Description

The Crestron® ZUMMESH-JBOX-SIM enables 24 V motion sensors (GLS-ODT-C-NS or GLS-OIR-C-NS, not included) and an open-loop photo sensor (GLS-LOL, not included) to be used as part of a Zūm commercial lighting system.

The ZUMMESH-JBOX-SIM powers GLS-ODT-C-NS and GLS-OIR-C-NS motion sensors wired in parallel as well as a single GLS-LOL photo sensor. The motion sensors can operate in Occupancy mode (turning the lights on and off) or in Vacancy mode (turning the lights off only).

NOTE: These models meet the requirements of UL® standard 2043 for installation in an environmental air-handling (plenum) space.

Specifications

SPECIFICATION	DETAILS
Power Requirements	100-277 Vac, 50/60 Hz
	Standby power: <1 W
Sensor Power Output	
Output Voltage	24 V
Output Current	250 Ma (sufficient for 4 Crestron motion sensors and 1 Crestron photo sensor)
Output Protection	275 mA Current limit/short-circuit protection
Sensor Inputs	
Occupancy Input	24 Vdc, max., Threshold to detect motion >8 V
Vacancy Input	24 Vdc max., Threshold to detect motion >8 V
Photo Input	0-10 V for normal operation, 24 V max.
Environmental	
Temperature	32° to 104 °F (0° to 40 °C)
Humidity	10% to 90% RH (noncondensing)
Weight	7 oz (180 g)

Additional Resources

Visit the product page on the Crestron website (www.crestron.com) for additional information and the latest firmware updates. Use a QR reader application on your mobile device to scan the QR image.

Installation

WARNING: To avoid fire, shock, or death, turn off the power at the circuit breaker or fuse and test that the power is off before wiring!

**NOTE:** Observe the following points:
- Install and use this product in accordance with appropriate electrical codes and regulations.
- A licensed electrician should install this product.

To install a ZUMMESH-JBOX-SIM, do the following:
1. Turn the power off at the circuit breaker.
2. Mount the J-box device to the J-box.
3. Wire the device as shown in the following diagram.

NOTE: The ground connection must be made for proper operation.

ZUMMESH-JBOX-SIM Wiring

100-277 Vac power from breaker

Neutral (white)
Hot (black)
Ground (green)
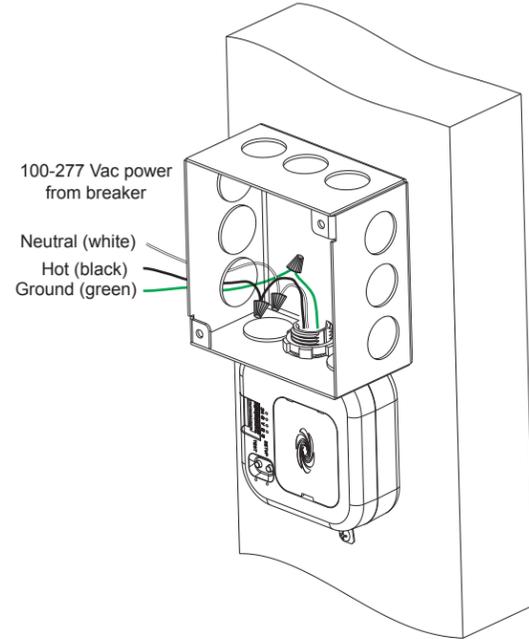
Wiring

Photo Sensor Connection Guidelines

The Zūm space can contain only one photo sensor. Wired and wireless photo sensors cannot be mixed in the same space.

NOTE: Do not use a standard ZUMMESH-OL-PHOTO sensor (not included) if a photo sensor is already connected to the ZUMMESH-JBOX-SIM photo sensor input.

To wire, use 16-22 AWG wires with a wire-run no greater than 50 feet (15 meters).

Motion Sensor Connection Guidelines

The ZUMMESH-JBOX-SIM can power up to 4 GLS-ODT-C-NS motion sensors which allow a Zūm space to operate in Occupancy mode (turns lights on and off) or Vacancy mode (only turns lights off). Occupancy mode or Vacancy mode is determined by the connection that is made to the ZUMMESH-JBOX-SIM from the GLS-ODT-C-NS.

All sensors attached to the ZUMMESH-JBOX-SIM act as either occupancy or vacancy sensors. If the connection is made to the **O** terminal, the motion sensors operate in Occupancy mode. If the connection is made to the **V** terminal, the motion sensors operate in Vacancy mode.

