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This document summarizes the lighting control requirements for commercial buildings. It is for information purposes only. It is not meant to replace your state’s or local jurisdiction’s official energy code. Please refer to your local building energy code or authority having jurisdiction for your precise requirements.
## Energy-saving lighting control strategies

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Potential savings</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High-end trim/tuning</strong></td>
<td><strong>10–30% Lighting</strong></td>
<td>sets the maximum light level based on customer requirements in each space.*</td>
</tr>
<tr>
<td><strong>Occupancy/vacancy sensing</strong></td>
<td><strong>20–60% Lighting</strong></td>
<td>turns lights on when occupants are in a space and off when they vacate the space.*</td>
</tr>
<tr>
<td><strong>Daylight harvesting</strong></td>
<td><strong>25–60% Lighting</strong></td>
<td>dims electric lights when daylight is available to light the space.*</td>
</tr>
<tr>
<td><strong>Personal dimming control</strong></td>
<td><strong>10–20% Lighting</strong></td>
<td>gives occupants the ability to set the light level.*</td>
</tr>
<tr>
<td><strong>Controllable window shading</strong></td>
<td><strong>10–20% Cooling</strong></td>
<td>moves shades to reduce glare and solar heat gain.*</td>
</tr>
<tr>
<td><strong>Scheduling</strong></td>
<td><strong>10–20% Lighting</strong></td>
<td>provides scheduled changes in light levels based on the time of day.*</td>
</tr>
<tr>
<td><strong>Demand response</strong></td>
<td><strong>30–50% During peak period</strong></td>
<td>automatically reduces lighting loads during peak electricity usage times.*</td>
</tr>
<tr>
<td><strong>Plug load control</strong></td>
<td><strong>15–50% of Controlled loads</strong></td>
<td>automatically turns off loads after occupants leave a space.*</td>
</tr>
<tr>
<td><strong>HVAC integration</strong></td>
<td><strong>5–15% HVAC</strong></td>
<td>controls heating, ventilation, and air conditioning systems through a contact closure.*</td>
</tr>
</tbody>
</table>

* Go to www.lutron.com/references for more information
Codes can sometimes be complicated and difficult to navigate. This commercial application guide provides examples of how Lutron products can be used to meet or exceed code requirements.

Lutron Product Capabilities: Commercial Applications

<table>
<thead>
<tr>
<th>Strategies for code/standards compliance</th>
<th>Standalone Solutions</th>
<th>Networked Solutions</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Wallbox</td>
<td>Energi TriPak®</td>
</tr>
<tr>
<td>Occupancy sensing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multi-level lighting control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daylight harvesting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receptacle control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Timeclock</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demand response</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy Monitoring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BACnet integration</td>
<td></td>
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</tr>
</tbody>
</table>

Examples of applications utilizing these products are provided in this guide.

To learn more about these products and their specifications, go to [www.lutron.com/catalogs](http://www.lutron.com/catalogs)

* Requires QS Timeclock
† Automated Demand Response capability requires signal from a third-party device
## Summary of Code Requirements for Lighting Controls and Receptacles
### Title 24-2013

<table>
<thead>
<tr>
<th>Minimum control type</th>
<th>Description</th>
<th>Code provision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local switch</td>
<td>Readily accessible device(s) to control lighting within an enclosed space.</td>
<td>130.1(a)</td>
</tr>
<tr>
<td>Programmable timeclock</td>
<td>Scheduled time-of-day operated control that turns lighting off at specified times when typically unoccupied. Occupancy sensors or other building system signals that turn OFF lights during vacancy also comply.</td>
<td>130.1(c)1</td>
</tr>
<tr>
<td>Occupancy sensor: automatic full-off</td>
<td>Automatically shuts off lighting power after vacancy of 30 minutes or less.</td>
<td>130.1(c)5</td>
</tr>
<tr>
<td>Occupancy sensor: automatic partial-off</td>
<td>Automatically reduces lighting power in any one controlled zone by at least 50% after vacancy of 30 minutes or less.</td>
<td>130.1(c)6 &amp; 7</td>
</tr>
<tr>
<td>Multi-level lighting controls</td>
<td>At least one multi-level lighting control device (manual or automatic) in enclosed areas 100 sq. ft. or larger. Light level requirements are defined in Table 130.1-A. Note, the majority of lighting types require multiple control steps.</td>
<td>130.1(b)</td>
</tr>
<tr>
<td>Multi-level daylight control</td>
<td>Sensor to reduce lighting in response to available daylight. Daylighting zones defined in Section 130.1[d]1. Primary daylight zones must be controlled separately from secondary zones. Refer to Table 130.1-A for lighting-level requirements.</td>
<td>130.1(d) 140.6(d)</td>
</tr>
<tr>
<td>Receptacle control</td>
<td>Automatically turn OFF at least 50% of the receptacles in the space. This can either be achieved by switching every alternate receptacle within 6 feet of each uncontrolled receptacle or 50% of the outlets in each receptacle.</td>
<td>130.5(d)</td>
</tr>
<tr>
<td>Demand response</td>
<td>Automatic lighting reduction by a minimum of 15% of total installed lighting power in response to a Demand Response Signal. Required for new buildings larger than 10,000 sq. ft. or luminaire alterations that increase the lighting power in the enclosed space.</td>
<td>130.1(e)</td>
</tr>
<tr>
<td>Acceptance testing (functional testing)</td>
<td>Testing shall ensure that control hardware and software are calibrated, programmed, and functioning properly. Lutron field service has Certified Lighting Control Acceptance Testing Technicians on staff to perform the acceptance testing.</td>
<td>130.4</td>
</tr>
</tbody>
</table>

Go to [www.lutron.com/energycodes](http://www.lutron.com/energycodes) to learn more.
### Summary of Code Requirements for Lighting Controls and Receptacles

**Title 24-2013**

<table>
<thead>
<tr>
<th>Minimum control type</th>
<th>Conference, lecture hall, training room</th>
<th>Conference, meeting, multi-purpose room</th>
<th>Private Office &lt;= 250 sq. ft.</th>
<th>Open Office &gt; 250 sq. ft.</th>
<th>Corridor</th>
<th>Restroom</th>
<th>Stairwell</th>
<th>Storage room</th>
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</thead>
<tbody>
<tr>
<td><strong>On/Off Control</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Occupancy sensor: automatic full-off</td>
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<tr>
<td><strong>Light Level Control</strong></td>
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<td><img src="#" alt="bullet" /></td>
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<tr>
<td>Multi-level lighting controls</td>
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<td>Multi-level daylight control</td>
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<tr>
<td><strong>Receptacle control</strong></td>
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<td><img src="#" alt="bullet" /></td>
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<tr>
<td><strong>Demand response</strong></td>
<td><img src="#" alt="bullet" /></td>
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<td><img src="#" alt="bullet" /></td>
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<tr>
<td><strong>Acceptance testing (functional testing)</strong></td>
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</tr>
</tbody>
</table>

*Retrofits do not typically require demand response or receptacle control. Demand Response not required for buildings less than 10,000 sq.ft. See Title 24-2013 whitepaper for more information.*

Go to [www.lutron.com/energycodes](http://www.lutron.com/energycodes) to learn more.
Window Daylight Zones

**NOTE**: Fixtures in both zones must be controlled by a daylight sensor. Fixtures in the primary zone must be controlled separately from fixtures in the secondary zone.
Skylight Daylight Zone

D1 = 1.0 \times H

W = 0.7 \times H

W = 0.5 \times H

NOTE: Fixtures in both zones must be controlled by a daylight sensor. Fixtures in the primary zone must be controlled separately from fixtures in the secondary zone.
This application guide is designed to help specifiers and contractors understand codes and Lutron controls in a simple manner. Each of the pages will lay out different spaces, the corresponding products and the way the system is setup in the space.

**For Specifiers**
Use this application guide for design suggestions, the way the system operates and to specify the relevant products for each space.

**For Contractors**
Use this application guide to understand how the system is installed, the way the system must operate and to order the correct products for each application.

Please note that this is not a design guide. Actual device placement, quantity and requirements may vary based on job conditions.
How to Use this Guide
Title 24-2013

Click on any product to get more information

Classroom | Networked | Dimming EcoSystem
Title 24-2013 — For use in all classroom applications

Visible System Components

- Prox wireless remote
- Radio Power Snap wireless con/mt mount
- Vacancy and daylight sensor
- CS sensor module

Lighting Functionality

**Occupant Enters:**
- All lights automatically turn on maximum light level.
- Maximum light level is set to 60%.

**When Occupied:**
- Automatic: Overhead lights dim/brighten based on daylight availability. There are two daylight zones.
- Manual: Occupant uses wall dimmers to set desired light levels for both general and whiteboard lights.

