Energi Savr Node™

**A versatile, energy saving lighting control solution
that is easy to install and easy to expand**

❊ LUTRON®

save
energy
with
Lutron™

WHAT IS ENERGI SAVR NODE™?

Energi Savr Node is a simple, programmable solution for controlling light and saving energy in any commercial space. Use Energi Savr Node to connect phase adaptive, 0-10V, EcoSystem, DALI or switching ballasts to wired or wireless occupancy sensors, daylight sensors, and controls for total light control.

Photography © Nic Lehoux

WHAT ARE THE BENEFITS?

EASY TO INSTALL AND MAINTAIN

- Easy and intuitive system programming application designed for the Apple iPhone or iPod touch mobile digital devices [1]
- For simple applications, preconfigured modes reduce installation time and eliminate system programming
- Automatic ballast replacement eliminates the need for system reprogramming when replacing ballasts (feature available only on EcoSystem version)
- Wireless sensors and controls can be easily retrofit with no need for rewiring

EXPANDABLE

- Control a single space, up to an entire floor with one module and add additional Energi Savr Node modules to control multiple floors
- Modules can link with Quantum® for total light management throughout an entire building

VERSATILE

- EcoSystem ballast control offers flexibility for reconfiguring frequently changing spaces (feature available only on EcoSystem version)
- Great for retrofit solutions or new construction–install each module locally–no need to connect to a central panel

ENERGY-SAVING AND ENVIRONMENTALLY FRIENDLY

- Reduce lighting energy use with dimming, occupancy sensing, and daylight harvesting

KEY FEATURES

QS sensor module works with wireless occupancy sensors, daylight sensors and Pico controls

1 **QS link**

connects to wallstations, other QS devices, and Quantum® to easily expand from a single space to an entire building

6 **Sensor connection**

links to occupancy and daylight sensors for automatic energy savings

Energi Savr Node with EcoSystem

5 **DIN rail mountable**

back of Energi Savr Node easily snaps to DIN rail

2 **Programming port**

links to Apple iPhone or iPod touch mobile digital devices for system programming [1] (via wi-fi router by others)
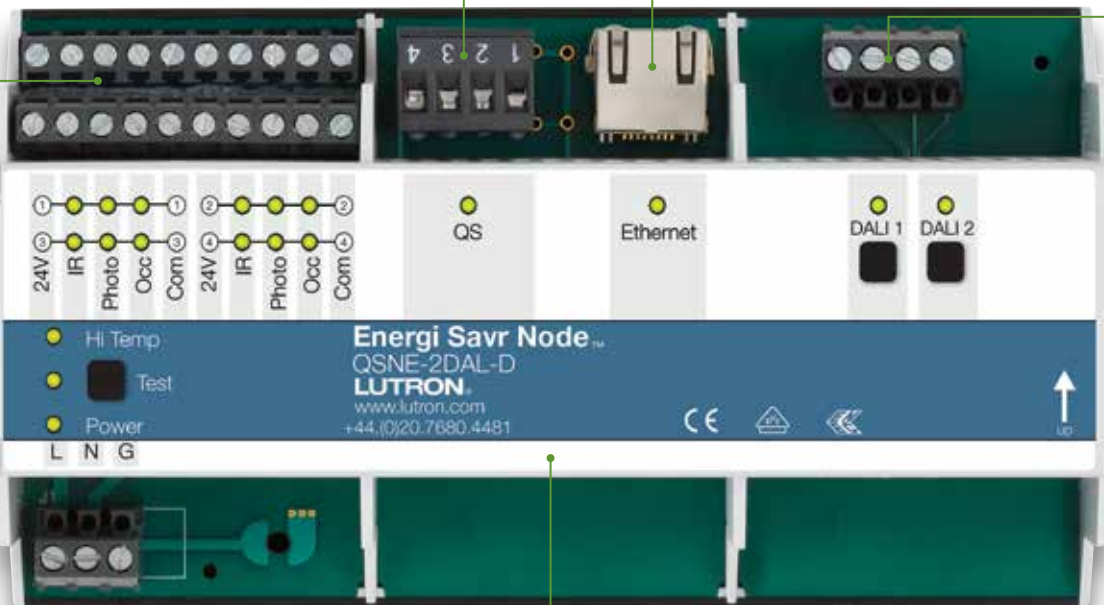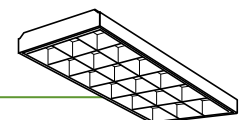
4 **Front panel** simplifies installation, troubleshooting, and diagnostics:
- LEDs provide a simple way to confirm each connection
- Test button quickly confirms that fixtures are wired correctly and that ballasts communicate properly
- Easily assign wallstations to zones or loops at the touch of a button

3 **Ballast connection**

to 0-10V, EcoSystem, DALI or switching ballasts[2]

[1] Apple and iPod are registered trademarks and iPhone is a trademark of Apple, Inc., registered in the U.S. and other countries.
[2] See P.6-9 to determine which Energi Savr Node model best fits your application.

