Occupancy Sensor OCS 100W • Setup Guide

The OCS 100W is a wall-mounted occupancy sensor that incorporates ultrasonic (US) and passive infrared (PIR) into a dual-technology sensor. The US sensor emits ultrasonic sound waves into an area and measures the speed of their return to detect the presence of people. Frequency changes are caused by the movement of people, which is detected by the US waves. The PIR sensor detects the presence of people based on the difference between the heat generated by moving people versus the ambient room temperature.

The OCS 100W has a 24 VDC power input, ground/common connection, normally open/closed relay, photocell, and occupancy output connections.
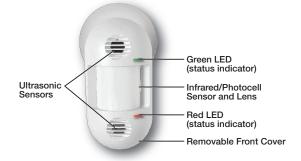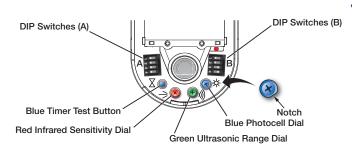
Front Panel Features

Figure 1.   **OCS 100W Front Panel Features**

- **Ultrasonic Sensors** — Detect movement in the room, based on ultrasonic waves.
- **Green LED (status indicator)** — Flashes when the ultrasonic sensors detect occupancy.
- **Infrared/Photocell Sensor and Lens** — Diffracts the incoming light and directs the light to the infrared/photocell sensor.
- **Red LED (status indicator)** — Flashes when the infrared sensor detects occupancy.
- **Removable Front Cover** — Conceals all controls and DIP switches.

Control

Figure 2.   **OCS 100W Controls**

- **DIP Switches (A)** —

A	OPERATION	OFF	ON
1	Not used	**Not used***	Not used
2	Not used	**Not used***	Not used
3	LED indicators	**LEDs enabled***	LEDs disabled
4	Automatic adjust reset	Toggle to reset (**Default: OFF**)	

***Default**

- **DIP Switches (B)** —

B	OPERATION	OFF		ON	
1	Timer Setting (B1 and B2 switches must be set together)	**8 minutes: OFF***	4 minutes: OFF	15 minutes: ON	30 minutes: ON
2		**OFF ***	ON	OFF	ON
3	Timer adjust	Automatic	**Manual***		
4	Sensitivity adjust	Automatic	**Manual***		

***Default**

- **Blue Timer Test Button** —
    - Push in to enable 8 second timer test mode. This will last for 1 hour. Then automatically resets to the dip switch settings.
    - Push and hold until the red LED flashes to return the 8 second timer to the dip switch timer settings.
- **Red Infrared Sensitivity Dial** — Adjust this dial to increase or decrease infrared sensitivity.
    - Turn counter clockwise (CCW) to decrease sensitivity.
    - Turn clockwise (CW) to increase sensitivity.
    - Factory default is 75%.

- **Green Ultrasonic Range Dial** (see **figure 2** on the previous page) — Adjust this dial to increase or decrease ultrasonic sensitivity.
    - Turn counter clockwise (CCW) to decrease sensitivity.
    - Turn clockwise (CW) to increase sensitivity.
    - Factory default is 50%.
- **Blue Photocell Dial** — Photocell prevents the sensor from triggering on when the area is adequately lit with natural light and when motion is detected. The sensor must be mounted directly over an area that is representative of the average, natural room lighting. Before setting the photocell control, wait until the natural light is brightest (optional). Adjust this dial to increase or decrease photocell sensitivity.
    - Turn counter clockwise to decrease photocell sensitivity.
    - Turn clockwise to increase photocell sensitivity.
    - Factory default is 100% (full clockwise).
    - Full counter clockwise — Photocell is disabled.
    - Range — 10 to 1000 LUX

Sensor Placement and Installation Options

When placing the sensor in a room, be sure the sensor is not aimed out through a door. The sensor can detect hallway traffic, causing false triggers. PIR sensors trigger in response to changes in the amount of IR arriving from any of their segments of view within a direct line of sight from the sensor. US sensors trigger in response to changes in the frequency of reflected ultrasonic waves, caused by movement within the space.

NOTE: See **Troubleshooting** on page 5 if you experience false triggers.