**Occupants Exit:**
- All lights automatically shut-off 30 minutes after all occupants exit.

**System Events:**
- Demand Response: All lights automatically dim 20% during demand events.

Lighting Control Strategies

- Occupancy/Vacancy Sensing
- Personal Control
- High-End Trim/Tuning
- Daylight Harnessing
- Demand Response

Lighting Energy Savings

65%

*Go to www.lutron.com/standards to identify the correct lab kit or LID failures for your project.

Learn about the products visible in the space and the different options available for these.

Learn what strategies are implemented in the space.

Learn what energy savings you achieve over manual shut-off.

Understand how the space functions with the installed system.
This is a high-level overview of the standalone solutions layout. A single PowPak® module can control multiple fixtures. A PowPak module with EcoSystem® can be setup to control multiple dimming zones. The products shown here are representative of standalone solutions. Multiple product options are available to meet the needs of the space.

This standalone solution does not have a timeclock or demand response functionality so it cannot meet timeclock requirements in partial-OFF spaces or demand response requirements.

Note: If UL 924 emergency lighting compliance is required, please contact your local Lutron representative to learn more.

- PowPak module
- Occupancy sensor
- Pico® wireless remote control
- Daylight sensor
This is a high-level overview of the Energi Savr Node™ (ESN) and Quantum® system layout. One ESN can control multiple fixtures and zones and one QSM can cover a large area. The panel level products are not displayed in individual rooms.

To meet Title 24-2013 requirements for timeclock and demand response, a Quantum processor is required. Alternately, the timeclock and automated demand response requirements can be met with an ESN-only solution with the addition of a QS timeclock and a third-party, CCI device for demand response capability.

Note: If UL 924 emergency lighting compliance is required, please contact your local Lutron representative to learn more.

- QS sensor module (QSM)
  - Occupancy sensor
  - Pico® wireless remote control
  - Daylight sensor
<table>
<thead>
<tr>
<th>Symbol</th>
<th>Model Number</th>
<th>Description</th>
<th>Qty</th>
<th>List Price per unit</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="Image" alt="Symbol" /></td>
<td>Multiple</td>
<td>EcoSystem enabled ballasts/drivers†</td>
<td>12</td>
<td>$69.00 – $129.00</td>
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<td><img src="Image" alt="Symbol" /></td>
<td>RMJ-ECO32-DV-B</td>
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<td>$170.00</td>
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<tr>
<td><img src="Image" alt="Symbol" /></td>
<td>LRF2-OKLB-P-WH</td>
<td>Radio Powr Savr® wireless corner-mount occupancy sensor</td>
<td>1</td>
<td>$85.00</td>
</tr>
<tr>
<td><img src="Image" alt="Symbol" /></td>
<td>LRF2-DCRB-WH</td>
<td>Radio Powr Savr wireless daylight sensor</td>
<td>1</td>
<td>$120.00</td>
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<tr>
<td><img src="Image" alt="Symbol" /></td>
<td>PJ2-3BRL-GWH-L01</td>
<td>Pico® wireless control</td>
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<td>$21.00</td>
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<tr>
<td><img src="Image" alt="Symbol" /></td>
<td>PICO-WBX-ADAPT</td>
<td>Pico wallbox adapter</td>
<td>2</td>
<td>$8.00</td>
</tr>
</tbody>
</table>

† Go to [www.lutron.com/BallastTool](http://www.lutron.com/BallastTool) or [www.lutron.com/findafixture](http://www.lutron.com/findafixture) to identify the correct ballast or LED fixture for your project.
Visible System Components

Lighting Functionality

**Occupant Enters:**
- All lights automatically turn on to maximum light level. Maximum light level is set to 80%.

**When Occupied:**
- **Automatic:** Overhead lights dim/brighten based on daylight availability. There are two perimeter daylight zones.
- **Manual:** Occupant uses wall dimmers to set desired light levels for both general and whiteboard lights.

**Occupant Exits:**
- All lights automatically shut off 30 minutes after all occupants exit.

**EcoSystem is a digital communication protocol that facilitates—**
- Lighting control design using fewer components
- Rezoning without rewiring
- Compatibility between control components

Lighting Control Strategies

- **Occupancy/Vacancy Sensing**
  - Auto On
  - Auto Off

- **Personal Control**
  - Full On
  - Dm
  - Max: 100%
  - Max: 80%

- **High-End Trim/Tuning**
  - **Daylight Harvesting**
  - Full On
  - Dm

**Lighting Energy Savings***

**65%**

*Go to www.lutron.com/references for more information.
Title 24-2013 – For lighting retrofits or small buildings (<10K sq ft)

This solution requires 0–10 V enabled ballasts and drivers by others.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Model Number</th>
<th>Description</th>
<th>Qty</th>
<th>List Price per unit</th>
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</thead>
<tbody>
<tr>
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<td>RMJ-5T-DV-B</td>
<td>PowPak® dimming module with 0–10 V</td>
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<td>LRF2-OKLB-P-WH</td>
<td>Radio Powr Savr™ wireless corner-mount occupancy sensor</td>
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<td>$85.00</td>
</tr>
<tr>
<td>![Symbol]</td>
<td>LRF2-DCRB-WH</td>
<td>Radio Powr Savr wireless daylight sensor</td>
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<td>PICO-WBX-ADAPT</td>
<td>Pico wallbox adapter</td>
<td>2</td>
<td>$8.00</td>
</tr>
</tbody>
</table>

Line-voltage wiring
Clear Connect®
RF Communication
Low-voltage wiring

DZ1 & DZ2 = Daylight Zone
Visible System Components

- Pico® wireless control
- Radio Powr Savr™ wireless corner-mount occupancy sensor and daylight sensor

Lighting Functionality

**Occupant Enters:**
- All lights automatically turn on to maximum light level. Maximum light level is set to 80%.

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- Automatic: Overhead lights dim/brighten based on daylight availability. There are two perimeter daylight zones.
- Manual: Occupant uses wall dimmers to set desired light levels for both general and whiteboard lights.

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- All lights automatically shut off 30 minutes after all occupants exit.

Lighting Control Strategies

- **Occupancy/Vacancy Sensing**
- **Personal Control**
- **High-End Trim/Tuning**
- **Daylight Harvesting**

Lighting Energy Savings*

65%

*Go to www.lutron.com/references for more information.

This solution requires 0–10V enabled ballasts and drivers by others.
<table>
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<tr>
<th>Symbol</th>
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<th>Description</th>
<th>Qty</th>
<th>List Price per unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Symbol]</td>
<td>QSN-1ECO-S</td>
<td>1-Link Energi Savr Node™ (ESN) with EcoSystem panel</td>
<td>Shared</td>
<td>Contact your local Lutron Sales Rep for pricing information</td>
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<tr>
<td>![Symbol]</td>
<td>Multiple</td>
<td>EcoSystem enabled ballasts/drivers†</td>
<td>12</td>
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<td>![Symbol]</td>
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<td>Pico wallbox adapter</td>
<td>2</td>
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</tbody>
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Visible System Components

Pico® wireless control

Radio Powr Savr™ wireless corner-mount occupancy sensor and daylight sensor

Lighting Functionality

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**Occupant Exits:**
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**System Events:**
- Demand Response: All lights automatically dim 20% during demand events.

