Sensor Switch™

STANDARD SENSORS BASIC TRAINING
STANDARD SENSORS BASIC TRAINING

1. Sensor Switch Overview
2. Why Sensors?
3. Detection Technology
4. Daylight Harvesting
5. Standard Sensor Product Line
6. Selling Sensor Switch
SENSOR SWITCH OVERVIEW
The Sensor Switch product line of stand alone occupancy sensors and indoor/outdoor daylight controllers are engineered to provide solutions for a multitude of applications, including energy code compliance.
WHY SENSORS?
UNDERSTANDING THE NEED
WHY SENSORS?

+ Convenience
+ Increased Building Security
+ Energy Savings
POTENTIAL ENERGY SAVINGS FROM OCCUPANCY SENSORS

- 40%-46% in Classrooms
- 13%-50% in Private Offices
- 30%-90% in Restrooms
- 22%-65% in Conference Rooms
- 30%-80% in Corridors
- 45%-80% in Storage Areas

Source: US Environmental Protection Agency
WHY SENSORS? …..IT’S THE LAW
DETECTION TECHNOLOGY
HOW IT WORKS
OCCUPANCY SENSOR TECHNOLOGY

+ Passive Infrared (PIR)
+ Active Dual Technology (PIR & Ultrasonics)
+ Passive Dual Technology (PIR & Microphonics™ )
Infrared (IR) is invisible radiant energy, electromagnetic radiation with longer wavelengths than those of visible light, extending from the nominal red edge of the visible spectrum at 700 nanometers (frequency 430 THz) to 1 mm (300 GHz) (although people can see infrared up to at least 1050 nm in experiments).
PASSIVE INFRARED (PIR) SENSOR
FRESNEL LENS
DETECTION SEGMENT

Detection Segment

Fresnel Lens

PIR Detector

IR
MULTIPLE FACETED SENSOR LENS
ARRAY OF DETECTION SEGMENTS

CEILING MOUNT ARRAY
CM 0.77 GI V5

TOP VIEW:

4.6m (15ft)
3.0m (10ft)
1.5m (5ft)
0
1.5m (5ft)
3.0m (10ft)

FRONT VIEW:
Detector Position Grooved Side
11.68mm (0.46in)
19.56mm (0.77in)
Notch Radius 1.52mm (0.060in)
15°
52.5mm (2.066in)
7.82mm (0.308in)

SIDE VIEW:

3.7m (12ft)
2.7m (9ft)
2.1m (7ft)
1.5m (5ft)
0.9m (3ft)
0
0.9m (3ft)
1.5m (5ft)
2.1m (7ft)
2.7m (9ft)
3.7m (12ft)

fresnel technologies inc.  © 2008
101W. MORNINGSIDE DR. FORT WORTH, TX 76110, U. S. A. (817) 926-747
OCCUPANCY DETECTION

No Detection: Detection segment not crossed

Detection: Detection segment crossed
LESS FRESNEL LENS FACETS = LARGER DETECTION SEGMENT: 
For Large Motion / Large Objects

MORE FRESNEL LENS FACETS = SMALLER DETECTION SEGMENT: 
For Small Motion / Small Objects
CEILING/FIXTURE MOUNTED SENSOR
OCCUPANCY DETECTION

Top Down View

Best Detection
Moderate Detection
Poor Detection

A

B

Top Down View

Acuity Controls
CEILING/FIXTURE MOUNTED SENSOR OPTIMIZED PLACEMENT

Scenario A

Scenario B
CEILING/FIXTURE MOUNTED SENSOR OPTIMIZED MOUNTING HEIGHT

- Installed at recommended height
- Coverage pattern per specification

- Installed at lower height
- Coverage pattern limited
WALL/HALL MOUNTED SENSOR OPTIMIZED PLACEMENT

Unobstructed Line of Sight

Obstructed Line of Sight
Detection is dependent on occupant crossing detection segments

- *Line of sight required* therefore installation height, position and orientation are critical

- Size (large vs small) of *detection segments correlate to the required amount of motion needed* to establish occupancy
NOT ALL PIR’S ARE EQUAL

+ Allows a more energy-saving time delay setting, no false offs
+ No sensitivity adjustments required – install and use
+ Lower frequency response delivers excellent small motion detection at greater distances
+ Each sensor is fine-tuned for optimum detection for its coverage pattern
UNDERSTANDING DUAL TECHNOLOGY
ACTIVE DUAL TECHNOLOGY (ADT) PIR & ULTRASONICS

