


	PART No.	DESCRIPTION	SPECIFICATION
	<b>WSD-PDT-DL</b> (1 Douglas relay output)	<ul style="list-style-type: none"> <li>Wall mount PIR and sound occupancy detectors designed to switch Douglas 2-wire relays or to signal other systems.</li> <li>Use indoors only. The detectors are designed to mount in a standard wall box.</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>WSD-PDT-2P-DL</b> (2 Douglas relay outputs)	<ul style="list-style-type: none"> <li>The detectors utilize Passive Infrared (PIR) technology to optically sense motion within the surrounding area.</li> </ul>	<b>Outputs</b> <ul style="list-style-type: none"> <li><b>WSD-PDT-DL</b> 1 Douglas 2-wire relay output. Maximum relays per sensor: 4.</li> </ul>
	<b>WSD-PDT-R-DL</b> (1 Douglas relay output, 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> </ul>	<ul style="list-style-type: none"> <li><b>WSD-PDT-2P-DL</b> 2 Douglas 2-wire relay outputs. Maximum relays per sensor: 4.</li> </ul>
	<b>WSD-PDT-2P-R-DL</b> (2 Douglas relay outputs, 1 output for BMS or device)	<ul style="list-style-type: none"> <li>Upon sensing motion, the detectors signal ON and start an internal timer. Whenever motion is seen or heard, the timer resets. 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> <li>Automatic and manual ON/OFF switching modes are easily programmed.</li> </ul>	<ul style="list-style-type: none"> <li><b>WSD-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>WSD-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>

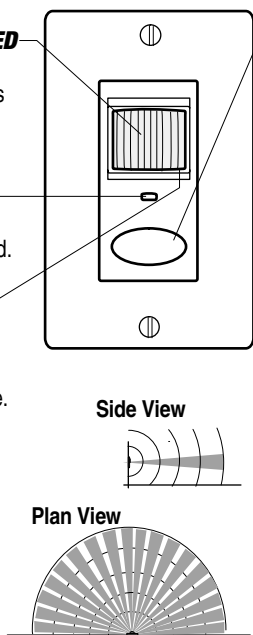
**WSD-PDT-DL Series Occupancy Sensor**

**Program Indicator LED (behind PIR Lens)**  
Flashes when a setting is being programmed.

**ON Indicator LED**  
Flashes when unit is detecting motion or sound.

**PIR Lens**  
Detects motion by sensing passive infrared energy emitted by people.

The PIR lens provides a view angle in a wall-to-wall pattern to a maximum distance of 20'. These diagrams show the side and plan views of the detection zones.



**Manual ON/OFF and Programming Button**

**Manual ON/OFF**

Press the button to switch the lights ON or OFF according to how the Sensor has been programmed.

**Programming**

Use the button to set the ON Mode, the Switch Mode and the Time Delay Period for the Sensor. Programming details are on page 3.

**ON MODES**

**Automatic ON:** (default) Sensor automatically turns lights ON when occupancy detected.

**Manual ON:** Sensor turns lights ON only when operator pushes ON/OFF button.

**Reduced ON:** Sensor turns lights ON only when large motions are detected then returns to normal sensitivity.

**SWITCH MODES**

**Switch Enable:** Lights turned OFF when operator pushes ON/OFF button.

**Switch Disable:** Disables manual ON/OFF button.

**Predictive OFF (default):** Disables occupancy detection when ON/OFF button pressed, then

- reverts to Automatic ON mode if occupancy is detected immediately after (or)
- reverts to Manual ON mode if no occupancy is detected immediately after. Thereafter, reverts to Automatic ON when the ON/OFF button is pressed.

**TIME DELAY PERIOD**

The Time Delay Period is the time interval from when the Sensor last detected motion to when it sends an OFF signal. The time delay period can be an interval from 30 seconds to 20 minutes. Default is 10 minutes.

**Mounting**

- Mount in a standard wall box 30"-48" above floor level.

**Adjustments**

- Adjustable time out (30 sec, 2.5 min, 5 min, 10 min, 12.5 min, 15 min, 17.5 min or 20 min).
- Adjustable ON and switching modes (automatic ON, manual ON, reduced ON, switch disable, predictive OFF).

