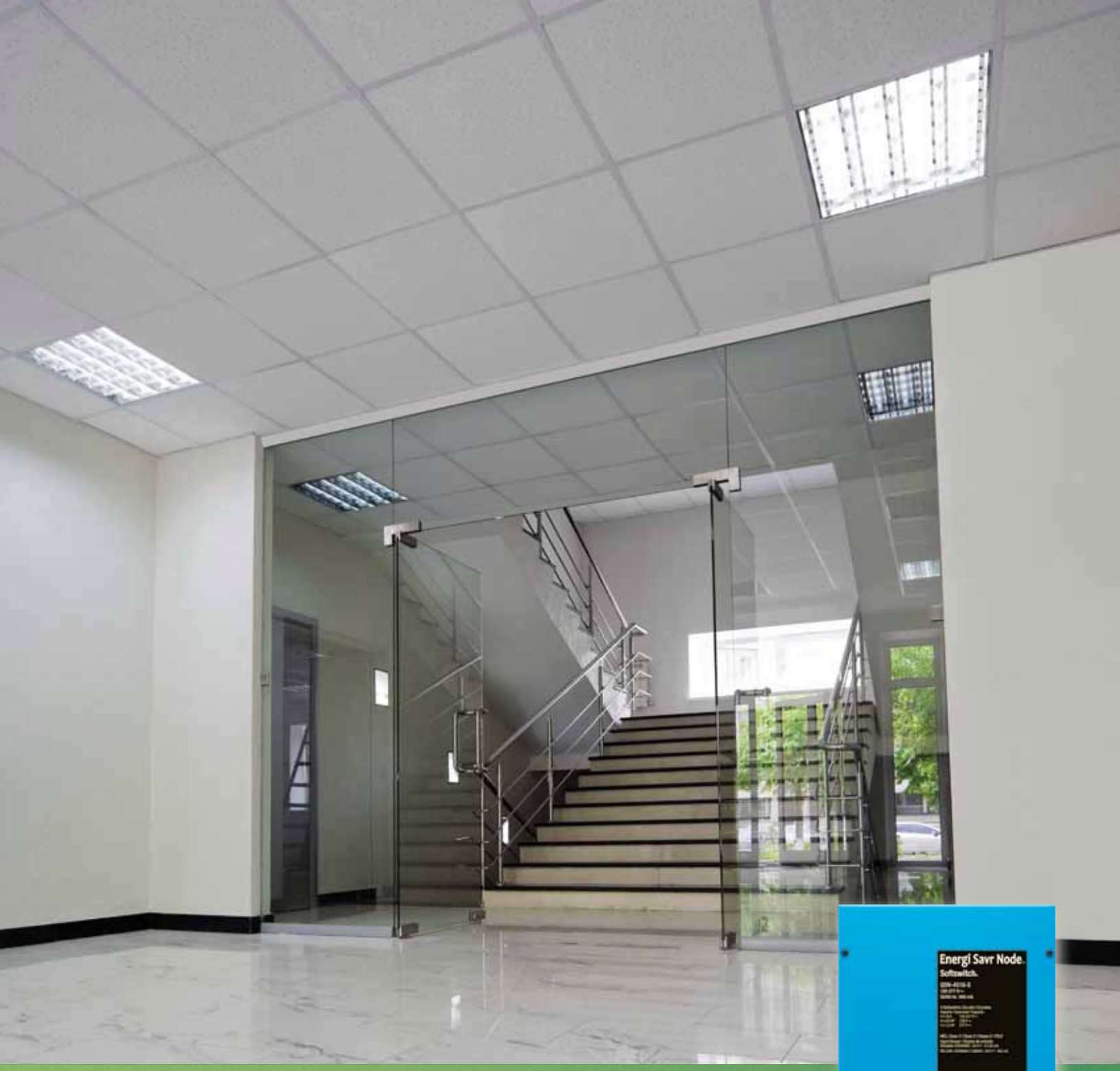


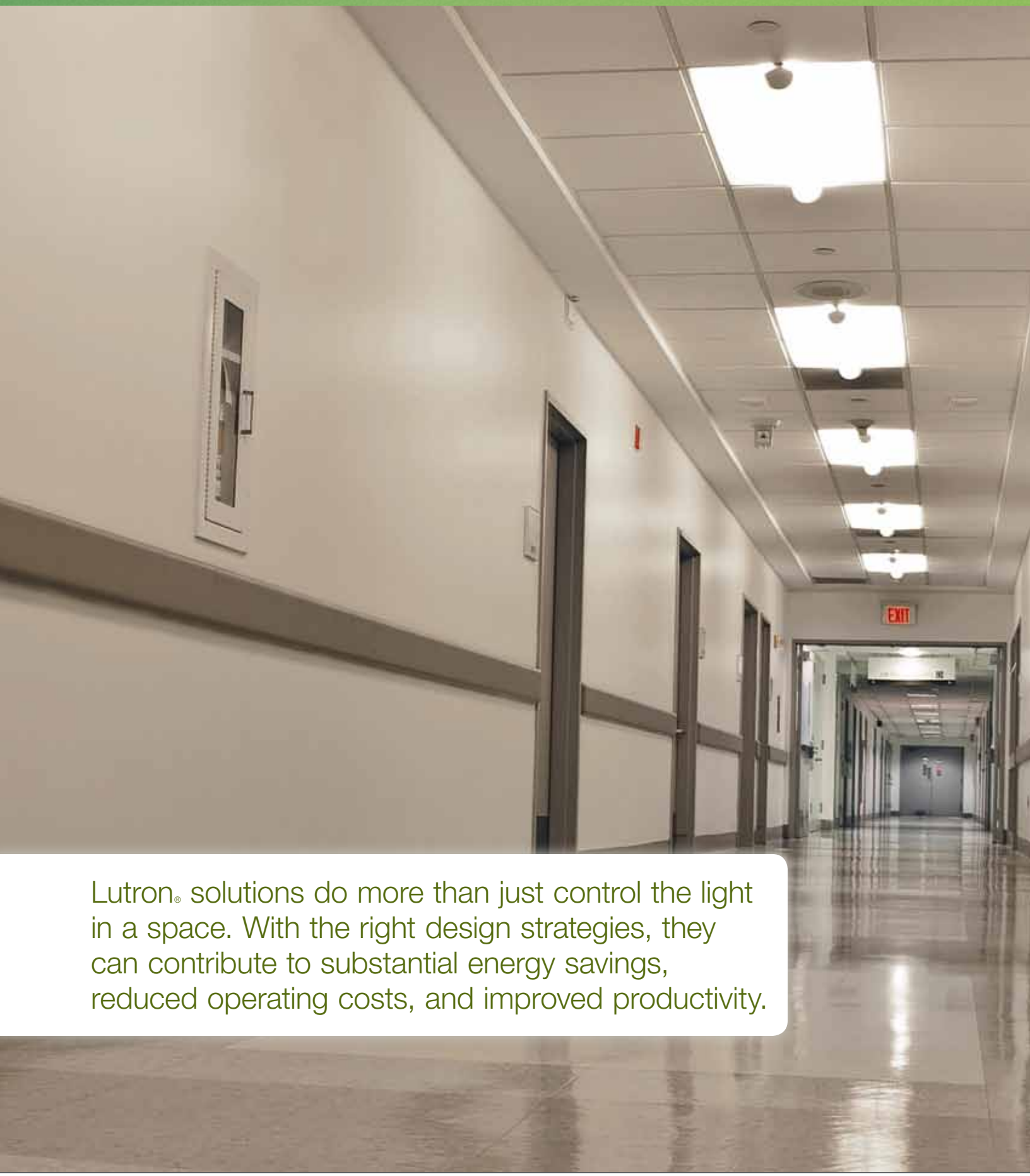
Energi Savr Node™ with Softswitch®

Design and Application Guide

LUTRON®

save energy with Lutron™ ®

Energi Savr Node™ with Softswitch®



Lutron® solutions do more than just control the light in a space. With the right design strategies, they can contribute to substantial energy savings, reduced operating costs, and improved productivity.

Energi Savr Node™ with Softswitch® design and application guide

03 Benefits
04 Energy-saving light control strategies
06 Codes and standards
08 How to design a system
10 Wiring overview
24 Expand the system
26 Concept drawings
32 The Lutron difference

Components

12 Energi Savr Node with Softswitch module
13 QS sensor module
14 Occupancy/vacancy sensors
16 Daylight sensors
18 QS Timeclock or GRAFIK Eye® QS
19 QS interfaces
20 Pico® controls
22 seeTouch® QS wallstations
23 Programming

Energi Savr Node™ with Softswitch®

Energi Savr Node with Softswitch is a simple, programmable, smart module that controls all the lights and saves energy in a commercial space. The Energi Savr Node with Softswitch module can be used to switch third-party ballasts and other non-dim loads, as well as connect wired and wireless occupancy/vacancy sensors, daylight sensors, and wallstations to manage light in a variety of spaces. Ideal for retrofits and new construction, each Energi Savr Node with Softswitch module can be installed locally, without connecting to a central panel.