To wire, use 16-22 AWG wires with a wire-run no greater than 250 feet (76 meters)

NOTE: The Zūm space cannot have a mix of occupancy and vacancy sensors. Connections can be made only to the **O** terminal or the **V** terminal.

NOTE: In Occupancy mode, a single motion sensor reporting occupancy will turn the lights on. All motion sensors must report vacancy before the lights will turn off.

NOTE: In Vacancy mode, all motion sensors must report vacancy before the lights will turn off.

When power is provided to the Zūm system, the ZUMMESH-JBOX-SIM detects the sensor connections to the **O** or **V** terminal and begins operating in Occupancy or Vacancy mode.

NOTE: If the type of sensor used in the Zūm space is changed (for example, vacancy sensors replaced occupancy sensors), the entire Zūm space should be power cycled to reset its operating mode.

Refer to the table for the maximum number of sensors that can be powered by the ZUMMESH-JBOX-SIM. If additional sensors are needed, they can be connected using an external power supply. When using an external power supply, tie the grounds together.
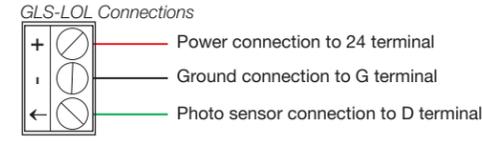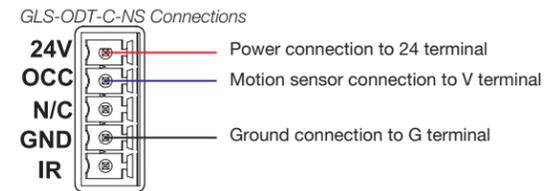
MANUFACTURER	MODEL	MAX. SENSORS
Crestron	GLS-ODT-C-NS	4
Crestron	GLS-OIR-C-NS	7
Steinel	IR Quattro HD COM2-24 IR Quattro HD COM1-24 IR CM COM2-24	7
Steinel	US Hallway COM1-24	6
Steinel	US Hallway COM2-24	5

Refer to the illustrations that follow for connecting motion sensors and a photo sensor to the ZUMMESH-JBOX-SIM.
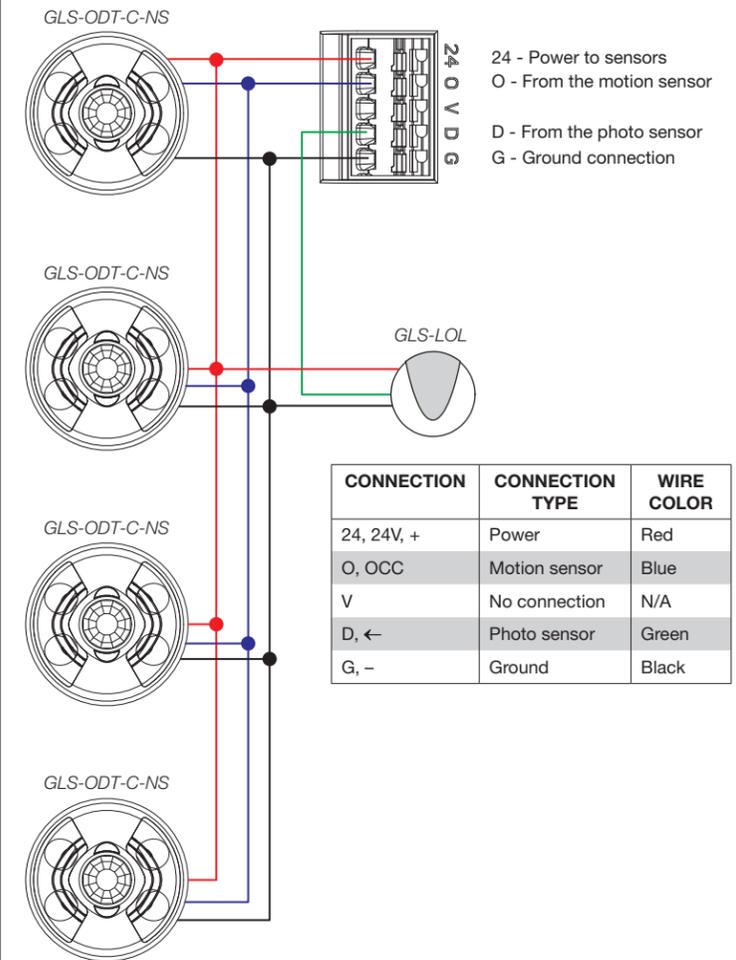
Wiring Four GLS-ODT-C-NS's and One GLS-LOL to the ZUMMESH-JBOX-SIM Vacancy Mode
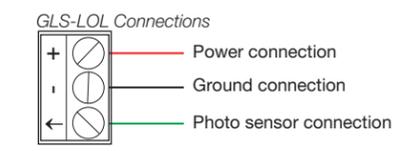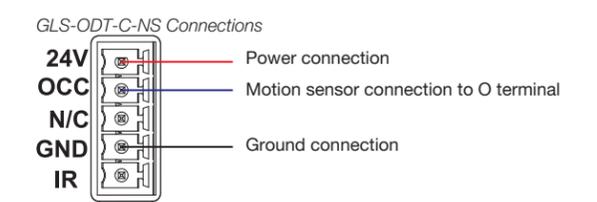

