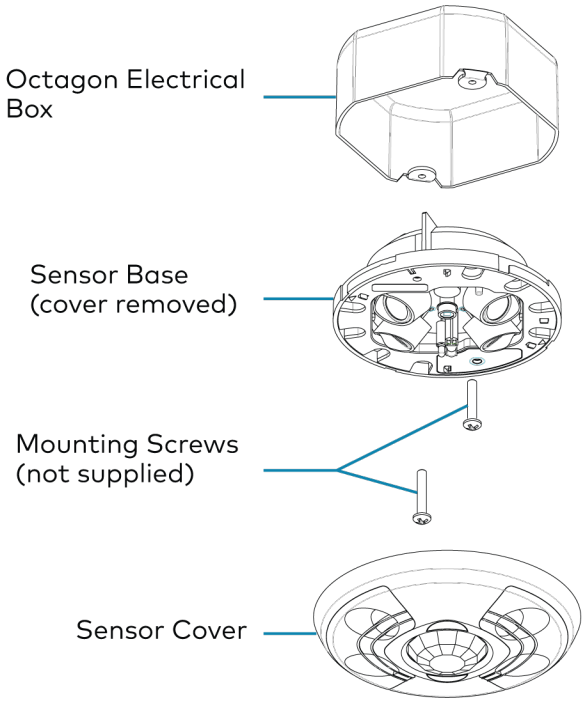
Electrical Box Installation

1. Twist the sensor cover counterclockwise to separate it from the sensor base.



2. Use a Phillips screwdriver to turn the preinstalled screws counterclockwise until the plastic wings are removed, then remove the screws.
3. Wire the occupancy sensor. For details, refer to Wiring on page 24.

4. Mount the sensor base to the octagon electrical box using two mounting screws that are appropriate for the electrical box (not supplied). Ensure that the sensor base faces in the correct direction.



5. Align the arrows on the sensor cover with the arrows on the sensor base and then place the sensor cover on the sensor base. Twist clockwise until the sensor cover clicks into place.

Wiring

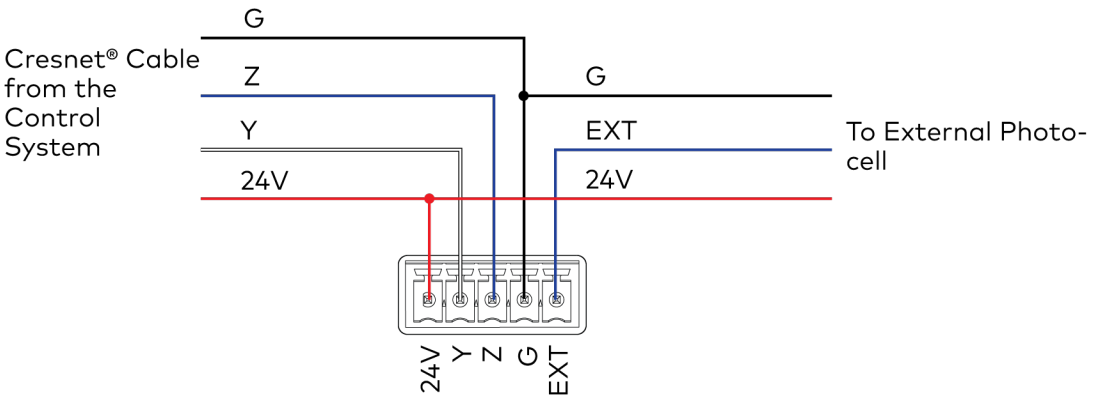
Wiring the GLS-ODT-C-CN

Connect to the Control System

Use Cresnet® cable (not supplied) to connect the control system to the GLS-ODT-C-CN. Make connections to the 24V, Y, Z, and G ports on the GLS-ODT-C-CN.

Connect an External Photocell

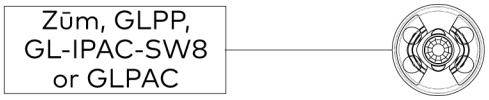
Use Cresnet® cable (not supplied) to connect the GLS-ODT-C-CN to an external photocell. Make connections to the 24V, G, and EXT ports on the GLS-ODT-C-CN.



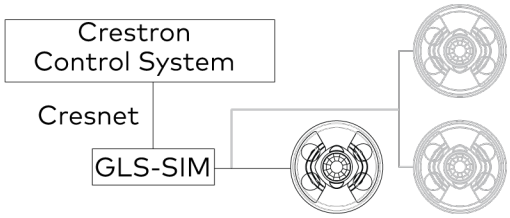
Port	Wire Color	Description
24V	Red	Power
Y	White	Data
Z	Blue	Data
G	Black	Ground
EXT	Blue or White	0-10V Signal

Wiring the GLS-ODT-C-NS

Connect the GLS-ODT-C-NS to a standalone lighting system such as a Zūm wired or wireless, GLPP, GL-IPAC-SW8, or GLPAC.

