Greengate

P/N 9850-000329-01

Installation Instructions

NeoSwitch Dual Technology RR7 Compatible Occupancy Sensing Wall Switch

UltraSonic Activated | PIR Activated | Self-Adjusting | cULus LISTED APPLIANCE CONTROL 36T0 | California Title 24 Compliant | RoHS

Model # ONW-D-1001-RR7-W
Model # ONW-D-1001-RR7-V
Model # ONW-D-1001-RR7-LA
Model # ONW-D-1001-RR7-G
Model # ONW-D-1001-RR7-B

General Information

- Read all instructions on both sides of this sheet first
- Install in accordance with ALL local codes
- For indoor use only
- For use with RR7/9 type relays
- For use with other systems, contact technical support
- Do not run any Greengate low voltage wiring in the same conduit as power conductors

Specifications

Technology: Passive Infrared (PIR) and Ultrasonic (US)
Electrical Ratings:
Input:
- 24 VAC± 10% Maximum current needed is 25mA per sensor
- 1 VA max for each sensor
- 7 VA max for each GE RR7/9 relay
- 8.5 VA max for each Sierra 1070-B relay

Output:
- Half-wave rectified 24 VAC for 300 ms pulse for driving up to 4 GE RR7/9 type relays or up to 2 Sierra 1070-B type relays
- Isolated Form C Relay
- Isolated Form C Relay Ratings: 1A 30 VDC/VAC

Time Delays: Self-Adjusting, 15 seconds/test (10 min Auto), Selectable 5, 15, 30 minutes
Coverage: Major motion – 1000 sq. ft.
Minor motion – 300 sq. ft.
Light Level Sensing: 0 to 200 foot-candles
Operating Environment:
- Temperature: 32° F – 104° F (0° C – 40° C)
- Relative Humidity: 20% to 90% Non-condensing

Housing: Durable, injection molded housing. Polycarbonate resin complies with UL 94VO.
Size:
- Mounting Plate/Strap Dimensions: 4.195" H x 1.732" W (106.553 mm x 44 mm)
- Product Housing Dimensions: 2.618" H x 1.752" W x 1.9" D (66.5 mm x 44.5 mm x 48.26 mm)

LED Indicators: Red LED indicates PIR detection; Green LED indicates Ultrasonic detection. Green LED acts as EcoMeter or night light locator.

Description

The ONW-D-1001-RR7 Occupancy Sensing Wall Switch is a Passive Infrared (PIR) and Ultrasonic (US) motion sensing lighting control and conventional wall switch all-in-one, used for energy savings and convenience. The sensor combines PIR and US technologies to monitor a room for occupancy.

PIR Technology

The sensor's segmented lens divides the field of view into sensor zones, and detects the changes in temperature that are created when a person, or part of a person as small as a hand, passes into or out of a sensor zone.

US Technology

The sensor produces a low intensity, inaudible sound. It detects occupancy from changes in the acoustic waves caused by motion, such as reaching for a telephone, turning a page in a book, walking into a room, turning in a swivel chair, etc. The sensor does not respond to audible sound.

Dual Technology sensors ensure the greatest sensitivity and coverage for tough applications thus saving additional energy. PIR is used to turn the lights ON and then either or both technologies are used to keep the lights ON.

The ONW-D-1001-RR7 allows the control of four GE RR7/9 relays or two 1070-B relays.

The sensor may be interfaced to an energy management system that accepts either a normally open or normally closed dry contact via the sensor's Form C relay.

The sensor can be configured to enhance energy savings by setting the unit for manual ON operation.

In Automatic ON Mode, the lights turn ON automatically when a person enters the room. In Manual ON Mode, the lights are turned ON by pressing the universally recognized light icon pushbutton. In either mode, the lights stay ON as long as the sensor detects motion in the room. When the room is vacated, the lights turn OFF automatically after a preset time delay interval.

The sensor includes self-adaptive technology that continually adjusts to conditions by adjusting sensitivity and time delay in real-time. By adjusting sensitivity and time delay automatically, the sensor is maximizing the potential energy savings that are available in the particular application.

The EcoMeter provides a visual indicator of energy usage, increasing end user awareness and reminding individuals to take control of their lighting to maximize energy savings.

EcoMeter Operation	
Load 1	**EcoMeter LED**
OFF	ON
ON	OFF

The Daylighting feature prevents lights from turning ON, when the room is adequately illuminated by natural light.

The Walk-Through feature maximizes energy savings by not leaving the lights ON after a momentary occupancy. The sensor will switch the lights ON when it detects a person entering the area. If the sensor does not continue to detect motion 20 seconds following the initial activation, it will automatically go to a shorter 2 minute time delay.

