Greengate

Extreme Temperature PIR Sensor

10-30 VDC

UL LISTED APPLIANCE CONTROL 36T0 | PIR Activated | F°/C° Extreme Temperature | California Title 24 Compliant

Model # OXC-P-1500-R
Model # OXC-P-2MH0-R

General Information

- Read all instructions on both sides of this sheet first.
- Plan all component locations carefully.
- Install in accordance with ALL local codes.
- For use with Greengate Switchpacks & Systems Only. For use with other systems, contact Technical Support.
- Sensor performance optimized when temperatures range from -40°C (-40°F) to 52°C (125°F)
- For indoor use only.
- DO NOT run any Greengate low voltage wiring in the same conduit as power conductors.
- UL listed for damp locations

CAUTION: Before installing or performing any service on a Greengate system, the power MUST be turned off at the branch circuit breaker. According to NEC 240-83(d), if the branch circuit breaker is used as the main switch for a fluorescent lighting circuit, the circuit breaker should be marked "SWD."

NOTE REGARDING COMPACT FLUORESCENT LAMPS: The life of some compact fluorescent lamps (CFLs) is shortened by frequent automatic or manual switching. Check with CFL and ballast manufacturer to determine the effects of cycling.

Description

The OXC-P-1500-R Extreme Temperature and OXC-P-2MH0-R Extreme Temperature High Bay Sensor uses passive infrared (PIR) technology with temperature compensating circuitry to control lighting in applications where extreme temperatures/humidity must be tolerated. When motion is detected, the blue wire is electronically connected to the red wire, energizing the relay in the switchpack to turn on the load. If vacancy is detected, the blue wire is disconnected from the black, causing the relay to open, turning off the load. The red lead is +15 VDC supply, the black lead is common, and the blue is the relay control.

Controls:

Time delay, self-adjust enable/disable, ambient lights setting, HID interface, lighting sweep option, pull-up option and manual override option are adjusted with the DIP switch. See DIP switch options under **CHECKOUT AND ADJUSTMENT** on the reverse.

Model	Coverage	Field of View	Power Requirements
OXC-P-1500-R	Up to 1,500 sq. ft.	360° (Two Way)	10-30VDC 25mA from switchpacks
OXC-P-2MH0-R	When mounted @ 25 ft., up to 25 sq. ft. in all directions or 50 linear ft. for warehouse aisles.	360° (Two Way)	10-30VDC 25mA from switchpacks

Description

Time Delay:

The sensor has eight (8) discreet time delay settings from 15 seconds to 30 minutes.

Bas Interface:

The sensor has an isolated Form C relay for BAS interface.

Lighting Sweep Option:

If selected, this DIP switch option forces an initial 50-second delay upon "power up" to prevent false activation in buildings with computer control systems.

Ambient Lights Control Circuit:

Use the Ambient Lights controls located on the DIP switch to select the footcandle level at which ambient light will be sufficient. If ambient light is at the selected level when occupancy is detected, lights will not be activated. The Ambient Lights Control Circuit incorporates a deadband and time delay which ignore brief changes in light levels, such as headlights of a passing car.

High/Low Hid Interface:

Setting the HID control DIP switch to On, allows the lamps to achieve and maintain full brightness for 20 minutes. The sensor signals the switchpack to keep its relay engaged for the 20 minutes after initial power up. After the 20-minute warm-up, normal time delay function takes over and bi-level dimming is enabled. Full auto-off is achieved by installing a timer switch in series to the HID lighting.

Setting the HID control DIP switch to Off allows normal control of fluorescent and incandescent loads via the switchpack.

Self- Adjusting Feature:

When the delay control is left at 15 seconds (for installer test), the OXC-P-1500-R and OXC-P-2MH0-R will reset the time delay to 6 minutes automatically after remaining off for one complete hour.

Setting the Self Adjust DIP switch to ON disables the self-adjusting feature.

Temperature Compensating Circuitry:

Temperature-compensating circuitry stabilizes sensitivity at temperatures from -40°C (-40°F) to 52°C (125°F) to avoid false activations. If the temperature is outside of this range, lights will remain on and the LED will blink three times every five seconds.

Product Mounting Location

NOTE: Model OXC-P-1500-R and OXC-P-2MH0-R is designed specifically for parking structures, cold storage areas, and other applications where extreme temperatures exist. Use Model OXC-P-1500-R in areas up to a maximum of 1,500 square feet of major motion at a mounting height of 8 feet. Coverage of Model OXC-P-2MH0-R is 2MH or twice the mounting height when mounted up to 25 feet. In a warehouse aisle, a sensor mounted at 25 feet will provide coverage for 25 feet in any direction or 50 lin. ft.

