PRODUCT OVERVIEW

The WSD is a stylish, easy to install, and simple to use Wall Switch Decorator style Passive Infrared (PIR) sensor. It is ideal for private offices, copy rooms, closets, or any small enclosed space without obstructions. A user programmable time delay ensures that once the room is vacated the sensor will time out and turn off the lights. Additionally, the WSD sensor has several On Modes and Switch Modes that can be programmed using the front push-button. For rooms with obstructions, the Dual Technology WSD PDT Series sensor is recommended. Additionally, all WSD Family sensors have a patent-pending wiring method that enables them to function either with or without a neutral connection. WSD units come pre-configured for wiring without a neutral; however, if connection to neutral is required by code, contractors can convert the unit in seconds (see page 3).

All WSD Family sensors utilize 100% digital Passive Infrared (PIR) detection. Dual Technology (PDT option) versions add Microphonics detection and are recommended for offices and rooms with obstructions. Additional versions include units with dual relays - perfect for bi-level applications, or bathrooms with a light and a fan.

SENSOR OPERATION — WSD sensors detect changes in the Passive Infrared (PIR) energy given off by occupants as they move within the field-of-view. In an Auto-On sensor, once occupancy is detected, an internal relay switches on the connected lighting load. In a Vacancy (Manual On) sensor, the unit’s push button must first be pressed to initiate the lights on. In a dual relay sensor, once occupancy is detected the unit will automatically close Pole 1’s relay while still requiring Pole 2’s push-button be pressed in order to close Pole 2’s relay. All modes are user adjustable (see On Modes setting).

After the lights are turned on, an internal timer keeps them on during brief periods of inactivity. Once the time delay has expired, lights are turned off automatically. The default time delay is 10 minutes - chosen in order to maximize energy savings while preventing false-offs. This timer is programmable from 30 seconds to 30 minutes, and is reset every time occupancy is re-detected. Patented LampMaximizer technology is also present in these sensors, providing an additional minimum on time (disabled by default) to be utilized if desired.

WSD sensors with Passive Dual Technology (PDT option) first see motion using Passive Infrared (PIR) and then engage Microphonics to listen for sounds that also indicate continued occupancy. This patented technology dynamically adapts a sensor to its environment by filtering out constant background noise and detecting only noises typical of human activity.

FEATURES

- 100% digital PIR detection – excellent RF immunity
- Small motion detection to 20 ft
- Dual Technology (PDT) utilizes PIR / Microphonics detection (patented)
- 100% passive detection, no potential for interference with other building systems
- Self-grounding mounting strap
- Green LED status indicator
- Device accommodates powering over ground or neutral connection (patent pending)
- Ultra low current leakage (<0.5 mA) when connected via ground
- Fully meets NEC 2011 Section 404.2C neutral requirements – no current leakage to ground when connected to neutral
- Line power and load wires are interchangeable - impossible to wire backwards (patented)
- Compatible w/ LEDs, Electronic & Magnetic Ballasts, CFLs, & Incandescents
- Push-button programmable without removing cover plate - adjustable time delays & operating modes
- Photocell standard (disabled by default) - prevents lights from initially turning on if sufficient daylight is present, but does not turn lights off. Photocell not available in Vacancy only versions.
- Integrated LampMaximizer minimum on time (patented) provides increased fluorescent lamp life - disabled by default
- Non-volatile settings memory
- Available in 5 colors (White, Ivory, Gray, Light Almond, and Black)
- Includes matching wall plate

KEY OPTIONS

VACANCY OPERATION (SA and VA)
Increased energy savings and required by many codes
- The unit’s push button must first be pressed to initiate the lights on
- SA version can be reprogrammed to Auto-On operation
- VA version operates in Manual On mode only

DUAL RELAY (2P, 2P-SA, and 2P-VA)
Ideal for bi-level switched rooms or restroom with light & fan
- Includes two isolated relays, Pole 1 defaulted to Auto-On, Pole 2 to Vacancy
- Enables separate time delay per pole – programmed via each pole’s push-button
- UL listed to switch different loads per pole – e.g. 277 VAC lights on Pole 1 and 120 VAC fan on Pole 2
- 2P-SA and 2P-VA versions are factory set with both poles set to manual on