**EcoSystem is a digital communication protocol that facilitates—**
- Lighting control design using fewer components
- Rezoning without rewiring
- Compatibility between control components

Lighting Control Strategies

**Occupancy/Vacancy Sensing**

<table>
<thead>
<tr>
<th>Auto On</th>
<th>Auto Off</th>
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</thead>
</table>

**Personal Control**

<table>
<thead>
<tr>
<th>Full On</th>
<th>Dim</th>
</tr>
</thead>
</table>

**High-End Trim/Tuning**

<table>
<thead>
<tr>
<th>Max: 100%</th>
<th>Max: 80%</th>
</tr>
</thead>
</table>

**Daylight Harvesting**

<table>
<thead>
<tr>
<th>Full On</th>
<th>Dim</th>
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</thead>
</table>

**Demand Response**

<table>
<thead>
<tr>
<th>Full On</th>
<th>Dim</th>
</tr>
</thead>
</table>

Lighting Energy Savings*

65%

*Go to www.lutron.com/references for more information.
This solution requires 0–10 V enabled ballasts and drivers by others.
Visible System Components

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Lighting Control Strategies

**Occupancy/Vacancy Sensing**

**Personal Control**

**High-End Trim/Tuning**

**Daylight Harvesting**

**Demand Response**

**Lighting Energy Savings**

65%

*Go to www.lutron.com/references for more information.*

This solution requires 0–10V enabled ballasts and drivers by others.
<table>
<thead>
<tr>
<th>Symbol</th>
<th>Model Number</th>
<th>Description</th>
<th>Qty</th>
<th>List Price per unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Multiple</td>
<td>EcoSystem enabled ballasts/drivers†</td>
<td>6</td>
<td>$69.00 – $129.00</td>
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<tr>
<td><img src="symbol1.png" alt="Symbol" /></td>
<td>RMJ-ECO32-DV-B</td>
<td>PowPak® dimming module with EcoSystem</td>
<td>1</td>
<td>$170.00</td>
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<tr>
<td><img src="symbol2.png" alt="Symbol" /></td>
<td>LRF2-OKLB-P-WH</td>
<td>Radio Powr Savr™ wireless corner-mount occupancy sensor</td>
<td>1</td>
<td>$85.00</td>
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<tr>
<td><img src="symbol3.png" alt="Symbol" /></td>
<td>LRF2-DCRB-WH</td>
<td>Radio Powr Savr™ wireless daylight sensor</td>
<td>1</td>
<td>$120.00</td>
</tr>
<tr>
<td><img src="symbol4.png" alt="Symbol" /></td>
<td>PJ2-3BRL-GWH-L01</td>
<td>Pico® wireless control</td>
<td>2</td>
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<td><img src="symbol5.png" alt="Symbol" /></td>
<td>PICO-WBX-ADAPT</td>
<td>Pico wallbox adapter</td>
<td>2</td>
<td>$8.00</td>
</tr>
</tbody>
</table>

† Go to www.lutron.com/BallastTool or www.lutron.com/findafixture to identify the correct ballast or LED fixture for your project.
Visible System Components

Lighting Functionality

**Occupant Enters:**
- All lights automatically turn on to maximum light level. Maximum light level is set to 80%.

**When Occupied:**
- Automatic: Overhead lights dim/brighten based on daylight availability. There are two daylight zones
- Manual: Occupant uses wall dimmers to set desired light levels for all lights.

**Occupant Exits:**
- All lights automatically shut off 30 minutes after all occupants exit.

**EcoSystem is a digital communication protocol that facilitates–**
- Lighting control design using fewer components
- Rezoning without rewiring
- Compatibility between control components

Lighting Control Strategies

**Occupancy/Vacancy Sensing**

**Personal Control**

**High-End Trim/Tuning**

**Daylight Harvesting**

Lighting Energy Savings*

60%

*Go to www.lutron.com/references for more information.
Conference Room | Standalone | Dimming 0–10V
Title 24-2013 – For lighting retrofits or small buildings (<10 K sq ft)

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Model Number</th>
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<tr>
<td></td>
<td>RMJ-5T-DV-B</td>
<td>PowPak® dimming module with 0–10 V</td>
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<tr>
<td></td>
<td>LRF2-OKLB-P-WH</td>
<td>Radio Powr Savr™ wireless corner-mount occupancy sensor</td>
<td>1</td>
<td>$85.00</td>
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<tr>
<td></td>
<td>LRF2-DCRB-WH</td>
<td>Radio Powr Savr™ wireless daylight sensor</td>
<td>1</td>
<td>$120.00</td>
</tr>
<tr>
<td></td>
<td>PJ2-3BRL-GWH-L01</td>
<td>Pico® wireless control</td>
<td>1</td>
<td>$21.00</td>
</tr>
<tr>
<td></td>
<td>PICO-WBX-ADAPT</td>
<td>Pico wallbox adapter</td>
<td>1</td>
<td>$8.00</td>
</tr>
</tbody>
</table>

This solution requires 0–10V enabled ballasts and drivers by others.
### Visible System Components

- **Pico® wireless control**
- **Radio Powr Savr™ wireless corner-mount occupancy sensor and daylight sensor**

### Lighting Functionality

**Occupant Enters:**
- All lights automatically turn on to maximum light level. Maximum light level is set to 80%.

**When Occupied:**
- Automatic: Overhead lights dim/brighten based on daylight availability. There are two daylight zones.
- Manual: Occupant uses wall dimmer to set desired light levels for both front and rear lights.

**Occupant Exits:**
- All lights automatically shut off 30 minutes after all occupants exit.

### Lighting Control Strategies

<table>
<thead>
<tr>
<th></th>
<th>Occupancy/Vacancy Sensing</th>
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<tbody>
<tr>
<td></td>
<td>Auto On</td>
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<table>
<thead>
<tr>
<th></th>
<th>Personal Control</th>
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<tr>
<td></td>
<td>Full On</td>
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<table>
<thead>
<tr>
<th></th>
<th>High-End Trim/Tuning</th>
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<tr>
<td></td>
<td>Max: 100%</td>
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<table>
<thead>
<tr>
<th></th>
<th>Daylight Harvesting</th>
</tr>
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<tr>
<td></td>
<td>Full On</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Lighting Energy Savings*

60%

*Go to [www.lutron.com/references](http://www.lutron.com/references) for more information.

This solution requires 0–10 V enabled ballasts and drivers by others.
### Conference Room | Standalone | Receptacle Control

**Title 24-2013 – For all conference room applications**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Model Number</th>
<th>Description</th>
<th>Qty</th>
<th>List Price per unit</th>
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<tr>
<td><img src="image1.png" alt="Symbol" /></td>
<td>LRF2-OCR2B-P-WH</td>
<td>Radio Powr Savr™ wireless ceiling-mount occupancy sensor</td>
<td>Shared</td>
<td>$85.00</td>
</tr>
<tr>
<td><img src="image2.png" alt="Symbol" /></td>
<td>RMJ-H20R-DV-B</td>
<td>20A PowPak™ relay module</td>
<td>1</td>
<td>$300.00</td>
</tr>
</tbody>
</table>

---

*Line-voltage wiring*  
*Clear Connect® RF Communication*
Visible System Components

Radio Powr Savr™
wireless ceiling-mount
occupancy sensor

Lighting Functionality

**Occupant Enters:**
- Controlled receptacles automatically regain power when occupant enters.

**Occupant Exits:**
- 50% of all receptacles automatically shut off 30 minutes after all occupants exit.

Receptacle Control Strategies

Plug load control
To ESN panel

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Model Number</th>
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<tbody>
<tr>
<td></td>
<td>QSN-1ECO-S</td>
<td>1-Link Energi Savr Node™ (ESN) with EcoSystem™ panel</td>
<td>Shared</td>
<td></td>
</tr>
<tr>
<td></td>
<td>QSM2-4W-C</td>
<td>QS sensor module (QSM)</td>
<td>Shared</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Multiple</td>
<td>EcoSystem™ enabled ballasts/drivers†</td>
<td>6</td>
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<tr>
<td></td>
<td>LRF2-OKLB-P-WH</td>
<td>Radio Powr Savr™ wireless corner-mount occupancy sensor</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LRF2-DCRB-WH</td>
<td>Radio Powr Savr wireless daylight sensor</td>
<td>1</td>
<td></td>
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<tr>
<td></td>
<td>PJ2-3BRL-GWH-L01</td>
<td>Pico® wireless control</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PICO-WBX-ADAPT</td>
<td>Pico wallbox adapter</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

† Go to www.lutron.com/BallastTool or www.lutron.com/findafixture to identify the correct ballast or LED fixture for your project.
Conference Room | Networked | Dimming EcoSystem®
Title 24-2013 – For all conference room applications

Visible System Components

- Pico® wireless control
- Radio Powr Savr™ wireless corner-mount occupancy sensor and daylight sensor

Lighting Functionality

**Occupant Enters:**
- All lights automatically turn on to maximum light level. Maximum light level is set to 80%.

**When Occupied:**
- Automatic: Overhead lights dim/brighten based on daylight availability. There are two perimeter daylight zones.
- Manual: Occupant uses wall dimmers to set desired light levels for all lights.