A **Radio Powr Savr™ Wireless Occupancy sensors***

save energy and increase convenience by automatically turning lights on and off based on space occupancy

B **Radio Powr Savr™ Wireless Daylight sensors**

save energy by automatically adjusting the light levels based on the amount of daylight entering a space

C **Complementary solution Sivoia™ QS window blinds**

control blinds with precision and elegance to reduce sun glare and solar heat gain for increased productivity, comfort, and energy savings

* Other sensors are available such as Wall, Corner and Hallway sensors.
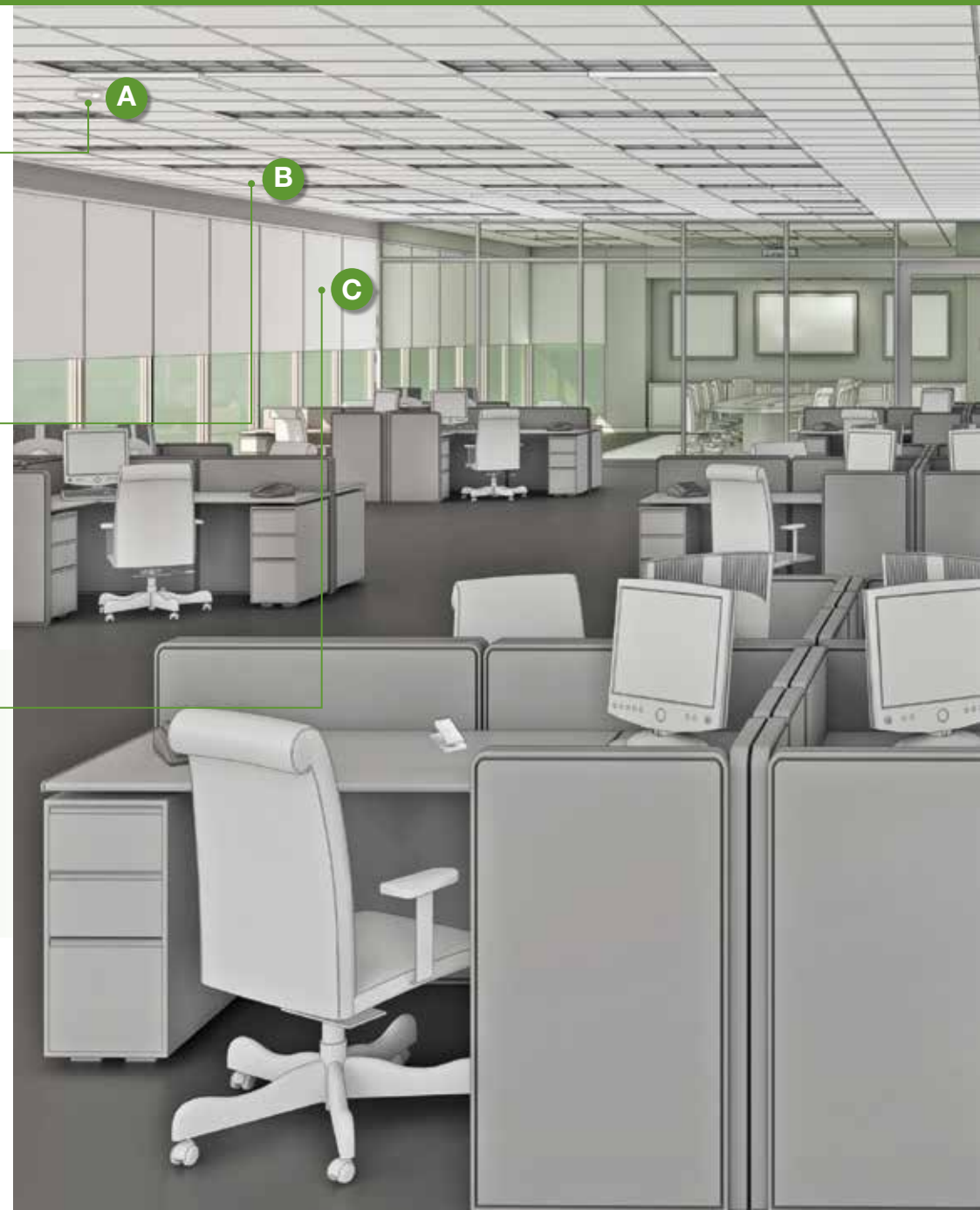
D **Energi Savr Node™***

control light by connecting
occupancy sensors, daylight
sensors and wallstations to
0-10V, EcoSystem, DALI
or switching ballasts

*   See page 6-9 to determine which Energi Savr
Node model best fits your application.