LOW TEMPERATURE / HIGH HUMIDITY (LT)
Required for cold or humid areas
- Device electronics are coated for corrosion resistance
- Operates down to -40º F/C (-4º F / 20º C for PDT)
OPERATIONAL SETTINGS

NOTE: (*) indicates factory default (unless otherwise marked)

2 = Occupancy Time Delay
Duration sensor keeps lights on after last occupancy detection.
1 5 sec 2 7.5 min 3 10.0 min 4 13.0 min 5 20.0 min
For additional time settings, contact technical support at 1.800.PASSIVE

3 = On Mode
Automatic On turns lights on when occupancy is detected. Manual On requires a button press to turn the lights on. Reduced Turn-On directs the sensor to initially only detect large motions, such as a person entering a room. Weaker signals, such as reflections from glass, are ignored. Once lights are on, the sensor returns to maximum sensitivity.

1 Automatic On 2 Manual On 3 Reduced Turn-On
Settings 1 & 3 not available on -VA (Vacancy only) sensors.

Notes on Default Settings
• WSD (PDT) Series default: Automatic On
• Default for units with -SA, -VA, or -NL option: Manual On
• WSD (PDT) 2P Series default: Pole 1 Auto On, Pole 2 Manual
• Default for 2P units with -2SA option: Both poles Manual On

4 = Switch Modes
These modes dictate switch functionality. Pressing the button in Override Off mode (setting 1) turns off and keeps lights off until pressed again. Disabling the Switch (setting 2) prevents the button from turning the lights on. (continued next column)

Predictive Mode (setting 3) determines if a user has left the room after the lights are switched off. It does this by monitoring the space for a period after the button is pressed (Predictive Grace Time), following a delay to allow exiting the room (Predictive Exit Time). If occupancy is detected during this period the device will disable Auto-On & hold the lights off until manually switched. If no occupancy is detected the sensor instantly reverts to Auto-On mode.

If Predictive Mode with Expiration (setting 4) is enabled, once the sensor has disabled Auto-On it will continue to monitor the space. When no occupancy is detected for a duration equal to the occupancy time delay, the sensor will revert to Auto-On mode.

5 = Photocell Set-Point
The ambient light level at which the sensor prevents the lights from initially turning on. Once on, the lights will remain on until the occupancy time delay expires and turns them off.

1 Disabled* 2 Switch Disable 3 Predictive Mode 4 Predictive Mode with Expiration*
* Default for WSD (PDT) units & Pole 1 of WSD (PDT) 2P units
** Default for units with -SA or -VA options, Pole 2 of WSD (PDT) 2P units, and both poles of 2P units with -2SA options

PROGRAMMING INSTRUCTIONS
Operational settings can be changed via the push-button sequence outlined below (note the example used is for changing occupancy time delay). Programming for 2P units done with each pole’s corresponding push-button.

1. PRESS & HOLD UNTIL IT FLASHES

2. SELECT
   e.g., press 2x for Occupancy Time Delay
   - 2x = 10 min time delay

3. SELECT
   e.g., 5 flashes is default 10 min time delay

4. SELECT NEW
   e.g., press 4x to change to 7.5 min

5. PRESS & HOLD LED FLASHERS RAPIDLY
   - e.g., 4 flashes indicates new 7.5 min time delay setting

6. RESELECT FUNCTION
   e.g., press 2x to save and exit

7. CONFIRMATION COMPLETE

Sensor Switch 900 Northrop Road, Wallingford, CT 06492 Phone: 1.800.PASSIVE sensorswitch.com ©2013 Acuity Brands Lighting, Inc. All rights reserved 07/01/13 2 of 4
COVERAGE PATTERN

- Small motion (e.g., hand movements) detection up to 20 ft (6.10 m), ~625 ft²
- Large motion (e.g., walking) detection greater than 36 ft (10.97 m), ~2025 ft²
- Wall-to-Wall coverage
- Passive Dual Technology (Microphonics) provides overlapping detection of human activity over the complete PIR coverage area. Advanced filtering is utilized to prevent non-occupant noises from keeping the lights on.