**Occupant Exits:**
- All lights automatically shut off 30 minutes after all occupants exit.

**System Events:**
- Demand Response: All lights automatically dim 20% during demand events.

**EcoSystem is a digital communication protocol that facilitates**—
- Lighting control design using fewer components
- Rezoning without rewiring
- Compatibility between control components

Lighting Control Strategies

- **Occupancy/Vacancy Sensing**
- **Personal Control**
- **High-End Trim/Tuning**
- **Daylight Harvesting**
- **Demand Response**

**Lighting Energy Savings**

60%

*Go to www.lutron.com/references for more information.*
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<th>List Price per unit</th>
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<tbody>
<tr>
<td></td>
<td>QSN-4T16-S</td>
<td>Energi Savr Node™ with 0–10 V (up to 4 zones)</td>
<td></td>
<td>Shared</td>
</tr>
<tr>
<td></td>
<td>QSM2-4W-C</td>
<td>QS sensor module (QSM)</td>
<td></td>
<td>Shared</td>
</tr>
<tr>
<td></td>
<td>LRF2-OKLB-P-WH</td>
<td>Radio Powr Savr™ wireless corner-mount occupancy sensor</td>
<td>1</td>
<td></td>
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<tr>
<td></td>
<td>LRF2-DCRB-WH</td>
<td>Radio Powr Savr wireless daylight sensor</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PJ2-3BRL-GWH-L01</td>
<td>Pico® wireless control</td>
<td>1</td>
<td></td>
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<td></td>
<td>PICO-WBX-ADAPT</td>
<td>Pico wallbox adapter</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

This solution requires 0–10 V enabled ballasts and drivers by others.

Contact your local Lutron Sales Rep for pricing information.
Visible System Components

- Pico® wireless control
- Radio Powr Savr™ wireless corner-mount occupancy sensor and daylight sensor

Lighting Functionality

**Occupant Enters:**
- All lights automatically turn on to maximum light level. Maximum light level is set to 80%.

When Occupied:
- Automatic: Overhead lights dim/brighten based on daylight availability. There are two perimeter daylight zones.
- Manual: Occupant uses wall dimmer to set desired light levels for all lights.

**Occupant Exits:**
- All lights automatically shut off 30 minutes after all occupants exit.

System Events:
- Demand Response: All lights automatically dim 20% during demand events.

Lighting Control Strategies

- **Occupancy/Vacancy Sensing**
  - Auto On
  - Auto Off

- **Personal Control**
  - Full On
  - Dim

- **High-End Trim/Tuning**
  - Max: 100%
  - Max: 80%

- **Daylight Harvesting**
  - Full On
  - Dim

- **Demand Response**
  - Full On
  - Dim

Lighting Energy Savings*

60%

*Go to [www.lutron.com/references](http://www.lutron.com/references) for more information.

This solution requires 0–10V enabled ballasts and drivers by others.
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<th>Qty</th>
<th>List Price per unit</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>LRF2-OCR2B-P-WH</td>
<td>Radio Powr Savr™ wireless ceiling-mount occupancy sensor</td>
<td>Shared</td>
<td>Contact your local Lutron Sales Rep for pricing information</td>
</tr>
<tr>
<td></td>
<td>XP24-FT</td>
<td>24-Circuit XP feed-through switching panel</td>
<td>Shared</td>
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</tbody>
</table>
Visible System Components

Radio Powr Savr™
wireless ceiling-mount
occupancy sensor

Lighting Functionality

**Occupant Enters:**
- Controlled receptacles automatically regain power when occupant enters.

**Occupant Exits:**
- 50% of all receptacles automatically shut off 30 minutes after all occupants exit.

Lighting Control Strategies

Plug load control
<table>
<thead>
<tr>
<th>Symbol</th>
<th>Model Number</th>
<th>Description</th>
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<th>List Price per unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Symbol]</td>
<td>RMJ-ECO32-DV-B</td>
<td>PowPak® dimming module with EcoSystem</td>
<td>1</td>
<td>$170.00</td>
</tr>
<tr>
<td>![Symbol]</td>
<td>LRF2-OCR2B-P-WH</td>
<td>Radio Powr Savr™ wireless ceiling-mount occupancy sensor</td>
<td>4</td>
<td>$85.00</td>
</tr>
<tr>
<td>![Symbol]</td>
<td>LRF2-DCRB-WH</td>
<td>Radio Powr Savr wireless daylight sensor</td>
<td>1</td>
<td>$120.00</td>
</tr>
<tr>
<td>![Symbol]</td>
<td>PJ2-3BRL-GWH-L01</td>
<td>Pico® wireless control</td>
<td>1</td>
<td>$21.00</td>
</tr>
<tr>
<td>![Symbol]</td>
<td>PICO-WBX-ADAPT</td>
<td>Pico wallbox adapter</td>
<td>1</td>
<td>$8.00</td>
</tr>
<tr>
<td>![Symbol]</td>
<td>Multiple</td>
<td>EcoSystem enabled ballast/driver†</td>
<td>16</td>
<td>$69.00 – 129.00</td>
</tr>
</tbody>
</table>

† Go to www.lutron.com/BallastTool or www.lutron.com/findafixture to identify the correct ballast or LED fixture for your project.
Visible System Components

- Pico® wireless control
- Radio Powr Savr™ wireless ceiling-mount occupancy sensor and daylight sensor

Lighting Functionality

**Occupant Enters:**
- All lights automatically turn on to maximum light level. Maximum light level is set to 80%.

**When Occupied:**
- Automatic: Overhead lights dim/brighten based on daylight availability. There are two perimeter daylight zones.
- Manual: Occupant uses wall dimmer to set desired light levels for all lights.

**Occupant Exits:**
- All lights automatically shut off 30 minutes after all occupants exit.

**EcoSystem is a digital communication protocol that facilitates—**
- Lighting control design using fewer components
- Rezoning without rewiring
- Compatibility between control components

Lighting Control Strategies

- **Occupancy/Vacancy Sensing**
  - Auto On
  - Auto Off

- **High-End Trim/Tuning**
  - Max 100%
  - Max 80%

- **Daylight Harvesting**
  - Full On
  - Dim

Lighting Energy Savings*

60%

*Go to www.lutron.com/references for more information.
### Table: Product Information

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Model Number</th>
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<tr>
<td><img src="image1" alt="Symbol" /></td>
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<tr>
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<td>LRF2-OCR2B-P-WH</td>
<td>Radio Powr Savr™ wireless ceiling-mount occupancy sensor</td>
<td>4</td>
<td>$85.00</td>
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<tr>
<td><img src="image3" alt="Symbol" /></td>
<td>LRF2-DCRB-WH</td>
<td>Radio Powr Savr wireless daylight sensor</td>
<td>1</td>
<td>$120.00</td>
</tr>
<tr>
<td><img src="image4" alt="Symbol" /></td>
<td>PJ2-3BRL-GWH-L01</td>
<td>Pico® wireless control</td>
<td>1</td>
<td>$21.00</td>
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<tr>
<td><img src="image5" alt="Symbol" /></td>
<td>PICO-WBX-ADAPT</td>
<td>Pico wallbox adapter</td>
<td>1</td>
<td>$8.00</td>
</tr>
</tbody>
</table>

This solution requires 0–10 V enabled ballasts and drivers by others.
Visible System Components

- Pico® wireless control
- Radio Powr Savr™ wireless ceiling-mount occupancy sensor and daylight sensor

Lighting Functionality

**Occupant Enters:**
- All lights automatically turn on to maximum light level. Maximum light level is set to 80%.

**When Occupied:**
- Automatic: Overhead lights dim/brighten based on daylight availability. There are two perimeter daylight zones.
- Manual: Occupant uses wall dimmer to set desired light levels for all lights.