E **seeTouch® QS wallstation**

adjust lights and blinds to achieve
the optimal light level for any task

F **Pico™ Wireless Controller**

adjust light level from anywhere in
your space for enhanced productivity,
comfort, and convenience (available
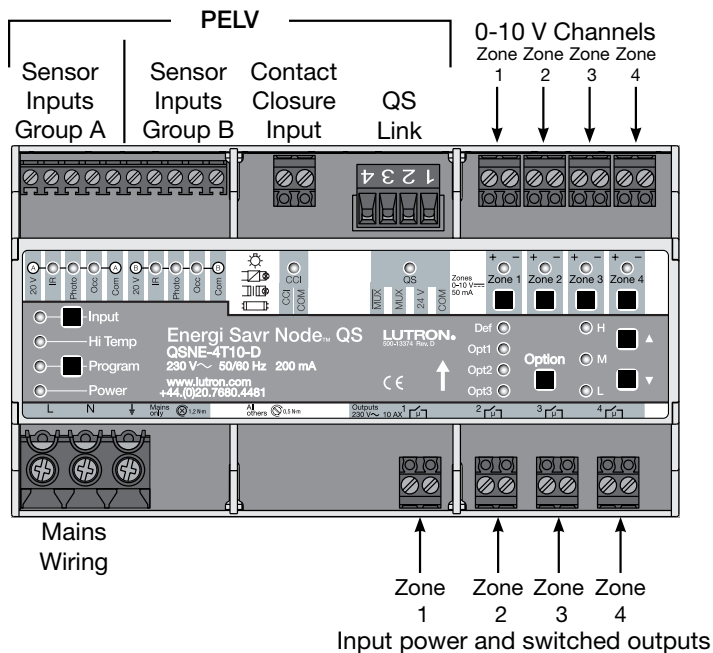as free standing, wall mounted or on
a table stand)

ENERGI SAVR NODE™ QS SWITCHING/0-10 V FIXTURE CONTROLLER

FEATURES

- Two occupancy sensor inputs for automated control of lights in areas
- Two daylight sensor inputs automatically adjust light levels based on the amount of natural light entering through the windows
- Includes QS control link for seamless integration of lights, motorised window treatments, and control stations
- Energi Savr Node QS units can be used in a Quantum® system to control and manage light in an entire building
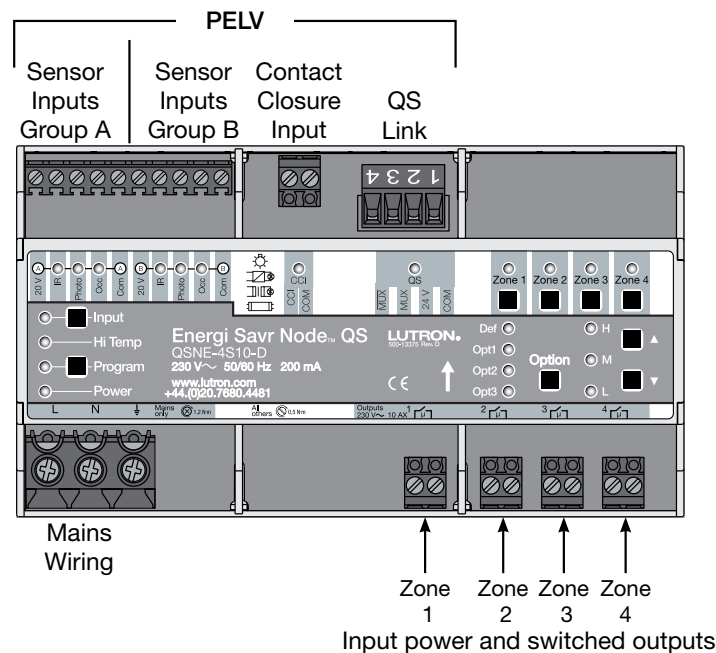
SPECIFICATIONS

- 220-240 V~ 50/60 Hz
- Lightning strike protection meets ANSI/IEEE standard 62.31-1980. Can withstand voltage surges of up to 6000 V~ and current surges of up to 3000 A
- Current draw: 200 mA max

OUTPUT ZONE RATINGS

- Each zone is rated at 10 AX for switching. Rated for resistive, inductive, or capacitive loads as defined by IEC/EN 60669-2-1
- 0-10 V rated for 50 mA source or sink current per zone

### ENERGI SAVR NODE QS FOR 0-10 V/SWITCHING (MODEL QSNE-4T10-D)

Input power and switched outputs

ENERGI SAVR NODE QS FOR SWITCHING ONLY (MODEL QSNE-4S10-D)

Input power and switched outputs

FEATURES

- Automatically selects leading-edge or trailing-edge dimming for incandescent/halogen, electronic/magnetic low-voltage and neon/cold cathode light sources
- Controls dimmable CFL/LED loads. Refer to LutronR P/N 048478 on www.lutron.com for compatibility with dimmable CFL/LED light sources
- R TISS™ Equipped® technology compensates for incoming line-voltage variations (up to ± 2% change in frequency/second) such as changes in Root Mean Square (RMS) voltage, frequency shifts, harmonics and line noise
- R TISS-TE™ operates on the trailing edge of the A/C sine wave. This allows for true instantaneous voltage compensation
- Provides air gap off (when all zones are off).