Energi Savr Node is a module that allows for distributed control of a lighting system and easily integrates occupancy/vacancy sensors, daylight sensors and digital controls with:

- Fluorescent, LED, HID, and incandescent loads (Softswitch model, shown)
- 0–10 V fluorescent dimming ballasts and LED drivers (0–10 V model)

Benefits

Easy to install and maintain

- For simple applications, Energi Savr Node with Softswitch modules come preconfigured with occupancy/vacancy sensing and daylighting modes; manual programming is also available
- Integrate wireless sensors and controls through the QS sensor module; no need for costly wiring in renovations or retrofit applications
- An intuitive programming application designed for the iPhone® or iPod touch[1]® mobile digital device is available for more advanced programming needs and/or when a solution incorporates multiple Energi Savr Node modules

Reliable

- Patented Softswitch relays are rated for one million cycles, reducing maintenance costs

Expansion capacity

- Control the lighting in a single space—up to an entire floor—with one or more Energi Savr Node modules
- Link to the Quantum® system for total light management, entire building control, and maximum energy efficiency
- Integrated contact closure in each module for integration with third-party devices such as timeclock controls and building management systems

Ideal for new construction and retrofit applications:

- Office buildings
- Education facilities
- Healthcare facilities
- Public spaces such as stairwells, hallways, lobbies, and storage areas

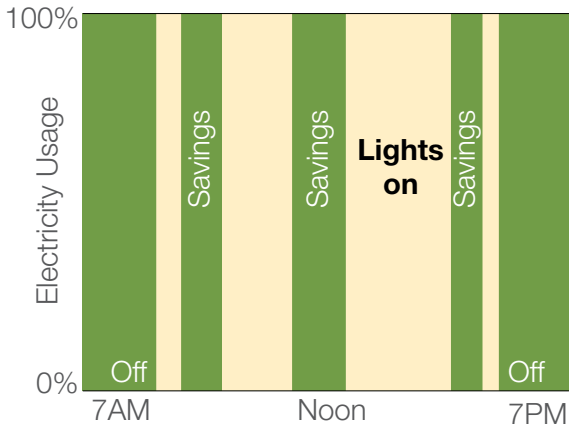
1 iPhone®, iPod touch® and iPad® are registered trademark of Apple®, Inc., registered in the U.S. and other countries.

Energy-saving light control strategies

Intelligent lighting control offers a significant energy-saving opportunity

Despite the fact that most lighting is energy-efficient fluorescent, the number-one source of energy consumption in any building is still lighting. Energy-saving light control strategies implemented using the Energi Savr Node™ with Softswitch® module can save up to 40% of the lighting energy used in your building.

Occupancy/vacancy sensing

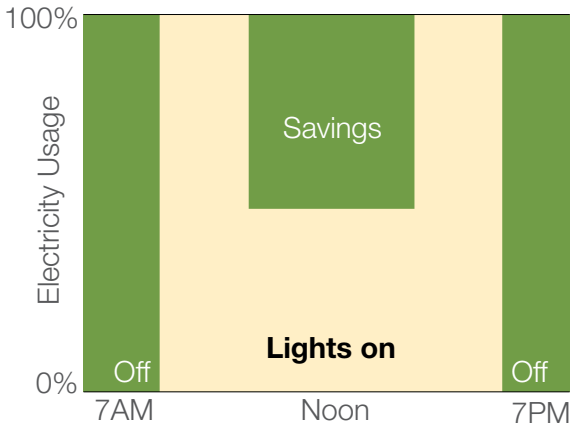


Turn lights off when space is unoccupied; turn lights on when someone enters.

Best applied in enclosed areas such as meeting rooms, offices, classrooms, and corridors.

Typical lighting energy savings: 15%[1]

Daylight harvesting



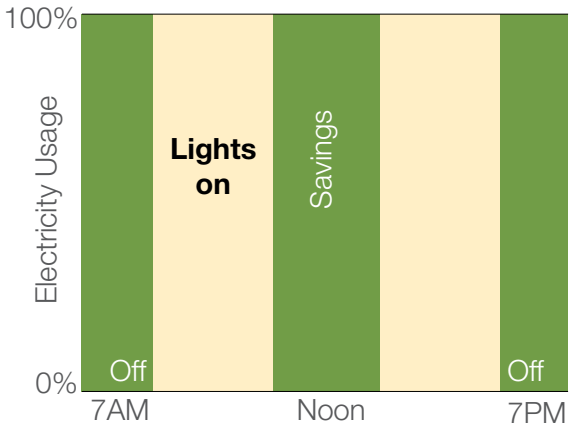
Switch zones of light off during the day to take advantage of available daylight.

Best applied in areas with large windows or skylights, such as perimeter offices, classrooms, malls, and atriums.

Typical lighting energy savings: 15%[2]

1 IESNA 2000 Proceedings, Paper #43: An analysis of the energy and cost savings potential of occupancy sensors for commercial lighting systems. “Occupancy sensor savings range from 17% to 60% depending upon space type and time delay settings.”
2 Lighting Research Center. The Potential of Simplified Concepts for Daylight Harvesting. Leslie, R.P., R. Raghavan, O. Howlett, and C. Eaton. 2005. http://www.lrc.rpi.edu/programs/daylighting/rp_simplifiedconcepts.asp

Timeclock scheduling



Automatically adjusts lights at certain times of the day or in relation to sunrise and sunset.

Best applied in areas such as stairwells, meeting rooms, offices, and classrooms.

Typical lighting energy savings: Variable

Combine lighting control strategies to maximize efficiency

When timeclock scheduling is used in combination with Lutron® sensors the system can deliver lighting energy savings exceeding 40%.

Potential lighting energy savings when combining all light control strategies: 40%+

ASHRAE Energy Code 90.1–2010

ASHRAE Energy Code 90.1–2010 is the newest energy standard and is the basis for most state-specific codes as well as the IECC code. The following chart outlines sections of the ASHRAE code most applicable to lighting energy, and identifies the Lutron® lighting control solutions that can help you meet and exceed these codes.

For more specific information on energy codes in your state, visit www.bcap-energy.org

ASHRAE Section	Energi Savr Node™ with Softswitch® Solution
Space Control (9.4.1.2)	
Multi-level lighting—The controlled lighting in a space shall have at least one control step between 30% and 70% (inclusive) of full-lighting power in addition to all off.	Energi Savr Node with Softswitch module with multi-scene control
Each space enclosed by ceiling height partitions shall have at least one control device to independently control the general lighting within the space.	Energi Savr Node with Softswitch module with seeTouch® QS wallstations, EcoSystem® wallstations and/or Pico® controls
An occupant sensor or timer switch shall be installed that automatically turns lighting off within 30 minutes of all occupants leaving a space (specific room types are defined within the code).	Energi Savr Node with Softswitch module with wired or wireless occupancy/vacancy sensors, integration with a timeclock, or after hours mode

ASHRAE Section	Energi Savr Node with Softswitch Solution
Automatic Daylighting Controls for Primary Sidelighted Areas (9.4.1.3) and for Toplighting (9.4.1.4)	
Sidelighted areas larger than 250 sq. ft. (and/or daylighted areas under skylights larger than 900 sq. ft.) must have a multi-level photocontrol that reduces electric lighting in response to available daylight with at least one control step that is between 50% and 70% of design lighting power and another control step that is no greater than 35% (including off) of design power.	Energi Savr Node with Softswitch module with wired or wireless daylight sensors.
Additional Lighting Control (9.4.1.6)	
Stairwell lighting—Lighting in enclosed stairwells shall have one or more control devices to automatically reduce lighting power in any one controlled zone by at least 50% within 30 minutes of all occupants leaving that controlled zone.	Energi Savr Node with Softswitch module with wired or wireless occupancy/vacancy sensors.

How to design a system

Before designing a system consider the following to help clarify the scope of the project:

Define your space

The appropriate lighting control solution is defined by the needs of the space. The following steps help to answer key questions and drive you to the ideal lighting control solution.

Use the following steps to plan and design an energy-saving light control system to suit your needs.

Step 1 Energi Savr Node™ selection

A Determine the number of zones (independently controlled groups of fixtures) in the space

B Number of Energi Savr Node with Softswitch® modules (each module can control up to 4 zones)

See pg. 12 for all Energi Savr Node with Softswitch module options
See pg. 13 for QS sensor module (required for wireless integration)

Step 2 energy-saving light control strategies

A Determine if the space requires automatic shut-off control or occupancy/vacancy sensing (wired or wireless)

B Determine if the space requires daylight harvesting (wired or wireless)

C Determine which timeclock, if any, will be connected to Energi Savr Node with Softswitch module
- QS Timeclock
- GRAFIK Eye® QS Wireless
- Other manufacturer's timeclocks
- Building management systems

See pgs. 14–19 for all energy saving light control options

Step 3 control selection

Determine the type of wall control required and/or if there are additional points of control needed in the space

See pgs. 20–22 for all control options

Step 4 programming

Determine what programming option suits your needs:

A **Out-of-the-box:** For simple applications, preconfigured modes reduce installation time and eliminate system programming

B **Manual programming:** Assign components and configure a system with button-pre programming (For smaller systems using only one Energi Savr Node with Softswitch module)

C **Apple iPhone®/iPod touch® App:** Easy and intuitive system programming application designed for the iPhone® or iPod touch® mobile digital devices (For larger systems using multiple Energi Savr Node with Softswitch modules)

See pg. 23 for more on programming

iPhone®, iPod touch® and iPad® are registered trademark of Apple®, Inc., registered in the U.S. and other countries.