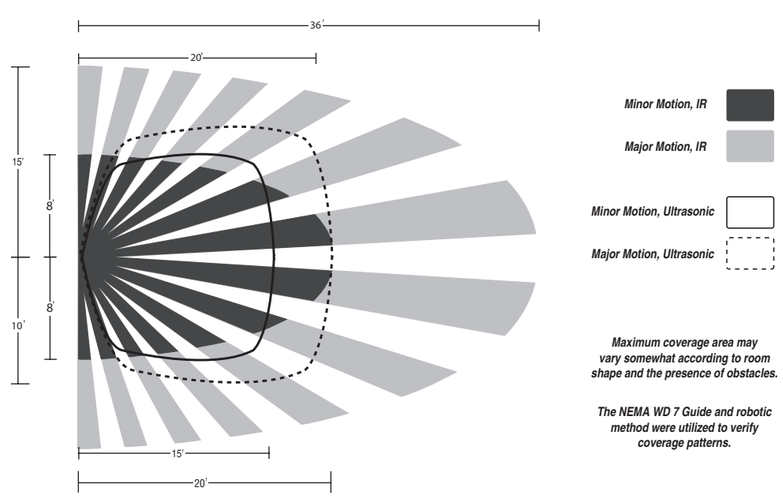
Tracking Mode allows the load connected to the Form C relay to follow the state of the sensor's blue lead.

HVAC Mode allows the load connected to the Form C relay to remain ON when the lights are turned OFF manually. Applications may include keeping the room at a desired temperature while giving a presentation and the lights are OFF.

Action	EcoMeter	Benefit
A person enters the space and the load is activated	OFF	
The area is vacated and the lights turn OFF automatcally	ON	Increased awareness of energy savings; Acts as a night light locator
A person turns the lights OFF manually upon exiting an area	ON	Increased awareness of energy savings and reminds individuals to take control of their lighting for additional savings; Acts as a night light locator
The Daylighting feature prevents the lights from automatically turning ON when a person enters an area	ON	Increased awareness of energy savings and lets individual know that the Daylighting feature is working

Coverage

The ONW-D-1001-RR7 is designed for offices up to 300 square feet.



Maximum coverage area may vary somewhat according to room shape and the presence of obstacles.

The NEMA WD 7 Guide and robotic method were utilized to verify coverage patterns.

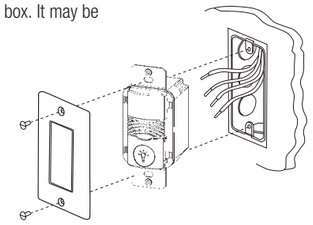
Location

When installing the ONW-D-1001-RR7 in a new junction box, choose the switch location carefully to provide optimum coverage of the occupied area. When replacing an existing wall switch, bear in mind that there must be a clear line-of-sight between the sensor and the area to be covered. Avoid pointing the ONW-D-1001-RR7 directly into the hallway where it may detect passers-by.

Installation

The ONW-D-1001-RR7 can be installed in any standard single gang box. It may be installed in the same manner as an ordinary wall switch.

- Wire the ONW-D-1001-RR7 as described in the wiring section
- Mount the ONW-D-1001-RR7 in the junction box



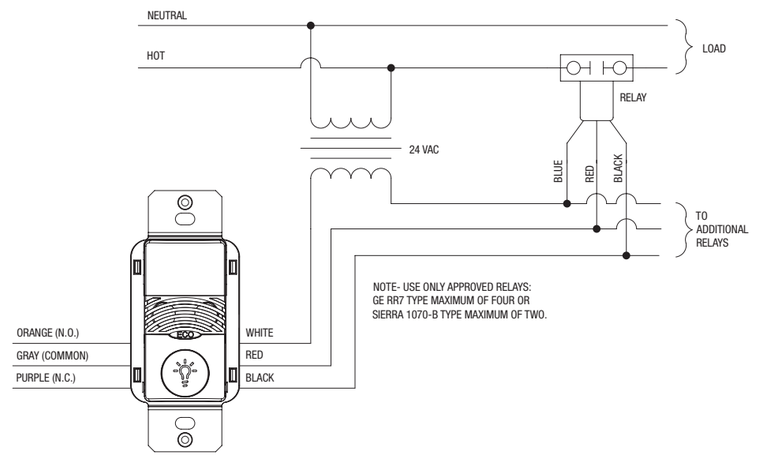
Wiring

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." All installations should be in compliance with the National Electric Code and all state and local codes.

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.

1. Make sure power is turned OFF at the branch circuit breaker.
2. Wire units as shown in wiring diagrams per applicable voltage requirements.
3. Mount unit to wall box.
4. Turn power back ON at the branch circuit breaker and wait 2 minutes for the unit to stabilize.
5. Make necessary adjustments. (See Checkout and Adjustments section)
6. Install wall switch plate.