PHASE ADAPTIVE CONTROLLER (MODEL QSNE-4A-D)
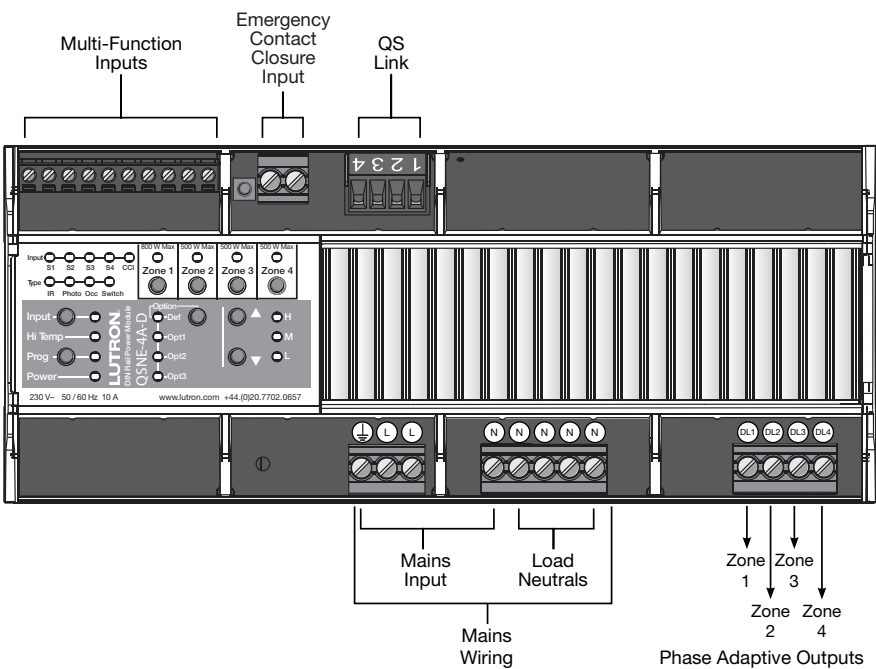
SPECIFICATIONS

- 220-240 V~ 50/60 Hz
- Lightning strike protection meets ANSI/IEEE standard 62.31-1980. Can withstand voltage surges of up to 6000 V~ and current surges of up to 3000 A
- 24 V⎓ 132 mA, 4 PDUs supplied

OUTPUT ZONE RATINGS

- **No Derating** is required if:
  - Calibration point maximum is 70 ℃
  - Room ambient temperature is between 0 ℃ to 30 ℃
  - Panel ambient temperature is between 0 ℃ to 50 ℃
- **100 W Derating** is required on all zones for a single module in a single non-ventilated DIN enclosure if:
  - The room ambient temperature is between 30 ℃ and 40 ℃
- **200 W Derating** is required on all zones for multiple row non-ventilated DIN enclosure if:
  - The room ambient temperature is between 30 ℃ and 40 ℃
- Each zone has no minimum load requirement
- Automatically selects leading-edge or trailing-edge dimming or can also be manually configured for a specific load type
- Internal relay provides an air gap off when all zones are off

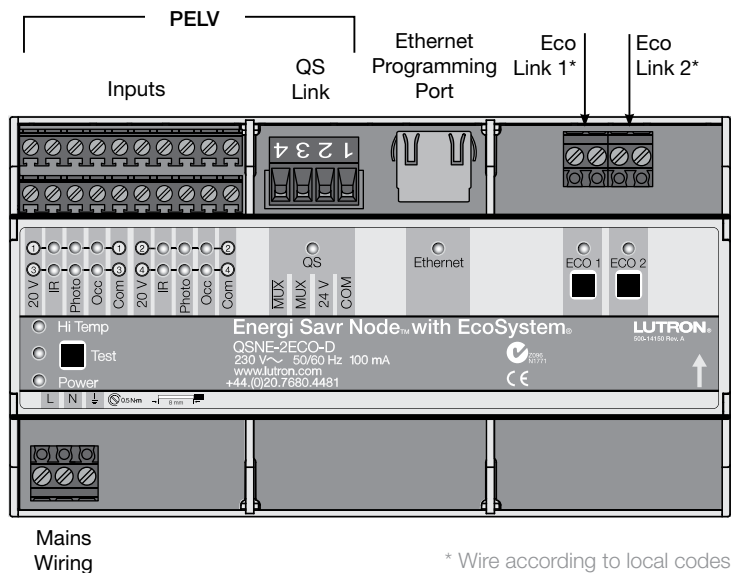Each zone is rated for the following wattage and load types

Load type	Zone 1 Rating			Zone 2, 3 and 4 Rating (per zone)		
	No Derating	100 W Derating	200 W Derating	No Derating	100 W Derating	200 W Derating
Incandescent/Halogen	800 W	700 W	600 W	500 W	400 W	300 W
Electronic Low Voltage	800 W	700 W	600 W	500 W	400 W	300 W
Magnetic Low Voltage	800 VA (600 W)	700 VA (525 W)	600 VA (450 W)	500 VA (375 W)	400 VA (300 W)	300 VA (225 W)
Neon/Cold Cathode	800 VA (600 W)	700 VA (525 W)	600 VA (450 W)	500 VA (375 W)	400 VA (300 W)	300 VA (225 W)

FEATURES

- Provides EcoSystem Link power for either one or two links of EcoSystem ballasts or drivers (up to 250 mA per link)
- Power failure memory retains control unit programming in the event of a power loss
- Includes QS link for seamless integration of lights, motorised window treatments, control stations, and QS Sensor Modules
- Energi Savr Node units and QS Sensor Modules can be used in a Quantum® system to control and manage light in an entire building.