Energi Savr Node™ with Softswitch® wiring overview

From distribution (120/277 V) (control feed)

4 load input feeds (120/277 V)

4 switched load outputs (16 A Softswitch 120/277 V)

Type B

Energi Savr Node with Softswitch, pg. 12

- Counts as 1 QS device
- Provides 14 Power Draw Units (PDUs), refer to spec submittal for details
- Counts as 4 zones
- Counts as 4 areas
- Maximum of 16 occupancy sensors
- Wired sensor connections: (12 total devices)
  - 4 daylight sensors (maximum)
  - 4 occupancy sensors (maximum)
  - 4 Pico wired controls (maximum)
  - 4 EcoSystem® wallstations (maximum)
  - 4 low-voltage switches (by others)

Type A

Optional: (4) 0–10 V channels (QSN-4T16-S model only)

Contact closure input

Emergency contact closure input

Type C

Type A

To wired sensor or controls

Type A

To wired sensor or controls

QS Sensor Module, pg. 13
(Required for wireless integration)

- Counts as 1 QS device
- Requires 3–11 PDUs depending on attached wired sensors
- 4 wired sensor connections total for daylight sensors, occupancy/vacancy sensors, Pico wired controls, or EcoSystem wallstations
- Wireless component limits: (30 total devices)
  - 10 Radio Powr Savr™ wireless daylight sensors (maximum)
  - 10 Radio Powr Savr wireless occupancy/vacancy sensors (maximum)
  - 10 Pico® wireless controls (maximum)

Wireless components

Radio Powr Savr daylight sensor, pg. 16

Radio Powr Savr occupancy/vacancy sensor, pg. 14

Pico wireless control, pg. 20

System rules and maximums

General QS Communication Link Rules (Type C Wire)

- Maximum of 100 zones
- Maximum of 100 areas
- Maximum of 100 QS devices, including Energi Savr Node™ modules, QS sensor modules, seeTouch® QS wallstations, and QS interfaces

Wire gauge key

Type A

Class 2 Low Voltage
(#22 AWG Solid (90˚C) Only)
Standard: **C-CBL-522S-WH-1**;
Plenum Rated: **C-PCBL-522S-CL-1**

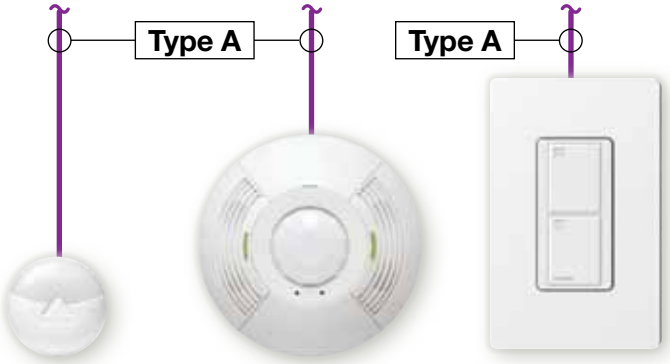
Type B

Line Voltage (#12 AWG Solid)

Type C

QS Communication Link
(4-conductor—**GRX-CBL-346S-500** or equivalent cable)

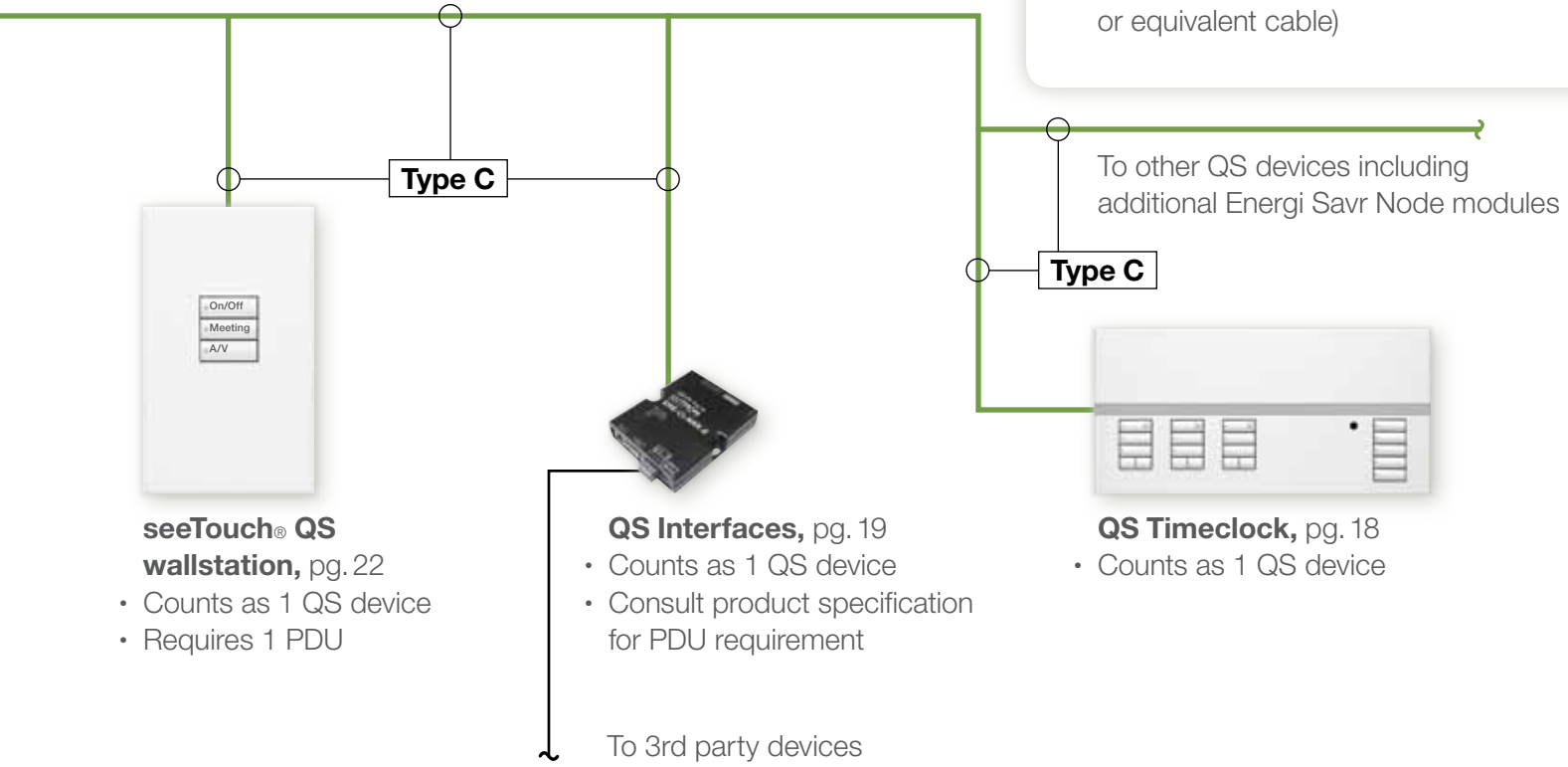
Wired components such as daylight sensors, occupancy/vacancy sensors, and Pico wired controls can wire to either the QS sensor module or the Energi Savr Node wtih Softswitch module using Type A wire.



Daylight sensor, pg. 17

Occupancy/ vacancy sensor, pg. 15

Pico wired control, pg. 21



seeTouch® QS wallstation, pg. 22
- Counts as 1 QS device
- Requires 1 PDU

QS Interfaces, pg. 19
- Counts as 1 QS device
- Consult product specification for PDU requirement

To 3rd party devices

QS Timeclock, pg. 18
- Counts as 1 QS device

Step 1 Energi Savr Node selection

Energi Savr Node with Softswitch module

Design statement: The Energi Savr Node wtih Softswitch module digitally integrates controls and powers communication throughout the lighting control system. Specify an Energi Savr Node with Softswitch module to control up to 4 separate 16A circuits as part of the system.

Energi Savr Node with Softswitch module dimensions
W: 9.85" (250mm)
H: 13.25" (337mm)
D: 3.16" (80mm)

For wiring overview, see pgs. 10–11

For concept drawings, see pgs. 26–31

Features

- Provides easy integration of occupancy sensors, daylight sensors, and digital light controls for switching applications
- Controls up to four zones of fixtures with each module
- Sensor and control information can be shared across multiple Energi Savr Node with Softswitch modules (iPod touch® programming application and Energi Savr Node programming interface required, pg. 23)
- Softswitch relay is rated for 16A continuous use, which is the maximum continuous load for a 20A overcurrent protection device (branch breaker)
- Patented Softswitch circuit eliminates arcing at mechanical contacts when loads are switched; extends relay life to an average of 1,000,000 cycles (on/off) for resistive, capacitive, or inductive sources
- Connect 4 wired occupancy/vacancy sensors, 4 wired daylight sensors, 4 Pico wired controls, 4 EcoSystem® wallstations, and/or 4 low voltage switches directly to the Energi Savr Node module
- Maximum of 16 occupancy sensors per Energi Savr Node

Mounting and communication

- Communicates to components via the QS communication link, low voltage wiring and to wireless devices through the QS sensor module
- Surface mounted
- Can be installed in accordance with National Electrical Code® (NEC®) Article 300.22(c) “Other spaces used for environmental air”

Models

QSN-4S16-S—Energi Savr Node with Softswitch for switching of four 16A circuits of lighting loads
QSN-4T16-S—Energi Savr Node for 0–10V for switching and dimming of four 16A circuits of 0–10V loads

Step 1 module selection

QS sensor module

Design statement: Add a QS sensor module to integrate Lutron® wireless and wired sensors and controls in an Energi Savr Node with Softswitch system.

