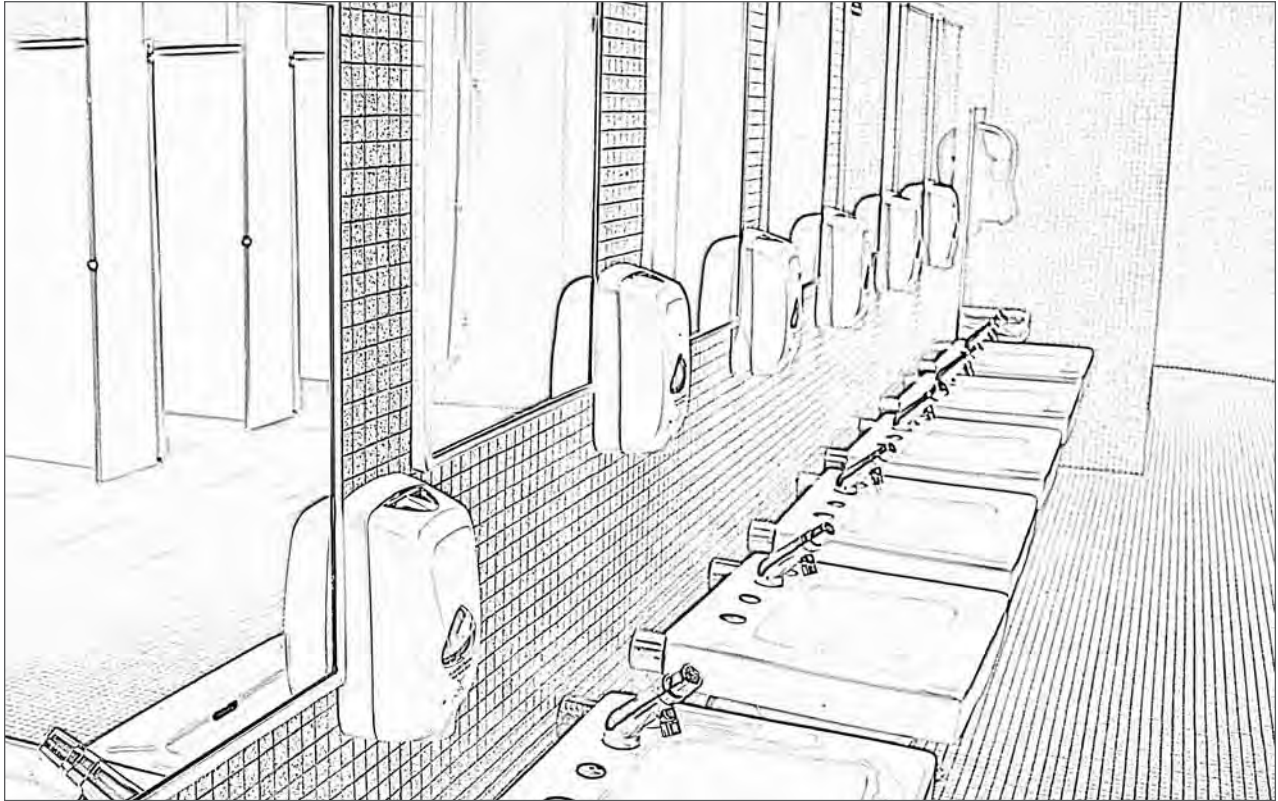# Light control solutions
Restrooms

Total Light Management™ in restrooms

Restrooms are spaces that require basic, automatic lighting control.

The challenge: Create cost-effective lighting control for daily use.

The opportunity: Utilize energy-saving light control strategies. Save energy by turning off lights and adjusting HVAC when the room is unoccupied.

Types of space:

· Single-stall

· Multi-stall

· Executive, multi-stall

Requirements:

· Meet energy code requirement for automatic shut-off

· Comply with ASHRAE/IES 90.1 -2010 Lighting Power Density (LPD) requirements of .98 W/ sq. ft. for restrooms

※ **LUTRON**®

save energy with Lutron™ ®

Restroom examples

Control functionality	Basic	Intermediate	Advanced
Space types	Single-stall restroom	Multi-stall restroom	Executive, multi-stall restroom
Typical interior finish level	Class C building (basic finish level)	Class B building (intermediate finish level)	Class A building (high-end finish level)
Lights and shades - Zones - Fixture types	**1 switched lighting zone** · Recessed parabolic fluorescent	**1 switched lighting zones** · CFL downlights · Linear wall washers	**3 dimmed lighting zones** · CFL downlights · CFL decorative sconces
Code-required strategies	Occupancy sensor	Occupancy sensor	Occupancy sensor
Additional strategies	n/a	n/a	Dimmed fluorescent

The first three rows are grouped under **Define the space**; the last two rows are grouped under **Light control strategies**.