**Occupant Exits:**
- All lights automatically shut off 30 minutes after all occupants exit.

Lighting Control Strategies

**Occupancy/Vacancy Sensing**
- Auto On
- Auto Off

**High-End Trim/Tuning**
- Max: 100%
- Max: 80%

**Daylight Harvesting**
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- Dim

Lighting Energy Savings*

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<tbody>
<tr>
<td></td>
<td>LRF2-OCR2B-P-WH</td>
<td>Radio Powr Savr™ wireless ceiling-mount occupancy sensor</td>
<td>Shared</td>
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<tr>
<td></td>
<td>RMJ-H20R-DV-B</td>
<td>20 A PowPak® relay module</td>
<td>1</td>
<td>$300.00</td>
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Visible System Components

Radio Powr Savr™
wireless ceiling-mount
occupancy sensor

Lighting Functionality

**Occupant Enters:**
- Controlled receptacles automatically regain power when occupant enters.

**Occupant Exits:**
- 50% of all receptacles automatically shut off 30 minutes after all occupants exit.

Lighting Control Strategies

Plug load control

Appliance On

Appliance Off
<table>
<thead>
<tr>
<th>Symbol</th>
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<tbody>
<tr>
<td></td>
<td>QSN-1ECO-S</td>
<td>1-Link Energi Savr Node™ (ESN) with EcoSystem panel</td>
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<td></td>
<td>PICO-WBX-ADAPT</td>
<td>Pico wallbox adapter</td>
<td>1</td>
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Visible System Components

- Pico® wireless control
- Radio Powr Savr™ wireless ceiling-mount occupancy sensor and daylight sensor

Lighting Functionality

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**Occupant Exits:**
- All lights automatically shut off 30 minutes after all occupants exit.

**System Events:**
- Demand Response: All lights automatically dim 20% during demand events.

**EcoSystem is a digital communication protocol that facilitates—**
- Lighting control design using fewer components
- Rezoning without rewiring
- Compatibility between control components

Lighting Control Strategies

- **Occupancy/Vacancy Sensing**
- **High-End Trim/Tuning**
- **Daylight Harvesting**
- **Demand Response**

**Lighting Energy Savings***

60%

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<td>QSN-4T16-S</td>
<td>Energi Savr Node™ with 0–10 V (up to 4 zones)</td>
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<td>QSM2-4W-C</td>
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<td>LRF2-OCR2B-P-WH</td>
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<td>PJ2-3BRL-GWH-L01</td>
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<td>PICO-WBX-ADAPT</td>
<td>Pico wallbox adapter</td>
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This solution requires 0–10 V enabled ballasts and drivers by others.
Visible System Components

- Pico® wireless control
- Radio Powr Savr™ wireless ceiling-mount occupancy sensor and daylight sensor

Lighting Functionality

**Occupant Enters:**
- All lights automatically turn on to maximum light level. Maximum light level is set to 80%.

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**System Events:**
- Demand Response: All lights automatically dim 20% during demand events.

Lighting Control Strategies

- **Occupancy/Vacancy Sensing**
- **High-End Trim/Tuning**
- **Daylight Harvesting**
- **Demand Response**

Lighting Energy Savings*

60%

*Go to www.lutron.com/references for more information.

This solution requires 0–10V enabled ballasts and drivers by others.
<table>
<thead>
<tr>
<th>Symbol</th>
<th>Model Number</th>
<th>Description</th>
<th>Qty</th>
<th>List Price per unit</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Symbol" /></td>
<td>LRF2-OCR2B-P-WH</td>
<td>Radio Powr Savr™ wireless ceiling-mount occupancy sensor</td>
<td>Shared</td>
<td>Contact your local Lutron Sales Rep for pricing information</td>
</tr>
<tr>
<td><img src="image2.png" alt="Symbol" /></td>
<td>XP24-FT</td>
<td>24-Circuit XP feed-through switching panel</td>
<td>Shared</td>
<td></td>
</tr>
</tbody>
</table>
Visible System Components

Radio Powr Savr™ wireless ceiling-mount occupancy sensor

Lighting Functionality

**Occupant Enters:**
- Controlled receptacles automatically regain power when occupant enters.

**Occupant Exits:**
- 50% of all receptacles automatically shut off 30 minutes after all occupants exit.

Receptacle Control Strategies

![Plug load control](Appliance On Appliance Off)
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<tr>
<th>Symbol</th>
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<th>Qty</th>
<th>List Price per unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Multiple</td>
<td>EcoSystem enabled ballast/driver†</td>
<td>4</td>
<td>$69.00 – $129.00</td>
</tr>
<tr>
<td></td>
<td>RMJ-ECO32-DV-B</td>
<td>PowPak® dimming module with EcoSystem</td>
<td>1</td>
<td>$170.00</td>
</tr>
<tr>
<td></td>
<td>LRF2-OCR2B-P-WH</td>
<td>Radio Powr Savr™ wireless ceiling-mount occupancy sensor</td>
<td>1</td>
<td>$85.00</td>
</tr>
<tr>
<td></td>
<td>LRF2-DCRB-WH</td>
<td>Radio Powr Savr wireless daylight sensor</td>
<td>1</td>
<td>$120.00</td>
</tr>
<tr>
<td></td>
<td>PJ2-3BRL-GWH-L01</td>
<td>Pico® wireless control</td>
<td>1</td>
<td>$21.00</td>
</tr>
<tr>
<td></td>
<td>PICO-WBX-ADAPT</td>
<td>Pico wallbox adapter</td>
<td>1</td>
<td>$8.00</td>
</tr>
</tbody>
</table>

† Go to www.lutron.com/BallastTool or www.lutron.com/findafixture to identify the correct ballast or LED fixture for your project.
Visible System Components

Pico® wireless control

Radio Powr Savr™ wireless ceiling-mount occupancy sensor and daylight sensor

Lighting Functionality

**Occupant Enters:**
- All lights automatically turn on to maximum light level. Maximum light level is set to 80%.

**When Occupied:**
- Automatic: Overhead lights dim/brighten based on daylight availability.
- Manual: Occupant uses wall dimmer to set desired light levels for all lights.

**Occupant Exits:**
- All lights automatically shut off 30 minutes after all occupants exit.

**EcoSystem is a digital communication protocol that facilitates—**
- Lighting control design using fewer components
- Rezoning without rewiring
- Compatibility between control components

Lighting Control Strategies

<table>
<thead>
<tr>
<th>Occupancy/Vacancy Sensing</th>
<th>Personal Control</th>
<th>High-End Trim/Tuning</th>
<th>Daylight Harvesting</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="full_on.png" alt="Auto On" /> <img src="auto_off.png" alt="Auto Off" /></td>
<td><img src="full_on.png" alt="Full On" /> <img src="dim.png" alt="Dim" /></td>
<td><img src="max_100.png" alt="Max: 100%" /> <img src="max_80.png" alt="Max: 80%" /></td>
<td><img src="full_on.png" alt="Full On" /> <img src="dim.png" alt="Dim" /></td>
</tr>
</tbody>
</table>

Lighting Energy Savings*

60%

*Go to [www.lutron.com/references](http://www.lutron.com/references) for more information.
<table>
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<th>List Price per unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RMJ-5T-DV-B</td>
<td>PowPak® dimming module with 0–10 V</td>
<td>1</td>
<td>$130.00</td>
</tr>
<tr>
<td></td>
<td>LRF2-OCR2B-P-WH</td>
<td>Radio Powr Savr™ wireless ceiling-mount occupancy sensor</td>
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<td></td>
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<tr>
<td></td>
<td>PJ2-3BRL-GWH-L01</td>
<td>Pico® wireless control</td>
<td>1</td>
<td>$21.00</td>
</tr>
<tr>
<td></td>
<td>PICO-WBX-ADAPT</td>
<td>Pico wallbox adapter</td>
<td>1</td>
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</table>

This solution requires 0–10 V enabled ballasts and drivers by others.
Visible System Components

Lighting Functionality

**Occupant Enters:**
- All lights automatically turn on to maximum light level. Maximum light level is set to 80%.

**When Occupied:**
- Automatic: Overhead lights dim/brighten based on daylight availability.
- Manual: Occupant uses wall dimmer to set desired light levels for all lights.

**Occupant Exits:**
- All lights automatically shut off 30 minutes after all occupants exit.

Lighting Control Strategies

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<tr>
<th>High-End Trim/Tuning</th>
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<tbody>
<tr>
<td>Max: 100%</td>
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<tr>
<th>Daylight Harvesting</th>
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</table>

Lighting Energy Savings*

60%

*Go to www.lutron.com/references for more information.