Required for integration with Radio Powr Savr™ wireless sensors, pgs. 14, 16, and Pico® wireless controls, pg. 20.

QS sensor module dimensions
H: 4.00" (102mm)
W: 4.00" (102mm)
D: 1.20" (30mm)

For wiring overview, see pgs. 10–11

For concept drawings, see pgs. 26–31

Performance

- Uses Clear Connect™ RF Technology for communication with up to 10 Radio Powr Savr occupancy/vacancy sensors, up to 10 Radio Powr Savr daylight sensors, and up to 10 Pico wireless controls
- QS sensor module connects to up to 4 Lutron wired sensors or controls—occupancy/vacancy sensors, daylight sensors, or EcoSystem wallstations (each input is universal)
- QS sensor module integrates Energi Savr Node modules, GRAFIK Eye® QS, and Quantum® with Radio Powr Savr wireless sensors and Pico wireless controls
- Also compatible with EcoSystem dimming system
- RF Range: 60 ft. (18m) line of sight, or 30 ft. (9m) through walls
- Add additional QS sensor modules to the QS communication link to increase the number of wireless or wired sensors; System limits: 100 QS devices (QS sensor module counts as 1 QS device)

Benefits

- Powered by QS communication link—no line voltage connections are required

Mounting

- Installs on the ceiling, visible from inside the space, to guarantee wireless range
- Option for J-box mount

Models

QSM2-4W-C—434 MHz (wired and wireless capability)
QSMX-4W-C—wired sensor inputs only
QSM2-XW-C—434 MHz (wireless capability only)

QSM2-4W-J—434 MHz (wired and wireless capability, J-box mount)

QSM2-XW-J—434 MHz (wireless capability only, J-box mount)

Step 2 light control strategies

Radio Powr Savr™ **wireless** occupancy/ vacancy sensors

Design statement: Specify a wireless occupancy/vacancy or vacancy only sensor to provide an automatic off for energy savings. Wireless integration is ideal in most situations and perfect for retrofit applications.

Wireless integration requires:

QS sensor module pg. 13

Radio Powr Savr wireless ceiling mount occupancy/ vacancy sensor dimensions
W: 3.57" (91mm)
H: 3.57" (91mm)
D: 1.13" (29mm)

Radio Powr Savr wireless wall/ hall mount occupancy/vacancy sensor dimensions
W: 6.12" (156mm)
H: 1.62" (41mm)
D: 2.31" (59mm)

For wiring overview, see pgs. 10–11

For concept drawings, see pgs. 26–31

Performance

- 10-year battery life design
- Up to 10 wireless occupancy/vacancy sensors per QS sensor module
- Passive infrared motion detection with exclusive Lutron XCT™ Technology for fine motion detection
- 360˚ coverage ranges from 324 sq. ft. to 676 sq. ft. for superior fine motion detection
- Vacancy model available to meet CA Title 24 requirements
- Maximum of 16 sensors per Energi Savr Node

Benefits

- Sensors require no wiring
- Front-accessible buttons make setup easy
- Sensors have simple test modes to verify ideal locations during installation
- Multiple ceiling-mount methods available for different ceiling materials
- Sensor information can be shared across multiple Energi Savr Node with Softswitch modules (iPod touch® programming application and Energi Savr Node programming interface required, pg. 23)
- Add additional QS sensor modules to the QS communication link to increase the number of wireless or wired sensors; Maximum 100 occupancy/vacancy sensors per system

Models

Ceiling Mount
LRF2-OCRB-P-WH—434 MHz occupancy/vacancy sensor
LRF2-VCRB-P-WH—434 MHz vacancy sensor
Wall Mount
LRF2-OWLB-P-WH—434 MHz occupancy/vacancy sensor
LRF2-VWLB-P-WH—434 MHz vacancy sensor
LRF2-OKLB-P-WH—434 MHz occupancy/vacancy sensor
LRF2-VKLB-P-WH—434 MHz vacancy sensor
Hall Mount
LRF2-OHLB-P-WH—434 MHz occupancy/vacancy sensor
LRF2-VHLB-P-WH—434 MHz vacancy sensor

Step 2 light control strategies

Lutron® **wired** occupancy/vacancy sensors

Design statement: Specify a wired occupancy/vacancy sensor to provide an automatic off for energy savings. Select a wired solution for installations where wireless communication is not recommended or approved (i.e. certain government or medical buildings).

Ceiling mount occupancy/vacancy sensor dimensions
H: 4.50" (114mm)
W: 4.50" (114mm)
D: 1.40" (38mm)
Max wire length: 100 ft. (30m)

Wall mount occupancy/vacancy sensor dimensions
H: 3.75" (95mm)
W: 5.50" (140mm)
D: 4.00" (102mm)
Max wire length: 100 ft. (30m)

Performance

- Up to 4 occupancy/vacancy sensors can be connected to each Energi Savr Node with Softswitch module
- Broad range of models for offices to open spaces—500 sq. ft., 1000 sq. ft., 1600 sq. ft., or 2000 sq. ft. spaces
- Wall-mounted and ceiling-mounted modules available
- Ultrasonic, infrared, and dual technology models available
- "-R" models provide auxiliary dry contact closure for easy integration with BMS (building management systems) and A/V systems

Benefits

- No power pack required since power for the sensor comes directly from the Energi Savr Node with Softswitch module or the QS sensor module
- Sensor information can be shared across multiple Energi Savr Node with Softswitch modules (iPod touch® programming application and Energi Savr Node programming interface required, pg. 23)
- Add additional QS sensor modules to the QS communication link to increase the number of wireless or wired sensors; Maximum 100 occupancy/vacancy sensors per system

Models

Ceiling Mount

LOS-CDT-(500,1000)-WH—Dual technology, 180°
LOS-CDT-2000-WH—Dual technology, 360°
LOS-CDT- (500R,1000R)-WH—Dual technology with relay, 180°
LOS-CDT-2000-WH—Dual technology with relay, 360°

Wall Mount

LOS-WDT-WH—Dual technology, 110°
LOS-WDT-R-WH—Dual technology with relay, 110°

See www.lutron.com/occsensors for more information

iPhone®, iPod touch® and iPad® are registered trademark of Apple®, Inc., registered in the U.S. and other countries.

Step 2 light control strategies

Radio Powr Savr™ **wireless** daylight sensors

Design statement: Specify a wireless daylight sensor to switch zones of light in response to daylight. Wireless integration is ideal in most situations and perfect for retrofit applications.

Wireless integration requires:

QS sensor module pg. 13

Radio Powr Savr wireless daylight sensor dimensions
H: 1.60" (41mm)
D: 1.70" (17mm)

Performance

- 10-year battery life
- Up to 10 wireless daylight sensors per QS sensor module
- Features reliable Lutron® proportional daylight open loop control
- Has a light range (0–10,000 fc) and a photopic response matches human eye
- Designed to give a linear response to changes in viewed light level
- One sensor is capable of switching, stepped dimming, and continuous dimming of multiple zones
- RoHS compliant
- Capable of override for a maximum of 2 hours

Benefits

- Sensors require no wiring and simple calibration
- Multiple ceiling-mount methods available for different ceiling materials
- Front accessible test buttons make setup easy
- Sensor information can be shared across multiple Energi Savr Node with Softswitch modules (iPod touch® programming application and Energi Savr Node programming interface required, pg. 23)
- Add additional QS sensor modules to the QS communication link to increase the number of wireless or wired sensors; maximum 100 daylight sensors per system

How it works

- Radio Powr Savr wireless daylight sensors detect incoming sunlight and communicate the sunlight level to the Energi Savr Node with Softswitch module linked to the fixtures in the space
- The daylight sensor is suitable for internal ambient light levels between 0 and 500 fc

Models

LRF2-DCRB-WH—434 MHz daylight sensor

For wiring overview, see pgs. 10–11

For concept drawings, see pgs. 26–31

Step 2 light control strategies

Lutron **wired** daylight sensors

Design statement: Specify a wired daylight sensor to switch multiple zones of light in response to daylight. Select a wired solution for installations where wireless communication is not recommended or approved (i.e. certain government or medical buildings).