Note: Use the Lutron® PowPak™ CCO module to integrate Radio Powr Savr™ sensors with HVAC and other building systems, and to maximize energy savings. For information, contact your Lutron representative, or visit www.lutron.com/EnergiTriPak

Basic restroom

Single-stall restroom for general use, incorporating a basic lighting system.

Control strategies:

- Occupancy sensing
- Switched fluorescent

8 ft.

9 ft.
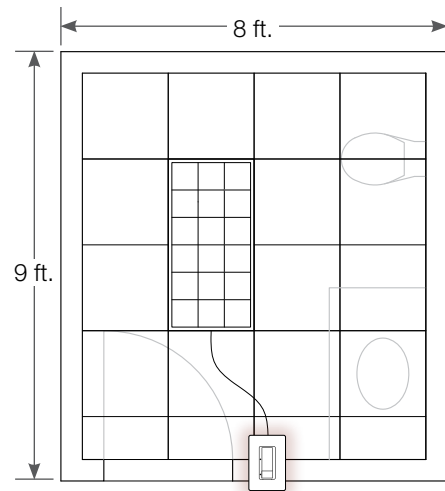
Controls not to scale with reflected ceiling plan

Key	
▦(+ ▭)*	2x4, 2-lamp 32W T8 U Lamp - with switching ballast
▯	Maestro® in-wall switch with occupancy sensor, with 1-gang Claro® wallplate

* Not shown in reflected ceiling plan

Maestro switch with occupancy sensor

- Easy to operate
- Installs in as little as 15 minutes
- Allows on/off control of lights
- Uses reliable Clear Connect™ Radio Frequency (RF) Technology; operates at 434 MHz band; XCT™ sensor technology detects fine motion

One-line diagram:

Maestro switch with occupancy sensor

Recessed fluorescent fixture (by others)
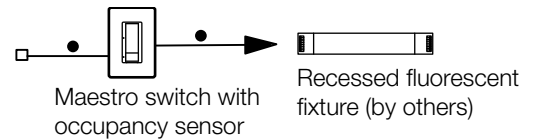
Wiring Symbols

● 2 #12AWG + Ground

□ 120V or 277V Input Power

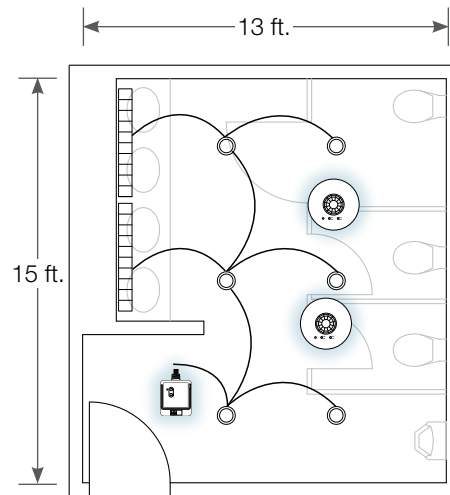| Bill of materials		
Control	**Qty.**	**Description**
MS-OPS6M-DV-WH	1	Maestro switch with occupancy sensor
CW-1-WH	1	1-gang Claro wallplate
Materials cost (suggested list price, labor not included) = $66.90		

Intermediate restroom

Multi-stall restroom for general use, incorporating a basic lighting system.

Control strategies:

· Occupancy sensing

Controls not to scale with reflected ceiling plan

Key

◎ (+ ▭)*	26W Compact fluorescent (CFL) downlight - with bi-level switching ballast
▦(+ ▭)*	Linear fluorescent wallwash 32W T8 fixture - with bi-level switching ballast
▯**	PowPak™ relay module with Softswitch®
◉	Radio Powr Savr™ wireless, ceiling-mount, occupancy sensor

* Not shown in reflected ceiling plan
** Located above ceiling

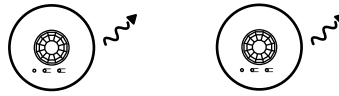**PowPak relay module with Softswitch**

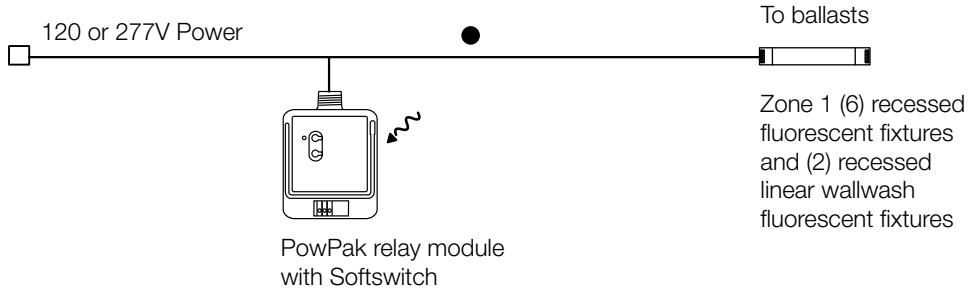· Allows connected lighting loads to be switched in response to wireless occupancy sensors

