


	<b>PART No.</b>	<b>DESCRIPTION</b>	<b>SPECIFICATION</b>
	<b>WV-PDT-DL</b> (1 Douglas relay output)	<ul style="list-style-type: none"> <li>Corner mount PIR and sound occupancy detectors designed to switch Douglas 2-wire relays or signal other systems.</li> </ul>	<b>Inputs</b> <ul style="list-style-type: none"> <li>Power: 24VAC 12-34mA. Class 2 Low Voltage device.</li> <li>Use #18 AWG wire.</li> </ul>
	<b>WV-PDT-2P-DL</b> (2 Douglas relay outputs)	<ul style="list-style-type: none"> <li>Use indoors only. The detectors are designed to mount in a wall corner next to the ceiling. An optional mounting bracket is available for ceiling mount.</li> </ul>	<b>Outputs</b> <ul style="list-style-type: none"> <li><b>WV-PDT-DL</b> 1 Douglas 2-wire relay output. Maximum relays per sensor: 4.</li> </ul>
	<b>WV-PDT-R-DL</b> (1 Douglas relay output, 1 output for BMS or device)	<ul style="list-style-type: none"> <li>The detectors utilize Passive Infrared (PIR) technology to optically sense motion within the surrounding area.</li> </ul>	<ul style="list-style-type: none"> <li><b>WV-PDT-2P-DL</b> 2 Douglas 2-wire relay outputs. Maximum relays per sensor: 4.</li> </ul>
	<b>WV-PDT-2P-R-DL</b> (2 Douglas relay outputs, 1 output for BMS or device)	<ul style="list-style-type: none"> <li>The detectors also utilize Microphonics™ sound detection for detection around obstructions. The sound detector filters out background noise and detects only noises typical of human activity.</li> <li>Upon sensing motion, the detectors signal ON and start an internal timer. Whenever motion is seen or heard, the timer is reset. If no motion occurs and the timer expires, the detectors signal OFF.</li> <li>The time delay period is selectable from 30 seconds to 20 minutes.</li> </ul>	<ul style="list-style-type: none"> <li><b>WV-PDT-R-DL</b> 1 Douglas 2-wire relay output. Maximum relays per sensor: 4. 1 contact output for external system or device. 1A / 40VAC Rating. Form C: NC-COM-NO.</li> <li><b>WV-PDT-2P-R-DL</b> 2 Douglas 2-wire relay outputs. Maximum relays per sensor: 4. 1 contact output for external system or device. 1A / 40VAC Rating. Form C: NC-COM-NO.</li> </ul>

**WV-PTD-DL Series Occupancy Sensor**

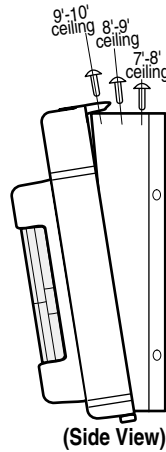
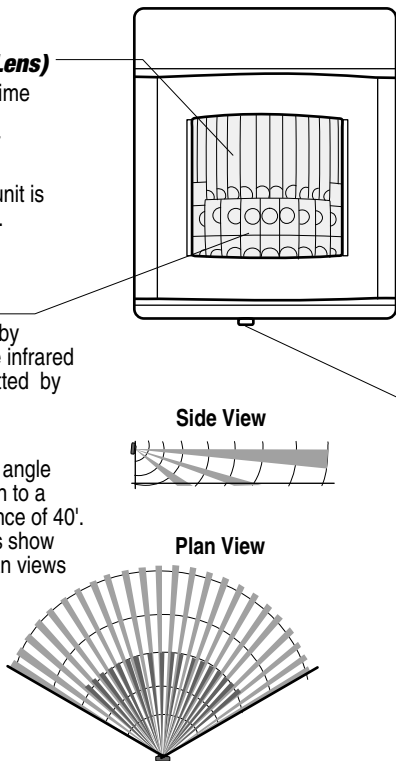
**Green LED (behind PIR Lens)**

Flashes when time delay setting is programmed or monitored.  
Flashes when unit is sensing motion.