Sensor Placement

Figure 3. Sensor Placement and Installation Diagrams

Sensor Coverage

Sensor Coverage

- US Minor Motion
- US Major Motion
- IR Minor Motion
- IR Major Motion

Figure 4. Sensor Coverage Diagrams

OCS 100W Parts

Figure 5. OCS 100W Parts

Installation

4 Snap Bracket Cover in place to conceal wiring and Mounting Bracket.

Wiring Harness

2 Secure Mounting Bracket to the wall.

3 Connect building wiring to Wiring Harness with included wire nuts.

1 Insert wiring through Mounting Bracket.

Building Wiring

Wall

Bracket Cover

Wall

5 Snap sensor onto mounting post.

"POP"

6 Plug Wiring Harness into connector located on the left side, opposite exit slot and place wiring under wire tabs. Align sensor and tighten position locking screw.

Loosen Tighten

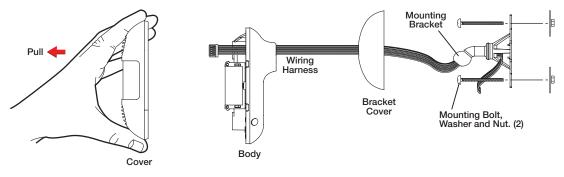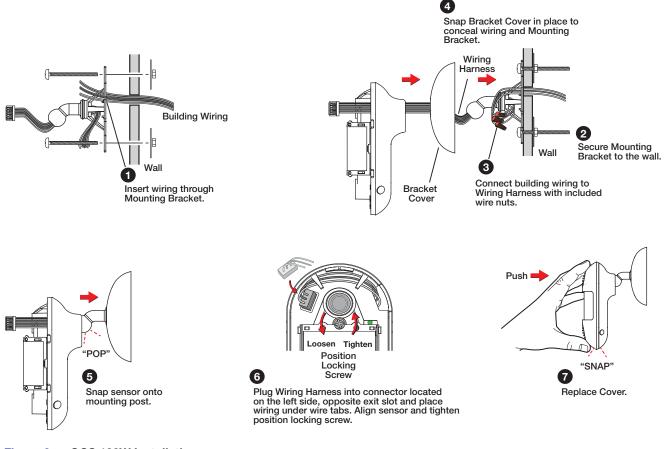Position Locking Screw

7 Replace Cover.
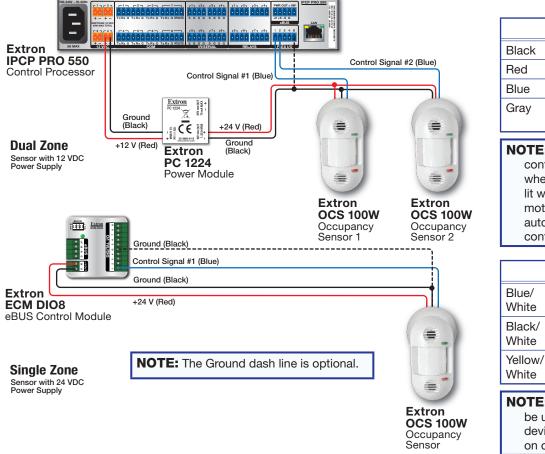
Push

"SNAP"

Figure 6. OCS 100W Installation

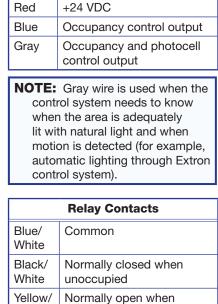**ATTENTION:**

- All structural steps and electrical installation must be performed by qualified personnel in accordance with local and national building codes and electrical codes.

- Toute étape structurelle et installation électrique, doit être effectuée par un personnel qualifié, conformément aux codes du bâtiment, aux codes incendie et sécurité, et aux codes électriques, locaux et nationaux.

OCS 100W Wiring

Extron IPCP PRO 550
Control Processor

Control Signal #2 (Blue)

Control Signal #1 (Blue)

Ground (Black)

+24 V (Red)

Dual Zone
Sensor with 12 VDC Power Supply

+12 V (Red)

Extron PC 1224
Power Module

Ground (Black)

Extron OCS 100W
Occupancy Sensor 1

Extron OCS 100W
Occupancy Sensor 2

Ground (Black)

Control Signal #1 (Blue)

Ground (Black)

Extron ECM DIO8
eBUS Control Module

+24 V (Red)

NOTE: The Ground dash line is optional.