SPECIFICATIONS

- 230 V~ 50/60 Hz, 100 mA
- Lightning strike protection meets ANSI/IEEE standard 62.31-1980. Can withstand voltage surges of up to 6000 V~ and current surges of up to 3000 A
- Eco Link Output: 18 V⎓ 250 mA maximum per Link
- Control up to 64 EcoSystem-compatible devices (ballast, modules, or LED drivers) per EcoSystem Digital Link (up to 128 devices per Energi Savr Node with EcoSystem unit):
  – EcoSystem H-Series ballasts
  – Hi-lumeR A-Series LED drivers
- Digitally define areas and zones
- Configure wired or wireless sensors and controls to control devices on multiple EcoSystem Digital Links and/or multiple Energi Savr Node units
- Automatic replacement of a single failed ballast, module, or driver
- Simple method of replacing multiple failed ballasts, modules, or drivers

ENERGI SAVR NODE FOR ECOSYSTEM (MODEL QSNE-2ECO-D)

* Wire according to local codes

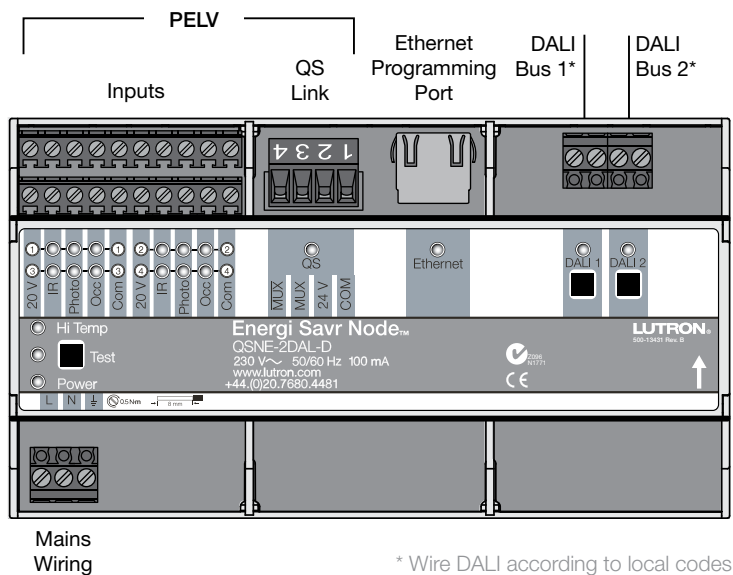# ENERGI SAVR NODE™ FOR DALI

FEATURES

- Provides power for two buses of DALI compliant digital addressable loads (up to 250 mA per bus).
- Each DALI Bus can control a maximum of 16 zones
- Power failure memory retains control unit programming in the event of a power loss
- Includes QS link for seamless integration of lights, motorised window treatments, control stations, and QS Sensor Modules
- Energi Savr Node units and QS Sensor Modules can be used in a Quantum® system to control and manage light in an entire building.

SPECIFICATIONS

- 220-240 V~ 50/60 Hz, max current draw 100 mA
- Lightning strike protection meets ANSI/IEEE standard 62.31-1980. Can withstand voltage surges of up to 6000 V~ and current surges of up to 3000 A
- DALI Bus Output: 18 V⎓ 250 mA maximum per bus.
- Up to 64 DALI compliant loads on each bus can be addressed and grouped into 16 zones.
- Energi Savr Node unit supplies 250 mA to power each bus.
- DALI Bus wires are polarity insensitive and topology-free.

ENERGI SAVR NODE FOR DALI (MODEL QSNE-2DAL-D)

* Wire DALI according to local codes

IN THE PALM OF YOUR HAND

The Energi Savr Node programming application for Apple iPhone or iPod touch mobile digital devices is the key to an intelligent light and blinds control system. [1]
• Adjust ballasts to the needs of any space
• Define light level
• Adjust sensor and control preferences
• Create groups
• Adjust multiple settings on every ballast

Use the Energi Savr Node programming application to setup, fine-tune, and maintain Energi Savr Node.

NEW! SYSTEM BACKUP

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

System setup
• Easy, menu-driven commissioning process
• Commission the lights from anywhere in the space

Define areas by setting up occupancy sensors, daylight sensors, and wallstations.

Fine-tuning

- Easily make changes to the system after the space is occupied

Change how the lights behave when the space is occupied and unoccupied and adjust the amount of time it takes for the lights to turn off after the last person exits the area.
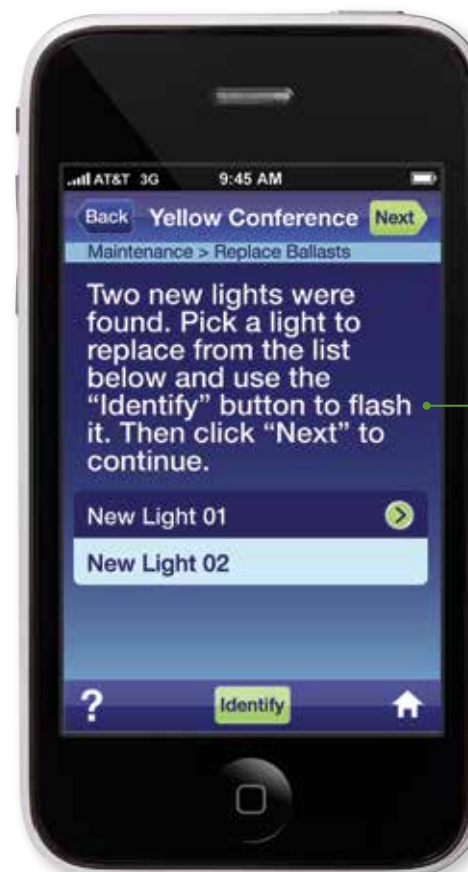
Maintenance

- Seamlessly replace digital ballasts without reprogramming the entire system

Programming application automatically finds new ballasts in the system and prompts the user through a few simple steps to complete ballast replacement.