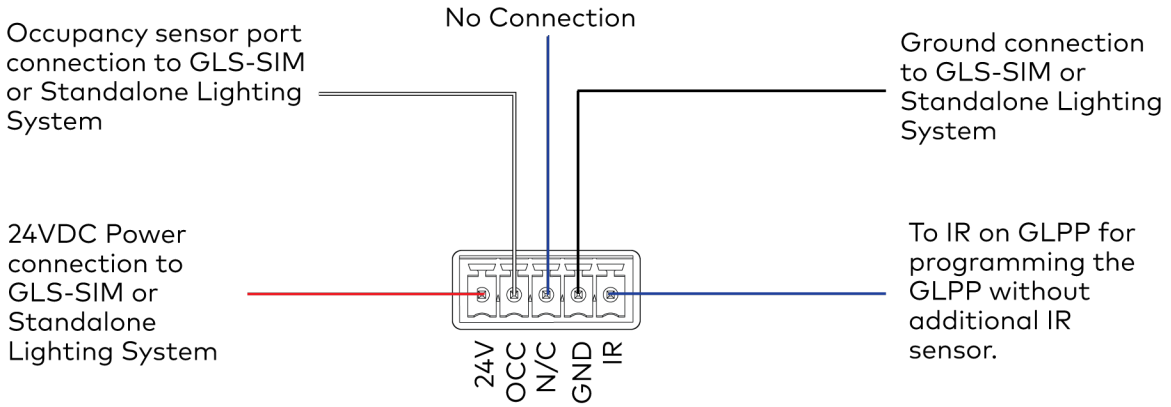


To integrate with a Crestron control system, use a GLS-SIM interface module.



To connect the GLS-ODT-C-NS, make the 24V, OCC, GND, and IR connections as shown in the following image.

> **NOTE:** The IR port is used only to program the GLPP through the GLS-ODT-C-NS using the GLS-REMOTE-ODT/OIR.



Testing

Confirm that the occupancy sensor operates as intended after installation.

Verify the Detection Range

The red and green LEDs on the occupancy sensor should flash only when they detect motion caused by room occupants. To verify the motion detection:

1. Enter the room and close all of the doors.
2. Sit in the room and monitor the red and green LEDs on the occupancy sensor. Remain still to prevent the occupancy sensor from detecting your presence in the room.
3. If the red and green LEDs on the occupancy sensor flash, the sensors are detecting unwanted motion. Identify and correct the sources of motion (projectors, fans, vents, etc.).

Test the Occupancy Sensitivity

> **NOTE:** If multiple occupancy sensors are located in the same room, adjust one at a time.

1. Walk around the room to simulate typical room motion (for example, sit at various places around the room and simulate typical motion for the room).
2. While walking around the room, monitor the LEDs on the occupancy sensor to verify that the motion is detected. Red indicates PIR motion and green indicates US motion.
3. If motion in the room is not detected, increase the sensitivity of the PIR or US sensors. For details, refer to Sensitivity on page 28.

   > **NOTE:** If motion is not detected in the corners of the room, increase the timeout to allow a greater chance of detecting motion.

4. Repeat these steps until all expected motion is detected.

Adjust Vacancy Sensitivity

1. Press and hold **VAC SETUP** for 3 seconds to enter Vacancy Setup mode. The occupancy sensor will beep to indicate that it detected motion.
2. Exit the room and close the door. Walk by open doorways or entrances. The occupancy sensor should not beep while the room is empty.
3. Reenter the room. The occupancy sensor beeps when reentering the room.
4. If the occupancy sensor detects motion (beeps) when it should not, lower the sensitivity of the PIR or US sensors.
5. Repeat these steps until motion is not detected.

Configuration

The GLS-ODT-C-CN and GLS-ODT-C-NS detect motion in a room to determine if the room is occupied or vacant and then relay the occupancy or vacancy state to the connected control system.

Use the GLS-REMOTE-ODT/OIR remote (sold separately) to set up or adjust the settings on the occupancy sensor. For details, refer to the GLS-REMOTE-ODT/OIR Operations Guide.

> **NOTE:** If multiple occupancy sensors are installed in the room, set up one occupancy sensor at a time.

The control system program may be set up to operate in Occupancy or Vacancy mode.

- **Occupancy mode:** The control system turns the lights on when the room is occupied and turns the lights off when the room is vacant.
- **Vacancy Only mode:** The control system turns the lights off when the room is vacant. The control system does not turn the lights on when the room is occupied.

Timeout Duration

The Timeout duration is the length of time that must pass without the occupancy sensor detecting motion before it determines that the room is vacant. When the occupancy sensor signals that the room is vacant, the control system turns off the lights. If the occupancy sensor detects motion during the timeout period, the occupancy sensor determines that the room is still occupied and the control system keeps the lights on.

The timeout duration can be set from 30 seconds to 30 minutes. The default timeout is 5 minutes.