Daylight sensor dimensions
H: 0.69" (17mm)
D: 1.18" (30mm)
Stem length: 1.25" (32mm)
Max wire length: 100 ft. (30m)

Performance

- Up to 4 daylight sensors can be connected to each Energi Savr Node with Softswitch module or QS sensor module
- Features reliable Lutron proportional daylight open loop control
- Has a light range (0–10,000 fc) and a photopic response matches human eye
- Designed to give a linear response to changes in viewed light level
- One sensor is capable of switching, stepped dimming, and continuous dimming of multiple zones
- RoHS compliant

Benefits

- Low profile for mounting on ceiling tiles or fixtures
- Class 2 low voltage enables simplified wiring and mounting
- Wires directly to the nearest Energi Savr Node with Softswitch module or QS sensor module
- Sensor information can be shared across multiple Energi Savr Node with Softswitch modules (iPod touch® programming application and Energi Savr Node programming interface required, pg. 23)
- Add additional QS sensor modules to the QS communication link to increase the number of wireless or wired sensors; maximum 100 daylight sensors per system

How it works

- Lutron daylight sensors detect incoming sunlight and communicate the sunlight level to the Energi Savr Node with Softswitch module linked to the fixtures in the space
- The daylight sensor is suitable for internal ambient light levels between 0 and 500 fc

Models

EC-DIR-WH—Infrared daylight sensor

For wiring overview, see pgs. 10–11

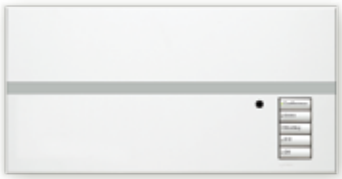
For concept drawings, see pgs. 26–31

iPhone®, iPod touch® and iPad® are registered trademark of Apple®, Inc., registered in the U.S. and other countries.

Step 2 light control strategies

QS Timeclock and GRAFIK Eye® QS Wireless

Design statement: Use QS Timeclock or GRAFIK Eye QS Wireless to provide an integral astronomical timeclock to enable scheduling to meet energy codes.



GRAFIK Eye QS Wireless dimensions
W: 4.687" (119mm)
H: 9.375" (239mm)
D: 0.375" (10mm)
4-gang backbox adds 1.812" (46mm) to depth.

For wiring overview, see pgs. 10–11

For concept drawings, see pgs. 26–31

Performance

- Provides integral astronomical timeclock
- Integrates Energi Savr Node with Softswitch modules with Sivoia® QS wired and wireless shades
- Easy to operate with one simplified information screen

Benefits

- Allows associated Energi Savr Node module to follow scene activations
- Independent timeclock events are available for associated Energi Savr Node module
- Allows after hours mode for associated Energi Savr Node module

Models

QS Timeclock

QSGR-TC-3S-WH-CPNS825—Timeclock with 3 shade columns

GRAFIK Eye QS Wireless

QSGRJ-3P—3 zone main unit
QSGRJ-4P—4 zone main unit
QSGRJ-6P—6 zone main unit

GRAFIK Eye QS Wireless with EcoSystem®

QSGRJ-6E—6 zone main unit
QSGRJ-8E—8 zone main unit
QSGRJ-16E—16 zone main unit

For detailed information on GRAFIK Eye QS, visit www.lutron.com/grafikeyeqs

Step 2 light control strategies

QS interfaces

Design statement: Specify QS interfaces to integrate outside devices through RS-232/Ethernet and/or contact closures.

QS RS-232/Ethernet interface dimensions
W: 4.26" (108mm)
H: 5.26" (134mm)
D: 1.06" (27mm)

QS contact closure interface dimensions
W: 4.26" (108mm)
H: 5.26" (134mm)
D: 1.06" (27mm)

For wiring overview, see pgs. 10–11

For concept drawings, see pgs. 26–31

Performance

- Each QS interface counts as 1 QS device; QS communication link system limit is 100 QS devices
- RS-232/Ethernet interface uses standard 9-pin female serial connector or RD45 connector
- Contact closure interface provides five inputs and five dry contact closure outputs

Benefits

- Integrate with third-party devices and controls via RS-232/Ethernet or contact-closure inputs
- Sweep lights to low levels or off through RS-232/Ethernet or contact closure commands from third-party controls
- Add third-party touchscreen control using RS-232/Ethernet commands

Models

QSE-CI-NWK-E—RS-232/Ethernet control interface
QSE-IO—Contact closure input/output interface

For more information on mounting options and installation, please visit www.lutron.com/TechnicalDocumentLibrary

Step 3 control selection

Pico® wireless control

Design statement: Use Pico wireless lighting controls to control lights and shades wirelessly within a space with the touch of a button.

Wireless integration requires:

QS sensor module pg. 13

Pico wireless control dimensions
W: 1.28" (33mm)
H: 2.60" (66mm)
D: 0.33" (8mm)

Other control mounting styles

For wiring overview, see pgs. 10–11

For concept drawings, see pgs. 26–31

Performance

- Communicates with the QS sensor module via radio frequency (RF) using Clear Connect™ RF Technology
- Unique serial number prevents interference between systems
- Battery powered (10-year battery life)—requires no new wiring
- Limit 10 Pico wireless controls per QS sensor module

Benefits

- Flexible device that allows the user to control lights by wirelessly communicating with the QS sensor module
- Can function as a tabletop control on a pedestal, a lightweight handheld remote, or it can be wall-mounted with or without a Lutron® Claro® wallplate
- Available in 2- and 3-button configurations
- Add additional QS sensor modules to the QS communication link to increase the number of Pico wireless controls; maximum 100 Pico wireless controls per system

Models

Pico wireless controls
PJ-3B-GXX-YYY—3 buttons
PJ-2B-GXX-YYY—2 buttons
Pedestals
L-PED1-XX—Single pedestal
L-PED2-XX—Double pedestal
Wallplates
CW-1-XX—1-gang wallplate (gloss/stainless steel)
CW-2-XX—2-gang wallplate (gloss/stainless steel)
CW-3-XX—3-gang wallplate (gloss/stainless steel)

XX in the model number represents color/finish code and YYY represents labeling options.
Please visit www.lutron.com/pico for color and labeling choices.

Step 3 control selection

NEW! Pico **wired** control

Design statement: Add a Pico wired control wherever needed for intuitive lighting control.

Pico wired control dimensions (with Claro® wallplate, sold separately)
W: 2.94" (75mm)
H: 4.69" (119mm)
D: 1.98" (50mm)
Max wire length: 150ft. (45m)

Performance

- Provides control for Lutron® products incorporating wired IR input including Energi Savr Node units, QS Sensor Modules, EcoSystem® ballasts or ballast modules, allowing users to:
  - Turn an individual fixture or group of fixtures on and off (**PX-2B-GXX-I01**)
  - Recall favorite light levels (**PX-3B-GXX-I01**)
- Maximum of 4 per Energi Savr Node

Benefits

- IEC PELV/NEC® Class 2
- Mounts easily in any single-gang wallbox 2.5 in (64 mm) deep minimum (not included)
- Fits any designer Claro® opening faceplates

Models

PX-3B-GXX-I01 – 3 buttons
PX-2B-GXX-I01 – 2 buttons

*** XX in the model number represents color finish code. Please visit www.lutron.com/picowiredcontrol for color choices.**

For wiring overview, see pgs. 10–11

For concept drawings, see pgs. 26–31

Step 3 control selection

seeTouch® QS wallstations

Design statement: Specify seeTouch QS wallstations where needed for switching control, or engraved buttons are necessary.

seeTouch QS wallstation dimensions
W: 2.75" (70mm)
H: 4.56" (116mm)
D: 1.25" (32mm)
Max wire length: 100 ft. (30m)

Performance

- Buttons are backlit and can be engraved to provide intuitive control of the space
- Recall scenes to change lighting for different activities
- Control individual zones of light to set the perfect light for any task
- Control up to 100 zones of lighting from up to 99 wallstations

Benefits

- Class 2 low voltage QS communication link simplifies wiring and mounting
- Wallstations are powered directly from the QS communication link

Models

QSWS2-1B*—1-button wallstation
QSWS2-3B*—3-button wallstation
QSWS2-5B*—5-button wallstation
QSWS2-7B*—7-button wallstation
QSWS2-3BD*—dual 3-button wallstation

* **Consult seeTouch QS specification submittal sheet for information on specifying insert style, engraving, and color.**

EcoSystem® 4-scene wallstation (**CC-4BRL-WH**) also available. **Visit www.lutron.com/EcoSystem for more information.**

For wiring overview, see pgs. 10–11

For concept drawings, see pgs. 26–31

Step 4 programming

Programming application for iPhone® or iPod touch® mobile digital devices

Design statement: Use the Energi Savr Node™ programming application to setup, fine-tune, and maintain the lighting control system.

The Energi Savr Node programming application for Apple or mobile digital devices is the key to an intelligent light and shade control system.

- Adjust ballasts to the needs of any space
- Define light level
- Adjust sensor and control preferences

System Backup

The iPod® application can be used to save all configuration settings in the system. In the event that an Energi Savr Node module is replaced, all system settings and configuration can be automatically restored.

Energi Savr Node Programming Interface

The **QSE-CI-AP-D** is a programming interface for Energi Savr Node modules that provides the capability to program the lighting control system with an intuitive application for iPhone® or iPod touch® devices. This required component allows for Ethernet inputs for programming with an iPhone® or iPod touch®.

Features

- Program all Energi Savr Node modules connected to the same QS communication link
- Programming interface installs via surface mount or DIN-rail

Energi Savr Node Wireless Setup Kit (optional)

The kit allows users to quickly connect to the system, set up the desired configuration, and make changes as needed.