**PIR Lens**

Detects motion by sensing passive infrared light waves emitted by people.

The PIR lens provides a view angle in a 120° pattern to a maximum distance of 40'. These diagrams show the side and plan views of the detection zones.



**Tilt Adjustment**

Set degree of tilt by pinning top of face to one of three holes on top of back.  
For 7'-8' ceiling, pin to rear hole.  
For 8'-9' ceiling, pin to center hole.  
For 9'-10' ceiling, pin to front hole.

**Time Delay Programming Button**

Press this button to monitor the time delay setting or to change the time delay setting. To monitor the time delay setting, press the button twice. The green LED will flash the number of times that corresponds to the time delay setting, as shown in the table below. The LED will flash the current setting number 3 times. For instance, if the current setting is 10 minutes (factory default) the LED will flash 5 times, then flash 5 times again, then flash 5 times again. To change the time delay setting, press the button the number of times that corresponds to the new time delay setting. The green LED will then flash that number 3 times.

Number	Time Delay	Number	Time Delay
1	30 seconds	6	12.5 minutes
2	2.5 minutes	7	15 minutes
3	5 minutes	8	17.5 minutes
4	7.5 minutes	9	20 minutes
5	10 minutes (factory default)		

**Sound Detector (inside unit)**

Activated when the PIR lens senses motion, then detects normal human activity up to 40 feet away. It can detect at greater distances in spaces with hard floors or in very quiet rooms with little or no background noise. The internal microphone is adjustable from 0% (disabled) to 100% sensitivity. The sensor should not be placed near HVAC air diffusers because the noise generated by air flow will decrease the sensitivity of the sound detector.

Maximum wire length per output (all models):  
1 relay: 2000'/600m;  
2 relays: 1500'/450m;  
3 relays: 1000'/300m;  
4 relays: 500'/150m.

**Mounting**

- Mount in wall corner below ceiling. Adjust angle of facing to suit ceiling height 7'-10'.
- For ceilings 10'-15', mount to 30° side of WV-BR mounting bracket.

**Adjustments**

- Adjustable time out (30 sec, 2.5 min, 5 min, 10 min, 12.5 min, 15 min, 17.5 min or 20 min).

**Color**

- Unit available in white.

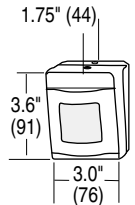
**Environment**

- Indoors, stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity.
- Ambient temperature: +14° to +85°F (-10°C to 30°C).

**DIMENSIONS & MOUNTING**

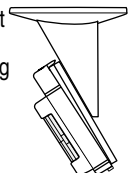
**CORNER MOUNT:**

- Back of unit attaches to wall surfaces with self-tapping screws provided. Set tilt of front of unit to match ceiling height (7'-10') by inserting pin in appropriate top hole.



**CEILING MOUNT:**

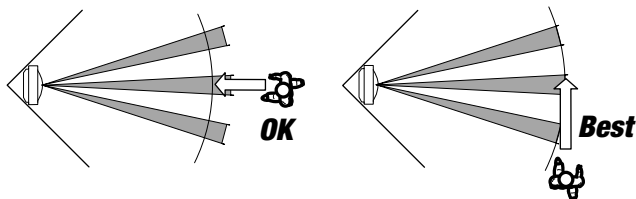
- Use WV-BR Mounting bracket when walls are not accessible or if mounting above 10'. Use self-tapping screws provided with bracket to mount to round or rectangular box. For high ceilings, use 30° side of bracket.