This solution requires 0–10 V enabled ballasts and drivers by others.
### Symbol Model Number Description Qty List Price per unit

- ![Symbol](image) **LRF2-OCR2B-P-WH** Radio Powr Savr™ wireless ceiling-mount occupancy sensor
  - Shared
  - $85.00

- ![Symbol](image) **RMJ-H20R-DV-B** 20 A PowPak® Relay Module
  - 1
  - $300.00

---

**Private Office | Standalone | Receptacle Control**

Title 24-2013 – For all private office applications
Visible System Components

Radio Powr Savr™
wireless ceiling-mount occupancy sensor

Lighting Functionality

**Occupant Enters:**
- Controlled receptacles automatically regain power when occupant enters.

**Occupant Exits:**
- 50% of all receptacles automatically shut off 30 minutes after all occupants exit.

Receptacle Control Strategies

[Image of plug load control]

- **Plug load control**
  - Appliance On
  - Appliance Off
Title 24-2013 – For all private office applications

To identify the correct ballast or LED fixture for your project, go to www.lutron.com/BallastTool or www.lutron.com/findafixture.

<table>
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<tr>
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<td></td>
<td>QSN-1ECO-S</td>
<td>1-Link Energi Savr Node™ (ESN) with EcoSystem panel</td>
<td>Shared</td>
<td></td>
</tr>
<tr>
<td></td>
<td>QSM2-4W-C</td>
<td>QS sensor module (QSM)</td>
<td>Shared</td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
<td>LRF2-OCR2B-P-WH</td>
<td>Radio Powr Savr™ wireless ceiling-mount occupancy sensor</td>
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<td></td>
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<td>Radio Powr Savr wireless daylight sensor</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>PJ2-3BRL-GWH-L01</td>
<td>Pico® wireless control</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PICO-WBX-ADAPT</td>
<td>Pico wallbox adapter</td>
<td>1</td>
<td></td>
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</tbody>
</table>

† Contact your local Lutron Sales Rep for pricing information.

Go to www.lutron.com/BallastTool or www.lutron.com/findafixture to identify the correct ballast or LED fixture for your project.
Visible System Components

Pico® wireless control

Radio Powr Savr™ wireless ceiling-mount occupancy sensor and daylight sensor

Lighting Functionality

**Occupant Enters:**
- All lights automatically turn on to maximum light level. Maximum light level is set to 80%.

**When Occupied:**
- Automatic: Overhead lights dim/brighten based on daylight availability.
- Manual: Occupant uses wall dimmer to set desired light levels for all lights.

**Occupant Exits:**
- All lights automatically shut off 30 minutes after all occupants exit.

**System Events:**
- Demand Response: All lights automatically dim 20% during demand events.

**EcoSystem** is a digital communication protocol that facilitates—
- Lighting control design using fewer components
- Rezoning without rewiring
- Compatibility between control components

Lighting Control Strategies

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<thead>
<tr>
<th></th>
<th>Occupancy/Vacancy Sensing</th>
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<tbody>
<tr>
<td>Auto On</td>
<td>Auto Off</td>
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<table>
<thead>
<tr>
<th></th>
<th>Personal Control</th>
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</thead>
<tbody>
<tr>
<td>Full On</td>
<td>Dm</td>
</tr>
<tr>
<td>Max: 100%</td>
<td>Max: 80%</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
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<th>High-End Trim/Tuning</th>
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<tbody>
<tr>
<td>Full On</td>
<td>Dm</td>
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<thead>
<tr>
<th></th>
<th>Daylight Harvesting</th>
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<tbody>
<tr>
<td>Full On</td>
<td>Dm</td>
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<tr>
<th></th>
<th>Demand Response</th>
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<td>Full On</td>
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Lighting Energy Savings*

60%

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<tr>
<td></td>
<td>QSN-4T16-S</td>
<td>Energi Savr Node™ with 0-10V (up to 4 zones)</td>
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<td></td>
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<td>QSM2-4W-C</td>
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<td>LRF2-OCR2B-P-WH</td>
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<td>PICO-WBX-ADAPT</td>
<td>Pico wallbox adapter</td>
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<td></td>
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</tbody>
</table>

This solution requires 0-10V enabled ballasts and drivers by others.
Visible System Components

Pico® wireless control
Radio Powr Savr™ wireless ceiling-mount occupancy sensor and daylight sensor

Lighting Functionality

**Occupant Enters:**
- All lights automatically turn on to maximum light level. Maximum light level is set to 80%.

**When Occupied:**
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**System Events:**
- Demand Response: All lights automatically dim 20% during demand events.

Lighting Control Strategies

- **Occupancy/Vacancy Sensing**
  - Auto On
  - Auto Off

- **Personal Control**
  - Full On
  - Dim
  - Max: 100%
  - Max: 80%

- **High-End Trim/Tuning**
  - Full On
  - Dim

- **Daylight Harvesting**
  - Full On
  - Dim

- **Demand Response**
  - Full On
  - Dim

**Lighting Energy Savings**

60%

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This solution requires 0–10 V enabled ballasts and drivers by others.
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<tbody>
<tr>
<td><img src="image" alt="Symbol" /></td>
<td>LRF2-OCR2B-P-WH</td>
<td>Radio Powr Savr™ wireless ceiling-mount occupancy sensor</td>
<td>Shared</td>
<td>Contact your local Lutron Sales Rep for pricing information</td>
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<tr>
<td><img src="image" alt="Symbol" /></td>
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Visible System Components

Radio Powr Savr™
Wireless ceiling-mount occupancy sensor

Lighting Functionality

**Occupant Enters:**
- Controlled receptacles automatically regain power when occupant enters.

**Occupant Exits:**
- 50% of all receptacles automatically shut off 30 minutes after all occupants exit.

Receptacle Control Strategies

**Plug load control**

Title 24-2013 – For all private office applications
**Symbol Model Number Description Qty List Price per unit**

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</thead>
<tbody>
<tr>
<td><img src="image" alt="Symbol" /></td>
<td>Multiple</td>
<td>EcoSystem enabled ballasts/drivers†</td>
<td>6</td>
<td>$69.00 – $129.00</td>
</tr>
<tr>
<td><img src="image" alt="Symbol" /></td>
<td>RMJ-ECO32-DV-B</td>
<td>PowPak® dimming module with EcoSystem</td>
<td>1</td>
<td>$170.00</td>
</tr>
<tr>
<td><img src="image" alt="Symbol" /></td>
<td>LRF2-OHLB-P-WH</td>
<td>Radio Powr Savr™ wireless hallway occupancy sensor</td>
<td>1</td>
<td>$85.00</td>
</tr>
<tr>
<td><img src="image" alt="Symbol" /></td>
<td>PJ2-3BRL-GWH-L01</td>
<td>Pico® wireless control</td>
<td>1</td>
<td>$21.00</td>
</tr>
<tr>
<td><img src="image" alt="Symbol" /></td>
<td>PICO-WBX-ADAPT</td>
<td>Pico wallbox adapter</td>
<td>1</td>
<td>$8.00</td>
</tr>
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</table>

† Go to www.lutron.com/BallastTool or www.lutron.com/findafixture to identify the correct ballast or LED fixture for your project.

---

**Corridor | Standalone | Dimming EcoSystem®**

Title 24-2013 – For lighting retrofits or small buildings (<10K sq ft); may require a third-party timeclock

To emergency power

1 per fixture

To emergency power

- **Red**: Line-voltage wiring
- **Blue**: Low-voltage wiring
- **Clear Connect®**: RF Communication

---

58
Visible System Components

- Pico® wireless control
- Radio Powr Savr™ wireless hallway occupancy sensor

Lighting Functionality

**Occupant Enters:**
- All lights automatically turn on to maximum light level. Maximum light level is set to 80%.

**When Occupied:**
- Manual: Occupant uses wall dimmer to set desired light levels for all lights.

**Occupant Exits:**
- All lights automatically dim to 20% after all occupants exit.

**EcoSystem is a digital communication protocol that facilitates—**
- Lighting control design using fewer components
- Rezoning without rewiring
- Compatibility between control components

Lighting Control Strategies

- **Occupancy/Vacancy Sensing**
- **High-End Trim/Tuning**

Lighting Energy Savings*

60%

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### Symbol Model Number Description Qty List Price per unit

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<tbody>
<tr>
<td><img src="image1" alt="Symbol" /></td>
<td>RMJ-5T-DV-B</td>
<td>PowPak® dimming module with 0–10 V</td>
<td>1</td>
<td>$130.00</td>
</tr>
<tr>
<td><img src="image2" alt="Symbol" /></td>
<td>LRF2-OHLB-P-WH</td>
<td>Radio Powr Savr™ wireless hallway occupancy sensor</td>
<td>1</td>
<td>$85.00</td>
</tr>
<tr>
<td><img src="image3" alt="Symbol" /></td>
<td>PJ2-3BRL-GWH-L01</td>
<td>Pico® wireless control</td>
<td>1</td>
<td>$21.00</td>
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<tr>
<td><img src="image4" alt="Symbol" /></td>
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<td>Pico wallbox adapter</td>
<td>1</td>
<td>$8.00</td>
</tr>
</tbody>
</table>

This solution requires 0–10V enabled ballasts and drivers by others.