Features

- Plug & Play - fully preconfigured and preloaded with Lutron software
- Programs all Energi Savr Node modules
- Kit includes an iPod touch® and wireless router

Note: Use of the Energi Savr Node Wireless Setup Kit is optional. Any iPod touch® and wireless router may be used to setup an Energi Savr Node system

iPhone®, iPod touch® and iPad® are registered trademark of Apple®, Inc., registered in the U.S. and other countries.

Expand the system

EcoSystem® digitally addressable dimming solution

Design statement: Expand to an EcoSystem lighting control system by incorporating an Energi Savr Node™ with EcoSystem module to integrate digital dimming ballasts, controls, and environmental sensors.

EcoSystem H-Series ballast is a cost-effective digital ballast option designed to expand the market for intelligent energy savings. The H-Series ballast offers superior capability, easy setup, and increased flexibility.

Energi Savr Node EcoSystem module controls EcoSystem, EcoSystem H-Series, Hi-lume® 3D digital dimming ballasts and Hi-lume A-Series LED drivers.

Performance

- EcoSystem creates a more flexible workspace where lighting fixtures with EcoSystem ballasts are individually addressed
- EcoSystem ballasts are programmed, instead of wired, to work individually or as a group, creating flexibility in a space that adjusts to the shifting needs of any building
- Manual dimming control saves energy by providing control of light levels to adapt spaces for different tasks and activities
- Achieve daylight harvesting by combining dimming and daylight sensors to take advantage of available daylight and adjust electric lighting smoothly, unobtrusively and continuously
- Requires Energi Savr Node with EcoSystem module

Benefits

- Save up to 60% of lighting electricity usage
- Increase space flexibility
- Increase occupant comfort and productivity
- Reduce maintenance costs

For detailed information, visit www.lutron.com/ecosystem

Quantum® Total Light Management™

Design statement: Use Quantum for total light management, combining Energi Savr Node with Softswitch® along with EcoSystem lighting controls, Sivoia® QS digital shades, and lighting panels for complete control of the lighting and shading systems.

Quantum Green Glance™

Performance

- Create an energy-efficient environment by enabling centralized management, monitoring, and control
- Reduce cooling loads by dimming lights and controlling shades to block solar heat gain
- Automatically reports lamp failures and monitors lamp hours to manage and reduce maintenance

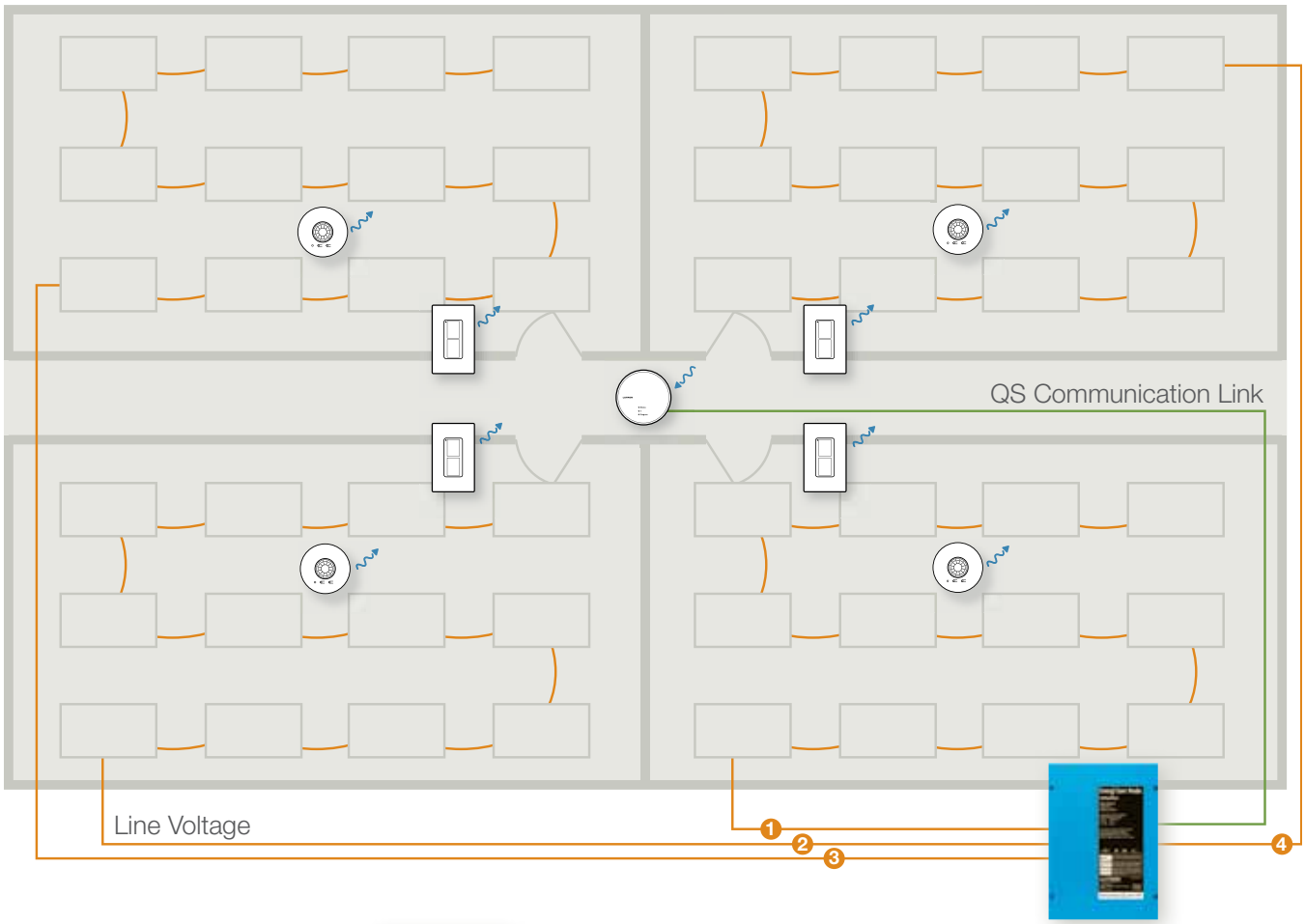
Benefits

- Reduce greenhouse gases by eliminating unnecessary energy use
- Lower operating costs and peak demand charges
- Re-configure lighting and shading zones without rewiring
- Increase occupant comfort and productivity with preferred light levels and automated shade control

For detailed information, visit www.lutron.com/quantum

Multiple classrooms, 1 zone each, **wireless**

Energy-saving strategies: Automatic light shut-off and space control
Programming techniques: Optional manual programming (approximately 20 minutes)



Energi Savr Node™ with Softswitch® module

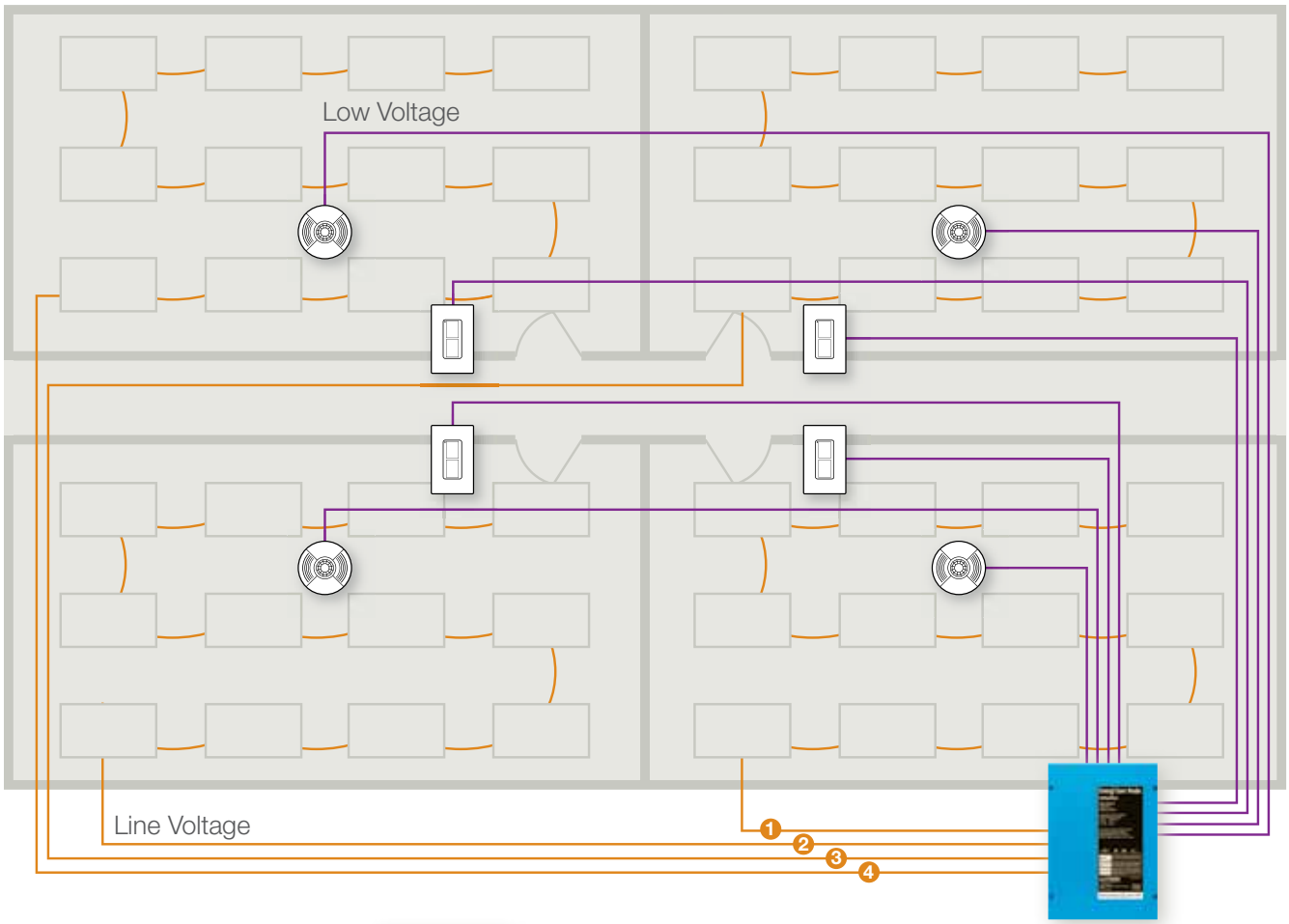
Radio Powr Savr™ wireless occupancy/ vacancy sensor