- Transmits and receives ultrasonic signals in conjunction with PIR to determine occupancy
- Utilized by competitors
PASSIVE DUAL TECHNOLOGY (PDT) PIR & MICROPHONICS™

+ PDT is a patented Sensor Switch technology
+ Listens for acoustics in conjunction with PIR to determine occupancy
+ Low power consumption
MICROPHONICS™ AUTOMATIC GAIN CONTROL (AGC)
PASSIVE DUAL TECHNOLOGY (PDT)
PIR & MICROPHONONICS™ APPLICATIONS
PASSIVE DUAL TECH (PIR & MICROPHONICS™) ADVANTAGES

+ Better & more reliable detection
+ No false ons from common building motion
+ Detecting both sound and motion results in better occupant detection than sensors that use two technologies to only detect motion (and thus no false offs).
+ Requires less power
+ Acoustically Passive - sensors transmit no sound waves, thus eliminating all potential for interference
DAYLIGHT HARVESTING
The concept of daylight harvesting is to use digital photo sensors to detect daylight levels and automatically adjust the output level of electric lighting to create a balance. The goal is energy savings.
DAYLIGHT HARVESTING METHODS

**Open Loop**
- Photocell operates without feedback from the controlled light source

**Closed Loop**
- Photocell operates with feedback from the controlled light source
VARIABLE AFFECTS ON SET POINT

+ Color of the metered surface / floor
+ Furnishings
+ Photocell placement in respect to daylighting
DAYLIGHTING MODES OF OPERATION

- Automatic On/Off (PC)
- Automatic Dimming Control (ADC)
- Combination On/Off and Dimming Control (PC ADC)
A. No daylight is available; the lights stay on as normal.

B. Sufficient daylight is present to maintain the set-point without any contribution from the lights; the lights are switched off. This level is equal to the set-point plus the deadband.

C. Daylight levels fall below the set-point; the lights switch back on.
AUTOMATIC DIMMING CONTROL (ADC)

A. No daylight is available; the dimmable light operates at full bright level (10 VDC)

B. Increasing daylight begins to contribute to the overall light level; the lights are dimmed proportionally

C. Sufficient daylight is present to maintain the set-point; the lights are held at its full dim setting (0 VDC).

D. Daylight levels drop into the dimming range (deadband); the dim level of the light is reduced proportionally.

E. Daylight levels fall below the set-point; the lights are back to full bright level (10 VDC).
COMBINATION ON/OFF AND DIMMING CONTROL (PC ADC)

A. No daylight is available; the dimmable light operates at full bright level (10 VDC).
B. Increasing daylight begins to contribute to the overall light level; the light is dimmed proportionally.
C. Sufficient daylight is present to maintain the set-point; the lights are switched off.
D. Daylight levels drop into the dimming range (deadband); the lights are switched on with the driver set at its full dim level.
E. Daylight levels continue to drop; the dim level of the driver is reduced proportionally.
F. Daylight levels fall below the set-point; the driver is back to full bright level (10 VDC).
SENSOR SWITCH DAYLIGHTING CONTROLS

+ PRACTICAL CONTROL SOLUTIONS
  + Available in stand-alone sensors or incorporated into the occupancy sensor

+ ADVANCED SENSOR INTELLIGENCE
  + Sensor controls are fully integrated
  + Integrated foot candle measurement
  + Automatically adapts to changes in room lighting conditions

+ INSTALLER FRIENDLY
  + Automatic Set-Point Programming
  + Calibration can be done at any time of day & under any lighting conditions
  + Push-button operation
SENSOR PRODUCT OFFERING OPTIONS

- Enclosures
- Power Type
- Detection Technology
- Lens Type
- Other Options
## ENCLOSURES

### Stand Alone Devices
- Wall Switch (WS/SS) Sensor
- Ceiling Mount (CM) Sensor
- Corner/Wall Mount (WV, HW) Sensor
- Recessed Mount (RM) Sensor

### Fixture Integrated
- Multi- Lens (LSXR) Sensor
- Pole Mount (SBOR, SBO) Sensor
- Embedded Small Box (SBR, SB, SBGR, SBG) Sensor
- Embedded Snap-Fit (SFR, SFOR, SFD, SFOD) Sensor