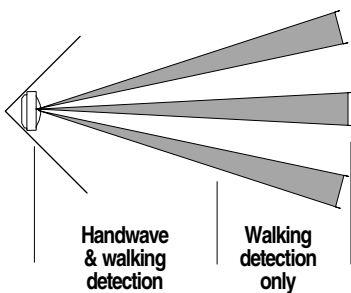
**Optical Method of Detection - PIR**

- The optical portion of the Corner Mounted Dual Technology occupancy sensors utilize **Passive Infra Red** (PIR) technology. All objects emit an infra-red energy that is dependent upon the temperature of the object. PIR occupancy detectors are optical devices that are tuned to detect infra-red energy emitted from people (98°F).
- It is the **movement** of the infra-red source (walking or a handwave) that is "seen" by the detector. The detector accomplishes this by having several small lens segments that each focus a zone onto a sensing element. As the person travels into and out of a zone, the amount of infra-red light energy focused on the element changes. This is interpreted as motion.
- Movements **across** a focus zone cause a stronger motion signal than movements **parallel** to a detection zone.

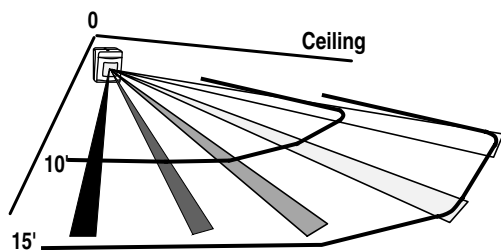
When locating PIR occupancy detectors, try to maximize the probability of movements across the detection pattern. For this reason, when mounting a WV-PDT-DL Series sensor in a room, mount it at a top corner of the wall with the entrance door so it is not facing toward the door.



- The amount of infra-red energy focused on the sensing element is greater from objects that are close than from objects that are distant. Only at closer distances is handwave motion detectable. At greater distances only walking motion is detectable.

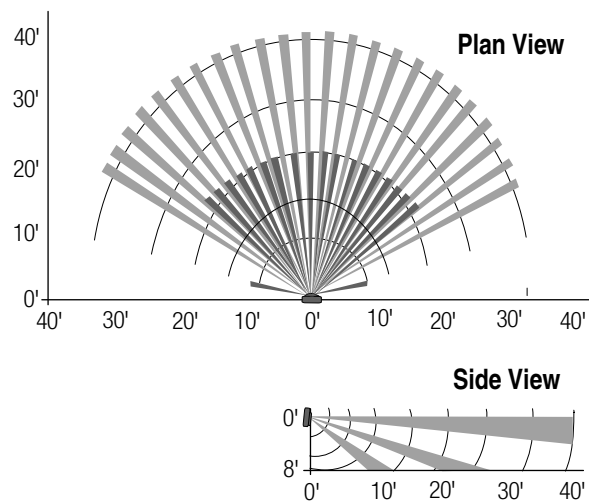


- The WV-PDT-DL Series Occupancy Detectors are designed to provide optimum PIR range when mounted at ceilings that are from 7 to 10 feet high. For mountings with higher ceilings, motion will be detectable in a more limited area closer to the sensor.



**Optical Method of Detection - PIR**

- The beam spread of the PIR lens used in the WV-PDT-DL Series is 120°. Corner mounting provides wall-to-wall coverage
- Utilizing the tilt adjustment, maximum PIR range is obtained for mounting heights 7'-10'. For mounting with higher ceilings, the PIR range will be decreased.
- The following diagrams show the plan and side views of the detection zones with the sensor mounted on a 8' ceiling with the tilt adjustment properly set.



**Sound Method of Detection - Microphonics**

- The acoustic portion of the Douglas Dual Technology occupancy sensors utilize an internal microphone to detect noise typical of human activity. The microphone is triggered whenever the PIR lens detects motion. The sensor first 'sees' motion using the Passive Infra-Red lens then 'hears' sounds that indicate continued occupancy using the Microphonics. This provides a reliable and completely passive method of detecting occupancy.
- When the microphone detects any sounds, the sensor uses Automatic Gain Control circuitry to dynamically adapt to its environment to filter out constant background noise and detect only leading edge noises, such as paper shuffling, keyboard pounding, talking, walking and the like that are typical of human activity.
- The Microphonics sound detection in the WV-PDT-DL Series detectors can detect human activity within 40 feet of the sensor, or further away in spaces with hard floors or with very little background noise. The Microphonic sound detector can also detect human activity through solid obstructions. This is useful in rooms with obstructions such as in bathrooms with stalls or in office cubicle areas.