Wiring Diagram 1



COOPER Lighting Solutions

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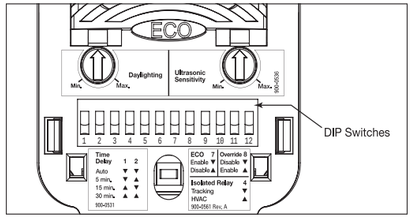
DIP Switch Settings

DIP Switch Legend

	Time Delay		Activation		Isolated Relay		PIR Sensitivity		Walk-Through Mode		EcoMeter		Override		Not Used	Maintain Lights On		Not Used	Not Used
			Relay 1																
DIP Switch	1	2	3		4		5		6		7		8		9	10		11	12
Auto*	▼	▼	Auto	▼	Tracking	▼	Full	▼	Disable	▼	Enable	▼	Disable	▼		Either	▼		
5 Minutes	▼	▲	Manual	▲	HVAC	▲	50%	▲	Enable	▲	Disable	▲	Enable	▲		Both	▲		
15 Minutes	▲	▼																	
30 Minutes	▲	▲																	

**Self-Adjusts to 10 min. user mode*

Default =



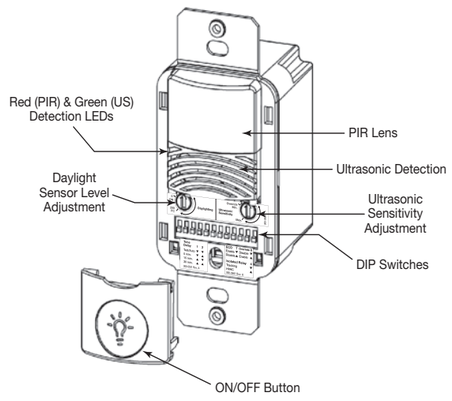
Checkout and Adjustment

Adjustments should be made with the HVAC system ON so that the installer will be able to detect the effect of airflow on the operation of the ONW-D-1001-RR7. Use only insulated tools to make adjustments.

Immediately after applying power to the lighting circuit, wait approximately two minutes for the switch to power-up and stabilize.

Self-Adjust

Sensor is shipped in self-adjust mode. This applies to time delay, US and PIR sensitivity. In preparation for the Installer Test, the time delay is set to 15 seconds, after the sensor is installed, powered ON and has stabilized, the unit will time-out 15 seconds after the last motion detected. Coverage and sensitivity can be confirmed by watching the Green (US) and Red (PIR) indicator LEDs on the front of the sensor, while moving around the room.

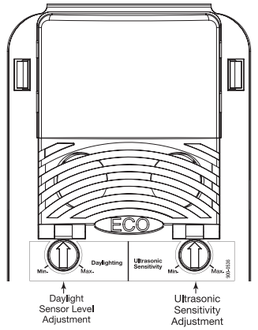


1. Walk around the room and monitor LEDs.
2. Stand in different parts of the room and wave your hands. LEDs should only turn ON for one second with each motion. (If LEDs do not turn ON, go to Installer Adjustments – Sensitivity Adjustment Section)
3. Stand still three to four feet away from sensor for five seconds. LEDs should not turn ON. (If any LED turns ON, note LED and go to Installer Adjustments – Sensitivity Adjustments section)
4. Walk outside the room and wait 15 seconds for the lights to turn OFF. (If lights do not turn OFF go to Installer Adjustments Section)
5. Re-enter the room to activate sensor. (If lights do not turn ON go to Troubleshooting Section)
6. At this point you can exit the room and let the sensor time-out. When the sensor times-out and is OFF with power on for five minutes, the unit will go to a 10 minute time delay user mode setting.

Note: To place into Test Mode, toggle DIP Switch 12 out of its current position, wait 3 seconds, and then back in to its original position.

Installer Adjustments

Sensitivity Adjustments



Ultrasonic Sensitivity (Green LED) – Using a small flathead screw driver turn the green potentiometer so that the arrow points UP.

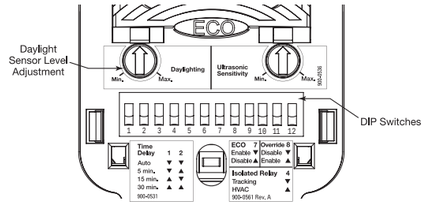
1. Stand in different areas of the room and wave your hands.
2. If the Green LED does not turn ON, increase the US sensitivity by turning the green potentiometer clockwise in small increments. Repeat Step 1.
3. Stand still three to four feet away from sensor for five seconds. LED should not turn ON.
4. If Green LED turns ON without motion or is constantly on decrease the US sensitivity by turning green potentiometer counter-clockwise in small decrements. Repeat Step 3.