Pico® wireless control (wall-mounted)

QS sensor module

Multiple classrooms, 1 zone each, **wired**

Energy-saving strategies: Automatic light shut-off and space control
Programming techniques: None required, system works out-of-box with programmed defaults



Energi Savr Node with Softswitch module

Lutron® occupancy/ vacancy sensor

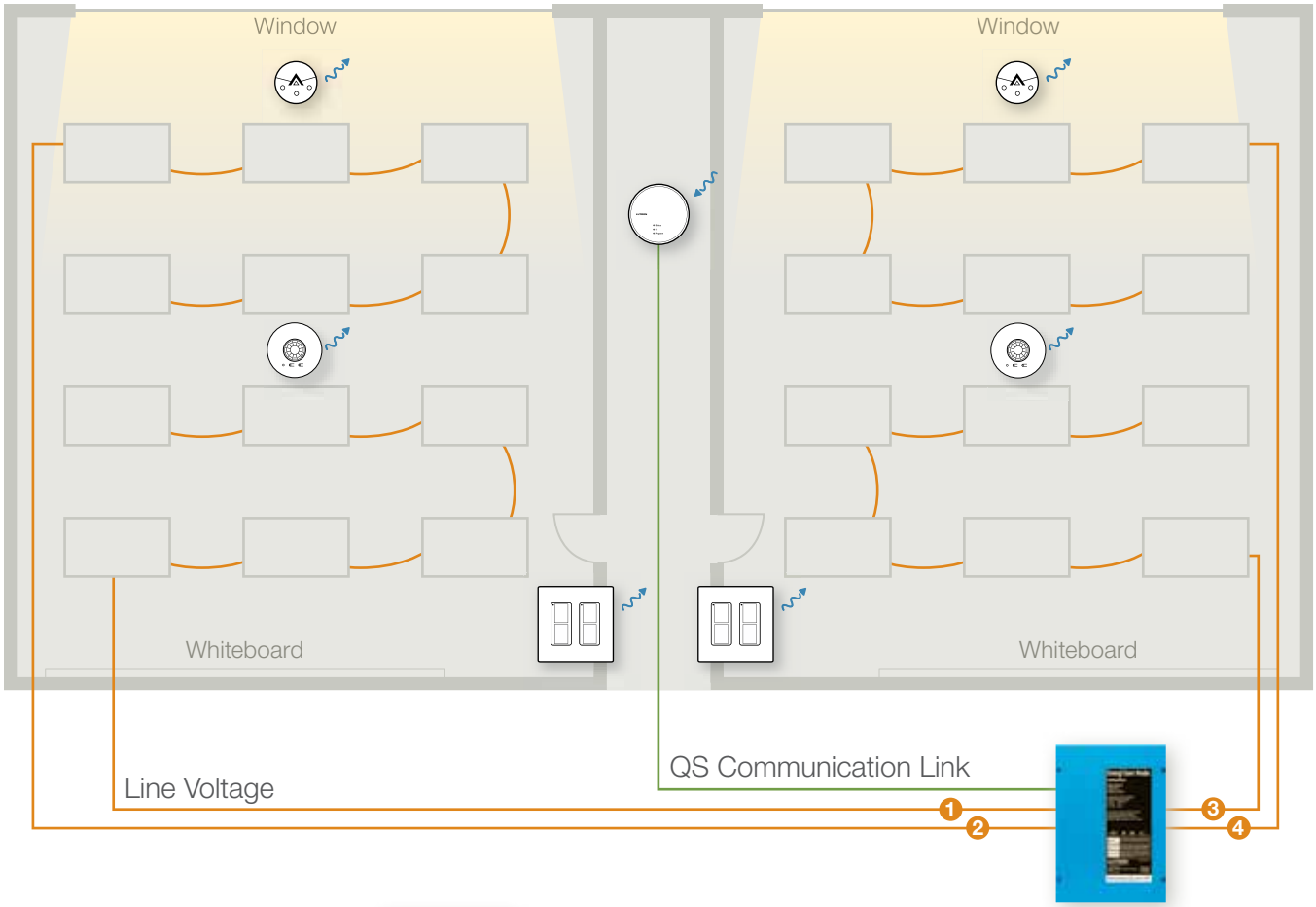
NEW Pico® wired control

Switched outputs to loads

Concept drawings

2 classrooms, 2 zones each, **wireless**

Energy-saving strategies: Automatic light shut-off, space control, bi-level switching, and daylight zone control
Programming techniques: Optional manual programming (approximately 20 minutes)



Energi Savr Node™ with Softswitch® module

Radio Powr Savr™ wireless occupancy/ vacancy sensor

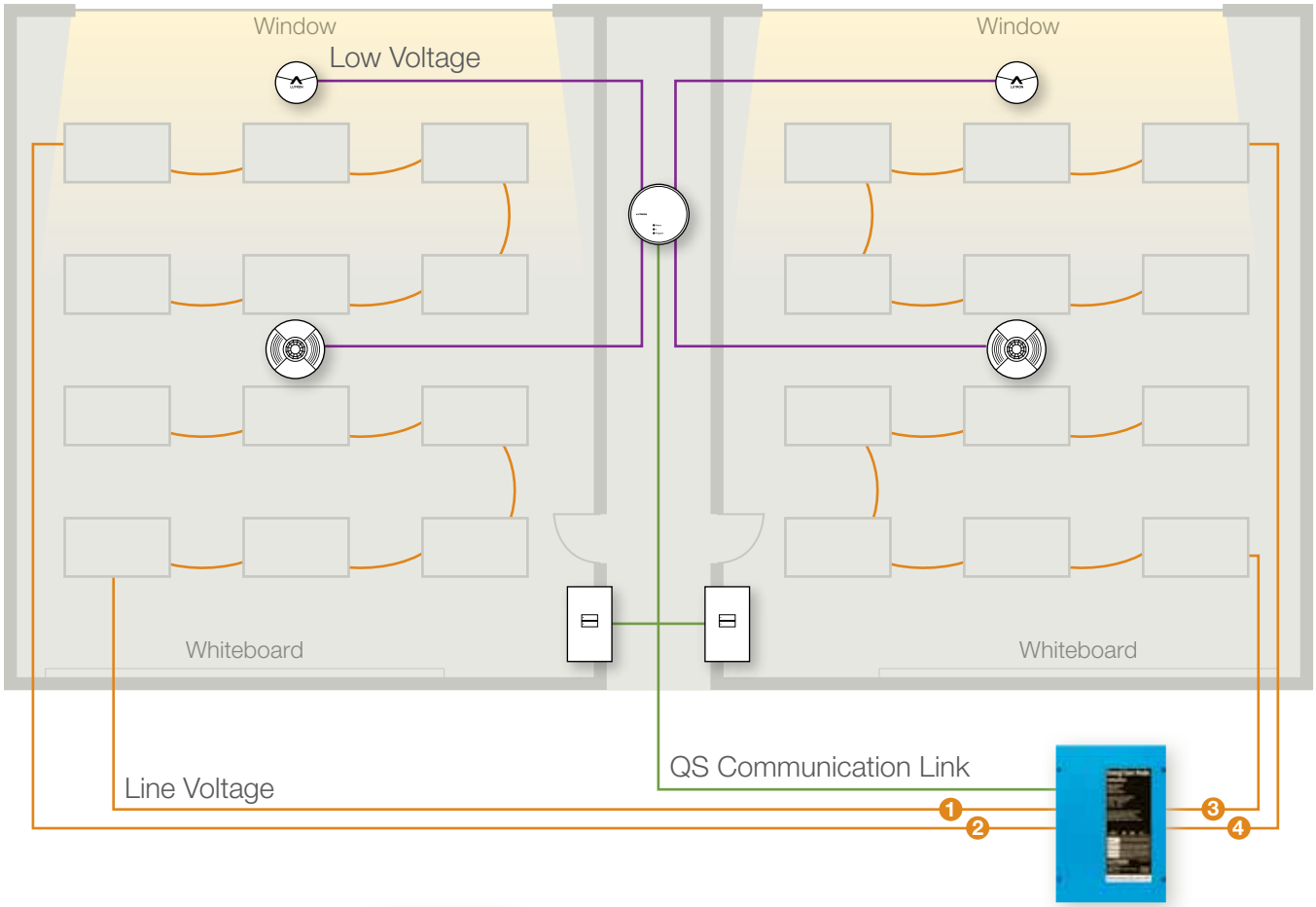
Pico® wireless control (wall-mounted)

QS sensor module

2 classrooms, 2 zones each, **wired**

Energy-saving strategies: Automatic light shut-off, space control, bi-level switching, and daylight zone control
Programming techniques: Optional manual programming (approximately 20 minutes)

Sensors can be wired directly to the QS sensor module or directly to the Energi Savr Node with Softswitch module.