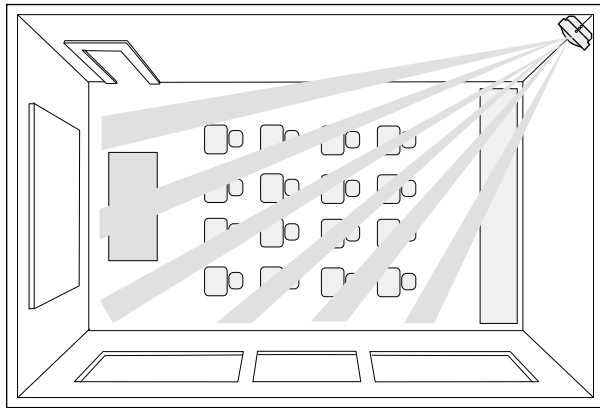
**Solid Objects**

- PIR detection cannot be made through solid objects (partitions or bookshelves). Sound detection, however, can occur up to about 40 feet away, but must first be triggered by the PIR detecting motion. Position detector(s) so that obstructions do not block a large, continuous area of the field of view of the PIR lens.

## INSTALLATION

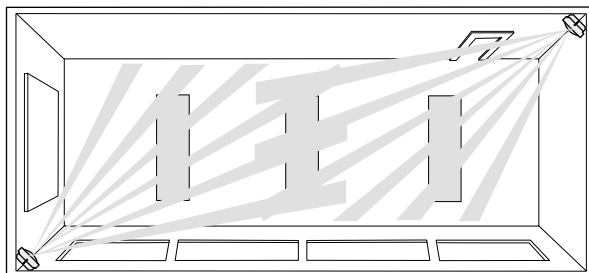
### Installing in a Room (ex: Classroom)

- The sensor's rear enclosure is beveled so the sensor can be corner mounted. The front is tilted forward to suit the ceiling height.
- The sensor should be mounted in the corner above the entrance door or in the other corner of the wall that has the entrance door.
- The sound detector tunes out background noise, but detects changing noise signals like talking or paper shuffling that are typical of human activity. However the sensor should not be placed near wall clocks that make intermittent noises such as ticking.



### Multiple Detectors to Increase Coverage Area

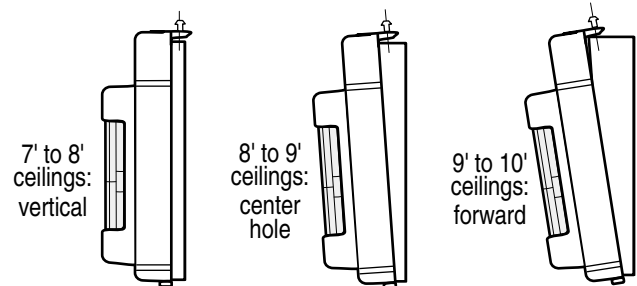
- To increase the coverage area, additional detectors can be installed. The detectors are connected in parallel.
- If any one of the detectors changes to the ON state, an ON signal will be sent to the output relay(s). For an OFF signal to occur, all of the detectors' no-motion timers must have expired. When the last expires, an OFF signal is issued.
- To signal another system such as a BAS, one of the sensors in the zone can be a WV-PDT-R-DL or a WV-PDT-2P-R-DL. These models have an auxiliary contact that connects to the external system. The contact is closed and remains closed until all interconnected sensors detect no motion and their timers have expired.
- In a room that is larger and requires coverage by two sensors, mount the second sensor in the opposite corner as the first. Tilt the front of the second sensor forward sufficiently to ensure its PIR collector beams are not viewing out the entrance door.