Radio Powr Savr wireless, ceiling-mount, occupancy sensor

· Installs in as little as 15 minutes

· Communicates with compatible Lutron® devices

· Uses reliable Clear Connect™ Radio Frequency (RF) Technology; operates at 434 MHz band; XCT™ sensor technology detects fine motion

One-line diagram:

Radio Powr Savr wireless, ceiling-mount, occupancy sensors

120 or 277V Power

To ballasts

PowPak relay module with Softswitch

Zone 1 (6) recessed fluorescent fixtures and (2) recessed linear wallwash fluorescent fixtures

Wiring Symbols

● 2 #12AWG + Ground

☐ 120V or 277V Input Power

〰 RF Communication

Bill of materials		
Control	**Qty.**	**Description**
RMJ-16R-DV-B	1	PowPak relay module with Softswitch
LRF2-OCR2B-P-WH	2	Radio Powr Savr wireless, ceiling-mount, occupancy sensor
Materials cost (suggested list price, labor not included) = $279.00		

Advanced restroom

Executive multi-stall restroom incorporating a high-end, dimmed lighting system.

Control strategies:

- Occupancy sensing
- Manual switching control
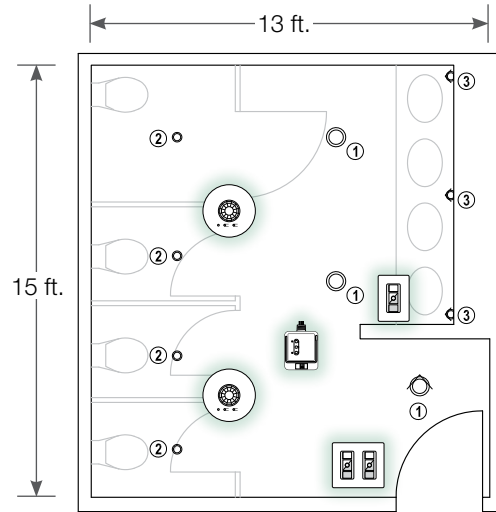
Controls not to scale with reflected ceiling plan

① Indicates control zone

Key

◎ (+ ⬚)*	26W CFL downlight with EcoSystem® dimming ballast
◈ (+ ⬚)*	26W CFL wall wash with EcoSystem dimming ballast
○ (+ ⬚)*	10W LED downlight with A-Series dimming ballast
⌂ (+ ⬚)*	13W LED wall sconce with A-Series dimming ballast
⊛	Radio Powr Savr™ wireless, ceiling-mount, occupancy sensor
▯**	PowPak™ dimming module with EcoSystem
▤▤	Pico® wireless dimming control with 1-gang and 2-gang Claro® wallplates