Sensor:

Choose sensor location carefully. The sensor must have a clear view of the area to be controlled. There must be an unobstructed line-of-sight from the sensor to any part of the controlled area. For maximum coverage, position the sensor parallel to the longest dimension in the area.

Switchpack:

The switchpack is generally mounted above the ceiling on the outside of the junction box that contains a hot line, neutral and the existing switch leg from which the lighting is controlled. If additional switchpacks are required, they are mounted on the outside of the boxes containing the appropriate switch legs. In installations where there are no existing switch legs, the switchpack may be mounted on the outside of any conventional standard junction box, with or without an extension ring.
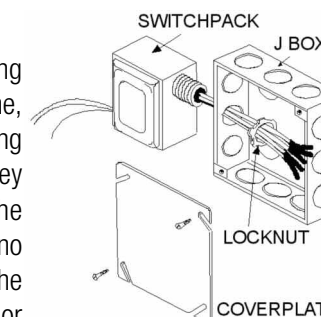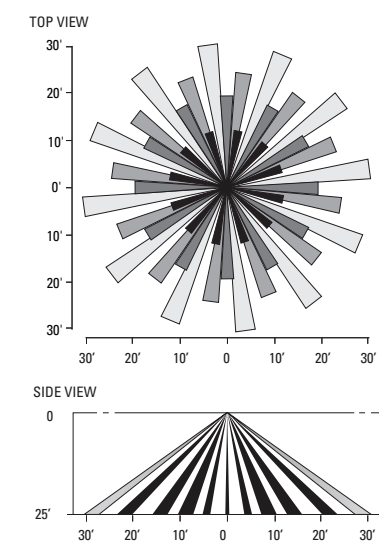

Coverage Diagrams

OXC-P-1500-R

OXC-P-2MH0-R

COOPER Controls
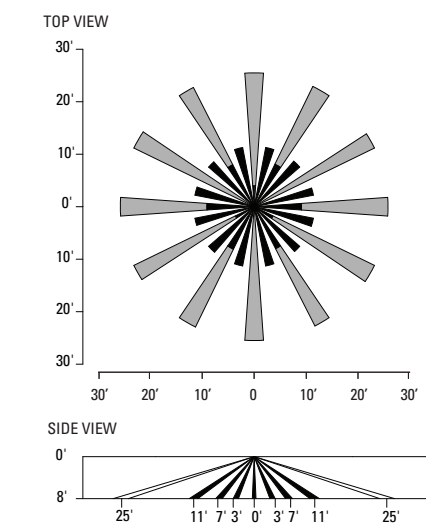
Installation

Sensor:

The sensor mounts to normal ceiling tile through a single 3/4" hole. The threaded mounting post may be cut down if it is too long to fit into the junction box. The sensor may also be surface mounted or mounted to a standard NEMA 2S or 4S junction box. **CAUTION: Finger-tighten the nut to avoid stripping the mounting post. Do not apply pressure to Fresnel lens.**
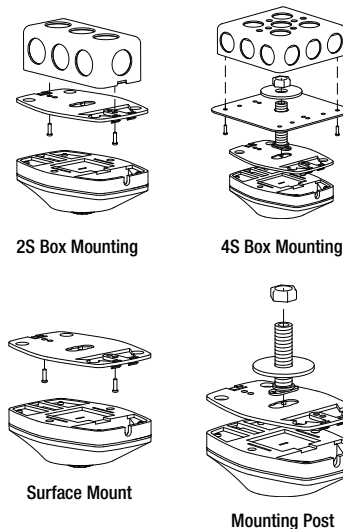
Backplate:

The sensor can be easily snapped onto or pulled away from the backplate without disturbing the mounting hardware. To pull the sensor away from the backplate, place your fingers on the door on the front of the sensor and slide your fingers up onto the back end of the sensor, with your fingers resting below the edge of the backplate. As you press against the sensor, use your other hand to grip the opposite end of the sensor and pull it away from the backplate.

To snap the sensor back onto the backplate, place the end of the sensor without a door against the backplate first, hooking the edge of the sensor on the two small prongs that extend from the backplate. Press the other end of the sensor against the backplate until it snaps into place.

Switchpack:

Designed to be mounted externally to any junction box. When mounted, line connections are inside the box and the Class 2 wiring exits through the rear of the switchpack housing. In areas where Class 2 wiring is not permitted, the switchpack can be mounted internally to any standard electrical box.