1 Apple and iPod are registered trademarks and iPhone is a trademark of Apple, Inc., registered in the U.S. and other countries.

DAYLIGHT SENSING

Pre-configured mode 1
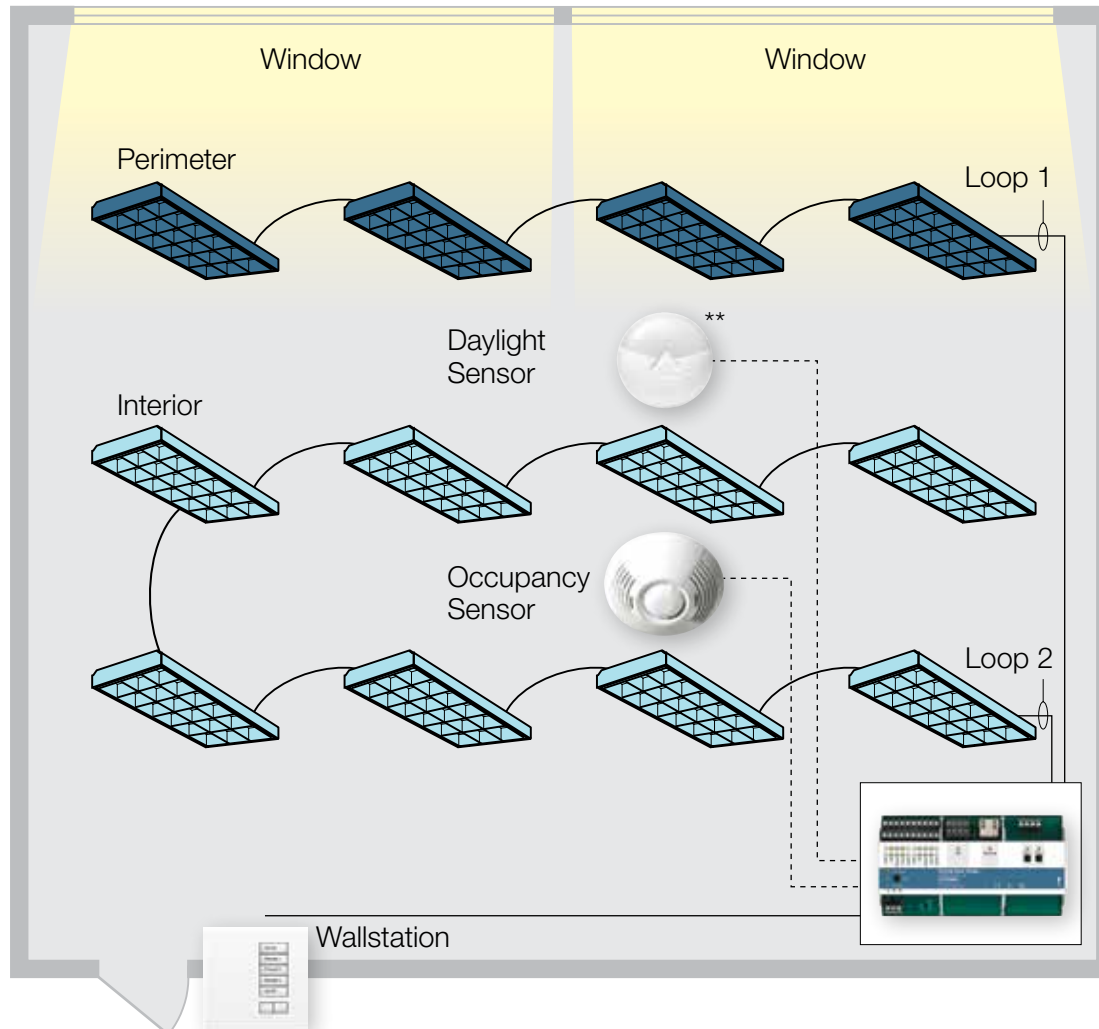
Pre-configured mode 1 implements a typical daylighting scenario. Fixtures