**Color**

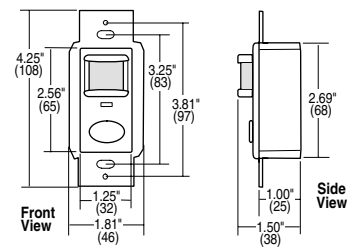
- Unit with cover plate available in white.

**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**

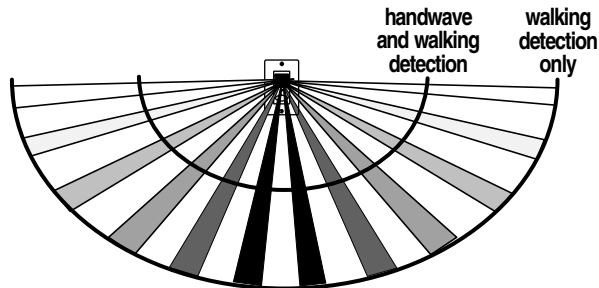
- Mount to standard gang box. White plastic cover plate provided.



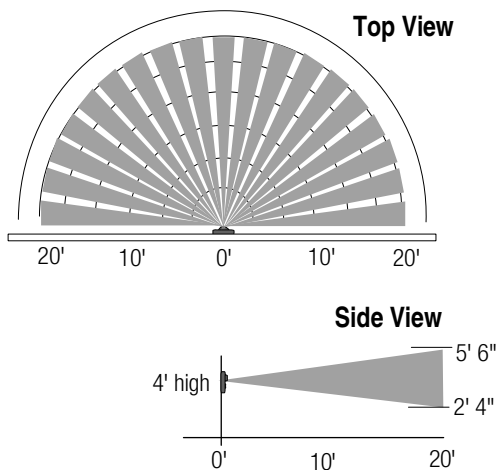
## DUAL TECHNOLOGY OCCUPANCY DETECTION

### Optical Method of Detection - PIR

- The optical portion of the Wall 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 the 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 energy focused on the element changes. This is interpreted as motion.
- The amount of infra-red energy focused on the sensing element is greater from objects that are close than from objects that are distant. At closer distances (10' or less), handwave motion is detectable. At greater distances, only walking motion is detectable.



- The detection zones of the PIR lens that is used in the Douglas WSD-PDT-DL series Occupancy Detectors, extend 20' straight out from the lens across an arc of 180°.
- To provide optimum PIR detection, the WSD-PDT-DL Series Occupancy Detectors are designed to be wall mounted 2-1/2' to 4' above floor level near the midline of the room. When mounted in this manner, the sensor will detect handwave motion throughout an average-sized room.
- These diagrams show the side and plan views of the detection zones with the sensor mounted near the midline of the wall length 4' above the floor.



### Sound Method of Detection - Microphonics™

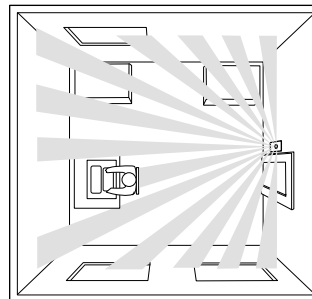
- The acoustic portion of the Wall Mounted Dual Technology occupancy sensors utilize an internal microphone to detect noise typical of human activity. The microphone is triggered whenever the PIR lens detects motion. The sensor first 'sees' motion using the Passive Infra-Red lens, then 'hears' sounds that indicate continued occupancy using the Microphonics. This provides a reliable and completely passive method of detecting motion.
- For the WSD-PDT-DL Series Occupancy Sensors, the microphone will remain on for 10 seconds after the Sensor sends an OFF signal. The Sensor will send an ON signal if the microphone detects any sound during this 10-second period.
- 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, etc., that are typical of human activity.
- The Microphonics sound detection in the WSD-PDT-DL Series detectors can detect human activity within 20 feet of the sensor, or farther 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 to about 20 feet away, but must first be triggered by the PIR detecting motion. Position the sensor(s) so that obstructions do not block a large, continuous area of the PIR lens's field of view.