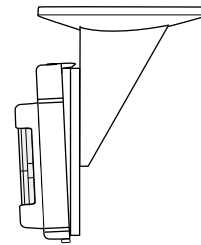
## INSTALLATION

### Tilt Adjustment and Ceiling Bracket

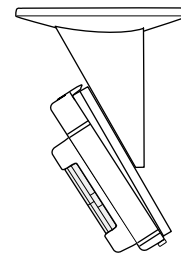
- For corner mounting under ceilings 7'-10', set the tilt of the facing by pinning to the appropriate hole at the top of the unit, as shown.



- Where mounting to the wall corner is not possible in rooms with 7'-10' ceilings, mount the Ceiling Bracket to the ceiling surface and mount the sensor to the vertical arm surface of the Ceiling Bracket, as shown below. Set the tilt of the facing of the sensor to match the ceiling height, as shown above.



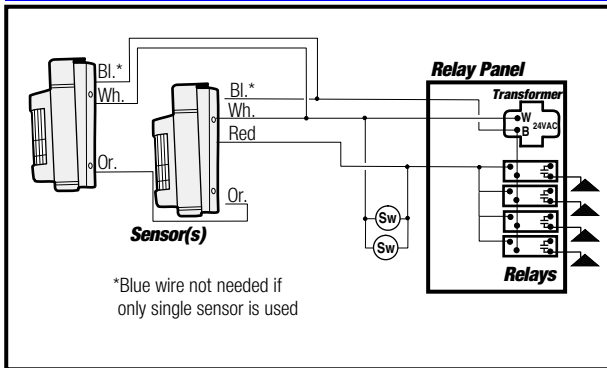
- Where mounting in rooms with ceilings higher than 10', mount the Ceiling Bracket to the ceiling surface and mount the sensor to the 30° angled arm surface of the Ceiling Bracket. Increase the tilt of the facing of the sensor for higher ceilings.



## Dual Technology Wide View Sensor

Standard

Technical Data

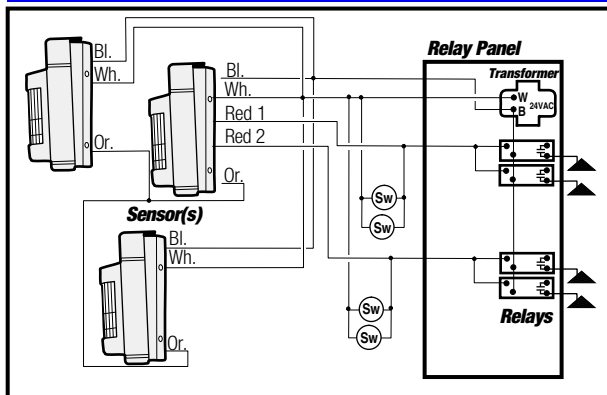


PART No.	DESCRIPTION
WV-PDT-DL	<ul style="list-style-type: none"> <li>Wide view corner-mounted occupancy sensor to interface with Douglas low voltage relay(s).</li> <li>Up to 4 relays can be connected in parallel. For override, which control all relays collectively, two Douglas switches may be connected in parallel to the sensor output. Sensor output can also be connected to a Douglas relay scanner input rather than to relays.</li> <li>Sensor provides PIR line-of-sight detection in a circular pattern combined with sound detection through obstructions.</li> <li>For larger spaces, multiple sensors can be combined to cover a zone and control the same relay(s). When any sensor sends an ON signal, the relay(s) switch ON. When all the sensors are OFF with their time delay period expired, the relay(s) switch OFF.</li> </ul>