automatically adjust their light level based on the amount of available daylight. To maintain a consistent light level, fixtures closest to the windows dim more than interior fixtures located further from the windows.
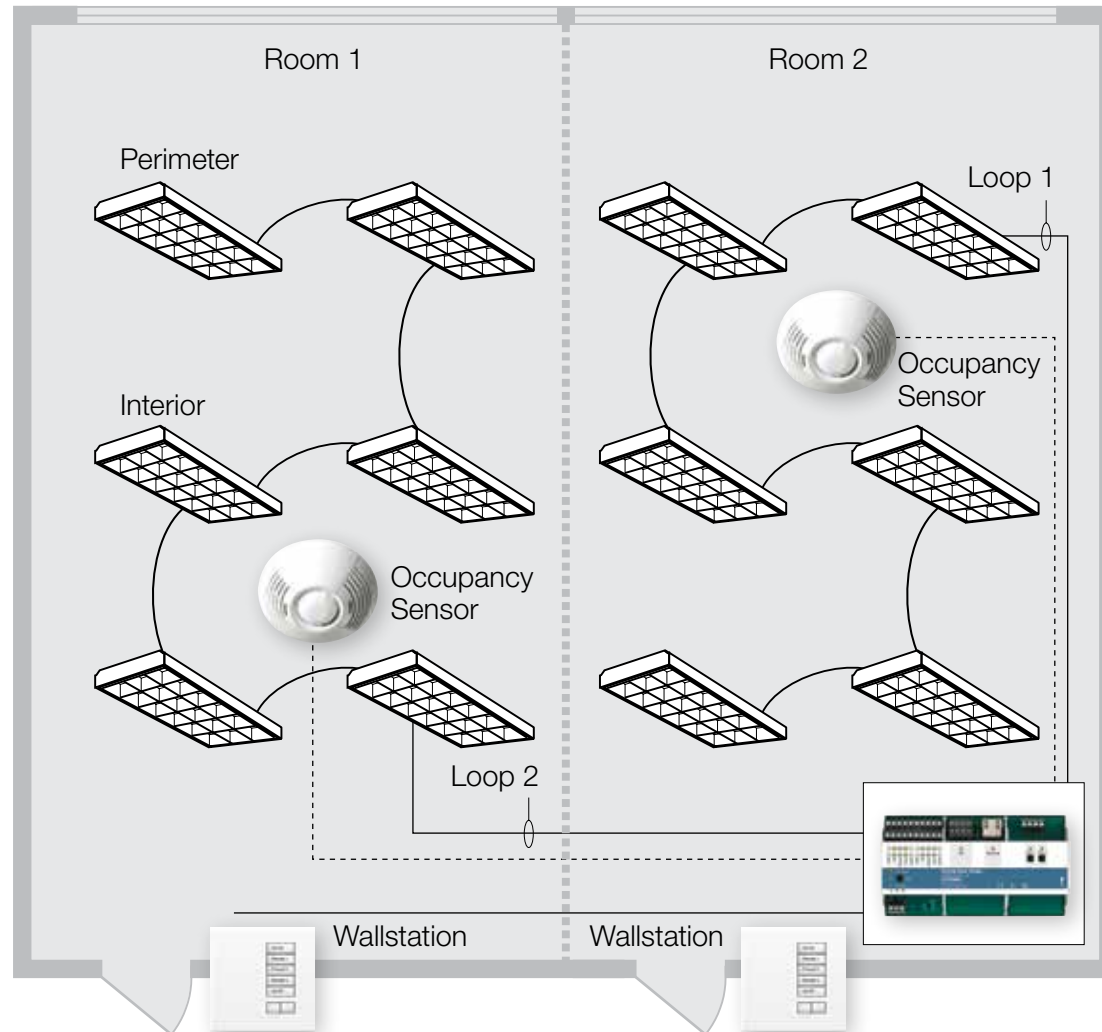
Light levels*   ▮ 50%   ▯ 80%