Checkout and Adjustment

1. Dip Switch Controls are located under the door on the face of the sensor. Before opening the door, review factory settings to determine if changes are necessary. The factory setting on all switches is the OFF position. If you elect to change some of these settings, open the door using a screwdriver.
2. Verify that DIP switch 10 is in the "Off" position to ensure the sensor is not in override mode.
3. Stand completely still or leave the room. In approximately 15 seconds, the lights will go out.
4. Test the area of coverage by watching the LED on the sensor. The red LED lights when the Ssensor is detecting motion.
5. Using the chart at right, set the time delay to the desired time for the lights to remain on after the occupant leaves the covered area. Minimum setting is approximately 15 seconds (for installer testing); maximum is about 30 minutes. The recommended time delay is usually six to ten minutes. In applications where motion is minor the sensor may need a longer time delay. If the lights go out while the room is occupied, increase the time slightly until optimum time delay is reached.
6. If you choose to disable the Self-Adjust feature, move DIP 4 upwards to the "on" position.
7. Using the chart at right, set the ambient light level. Select the footcandle level at which ambient light will be sufficient and artificial lighting will be unnecessary. At this level the sensor will not switch lights on when motion is detected. If you do not want ambient light to impact the sensor, select the off setting. If lights go on when there is adequate ambient light, decrease the footcandle setting.
8. If application involves the use of HID lamps, set the HID Interface Control to ON for proper HID Load Control. If fluorescent and incandescent lamps are used, set the HID Interface Control to OFF.

2S Box Mounting 4S Box Mounting

Surface Mount Mounting Post

DIP SWITCH SETTINGS

Time Delay (Minutes)	Switch No. 1 2 3	
0.25	↓ ↓ ↓	1 - Time Delay
6	↓ ↓ ↑	2 - Time Delay
10	↓ ↑ ↓	3 - Time Delay
14	↓ ↑ ↑	4 - Self Adjust Disable
18	↑ ↓ ↓	5 - Ambient Lights
22	↑ ↓ ↑	6 - Ambient Lights
26	↑ ↑ ↓	7 - HID Interface
30	↑ ↑ ↑	8 - Lighting Sweep
		9 - Pull-Up
		10 - Manual Override

Light Level (FC)	Switch No. 5 6
OFF	↓ ↓
3	↓ ↑
5	↑ ↓
10	↑ ↑

Measured at 30" off the ground.

ON
1 2 3 4 5 6 7 8 9 10

Checkout and Adjustment

9. To avoid having lights controlled by the sensor swept on by a BAS or EMS, set the Lighting Sweep Control to ON.
10. If connecting directly to a BAS system which does not provide pull-ups, select the Pull-Up Option by moving DIP 9 to "on." This will allow the sensor to signal the BAS when there is occupancy and will avoid the need for additional wiring at the system panel.
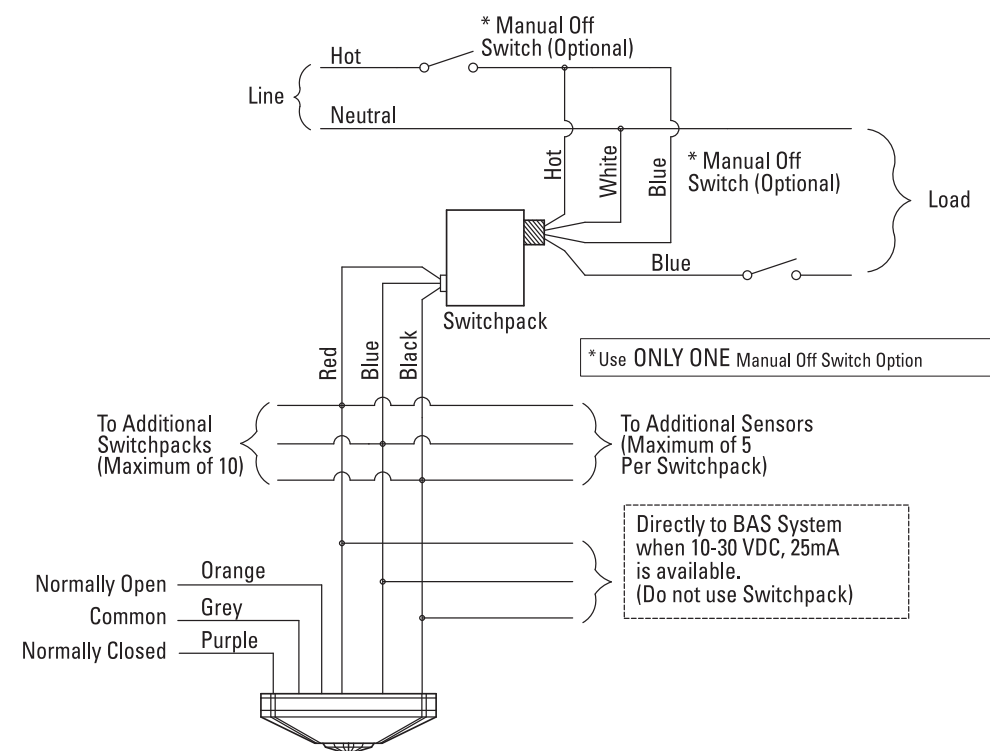
Wiring