GLS-ODT-C-NS

24 - Power to sensors
V - From the motion sensor
D - From the photo sensor
G - Ground connection
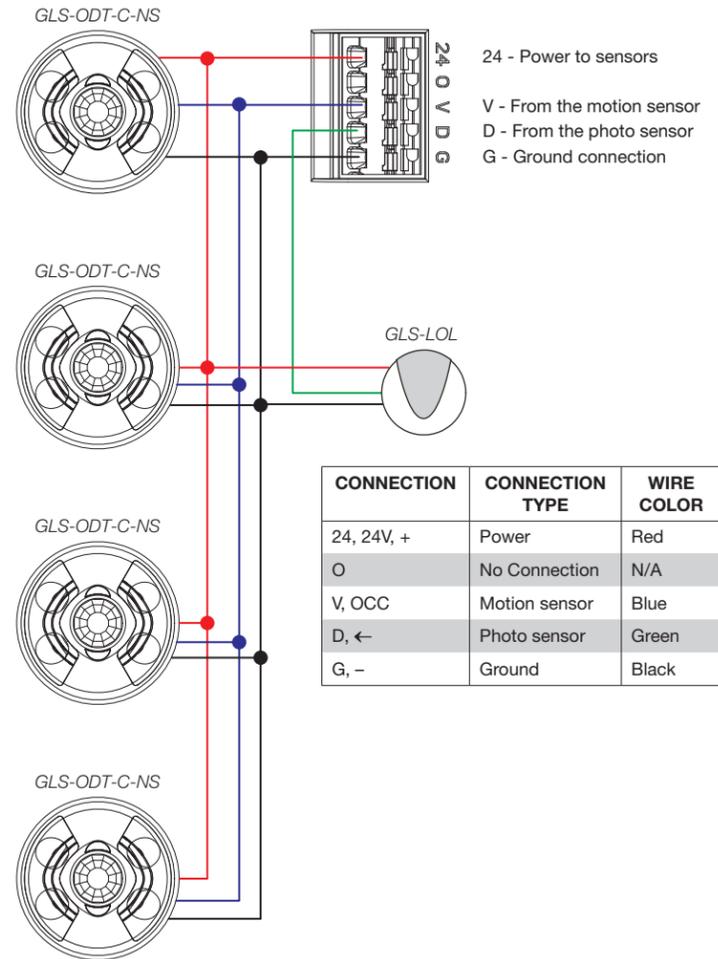
GLS-LOL

CONNECTION	CONNECTION TYPE	WIRE COLOR
24, 24V, +	Power	Red
O	No Connection	N/A
V, OCC	Motion sensor	Blue
D, ←	Photo sensor	Green
G, –	Ground	Black

GLS-ODT-C-NS Connections

24V — Power connection to 24 terminal
OCC — Motion sensor connection to V terminal
N/C
GND — Ground connection to G terminal
IR

GLS-LOL Connections

+ — Power connection to 24 terminal
I — Ground connection to G terminal
← — Photo sensor connection to D terminal

Wiring Four GLS-ODT-C-NS's and One GLS-LOL to the ZUMMESH-JBOX-SIM Occupancy Mode

GLS-ODT-C-NS

24 - Power to sensors
O - From the motion sensor
D - From the photo sensor
G - Ground connection

GLS-LOL

CONNECTION	CONNECTION TYPE	WIRE COLOR
24, 24V, +	Power	Red
O, OCC	Motion sensor	Blue
V	No connection	N/A
D, ←	Photo sensor	Green
G, –	Ground	Black

GLS-ODT-C-NS Connections

24V — Power connection
OCC — Motion sensor connection to O terminal
N/C
GND — Ground connection
IR

GLS-LOL Connections

+ — Power connection
I — Ground connection
← — Photo sensor connection

Setting Up the Daylight Sensor

The ZUMMESH-JBOX-SIM performs daylight harvesting, which uses natural sunlight to supplement the light in the room. The natural sunlight allows the artificial light levels in the room to be lowered while maintaining the desired light level in the space.