CONVERSION FROM GROUND ONLY (NO NEUTRAL) TO NEUTRAL WIRING

This product is pre-configured for wiring without a neutral; however, if connection to neutral is required by code, contractors can quickly and easily convert the unit in seconds.

WIRING TO GROUND (NO NEUTRAL)

SINGLE RELAY

WIRE COLOR KEY

120/277 VAC WIRING
BLACK* - Line 1 Input
BLACK* - Load 1 Output
BLUE* - Line 2 Input
BLUE* - Load 2 Output

347 VAC WIRING (-347 Option)
Red wires replace Black wires.

DUAL RELAY

Notes:
- Unit will draw power from either line connection.
- Both poles' line connection must be same phase.

WIRING TO NEUTRAL

SINGLE RELAY

DUAL RELAY
## SPECIFICATIONS

### PHYSICAL SPECS
- **Size:** 2.74”H x 1.68”W x 1.63”D (6.96 cm x 4.27 cm x 4.14 cm)
- (not including ground strap)
- **Weight:** 5 oz
- **Mounting:** Single Gang Switch Box
- **Mounting Height:** 30-48 in (76.2-121.9 cm)
- **Silicone Free**
- **RoHS Compliant**

### ELECTRICAL SPECS
- **Max Load / Pole (Relay):**
  - 800 W @ 120 VAC
  - 1200 W @ 277 VAC
  - 1500 W @ 347 VAC
- **Min Load:** None
- **Motor Load:** 1/4 HP
- **Frequency:** 50/60 Hz (timers are 1.2x for 50 Hz)

### ENVIRONMENTAL SPECS
- **Operating Temp**
  - Standard: 14º to 122º F (-10º to 50º C)
  - LT Option (PIR): -40º to 122º F (-40º to 50º C)
  - LT Option (PDT): -4º to 122º F (-20º to 50º C)
- **Relative Humidity:**
  - Standard: 20 to 75% non-condensing
  - LT Option: 20 to 90% non-condensing
  - (electronics coated for corrosion resistance)

## ORDERING LOGIC

### SINGLE RELAY

<table>
<thead>
<tr>
<th>Series</th>
<th>Operating Mode</th>
<th>Voltage</th>
<th>Color</th>
<th>Temp/Humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>WSD</td>
<td>Blank</td>
<td>120/277 VAC</td>
<td>WH</td>
<td>Standard</td>
</tr>
<tr>
<td>WSD PDT</td>
<td>SA</td>
<td>347 VAC</td>
<td>IV</td>
<td>LT Low Temp</td>
</tr>
<tr>
<td>WSD PDT</td>
<td>VA</td>
<td>347 VAC</td>
<td>GY</td>
<td></td>
</tr>
<tr>
<td>WSD PDT</td>
<td>2SA</td>
<td>347 VAC</td>
<td>AL</td>
<td></td>
</tr>
<tr>
<td>WSD PDT</td>
<td></td>
<td>347 VAC</td>
<td>BK</td>
<td></td>
</tr>
</tbody>
</table>

### DUAL RELAY

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<th>Series</th>
<th>Operating Mode</th>
<th>Voltage</th>
<th>Color</th>
<th>Temp/Humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>WSD 2P</td>
<td>Blank</td>
<td>120/277 VAC</td>
<td>WH</td>
<td>Standard</td>
</tr>
<tr>
<td>WSD 2P</td>
<td>2SA</td>
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<td>2SA</td>
<td>347 VAC</td>
<td>BK</td>
<td></td>
</tr>
</tbody>
</table>

### Notes:
1. Operating Modes reprogrammable via push-button except for VA version
2. Wall plates included in white or ivory only for 347 VAC units
3. Matching wall plate provided for 120/277 VAC units

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**WARRANTY**
- 5-year limited warranty. Complete warranty terms located at [www.acuitybrands.com/CustomerResources/terms_and_conditions.aspx](http://www.acuitybrands.com/CustomerResources/terms_and_conditions.aspx)