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**Note:** Images not visible in this text format.
<table>
<thead>
<tr>
<th>Power Type</th>
<th>Ideal Application</th>
<th>Wiring to Sensor</th>
<th>Ease of Installation</th>
<th>Power Pack Needed</th>
<th>Investment $</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line Voltage VAC</td>
<td><strong>Small Private Office, High Bay:</strong> Single sensor controls circuit</td>
<td>Line voltage wiring</td>
<td>Wall Switch – Easy Ceiling Mount – Moderate Fixture – Retrofitable</td>
<td>No, relay is in the device</td>
<td>Low/moderate</td>
</tr>
<tr>
<td>Low Voltage VDC</td>
<td><strong>Large Office Space:</strong> Multiple sensors required</td>
<td>Low voltage wiring</td>
<td>Easy, but requires more devices</td>
<td>Yes</td>
<td>Moderate, more devices</td>
</tr>
<tr>
<td>Wireless (Battery Powered) VDC</td>
<td><strong>Large or Small Office:</strong> Multiple or single sensor required</td>
<td>No wiring needed</td>
<td>Super easy</td>
<td>No, relay is in the switch</td>
<td>Moderate, savings on installation</td>
</tr>
</tbody>
</table>
LINE VOLTAGE SENSORS & CONTROLS

- Integrated Relay
- Installation to J Box
- Single Devices
LOW VOLTAGE SENSORS & CONTROLS

+ Power Pack Required
+ Class 2 Wiring
+ Multiple Sensors
WIRELESS SENSORS & CONTROLS

+ ONLY DUAL TECH WIRELESS SENSOR ON THE MARKET!

+ 902 Mhz Wireless Technology

+ Battery Powered (10 year life)

+ Easy Installation

+ Multiple Paired Devices (up to 20)
PRODUCT OFFERING BY POWER TYPE

VAC Only
- Multi-Lens (LSXR)
- End-of-Aisle, Single Lens Surface Mount (HMR)

VAC or VDC
- Recessed Mount (RM, RMR)
- Single Lens (CMxB, HMxB)
- Pole Mount (SBOR, SBO)
- Wall Switch (WSX/WSD)
- Embedded Snap-Fit (SFR, SFOR, SFD, SFOD)
- Embedded Small Box (SBR, SB, SBGR, SBG)

VAC or VDC or BATTERY
- Ceiling Mount (CM, CMR, CM WR)
DETECTION TECHNOLOGY

- PIR and PDT Available
- PDT is a patented Sensor Switch technology
CEILING & FIXTURE MOUNT COVERAGE PATTERNS

Lens 9
Standard Range
360°

Lens 10
Extended Range
360°

Lens 11
Hallway 360°
[CM Only]
SNAP-FIT & EMBEDDED COVERAGE PATTERNS

Lens 7
Mini Low Bay 360°

Lens 30
Universal 360°
WALL & FIXTURE MOUNT COVERAGE PATTERNS

Lens HM 10
High Bay End-Of-Aisle
[HM(R)B 10]

Lens 13
Hallway View
(HW13)
• Small motion (e.g., hand movements) detection up to 20 ft (6.10 m), ~625 sq. ft
• Large motion (e.g., walking) detection greater than 36 ft (10.97 m), ~2025 sq. ft
• Wall-to-Wall coverage
OTHER OPTIONS

+ Integrated photocell
+ Occupancy controlled dimming
+ Multiple load control (2 pole)
+ Voltage: 120/277VAC or 347 VAC
+ Temp/Humidity: low temp operation to -40° F
+ Color options (white, ivory, gray, light almond, black)
+ Occupancy / vacancy option
ANATOMY OF A MODEL NUMBER

- **CM**: Ceiling Mount
- **R**: Line Voltage
- **PDT**: PIR & Microphonics
- **10**: Extended Range
- **P**: Photoelectric

*Acuity Controls*
SELLING SENSOR SWITCH
Applications include *Private Offices, Rest Rooms, Closets, Copy Rooms and other Small Enclosed Spaces.*