---

**Corridor | Standalone | Dimming 0–10V**  
Title 24-2013 – For lighting retrofits or small buildings (<10K sq ft); may require a third-party timeclock

---

To emergency power

- **Line-voltage wiring**
- **Low-voltage wiring**
- Clear Connect™ RF Communication
Visible System Components

Pico® wireless control

Radio Powr Savr™ wireless hallway occupancy sensor

Lighting Functionality

**Occupant Enters:**
- All lights automatically turn on to maximum light level. Maximum light level is set to 80%.

**When Occupied:**
- Manual: Occupant uses wall dimmer to set desired light levels for all lights.

**Occupant Exits:**
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Lighting Control Strategies

**Occupancy/Vacancy Sensing**

**High-End Trim/Tuning**

Lighting Energy Savings*

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<tr>
<td><img src="image1.png" alt="Icon" /></td>
<td>QSN-1ECO-S</td>
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<td>Shared</td>
<td></td>
</tr>
<tr>
<td><img src="image2.png" alt="Icon" /></td>
<td>QSM2-4W-C</td>
<td>QS sensor module (QSM)</td>
<td>Shared</td>
<td></td>
</tr>
<tr>
<td><img src="image3.png" alt="Icon" /></td>
<td>Multiple</td>
<td>EcoSystem enabled ballasts/drivers†</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td><img src="image4.png" alt="Icon" /></td>
<td>LRF2-OHLB-P-WH</td>
<td>Radio Powr Savr™ wireless hallway occupancy sensor</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><img src="image5.png" alt="Icon" /></td>
<td>PJ2-3BRL-GWH-L01</td>
<td>Pico® wireless control</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><img src="image6.png" alt="Icon" /></td>
<td>PICO-WBX-ADAPT</td>
<td>Pico wallbox adapter</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

† Go to www.lutron.com/BallastTool or www.lutron.com/findafixture to identify the correct ballast or LED fixture for your project.
Visible System Components

![Pico® wireless control](image1.png) ![Radio Powr Savr™ wireless hallway occupancy sensor](image2.png)

Lighting Functionality

**Occupant Enters:**
- All lights automatically turn on to maximum light level. Maximum light level is set to 80%.

**When Occupied:**
- Manual: Occupant uses wall dimmer to set desired light levels for all lights.

**Occupant Exits:**
- All lights automatically dim to 20% after all occupants exit.

**System Events:**
- Demand Response: All lights automatically dim 20% during demand events.

**Timeclock:**
- Timeclock turns off lights during unoccupied hours.

**EcoSystem is a digital communication protocol that facilitates—**
- Lighting control design using fewer components
- Rezoning without rewiring
- Compatibility between control components

Lighting Control Strategies

**Occupancy/Vacancy Sensing**
- Auto On
- Auto Off

**High-End Trim/Tuning**
- Max: 100%
- Max: 80%

**Demand Response**
- Full On
- Dim

**Scheduling**
- 7am: Dim
- 7pm: Off

Lighting Energy Savings*

60%

*Go to www.lutron.com/references for more information.
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<tr>
<td><img src="image2.png" alt="Symbol" /></td>
<td>QSM2-4W-C</td>
<td>QS sensor module (QSM)</td>
<td>Shared</td>
<td></td>
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<tr>
<td><img src="image3.png" alt="Symbol" /></td>
<td>LRF2-OKLB-P-WH</td>
<td>Radio Powr Savr™ wireless hallway occupancy sensor</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><img src="image4.png" alt="Symbol" /></td>
<td>PJ2-3BRL-GWH-L01</td>
<td>Pico® wireless control</td>
<td>1</td>
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<tr>
<td><img src="image5.png" alt="Symbol" /></td>
<td>PICO-WBX-ADAPT</td>
<td>Pico wallbox adapter</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

This solution requires 0-10V enabled ballasts and drivers by others.

Contact your local Lutron Sales Rep for pricing information.
Visible System Components

- Pico® wireless control
- Radio Powr Savr™ wireless hallway occupancy sensor

Lighting Functionality

**Occupant Enters:**
- All lights automatically turn on to maximum light level. Maximum light level is set to 80%.

**When Occupied:**
- Manual: Occupant uses wall dimmer to set desired light levels for all lights.

**Occupant Exits:**
- All lights automatically dim to 20% after all occupants exit.

**System Events:**
- Demand Response: All lights automatically dim 20% during demand events.

**Timeclock:**
- Timeclock turns off lights during unoccupied hours.

Lighting Control Strategies

- **Occupancy/Vacancy Sensing**
  - Auto On
  - Auto Off

- **High-End Trim/Tuning**
  - Max: 100%
  - Max: 80%

- **Demand Response**
  - Full On
  - Dim

- **Scheduling**
  - 7am: Dim
  - 7pm: Off

Lighting Energy Savings*

60%

*Go to www.lutron.com/references for more information.

This solution requires 0–10 V enabled ballasts and drivers by others.
**Symbol** | **Model Number** | **Description** | **Qty** | **List Price per unit**
--- | --- | --- | --- | ---
      | Multiple | EcoSystem enabled ballasts/drivers† | 4 | $69.00 – $129.00
      | RMJ-ECO32-DV-B | PowPak® dimming module with EcoSystem | 1 | $170.00
      | LRF2-OCR2B-P-WH | Radio Powr Savr™ wireless ceiling-mount occupancy sensor | 2 | $85.00
      | PJ2-3BRL-GWH-L01 | Pico® wireless control | 1 | $21.00
      | PICO-WBX-ADAPT | Pico wallbox adapter | 1 | $8.00

† Go to www.lutron.com/BallastTool or www.lutron.com/findafixture to identify the correct ballast or LED fixture for your project.
Visible System Components

Pico® wireless control

Radio Powr Savr™ wireless ceiling-mount occupancy sensor

Lighting Functionality

**Occupant Enters:**
- All lights automatically turn on to maximum light level. Maximum light level is set to 80%.

**When Occupied:**
- Manual: Occupant uses wall dimmer to set desired light levels for all lights.

**Occupant Exits:**
- All lights automatically shut off 30 minutes after all occupants exit.

**EcoSystem is a digital communication protocol that facilitates—**
- Lighting control design using fewer components
- Rezoning without rewiring
- Compatibility between control components

Lighting Control Strategies

- **Occupancy/Vacancy Sensing**
  - Auto On
  - Auto Off

- **High-End Trim/Tuning**
  - Max: 100%
  - Max: 80%

Lighting Energy Savings*

60%

*Go to www.lutron.com/references for more information.
### Symbol Model Number Description Qty List Price per unit

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Model Number</th>
<th>Description</th>
<th>Qty</th>
<th>List Price per unit</th>
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<tbody>
<tr>
<td>![Symbol]</td>
<td>RMJ-5T-DV-B</td>
<td>PowPak\textregistered dimming module with 0–10 V</td>
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<td>![Symbol]</td>
<td>LRF2-OCR2B-P-WH</td>
<td>Radio Powr Savr\texttrademark wireless ceiling-mount occupancy sensor</td>
<td>2</td>
<td>$85.00</td>
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<tr>
<td>![Symbol]</td>
<td>PJ2-3BRL-GWH-L01</td>
<td>Pico\textregistered wireless control</td>
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<td>$21.00</td>
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<tr>
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<td>PICO-WBX-ADAPT</td>
<td>Pico wallbox adapter</td>
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<td>$8.00</td>
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</tbody>
</table>

This solution requires 0–10V enabled ballasts and drivers by others.
Visible System Components

- Pico® wireless control
- Radio Powr Savr™ wireless ceiling-mount occupancy sensor

Lighting Functionality

Occupant Enters:
- All lights automatically turn on to maximum light level. Maximum light level is set to 80%.

When Occupied:
- Manual: Occupant uses wall dimmer to set desired light levels for all lights.