## Dual Technology Wide View Sensor

2-Pole

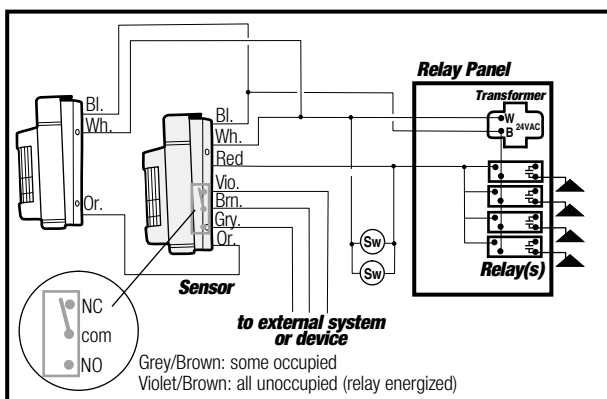
Technical Data



PART No.	DESCRIPTION
WV-PDT-2P-DL	<ul style="list-style-type: none"> <li>Wide view corner-mounted occupancy sensor with the added functionality of interfacing with 2 separate Douglas relays or 2 separate groups of Douglas relays, whose combined relay total is 4 or less, in parallel.</li> <li>Ideal for areas where local override control is desired for two different circuits.</li> <li>For larger spaces, multiple sensors can be combined to cover a zone and control the same relays. When more than 2 sensors are used, they should all be connected to the panel transformer via their blue wire to receive 24V.</li> <li>When multiple sensors are used, the red control wires from only 1 sensor could be connected to the relays and the orange wires from all the sensors should be jumpered.</li> </ul>

## Dual Technology Wide View Sensor Auxiliary Relay

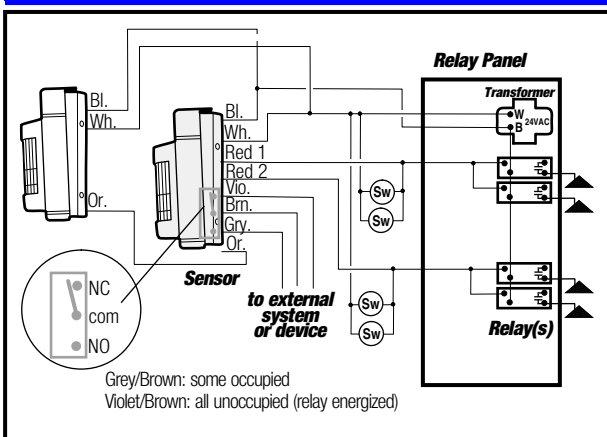
Technical Data



PART No.	DESCRIPTION
WV-PDT-R-DL	<ul style="list-style-type: none"> <li>Wide view corner-mounted occupancy sensor like the WV-PDT-DL with the added functionality of an output signaling an external system like a BMS or an external device such as a Douglas photo sensor.</li> <li>The output is from a dry-contact SPDT relay internal to the sensor. The relay changes state when all connected sensors are OFF and their time delay period expired.</li> <li>If other sensors are combined with the WV-PDT-R-DL to cover the zone, they should all be connected to the panel transformer via their blue wire to receive 24V.</li> <li>When multiple sensors are used, the red control wires from only the main sensor should be connected to the relays and the orange wires from all the sensors should be jumpered.</li> </ul>

## Dual Technology Wide View Sensor 2-Pole w/Aux. Relay

Technical Data



PART No.	DESCRIPTION
WV-PDT-2P-R-DL	<ul style="list-style-type: none"> <li>Wide view corner-mounted occupancy sensor with the added functionality of interfacing with 2 separate Douglas relays or 2 separate groups of Douglas relays, whose combined relay total is 4 or less, in parallel. As well, it has an auxiliary output for signaling an external system like a BMS or an external device such as a Douglas photo sensor.</li> <li>The output is from a dry-contact SPDT relay internal to the sensor. The relay changes state when all connected sensors are OFF and their time delay period expired.</li> <li>If other sensors are combined with the WV-PDT-2P-R-DL to cover the zone, they should all be connected to the panel transformer via their blue wire to receive 24V.</li> <li>When multiple sensors are used, the red control wires from only the main sensor should be connected to the relays and the orange wires from all the sensors should be jumpered.</li> </ul>