+ Key Features
  + No neutral required
  + Line power and load wires are interchangeable
  + Dual Technology (PDT) utilizes PIR / Microphonics
  + Compatible w/ LEDs, electronic & magnetic ballasts, CFLs, & incandescents
<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Sensor Switch</th>
<th>Leviton</th>
<th>Wattstopper</th>
<th>Lutron</th>
<th>Hubbell</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product Image</strong></td>
<td><img src="image1.png" alt="Sensor Switch" /></td>
<td><img src="image2.png" alt="Leviton" /></td>
<td><img src="image3.png" alt="Wattstopper" /></td>
<td><img src="image4.png" alt="Lutron" /></td>
<td><img src="image5.png" alt="Hubbell" /></td>
</tr>
<tr>
<td><strong>Model Number</strong></td>
<td>WSX</td>
<td>WSD</td>
<td>ODS10 &amp; ODS15</td>
<td>PW-xxx</td>
<td>MS-OPS2</td>
</tr>
<tr>
<td><strong>Multi/Dual Technology Option</strong></td>
<td>PIR + Microphonics (WSX PDT)</td>
<td>PIR + Microphonics (WSD PDT)</td>
<td>PIR + Ultrasonic (ODSMT)</td>
<td>PIR + Ultrasonic (DW &amp; DSW-xxx)</td>
<td>PIR + Ultrasonic (MS-A102 &amp; MS-B102)</td>
</tr>
<tr>
<td><strong>Radial Coverage (ft)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small Motion</td>
<td>20</td>
<td>20</td>
<td>15</td>
<td>7.5</td>
<td>20</td>
</tr>
<tr>
<td>Large Motion</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td><strong>Time Delay</strong></td>
<td>30 sec - 30 min</td>
<td>30 sec - 30 min</td>
<td>30 sec - 30 min</td>
<td>5 min - 30 min</td>
<td>1 min - 30 min</td>
</tr>
<tr>
<td><strong>Voltage</strong></td>
<td>120/277 VAC</td>
<td>120/277 VAC</td>
<td>120-277 VAC</td>
<td>120/277 VAC</td>
<td>120 VAC</td>
</tr>
<tr>
<td><strong>347 VAC available</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes - Multi-Tech Only</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Vandal Resistant Lens</strong></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Integrated Photocell</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>Neutral Required</strong></td>
<td>Convertible</td>
<td>Convertible</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>Miswire Protection</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>Wallplate Included</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
Applications for the standard lens include **Open Offices, Classroom, Restrooms, Large Storage Areas**

- **Key Features**
  - Dual Technology (PDT) utilizes PIR / Microphonics
  - Small motion and large motion lens options
  - Integrated photocell option available
  - Compatible w/ LEDs, electronic & magnetic ballasts, CFLs, & incandescents
# Ceiling Mount Sensors Competitive Comparison

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Sensor Switch</th>
<th>Leviton</th>
<th>Lutron</th>
<th>Wattstopper</th>
<th>Hubbell</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product Image</strong></td>
<td><img src="sensor.png" alt="Image" /></td>
<td><img src="leviton.png" alt="Image" /></td>
<td><img src="lutron.png" alt="Image" /></td>
<td><img src="wattstopper.png" alt="Image" /></td>
<td><img src="hubbell.png" alt="Image" /></td>
</tr>
<tr>
<td><strong>Part Number</strong></td>
<td>CM, CMR</td>
<td>ODCxx-xDW, OSCxx-x0W</td>
<td>LOS-CDT, LOS-CUS, LOS-CIR</td>
<td>Cl-xxx, UT-xxx, DT-xxx</td>
<td>LVDT, LVUS, LVPR</td>
</tr>
<tr>
<td><strong>Technology</strong></td>
<td>PIR, PIR + Microphonics</td>
<td>PIR, PIR + Ultrasonic</td>
<td>PIR, PIR + Ultrasonic</td>
<td>PIR, Ultrasonic, PIR + Ultrasonic</td>
<td>PIR, Ultrasonic, PIR + Ultrasonic</td>
</tr>
<tr>
<td><strong>Radial Coverage (ft)</strong></td>
<td>Up to 28 ft</td>
<td>Up to 20 ft</td>
<td>Up to 32 ft</td>
<td>Up to 18 ft</td>
<td>Up to 24 ft</td>
</tr>
<tr>
<td><strong>Time Delay</strong></td>
<td>30 sec - 20 min</td>
<td>30 sec - 30 min</td>
<td>8 min - 30 min</td>
<td>5 min - 30 min</td>
<td>30 sec - 30 min</td>
</tr>
<tr>
<td><strong>Voltage</strong></td>
<td>Low Voltage: Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Line Voltage: Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>347 VAC available?: Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Photocell Option</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Included</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Miswire Protection</strong></td>
<td>Yes; Line Voltage</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>Low Temp Option</strong></td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
Single room retrofit applications; **Offices, Restrooms, Hallways, Break Rooms** and **Storage Rooms** where wiring to sensor is difficult or impossible.