Lutron® occupancy/ vacancy sensor

seeTouch® QS wallstation

QS sensor module

Energi Savr Node with Softswitch module

Concept drawings

Use multiple Energi Savr Node™ modules to control lights on an entire office floor

Interoperability and seamless communication between Energi Savr Node with EcoSystem® modules and Energi Savr Node with Softswitch® modules enables control of all the lights in the space.

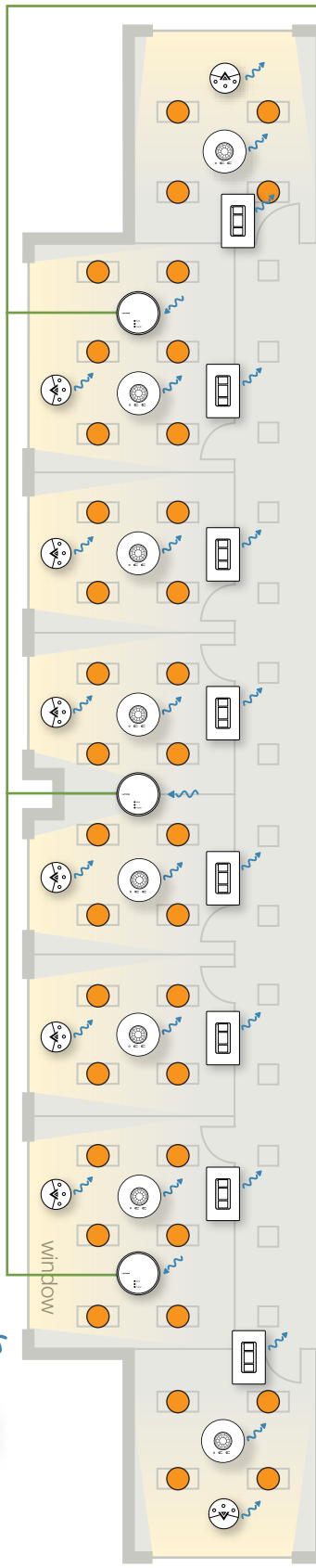
Energy-saving strategies: Automatic light shut-off, space control, bi-level switching, and daylight zone control
Programming techniques: iPod touch® programming application

Energi Savr Node
with EcoSystem

Controlling all EcoSystem H-Series digital ballasts along the perimeter of the space allowing for full range dimming as well as daylight harvesting, occupancy/vacancy sensing, and personal control.

Energi Savr Node with
Softswitch

Controlling all interior lighting of the space allowing for switching as well as occupancy/vacancy sensing, and personal control.



Ballasts connected by EcoSystem digital link

EcoSystem H-Series
digital ballast

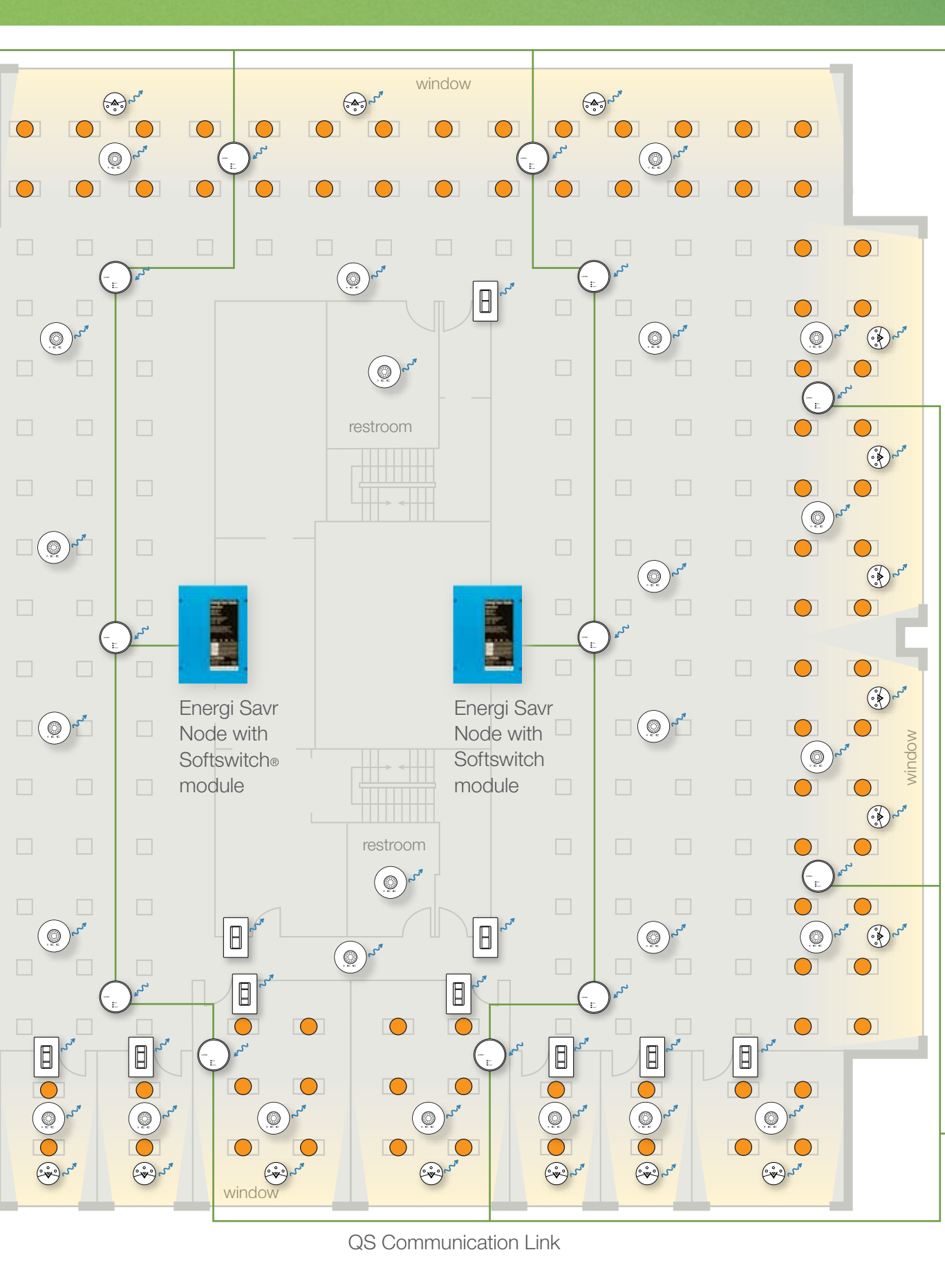
Radio Powr Savr™
wireless daylight
sensor

Radio Powr Savr
wireless occupancy/
vacancy sensor

Pico®
wireless control
(wall-mounted)

QS sensor
module

iPhone®, iPod touch® and iPad® are registered trademark of Apple®, Inc., registered in the U.S. and other countries.



Energi Savr Node with EcoSystem module

Energi Savr Node with EcoSystem module

The Lutron® difference

A history of sustainability, innovation, and quality

At Lutron, sustainability is not a new concept. Lutron is a company built on a belief in taking care of people: customers, employees, and the community. We are a proud member of the U.S. Green Building Council. And since 1961, we have been designing industry-leading technology that saves energy and reduces greenhouse gas emissions.

We innovate in advance of emerging market needs and continually improve our quality, our delivery, and our value.

Lutron owns over 250 patents and manufactures more than 15,000 products. For 50 years, we have met and exceeded the highest standards of quality and service. Every one of our products is quality-tested before it leaves the factory.

Global service and support

You can count on a level of support unequaled anywhere in the industry and anywhere in the world. Lutron provides 24/7 technical phone support. Lutron Field Service, made up of a global network of customer-focused field service engineers, provides world-class services that begin before your building is commissioned and continue throughout the life of your building.

For help saving energy on your next project

Call Lutron today at 888.588.7661 and you will be connected to a Lutron representative who will be able to provide you with a plan of action for your application.

www.lutron.com
World Headquarters 1.610.282.3800
Technical Support Center 1.800.523.9466 (Available 24/7)
Customer Service/Quotes 1.888.LUTRON1 (1.888.588.7661)

© 05/2012 Lutron Electronics Co., Inc. | P/N 367-2016 REV C

LUTRON®

save energy with Lutron™ ®