Short Timeout

Short Timeout (Walk-through mode) overrides the Timeout duration when a room is entered, the lights turn on, and then the occupant leaves within 90 seconds. This prevents the lights from staying on during a long timeout period after the brief occupancy period. Short Timeout can be used when the control system is operating in Occupancy mode. Enable the Short Timeout using the GLS-REMOTE-ODT/OIR programming remote. Short timeout is disabled by default.

Grace Occupancy Mode

When the occupancy sensor is operating in Vacancy Only mode and the lights turn off in an occupied room, the Grace Occupancy function turns the lights back on as long as motion is detected within 15 seconds. Enable or disable Grace Occupancy mode in the control system program.

LEDs

The LEDs can be disabled to prevent flashing during normal operation. For details, refer to the GLS-REMOTE-ODT/OIR Operations Guide.

Sensitivity

Set the occupancy and vacancy sensitivity to Low, Medium, or High using the GLS-REMOTE-ODT/OIR programming remote. The default sensitivity for PIR and US sensors is Medium.

1. Press and hold **OCC SETUP** for 3 seconds to set up the occupancy sensitivity or press and hold **VAC SETUP** for 3 seconds to set the vacancy sensitivity.
    - Press the **PIR HIGH**, **PIR MED**, or **PIR LOW** button to set the PIR sensitivity.
    - Press the **US HIGH**, **US MED**, or **US LOW** button to set the US sensitivity.
2. Walk around, as well as in and out of the room to simulate typical room usage.
    - In occupancy setup (**OCC SETUP**), the LEDs flash to indicate that motion is detected
    - In vacancy setup (**VAC SETUP**), the occupancy sensor beeps to indicate that motion is detected.

PIR and US Sensors

The PIR and US sensors can be turned off to make sure that occupancy is properly detected in the room.

- **PIR Only:** The PIR sensor is used to detect motion. US sensors are turned off.
- **Ultrasonic Only:** The US sensors are used to detect motion. The PIR sensor is turned off. The ultrasonic sensors are split into two banks—bank A and bank B—which are labeled under the cover of the sensor. If the sensor is installed and the orientation of the ultrasonic sensors is unknown, bank A is located on the red LED side and bank B is located on the green LED side. Bank A and bank B can be disabled independently from the GLS-REMOTE-ODT/OIR. For details, refer to the GLS-REMOTE-ODT/OIR Operations Guide.

Internal Photocell (GLS-ODT-C-CN Only)

The GLS-ODT-C-CN has a built-in photocell that allows for complete daylight harvesting using the Crestron lighting system. The control system can use the photocell to dim the lights or to not turn lights on at all if sufficient natural daylight is present.

Connect an external photocell to the GLS-ODT-C-CN for additional daylight harvesting capabilities. For details, refer to Wiring on page 24.

Net ID

Set the Net ID to match the Net ID in the control system program.

Factory Reset

To reset the occupancy sensor to the factory settings, press and hold **RESET** for 3 seconds.

> **NOTE:** Press the setup button on the sensor to acknowledge Cresnet identification.

Troubleshooting

The following table provides corrective actions for possible trouble situations. If further assistance is required, please contact Crestron True Blue Support.

Trouble	Possible Cause(s)	Corrective Action
The lights do not turn on.	The circuit breaker or fuse has tripped.	Reset the circuit breaker or replace the fuse.
	The control system is incorrectly programmed.	Verify the program in the control system.
	There is a miswire.	Verify that the wires are connected properly.
	There are incorrect settings on the device.	Increase the sensitivity setting on the PIR sensor, and then increase the US sensors.
	The mounting location is incorrect.	Move the sensor into an area that can "see" the occupant or point of motion.
The lights do not turn off.	There is constant motion in the room.	To test, reduce the sensitivity level and remove the motion source. If there is no change, then the mounting location must move.
	The sensor can "see" too far into hallway or another room.	Put the sensor into Setup mode and walk by the area. If the red or green LED blinks, move the sensor, mask the PIR, or disable one side of the US sensors.
	There are incorrect settings on the sensor.	Reduce the sensitivity and timeout levels.
	The control system is incorrectly programmed.	Verify the program in the control system.
The lights remain on for too long.	The timeout setting is too high.	Reduce the timeout one step at a time.

Resources

The following resources are provided for the GLS-ODT-C-CN and GLS-ODT-C-NS.

> **NOTE:** You may need to provide your Crestron.com web account credentials when prompted to access some of the following resources.

Crestron Support and Training

- Crestron True Blue Support
- Crestron Resource Library
- Crestron Online Help (OLH)
- Crestron Training Institute (CTI) Portal

Programmer and Developer Resources

- help.crestron.com: Provides help files for Crestron programming tools such as SIMPL, SIMPL#, and Crestron Toolbox™ software
- developer.crestron.com: Provides developer documentation for Crestron APIs, SDKs, and other development tools

Product Certificates

To search for product certificates, refer to support.crestron.com/app/certificates.

Related Documentation

- Occupancy Sensor Placement and Technology Best Practices
- Cresnet® Network Design Guide
- GLS-REMOTE-ODT/OIR Operations Guide

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Specifications subject to
change without notice.