**Key Features**

+ Wireless sensor with a 10 year battery life
+ Dual Technology (PDT) utilizes PIR / Microphonics
+ Line power & load wires are interchangeable
+ Compatible w/ LED, electronic & magnetic ballasts, CFL, & incandescents
## Wireless Occupancy Sensors

### Competitive Comparison – Wall Switches

<table>
<thead>
<tr>
<th></th>
<th>Sensor Switch</th>
<th>Lutron</th>
<th>Leviton</th>
<th>Hubbell</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Supply</strong></td>
<td>Line Powered</td>
<td>Line Powered</td>
<td>Line Powered</td>
<td>Self Powered</td>
</tr>
<tr>
<td><strong>RF Communications</strong></td>
<td>902 MHz</td>
<td>437.0 MHz</td>
<td>315 MHz</td>
<td>902 MHz</td>
</tr>
<tr>
<td><strong>Operational Frequency</strong></td>
<td>50/60 Hz</td>
<td>50/60 Hz</td>
<td>50/60 Hz</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Transmission Range</strong></td>
<td>33-100 ft</td>
<td>60 ft</td>
<td>50-100 ft</td>
<td>80 ft</td>
</tr>
<tr>
<td><strong>Operating Mode</strong></td>
<td>Auto or Manual On</td>
<td>Manual</td>
<td>Vacancy</td>
<td>Manual On</td>
</tr>
<tr>
<td><strong>Operating Temperature Range</strong></td>
<td>14°F to 160°F</td>
<td>32°F to 104°F</td>
<td>32°F to 104°F</td>
<td>32°F to 131°F</td>
</tr>
<tr>
<td><strong>Relative Humidity</strong></td>
<td>20 - 90% non-condensing</td>
<td>0 - 90% non-condensing</td>
<td>0 - 95% non-condensing</td>
<td>5 - 95% non-condensing</td>
</tr>
<tr>
<td><strong>Other Features</strong></td>
<td>Silicone Free, RoHS Compliant, 5 color options</td>
<td>Maestro Wireless Switch Dimmer, Communicates up to 9 transmitting devices</td>
<td>10 Transmitter IDs</td>
<td>—</td>
</tr>
<tr>
<td>Sensor Mount Occupancy Sensor</td>
<td>SENSOR SWITCH</td>
<td>LUTRON</td>
<td>LEVITON</td>
<td>HUBBELL</td>
</tr>
<tr>
<td>------------------------------</td>
<td>--------------</td>
<td>--------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>Sensor</td>
<td>Digital PIR/PDT</td>
<td>PIR</td>
<td>PIR</td>
<td>PIR</td>
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<tr>
<td>Technology</td>
<td>Battery</td>
<td>Battery</td>
<td>Solar Cell or Supplemental Battery</td>
<td>Solar Cell or Supplemental Battery</td>
</tr>
<tr>
<td>RF Communications</td>
<td>902 MHz</td>
<td>437.0 MHz</td>
<td>315 MHz</td>
<td>902 MHz</td>
</tr>
<tr>
<td>Transmission Range</td>
<td>33-100 ft</td>
<td>30-60 ft</td>
<td>up to 100 ft</td>
<td>80 ft/25 m</td>
</tr>
<tr>
<td>Motion Detection Range</td>
<td>16-36 ft radial coverage</td>
<td>400 sq ft</td>
<td>—</td>
<td>40 ft</td>
</tr>
<tr>
<td>Mounting Height</td>
<td>7-15 ft</td>
<td>9 ft</td>
<td>—</td>
<td>7-10 ft</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>14° F to 122° F</td>
<td>32° F to 104° F</td>
<td>32° F to 104° F</td>
<td>32° F to 104° F</td>
</tr>
<tr>
<td>Viewing Angle</td>
<td>360</td>
<td>360</td>
<td>—</td>
<td>360</td>
</tr>
<tr>
<td>Relative Humidity</td>
<td>20 - 90% non-condensing</td>
<td>—</td>
<td>0 - 95% non-condensing</td>
<td>0 - 95% non-condensing</td>
</tr>
<tr>
<td>Other features</td>
<td>Vacancy</td>
<td>Vacancy</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>
Various lens configurations address applications including *High Bay, Low Bay and Aisleway*