* Not shown in reflected ceiling plan
** Located above ceiling

Radio Powr Savr wireless, ceiling-mount, occupancy sensor

- Installs in as little as 15 minutes
- Communicates with compatible Lutron® dimmers, switches and light control systems
- Uses reliable Clear Connect™ Radio Frequency (RF) Technology; operates at 434 MHz band; XCT™ sensor technology detects fine motion
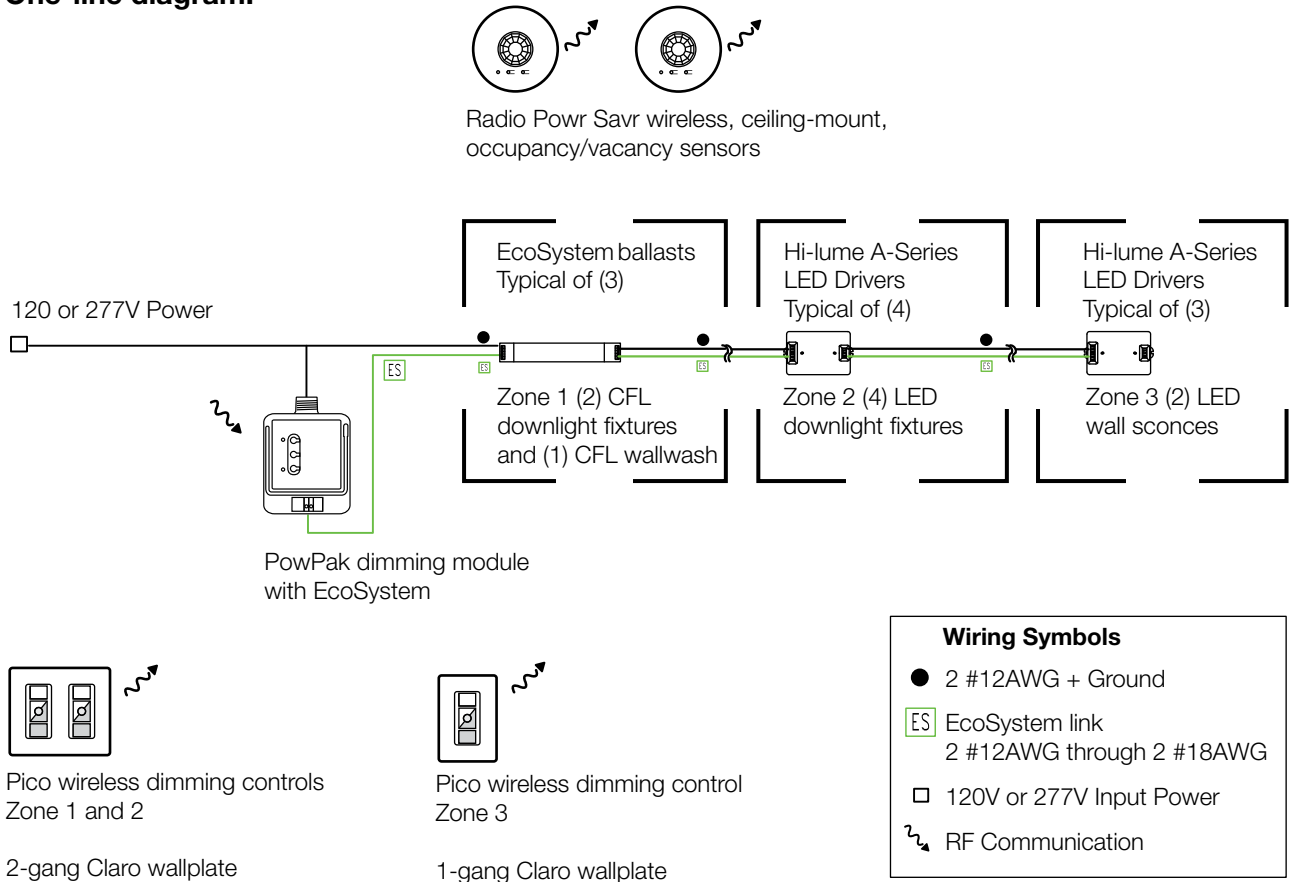
Pico wireless control

- Provides wireless dimming control of lighting loads; communicates with PowPak dimming module with EcoSystem

PowPak dimming module with EcoSystem

- Allows connected lighting loads to be switched in response to wireless occupancy/ vacancy sensors, daylight sensors, and Pico controls

One-line diagram:

Radio Powr Savr wireless, ceiling-mount, occupancy/vacancy sensors

120 or 277V Power

EcoSystem ballasts
Typical of (3)

Hi-lume A-Series
LED Drivers
Typical of (4)

Hi-lume A-Series
LED Drivers
Typical of (3)

Zone 1 (2) CFL
downlight fixtures
and (1) CFL wallwash

Zone 2 (4) LED
downlight fixtures

Zone 3 (2) LED
wall sconces

PowPak dimming module
with EcoSystem

Pico wireless dimming controls
Zone 1 and 2

2-gang Claro wallplate

Pico wireless dimming control
Zone 3

1-gang Claro wallplate

Wiring Symbols

● 2 #12AWG + Ground

ES EcoSystem link
2 #12AWG through 2 #18AWG

□ 120V or 277V Input Power

⤳ RF Communication

Bill of materials		
Control	**Qty.**	**Description**
LRF2-OCR2B-P-WH	2	Radio Powr Savr wireless, ceiling-mount, occupancy sensor
RMJ-ECO32-DV-B	1	PowPak dimming module with EcoSystem
MRF2-3BRL-L-WH	3	Pico wireless dimming control
EC3D T4MW K U I S	3	EcoSystem dimming ballast[1]
L3DA-4UIUKN	7	Hi-lume A-Series LED dimming driver[1]
CW-2-WH	1	Claro 2-gang wallplate
CW-1-WH	1	Claro 1-gang wallplate
Materials cost: Contact Lutron for pricing		

1 Ballasts and drivers typically purchased with fixtures. Cost does not include price of fixtures.

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with
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