Each dimmer in the room adjusts its light level independently to maintain even lighting throughout the space. The dimmer does not lower the lights below 10% brightness.

Daylight harvesting is enabled when scene 1 is recalled. Daylight harvesting is disabled if a scene other than scene 1 is recalled, the light levels are manually adjusted, or the **SENSOR DISABLE** button on a keypad is pressed.

NOTE: When Scene 1 is recalled, the lights go to their Scene 1 preset levels before daylighting adjusts the levels.

NOTE: Only dimmers are affected by daylighting. Switches are not affected.

To configure the Zūm space to properly utilize daylight harvesting, the daylight sensor must be set up after the sensor is fully operational.

When setting up the daylight sensor, consider the following:

- Only dimmers react to daylight sensors.
- Calibrate the daylight sensor during the day when the sun is bright. Avoid light fluctuations caused from clouds that are rapidly exposing and hiding the sun.
- Do not stand between the daylight sensor and the windows. Doing so affects the readings and causes unpredictable lighting in the room.

Calibrate the Daylight Sensor

To calibrate the daylight sensor, do the following:

1. Adjust the dimmer level of all loads in the room to suit the current daylight conditions. Each dimmer can be set to a different level. Typically, lights closer to windows are set to a lower light level than lights that are away from windows.

   NOTE: To disable daylighting on a dimmer, do not adjust its light level. Dimmers left on SCENE 1 or brighter during calibration are not affected by Daylighting.

2. Press and hold the **SETUP** button for 5 seconds to initiate the daylight calibration process. The LED flashes red to indicate that the calibration process is running. The calibration process runs for 60 seconds. During the calibration, the lights cycle from calibration set point level, to Scene 1 level, then off, and then back to Scene 1 level.

   NOTE: The red LED flashes red once after 2 seconds. Continue holding until the LED flashes red a second time, after 5 seconds.

3. After daylight calibration, the room enters Test mode to verify that the proper levels were set. The Green LED flashes twice, pauses, then repeats to indicate that it's in Test mode. Refer to "Test Mode" for details.

Operation

Test Mode

To manually enter Test mode, press and hold the **SETUP** button for 2 seconds. During Test Mode, standard delays that allow smooth light transitions are removed which allows rapid natural light level changes to cause faster artificial light changes. The LED flashes Green twice, pauses, then repeats to indicate that it is in Test mode. The device exits Test mode after 2 minutes.

To verify daylight sensor calibration, open and close the blinds or block the cover of the sensor to simulate low outside natural light conditions. The light level should increase.

Opening the blinds or unblocking the cover of the sensor causes light levels to decrease.

Verify Installation

Press the **TEST** button to ensure that the system is wired properly. All loads in the room should toggle when the button is pressed. If all loads do not toggle, verify the wiring and the programming.

Basic Room Setup

A basic single-room Zūm system consists of Zūm mesh devices, i.e., dimmers, switches, keypads, and sensors. The Zūm mesh devices in the room communicate directly with each other without the need for a centralized gateway or processor.

To set up a new single-room Zūm system, do the following:

Step 1a: Create a new single-room Zūm system.

Step 2: Add Zūm mesh devices to the room.

Step 3: Finish creating the single-room Zūm system.

To modify an existing Zūm system, do the following:

Step 1b: Place the system in Joining mode.

Step 2: Add Zūm mesh devices to the room.

Step 3: Finish creating the single-room Zūm system.

Step 1a – Creating a Single-Room Zūm System

To create a new single-room Zūm system, first form a new room.

NOTE: This can be performed on only one device in the room.

NOTE: The device that is used to create the room is automatically added to the room. The device does not need to be added to the room.

NOTE: A room can be created only from an ac-powered device.

Start a New Single-Room System with a Keypad, Dimmer, or Switch

Press the bottom button 5 times, and then press and hold the bottom button for 2 seconds. If the device is not factory fresh, press the bottom button 5 times, and then press and hold the bottom button for 10 seconds. Release the button when the LED lights. The LED illuminates for 3 seconds and then slowly flashes to indicate that the room is in Joining mode and that other devices can join the room.