Occupant Exits:
- All lights automatically shut off 30 minutes after all occupants exit.

Lighting Control Strategies

- Occupancy/Vacancy Sensing
  - Auto On
  - Auto Off

- High-End Trim/Tuning
  - Max: 100%
  - Max: 80%

Lighting Energy Savings*

60%

*Go to www.lutron.com/references for more information.
<table>
<thead>
<tr>
<th>Symbol</th>
<th>Model Number</th>
<th>Description</th>
<th>Qty</th>
<th>List Price per unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Symbol]</td>
<td>QSN-1ECO-S</td>
<td>1-Link Energi Savr Node™ (ESN) with EcoSystem panel</td>
<td>Shared</td>
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</tr>
<tr>
<td>![Symbol]</td>
<td>QSM2-4W-C</td>
<td>QS sensor module (QSM)</td>
<td>Shared</td>
<td></td>
</tr>
<tr>
<td>![Symbol]</td>
<td>Multiple</td>
<td>EcoSystem enabled ballasts/drivers†</td>
<td>4</td>
<td>Contact your local Lutron Sales Rep for pricing information</td>
</tr>
<tr>
<td>![Symbol]</td>
<td>LRF2-OCR2B-P-WH</td>
<td>Radio Powr Savr™ wireless ceiling-mount occupancy sensor</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>![Symbol]</td>
<td>PJ2-3BRL-GWH-L01</td>
<td>Pico® wireless control</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>![Symbol]</td>
<td>PICO-WBX-ADAPT</td>
<td>Pico wallbox adapter</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

† Go to www.lutron.com/BallastTool or www.lutron.com/findafixture to identify the correct ballast or LED fixture for your project.
Visible System Components

<table>
<thead>
<tr>
<th>Symbol Model Number</th>
<th>Description</th>
<th>Qty</th>
<th>List Price per unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>QSN-1ECO-S</td>
<td>1-Link Energi Savr Node™ (ESN) with EcoSystem panel Shared</td>
<td></td>
<td></td>
</tr>
<tr>
<td>QSM2-4W-C</td>
<td>QS sensor module (QSM) Shared</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>LRF2-OCR2B-P-WH</td>
<td>Radio Powr Savr™ wireless ceiling-mount occupancy sensor</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>PJ2-3BRL-GWH-L01</td>
<td>Pico® wireless control</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>PICO-WBX-ADAPT</td>
<td>Pico wallbox adapter</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Restroom (multiple stalls) | Networked | Dimming EcoSystem®
Title 24-2013 – For all restroom applications

Lighting Functionality

**Occupant Enters:**
- All lights automatically turn on to maximum light level. Maximum light level is set to 80%.

**When Occupied:**
- Manual: Occupant uses wall dimmer to set desired light levels for all lights.

**Occupant Exits:**
- All lights automatically shut off 30 minutes after all occupants exit.

**System Events:**
- Demand Response: All lights automatically dim 20% during demand events.

**EcoSystem is a digital communication protocol that facilitates—**
- Lighting control design using fewer components
- Rezoning without rewiring
- Compatibility between control components

Lighting Control Strategies

**Occupancy/Vacancy Sensing**
- Auto On
- Auto Off

**High-End Trim/Tuning**
- Max 100%
- Max 80%

**Demand Response**
- Full On
- Dim

Lighting Energy Savings*

60%

*Go to www.lutron.com/references for more information.
<table>
<thead>
<tr>
<th>Symbol</th>
<th>Model Number</th>
<th>Description</th>
<th>Qty</th>
<th>List Price per unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Symbol]</td>
<td>QSN-4T16-S</td>
<td>Energi Savr Node™ with 0–10 V (up to 4 zones)</td>
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<tr>
<td>![Symbol]</td>
<td>QSM2-4W-C</td>
<td>QS sensor module (QSM)</td>
<td>Shared</td>
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</tr>
<tr>
<td>![Symbol]</td>
<td>LRF2-OCR2B-P-WH</td>
<td>Radio Powr Savr™ wireless ceiling-mount occupancy sensor</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>![Symbol]</td>
<td>PJ2-3BRL-GWH-L01</td>
<td>Pico® wireless control</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>![Symbol]</td>
<td>PICO-WBX-ADAPT</td>
<td>Pico wallbox adapter</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

This solution requires 0–10 V enabled ballasts and drivers by others.
Visible System Components

- Pico® wireless control
- Radio Powr Savr™ wireless ceiling-mount occupancy sensor

Lighting Functionality

**Occupant Enters:**
- All lights automatically turn on to maximum light level.

**When Occupied:**
- Manual: Occupant uses wall dimmer to set desired light levels for all lights.

**Occupant Exits:**
- All lights automatically shut off 30 minutes after all occupants exit.

**System Events:**
- Demand Response: All lights automatically dim 20% during demand events.

Lighting Control Strategies

- **Occupancy/Vacancy Sensing**
  - Auto On
  - Auto Off

- **High-End Trim/Tuning**
  - Max: 100%
  - Max: 80%

- **Demand Response**
  - Full On
  - Dim

Lighting Energy Savings*

60%

*Go to www.lutron.com/references for more information.

This solution requires 0–10V enabled ballasts and drivers by others.
<table>
<thead>
<tr>
<th>Symbol</th>
<th>Model Number</th>
<th>Description</th>
<th>Qty</th>
<th>List Price per unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MS-OPS6M2-DV-WH</td>
<td>Maestro® occupancy sensor switch</td>
<td>1</td>
<td>$53.00</td>
</tr>
</tbody>
</table>

Restroom (single) | Standalone | Switching
Title 24-2013 – For small restrooms (<100W) in lighting retrofits or small buildings (<10K sq ft)

Line-voltage wiring
Visible System Components

Maestro® occupancy sensor switch

Lighting Functionality

**Occupant Enters:**
- All lights automatically turn on to maximum light level.

**When Occupied:**
- Occupant uses wall switch to shut off all lights.

**Occupant Exits:**
- All lights automatically shut off 30 minutes after all occupants exit.

Lighting Control Strategies

![Occupancy/Vacancy Sensing]

Lighting Energy Savings*

50%

*Go to www.lutron.com/references for more information.
## Small Storage Room | Standalone | Switching

Title 24-2013 – For small storage rooms (<100W) in lighting retrofits or small buildings (<10 K sq ft)

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Model Number</th>
<th>Description</th>
<th>Qty</th>
<th>List Price per unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MS-OPS6M2-DV-WH</td>
<td>Maestro® occupancy sensor switch</td>
<td>1</td>
<td>$53.00</td>
</tr>
</tbody>
</table>
Visible System Components

Maestro® occupancy sensor switch

Lighting Functionality

**Occupant Enters:**
- All lights automatically turn on to maximum light level.

**When Occupied:**
- Occupant uses wall switch to shut off all lights.

**Occupant Exits:**
- All lights automatically shut off 30 minutes after all occupants exit.

Lighting Control Strategies

- Occupancy/Vacancy Sensing

<table>
<thead>
<tr>
<th>Auto On</th>
<th>Auto Off</th>
</tr>
</thead>
</table>

Lighting Energy Savings*

30%

*Go to www.lutron.com/references for more information.
A section of the floor is shown. A floor cross-section is shown. One fixture per landing is suggested.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Model Number</th>
<th>Description</th>
<th>Qty</th>
<th>List Price per unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FXSWLX44</td>
<td>Lutron 4’ stairwell LED fixture</td>
<td>2 (per floor)</td>
<td>$540.00</td>
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<td>LRF2-OKLB-P-WH</td>
<td>Radio Powr Savr™ wireless corner-mount occupancy sensor</td>
<td>1 (per floor)</td>
<td>$85.00</td>
</tr>
</tbody>
</table>
Visible System Components

Radio Powr Savr™
wireless corner-mount occupancy sensor

Stairwell LED fixture

Lighting Functionality

**Occupant Enters:**
- All lights automatically turn on to maximum light level. Maximum light level is set to 80%.

**Occupant Exits:**
- All lights automatically dim to 20% after all occupants exit.

Lighting Control Strategies

- **Occupancy/Vacancy Sensing**
  - Auto On
  - Auto Off

- **High-End Trim/Tuning**
  - Max: 100%
  - Max: 80%

Lighting Energy Savings*

80%

Some stairwells may require manual control. Please verify local requirements.

*Go to www.lutron.com/references for more information.