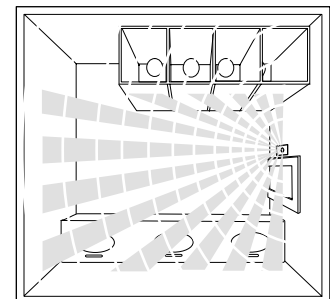
## INSTALLATION

- Mount the WSD-PDT-DL series sensor on the wall about 4' above floor level near the midline of the room so its PIR detection zones cover the room area and any obstructions are within range of its Microphonic sound detector.
- There should be no obstructions between the sensor and the room entrance. This ensures that the sensor's PIR lens will be activated when a person enters the room, which will subsequently trigger the Microphonic sound detection.



### Offices

- Sensor effective in obstructed spaces.
- Sensor detects keyboard, phone, paper shuffling, etc.

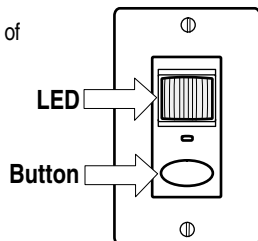


### Washrooms

- Sensor effective in partitioned spaces.
- Voice sound re-activation prevents lights out condition.

## PROGRAMMING

The manual ON/OFF button on the front of the sensor is used to program the unit. Programming includes setting the Time Delay, setting the ON Mode, setting the Switch Mode and enabling or disabling Burn-in.



### General Programming Procedure

1. Hold the button down until the LED flashes rapidly, then release button.
2. Press the button the number of times that corresponds to the function you are programming. The functions are:
  2. Time Delay (press button twice)
  3. ON Mode (press button three times)
  4. Switch Mode (press button four times)
  6. 100 Hour Burn-in Timer (press button six times)
3. The LED will flash the number of times that corresponds to the function's current setting. For instance if you had selected ON Mode and the Sensor was in (1) Automatic ON, it would flash once. The flashing will repeat several times.
4. Press the button the number of times that corresponds to the new function setting. For instance if you desire to set (2) Manual ON for the ON Mode, press the button twice.
5. The LED will flash the number of times for the new setting, repeating several times.
6. Hold the button down until the LED flashes rapidly, then release button.
7. Re-enter the function number as you did in step #2. The LED will flash twice, indicating acceptance of the new setting.
8. Repeat steps #1-7 to program another function.

### Time Delay (function #2)

Time delay is the time interval from when the Sensor last detected motion to when sends an OFF signal. The time delay should be long enough to prevent cycling.

Press the button twice to program the time setting. The LED will flash the number of times that correspond to its current time delay setting, as shown in the following table. For instance, if the time delay is 10 minutes (factory default) the LED would flash 5 times repeatedly.

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		

To change the time delay setting, press the button the number of times that corresponds to the desired setting. For instance, to change the time delay setting to 5 minutes, press the button 3 times.

To save the new setting, hold the button until the the LED flashes rapidly, then release it and press the button twice. The LED will flash twice, indicating acceptance of the new time delay setting.

### ON Mode (function #3)

ON Mode determines what initiates an ON/OFF signal from the Sensor. The ON Mode selections are:

1. **Automatic ON** (default). Sensor automatically turns lights ON when any occupancy is detected.
2. **Manual ON**. Sensor turns lights ON only when the ON/OFF button is pressed manually.
3. **Reduced ON**. Sensor turns lights ON only when large motions are detected, preventing minor PIR signals, such as reflections, from being sensed.

Press the button 3 times to program the ON Mode. The LED will flash the number of times that correspond to its current ON Mode setting. For instance, if the ON Mode setting is (1) Automatic ON (factory default) the LED would flash once and repeat this several times.

To change the ON Mode setting, press the button the number of times that corresponds to the desired setting. For instance, to change the On Mode to (2) Manual ON, press the button twice.

To save the new setting, hold the button until the the LED flashes rapidly, then release it and press the button 3 times. The LED will flash twice, indicating acceptance of the new ON Mode setting.

### Switch Mode (function #4)

Switch Mode determines what action is taken when the manual ON/OFF button is pressed. The Switch Mode selections are:

1. **Switch Enable** Sensor turns lights OFF when the ON/OFF button is pressed.
2. **Switch Disable** The ON/OFF button is disabled. No action occurs when it is pressed.
3. **Predictive OFF** (default). When the ON/OFF button is pressed, the occupancy detector is disabled for 10 seconds, then PIR detection reactivates for 5 seconds. If no occupancy is detected, the sensor then reverts to Automatic ON. If occupancy is detected, the sensor will remain OFF, and revert to Automatic ON when the ON/OFF button is pressed.