Note: Do Not adjust sensitivity higher than necessary.

PIR Sensitivity

1. Stand in different areas of the room and wave your hands.
2. If the Red LED does not turn ON, check for any obstructions.
3. Stand still three to four feet away from sensor for five seconds. LED should not turn ON.
4. If Red LED turns ON without motion or is constantly ON adjust PIR sensitivity to 50 % by moving DIP Switch 5 up.

Field-of-view outside the space



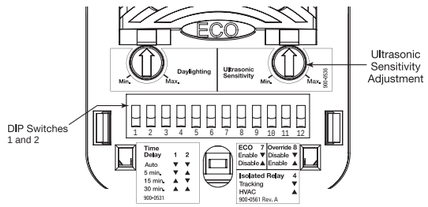
1. Adjust PIR sensitivity to 50 % by moving DIP switch 5 up.
2. Use non-reflective tape strips to cover the portions of the sensor lens that view outside the space.
3. Adjust Ultrasonic Sensitivity.

Daylight Adjustments

The Daylighting feature prevents the lights from turning ON when the room is adequately illuminated by regardless of occupancy, the sensor will hold the lights OFF. If there is not enough light in the room, the sensor will allow the lights to turn ON when occupied. The sensor will not allow the Daylighting feature to turn the load OFF until the space is vacant or the light level rises above the setpoint and the time delay expires. While in Manual Activation Mode, if someone attempts to turn the load ON and there is sufficient daylight available the Daylighting feature will hold the lights OFF.

1. Set the light level when the ambient light is at the level where no artificial light is needed. If this feature is not needed, leave the light level at maximum (fully CW).
2. With the load(s) ON, put the sensor into Test Mode. To place into Test Mode, toggle DIP switch 12 out of its current position, wait 3 seconds and then back in to its original position.
3. Set the light level to minimum (fully CCW).
4. Let the sensor time-out so lights are OFF. Enter the space and lights should remain OFF.
5. Make sure not to block the sensor from the daylight source and adjust the light level potentiometer CW in small increments. (Pause 5 seconds between each adjustment)
6. Lights will not turn ON upon occupancy activation, when the ambient light level exceeds the daylight threshold setting.

Time Delay Adjustments



People who remain very still for long periods of time may need a longer time delay than the default setting of making slight adjustments to either time delay (by 2 minute increments) or sensitivity, so there should be no need for manual adjustment. If manual adjustment is desired, refer to Time Delay settings in DIP switch legend.

Reset sensor time delay to factory settings by moving DIP switches 1 and 2 down. (If DIP switches 1 and 2 are already down, toggle DIP switch 1 out of its current position, wait 3 seconds, and then back to its original position).

Override

The Override setting allows the sensor to operate as a service switch in the unlikely event of failure.

1. Move DIP switch 8 up.
2. The pushbutton can be used to manually turn lights ON or OFF.

Troubleshooting

Issue	Possible Causes	Suggestions
Lights Will Not Turn ON automatically	Sensor is in Manual ON mode	Press pushbutton. If Auto Mode is desired change Activation Mode to Auto.
	Sensor was turned OFF manually. If the Sensor was turned OFF manually before the time delay expired, lights will remain OFF for the remainder of the time delay.	Press the pushbutton to turn the lights back ON.
	Daylighting Feature Enabled	If all lights are required to turn ON adjust daylight potentiometer.
	Power interruption	Check incoming voltage and/or wiring
Lights Will Not Turn ON manually	Daylighting Feature Enabled	If all lights are required to turn ON adjust daylight potentiometer.
	Power interruption	Check incoming voltage and/or wiring
If lights will still not turn ON, set sensor to override mode and call Technical Services at 1-800-553-3879		
Lights Will Not Turn OFF automatically	Override	Make sure sensor is not in Override Mode (DIP Switch 8 up).
	Self-Adjust	If sensor is in Self-Adjust Mode, it may be possible for the unit to have increased the time delay to a 30 minute delay. If the lights do not turn OFF after 30 minutes follow next step.
	30 Minute Delay	Maximum time delay is 30 Minutes. Check DIP Switches to verify DIP Switch settings. If lights do not turn OFF at theset time delay, check next step.
	Ultrasonic Sensitivity set High	Lower sensitivity by turning green potentiometer CCW in small decrements.
	PIR activated by heat source other than occupant	Move DIP Switch 5 up.
Lights Will Not Turn OFF manually		Call Technical Services
If lights will still not turn OFF, call Technical Services at 1-800-553-3879		

Warranties and Limitation of Liability

Please refer to www.cooperlighting.com under the Legal section for our terms and conditions.

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