Single Zone
Sensor with 24 VDC Power Supply

Extron OCS 100W
Occupancy Sensor

Connections	
Black	Ground
Red	+24 VDC
Blue	Occupancy control output
Gray	Occupancy and photocell control output

NOTE: Gray wire is used when the control system needs to know when the area is adequately lit with natural light and when motion is detected (for example, automatic lighting through Extron control system).

Relay Contacts	
Blue/White	Common
Black/White	Normally closed when unoccupied
Yellow/White	Normally open when unoccupied

NOTE: Relay contacts could be used to trigger third party devices, such as HVAC, based on occupancy.

Figure 7. OCS 100W Wiring Diagram

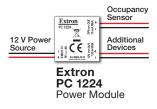## PC 1224 Wiring

ATTENTION:

- Do not connect power until you have read the **ATTENTIONS:** notices on the next page.
- Ne branchez pas l'alimentation avant d'avoir lu les mises en garde «**ATTENTIONS:**» de la page suivante.
- Remove power from the system before making any connections.
- Mettez le système hors tension avant d'effectuer tout raccordement.

The OCS 100W requires 24 VDC. If the sensors are connected to a device that does not provide 24 VDC:

1. Connect a 12 VDC power source to the 12 VDC input on the supplied PC 1224 power converter, using a 2-pole captive screw connector (see image on the right).

2. Wire the PC 1224 24 VDC 2-pole captive screw connector to the black and red wires on the OCS 100W.

A 12 VDC pass-through is available to power additional 12 VDC devices.

Occupancy Sensor

12 V Power Source

Additional Devices

Extron PC 1224
Power Module

Troubleshooting

Problem	Possible Cause	Test	Solution
Sensor remains on.	Constant noise.	Reduce both green and red knobs by 15% and remove noise source.	Move sensor to a less noisy area within the room.
Sensor remains on too long.	Timer setting too high.	Check dip switch settings.	Reduce timer setting.
Hallway traffic turns sensor on.	Infrared sensor can see into the hallway.	Put sensor in timer test mode and walk the hallway.	Move sensor, so it cannot see into the hallway.

Safety Instructions

For information on safety guidelines, regulatory compliances, EMI/EMF compatibility, accessibility, and related topics, see the **Extron Safety and Regulatory Compliance Guide** on the Extron website.

FCC Class A Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. The Class A limits provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference. This interference must be corrected at the expense of the user.

NOTE: For more information on safety guidelines, regulatory compliances, EMI/EMF compatibility, accessibility, and related topics, see the **Extron Safety and Regulatory Compliance Guide** on the Extron website.

Power Attentions

ATTENTIONS:
- These products are intended for use with a UL Listed LPS type power source.
- Ces produits doivent être utilisés avec une source d'alimentation de type LPS certifiée UL.
- Use of a non-LPS or unlisted power supply will void all regulatory compliance certification.
- L'utilisation d'une source d'alimentation non-listée ou non-listée LPS annulera toute certification de conformité réglementaire.
- Unless otherwise stated, the AC/DC adapters are not suitable for use in air handling spaces or in wall cavities. The power supply is to be located within the same vicinity as the Extron AV processing equipment in an ordinary location, Pollution Degree 2, secured to the equipment rack within the dedicated closet, podium, or desk.
- Sauf mention contraire, les adaptateurs CA/CC ne conviennent pas à une utilisation dans les espaces d'aération ou dans les cavités murales. La source d'alimentation doit être placée à proximité de l'équipement Extron dans un emplacement ordinaire soumis à un degré de pollution de catégorie II, solidement fixé au rack d'équipement d'une baie technique, d'un pupitre, ou d'un bureau.
- The installation must always be in accordance with the applicable provisions of National Electrical Code ANSI/NFPA 70, article 725 and the Canadian Electrical Code part 1, section 16.
- Cette installation doit toujours être conforme aux dispositions applicables du Code américain de l'électricité (National Electrical Code) ANSI/NFPA 70, article 725, et du Code canadien de l'électricité, partie 1, section 16.
- The power supply shall not be permanently fixed to building structure or similar structure.
- La source d'alimentation ne devra pas être fixée de façon permanente à la structure de bâtiment ou à d'autres structures similaires.