CAUTION: OXC-P is for use with 10-30 VDC only. For other voltages, refer to Greengate Tech Sheets. Do not wire to control receptacle circuits. Confirm supply voltage before wiring the switchpack. Make sure the switchpack is the correct model for the voltage being used. VERIFY that the connected load does not exceed the switchpack ratings. Use twist-on wire connectors for all connections. All installations should be in compliance with the National Electric Code and all state and local codes.
DO NOT control more than ten switchpacks with a single sensor.

Greengate sensors are provided with Teflon-insulated pigtails. The components are interconnected using 18 AWG Class 2 wiring per NEC 725. Use UL-recognized Teflon insulated wire approved for plenum areas per NEC 725-2(b) where required.

Wire the sensor(s), switchpack(s) and load as shown in the Wiring Diagram.

Controlling Multiple Circuits: CAUTION: In situations where an office is wired for multiple circuits using separate hot leads, it is very important to connect only one circuit to each switchpack. You may combine the low voltage wiring from switchpacks connected to different circuits. Consult with the building manager and occupant to determine which lights should be off when the toggle switch is open.

Wiring Diagrams

Line { Hot / Neutral }
* Manual Off Switch (Optional)
Hot / White / Blue
* Manual Off Switch (Optional)
Blue
Load
Switchpack
Red / Blue / Black
* Use **ONLY ONE** Manual Off Switch Option
To Additional Switchpacks (Maximum of 10)
To Additional Sensors (Maximum of 5 Per Switchpack)
Normally Open — Orange
Common — Grey
Normally Closed — Purple
Directly to BAS System when 10-30 VDC, 25mA is available. (Do not use Switchpack)

Troubleshooting

LED will not turn ON:

- Verify 10-30 VDC across the red and black wires of the sensor.
- If there is no power at the sensor, check for 10-30 VDC at the switchpack output and 120 VAC or 277 VAC at the switchpack input. Verify correct primary connections.
- If the voltage is OK at the switchpack, recheck all wiring and connections.
- If the LED still doesn't operate, sensor is defective and should be replaced.

Lights will not turn ON:

- Switch off Ambient Lights Control circuit or increase the footcandle setting.
- Confirm that no other switches or equipment are interrupting or bypassing power to the switchpack or load.
- Short the blue and red switchpack control leads together to energize the relay.
- If the lights turn on, the sensor is defective and should be replaced.
- If the lights do not turn on, check wiring on the switchpack load side and check switchpack contacts for continuity. Replace the switchpack if necessary.

Lights will not turn OFF:

In smaller rooms, the sensor may be activated by people moving in the hallway outside the room. Relocate the sensor.

Observe the LED. If it blinks three times every five seconds, the environmental temperature is outside the range of the sensor's temperature compensating circuitry. Sensor will resume normal operation when temperature returns to within -40°C (-40°F) to 52°C (125°F).

If the lights will not turn OFF after the time period set on the sensor, and the LED has not lit during the time period:

- Confirm that no other switches or equipment are interrupting or bypassing power to the switchpack or load.
- Verify that the override switch on all sensor circuit boards is in the "OFF" position.
- Check all connections to the switchpack.
- Temporarily disconnect the sensor from the switchpack.
- If the lights turn off, the sensor is defective and should be replaced.
- If the lights do not turn off, replace the switchpack.

NOTE: If multiple sensors/switchpacks are installed, check one at a time.

Manual-On Override Switch:

The OXC-P-1500-R and OXC-P-2MH0-R has an override DIP switch designed to turn the load on in the event of sensor failure when the sensor can not be replaced immediately. If the sensor is used with a switchpack, the switchpack must be operative for this switch to work. If the switchpack is defective, it must be replaced or bypassed to activate the load.

To operate, open the DIP switch door on the sensor and move DIP 10 upwards to the "on" position. All switchpacks connected to the sensor will now be energized, or the sensor will place a low signal on the blue wire to be sent to a BAS system indicating occupancy. If multiple sensors control the same switchpack(s), activating the override switch on any one sensor will activate all of the switchpacks.

Limited Warranty

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