- **Key Features**
  - Four interchangeable lenses (LSXR models)
  - Integrated mounting bracket
  - Retrofitable
  - Line power & load wires are interchangeable
  - 0-10 VDC output for dimming
# Fixture Mount Sensors Competitive Comparison

## LSXR Comparison Chart

<table>
<thead>
<tr>
<th></th>
<th>SENSOR SWITCH</th>
<th>LEVITON</th>
<th>HUBBELL</th>
<th>WATTSTOPPER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LSXR</td>
<td>OSFHU</td>
<td>HBA WASP2</td>
<td>HB3x0B-Lx</td>
</tr>
<tr>
<td>Voltage</td>
<td>120-277 VAC 347-480 VAC (HVOLT)</td>
<td>120-230-277 VAC 347-480 VAC</td>
<td>120/277 VAC 206/240 VAC 347/480 VAC</td>
<td>120/277 VAC 347/480 VAC</td>
</tr>
<tr>
<td>Load Rating:</td>
<td>800 W @ 120 VAC 1000 W @ 208 VAC 1200 W @ 240 VAC 1200 W @ 277 VAC 1500 W @ 347 VAC 2160 W @ 480 VAC</td>
<td>800 VA @ 120 VAC 1200 W @ 277 VAC 1500 VA @ 347 VAC 2000 VA @ 480 VAC</td>
<td>800 W @ 120 VAC 1200 W @ 277 VAC 1500 W @ 208/240 VAC 2160 W @ 480 VAC</td>
<td>800 W @ 120 VAC 1200 W @ 277 VAC 1500 W @ 240 VAC 2160 W @ 480 VAC</td>
</tr>
<tr>
<td>Interchangeable Lenses</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Lenses Available:</td>
<td>360° High Mount (6); High Mount Aisleway (50); 360° Low Mount Small Motion (9); 360° Low Mount Large Motion (10)</td>
<td>360° High Bay, Aisleway and 360° Low Bay</td>
<td>360° High Bay; Masking Kit for Aisleway</td>
<td>High Bay Aisleway (L1), 360° Low Bay (L3), 360° High Bay (L4)</td>
</tr>
<tr>
<td>Ships with Multiple Lenses</td>
<td>In optional packages: (6); (10); (50); (6, 10, 50)</td>
<td>Yes: High Bay, Low Bay and Aisleway</td>
<td>All Lenses optional; <strong>Lenses sold separately - Not included with Sensor</strong></td>
<td>No: Only lens specified with Sensor</td>
</tr>
</tbody>
</table>

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*AcuityControls*
## FIXTURE MOUNT SENSORS
### COMPETITIVE COMPARISON

<table>
<thead>
<tr>
<th>Options / Support</th>
<th>SENSOR SWITCH</th>
<th>LEVITON</th>
<th>HUBBELL</th>
<th>WATTSTOPPER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LSXR</td>
<td>OSFHU</td>
<td>HBA WASP2</td>
<td>HB3x0B-Lx</td>
</tr>
<tr>
<td>Photocell</td>
<td>Optional: -P option</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Dimming</td>
<td>Optional: -HL, -ADC or -ANL option</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Two-Pole Version</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Alternating Relay Option</td>
<td>Yes: 2P AO version</td>
<td>No</td>
<td>Yes: Smart Cycling In 2P versions</td>
<td>No</td>
</tr>
<tr>
<td>Energy/Lamp Saver Mode</td>
<td>Yes, LampMaximizer</td>
<td>No</td>
<td>Yes, In outdoor version only</td>
<td>No</td>
</tr>
<tr>
<td>Extender Bracket</td>
<td>Integrated and Adjustable</td>
<td>Optional Accessory</td>
<td>Optional Accessory</td>
<td>Optional Accessory</td>
</tr>
<tr>
<td>Low Temp Available</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Color</td>
<td>White</td>
<td>White</td>
<td>White</td>
<td>White</td>
</tr>
<tr>
<td>Warranty</td>
<td>5 Years</td>
<td>Limited 5 Years</td>
<td>5 Years</td>
<td>5 Years</td>
</tr>
</tbody>
</table>

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[AcuityControls®]
SENSOR SWITCH ADVANTAGE

+ Energy Savings
+ Reliable Performance
+ Ease of Installation
PERFORMANCE YOU CAN COUNT ON
THANK YOU!