⏱ 2s or 10s

Start a Single-Room System with a J-Box Device

Press the **SETUP** button 5 times, and then press and hold the **SETUP** button for 2 seconds. If the device is not factory fresh, press the bottom button 5 times, and then press and hold the **SETUP** button for 10 seconds. Release the button when the LED lights. The LED illuminates for 3 seconds and then slowly flashes to indicate that the room is in Joining mode and that other devices can join the room.

⏱ 2s or 10s

Step 1b – Expanding an Existing Single-Room Zūm System

To allow other devices to join the room, place the single-room Zūm system into Joining mode. Joining mode can be enabled from any ac-powered device or battery keypad that is already part of the room.

Expand a Single-Room Zūm System Using a Keypad

To enter Joining mode, press and hold both the top and bottom buttons for 5 seconds, wait for the LED to light, and then tap the top button once, and then the bottom button once.

⏱ 5s

Expand a Single-Room Zūm System Using a J-box Device

To enter Joining mode, tap the **SETUP** button 2 times, and then tap the **TEST** button.

Pressing any button on a device that is part of the network takes the system out of joining mode. Joining mode ends automatically after 4 minutes.

## Step 2 - Adding Zūm Mesh Devices to the Room

Adding Zūm mesh devices to a room is quick and easy. Add devices to the room when the room is in Joining mode. Joining mode is automatically enabled after a single-room Zūm system is started (see Step 1a). Joining mode can also be enabled manually (see Step 1b).

The LEDs on all ac-powered devices in the system flash when the system is in Joining mode.

NOTE: A Zūm mesh device can belong to only one room.

NOTE: The Zūm mesh device used to create the room is already part of the network. It does not need to be added to the network.

To add a J-box dimmer or switch to the room, press the **SETUP** button 3 times, and then press and hold the **SETUP** button for 2 seconds. If the device is not factory fresh, press the **SETUP** button 5 times, and then press and hold the **SETUP** button for 10 seconds. Release the button when the LED lights. The LED flashes slowly to indicate that it is part of the room and that the room is still in Joining Mode.

⏱ 2s or 10s
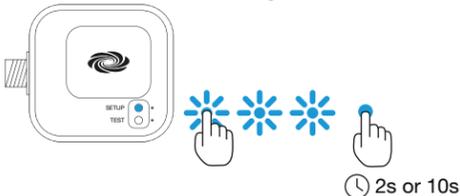
Step 3 - Finishing the Single-Room Zūm System

Press any button on a device that has already joined the network to end the setup process (e.g., the top button of a keypad or the **SETUP** button of a J-box device that is flashing its LED).


Factory Reset

Perform a factory reset when the device is removed from the network or to remove the configuration settings. The device must also be factory reset if the device is being moved to a different system.

NOTE: New-in-box devices do not need to be factory reset before joining a system.

To factory reset the device, press and hold the **TEST** and **SETUP** button for 10 seconds. Release the button when the LED lights. The LEDs and output will turn on.

⏱ 10s
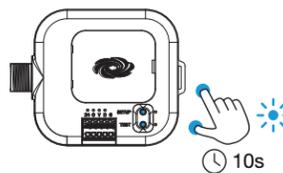
Install Network Bridge

The Zūm Network Bridge enables Zūm device setup from a mobile app and integrates a stand-alone Zūm lighting control system with the Zūm hub (not supplied) for a centrally managed, enterprise-wide lighting control system. The network bridge can be installed to any J-box device.

1. Using a flat-head screwdriver, remove the cover on the J-box device.
2. Ensure that the connector on the network bridge is aligned with the expansion port on the J-box, and then insert the network bridge into the J-box device. The network bridge snaps into place.
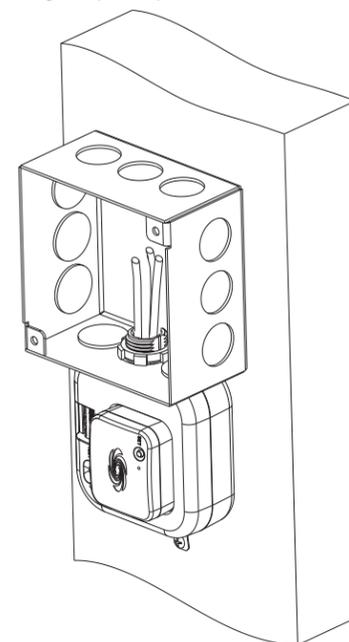
If necessary, the network bridge can be easily removed. To remove the network bridge, do the following:

1. Between the J-box and the J-box device, press the side of the network bridge with your thumb away from the J-box.
2. While pressing on the side of the network bridge, slightly lift the network bridge up and out of the J-box device. The network bridge should easily remove from the J-box device.