Press the button 4 times to program the Switch Mode. The LED will flash the number of times that corresponds to its current Switch Mode setting. For instance, if the Switch Mode setting is (2) Switch Disable, the LED would flash twice repeatedly.

To change the Switch Mode setting, press the button the number of times that corresponds to the desired setting. For instance, to change the Switch Mode to (3) Predictive OFF, press the button three times.

To save the new setting, hold the button until the the LED flashes rapidly, then release it and press the button 4 times. The LED will flash twice, indicating acceptance of the new Switch Mode setting.

### 100 Hour Burn-in Timer (function #6)

The 100-hour Burn-in Timer, when initially activated, starts a 100-hour period where the sensor sends a continuous ON signal. During this time, the output lights are held ON and the sensor LED flashes continuously. This mode is intended for initial 'seasoning', or burning in fluorescent lamps to optimize their brightness and color. This function is disabled at the factory and enabled by the user if ever needed. The settings are:

1. **Timer Disabled** (default).
2. **Timer Enabled**.

To enable the Burn-in Timer, press the button 6 times. The LED should flash once repeatedly. Then, press the button twice set the Enable mode. The LED should flash twice repeatedly. To save the setting, hold the button until the LED flashes repeatedly, then release it and press it 6 times.

## Dual Technology Wall Sensor

## Standard

## Technical Data

	<b>PART No.</b>	<b>DESCRIPTION</b>
	WSD-PDT-DL	<ul style="list-style-type: none"> <li>Wall mounted occupancy sensor to interface with Douglas low voltage relay(s).</li> <li>Up to 4 relays can be connected to the red wire in parallel. If an override switch is connected, it will control all relays collectively. The sensor output can also connect to a Douglas relay scanner input rather than to relays.</li> <li>For overrides, two Douglas switches may be connected in parallel to the sensor output.</li> <li>The WSD-PDT-DL model is ideal for smaller office spaces or washrooms: the sensor provides PIR line-of-sight detection up to 20' combined with sound detection through obstructions.</li> <li>When the sensor sends an ON signal, the relay(s) switch ON. When the sensor sends an OFF signal after the time delay period has expired and there is no occupancy, the relay(s) switch OFF.</li> </ul>

## Dual Technology Wall Sensor

## 2-Pole

## Technical Data

	<b>PART No.</b>	<b>DESCRIPTION</b>
	WSD-PDT-2P-DL	<ul style="list-style-type: none"> <li>Wall 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 separate switch zones.</li> <li>When the sensor sends an ON signal, the relay(s) switch ON. When the Sensor is OFF with the time delay period expired, the relay(s) switch OFF.</li> </ul>

## Dual Technology Wall Sensor

## Auxiliary Relay

## Technical Data

<p>to external system</p> <p>Grey/Brown: zone occupied Violet/Brown: zone unoccupied (relay energized)</p>	<b>PART No.</b>	<b>DESCRIPTION</b>
	WSD-PDT-R-DL	<ul style="list-style-type: none"> <li>Wall mounted occupancy sensor like the WSD-PDT-DL with the added functionality of an output signaling an external system like a BMS or another device such as a photo sensor.</li> <li>The output is from a dry-contact SPDT relay internal to the WSD-PDT-R-DL. The relay changes state when the time delay period is expired.</li> <li>The auxiliary output is ideal for operating with a Douglas WPC-5621 Photo Sensor. The auxiliary relay is connected to the remote enable terminal of the WPC-5621 so that the lights are turned ON only when the space is occupied and there is insufficient ambient light.</li> </ul>

## Dual Technology Wall Sensor

## 2-Pole w/Aux. Relay

## Technical Data

<p>to external system or photo sensor</p> <p>Grey/Brown: zone occupied Violet/Brown: zone unoccupied (relay energized)</p>	<b>PART No.</b>	<b>DESCRIPTION</b>
	WSD-PDT-2P-R-DL	<ul style="list-style-type: none"> <li>Wall mounted 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 another device such as a photo sensor.</li> <li>The output is from a dry-contact SPDT relay internal to the WSD-PDT-2P-R-DL. The relay changes state when the sensor is OFF and the time delay period is expired.</li> </ul>