* example only – system calculates light level percentages for each fixture based on the amount of sunlight available

** Energi Savr Node can support up to 4 daylight rows.

2-ZONE OCCUPANCY SENSING

Pre-configured mode 2

Room 1

Room 2

Perimeter

Loop 1

Interior

Occupancy Sensor

Occupancy Sensor

Loop 2

Wallstation

Wallstation

Pre-configured mode 2 shows two independently controlled areas. Each room is controlled by an occupancy sensor, turning lights on and off based on room occupancy. Simply connect sensors, wallstations, and fixtures to Energi Savr Node so space functions as shown without commissioning.
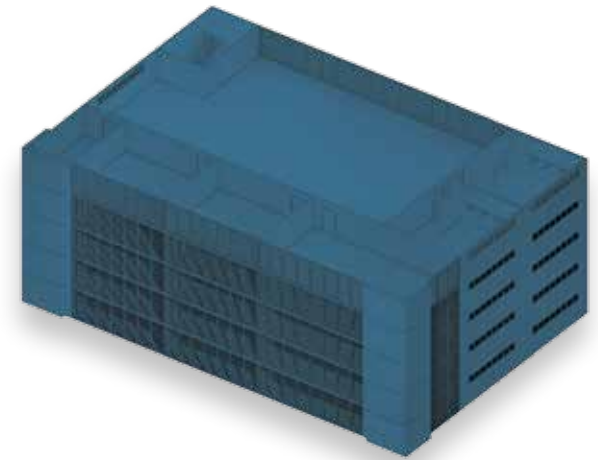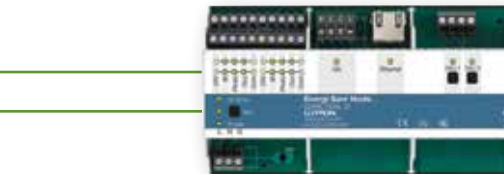
ENERGI SAVR NODE™ IS COMPLETELY EXPANDABLE
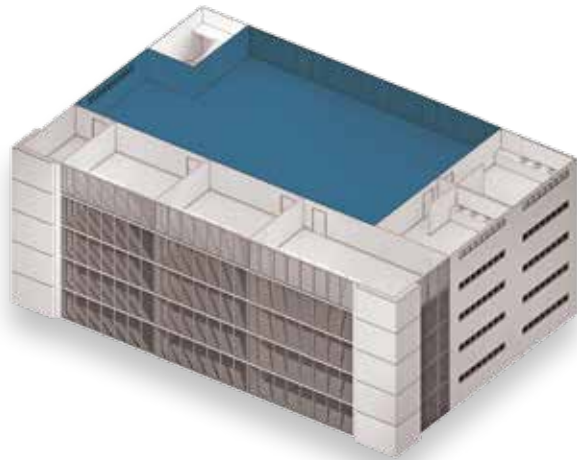
1 Start with a single area system
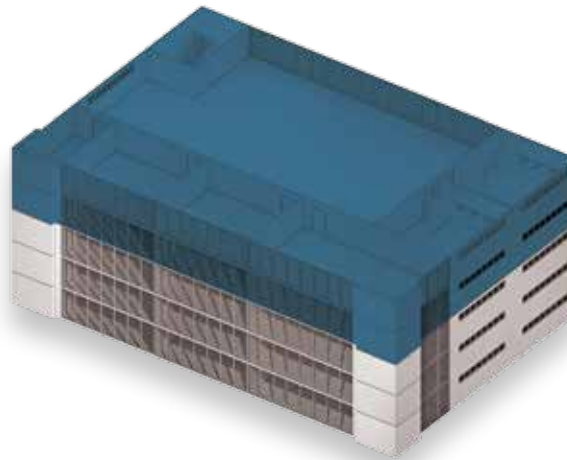
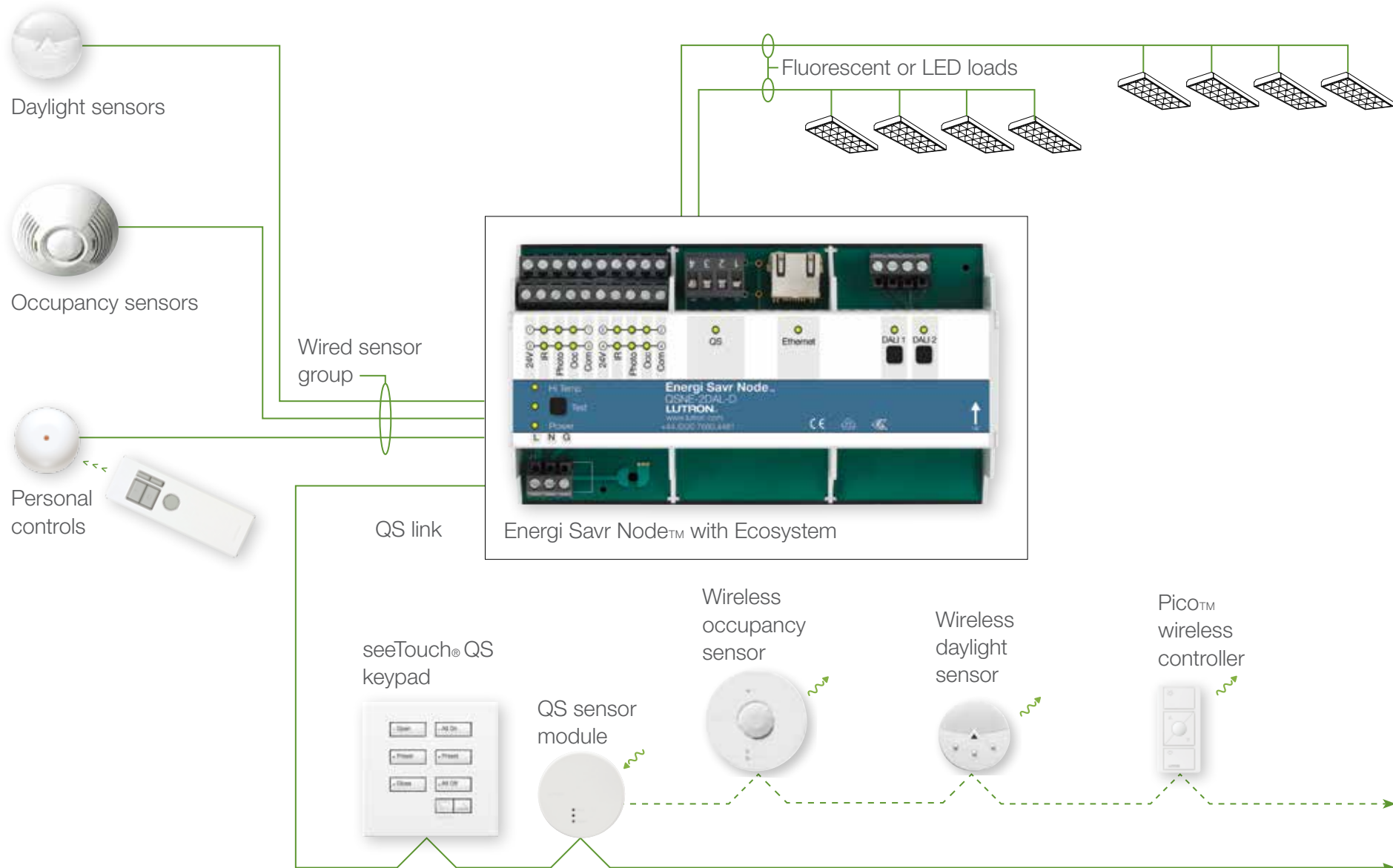**2** Link several Energi Savr Node modules to allow integrated control of several areas or floors
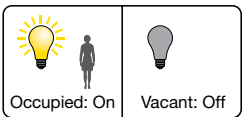

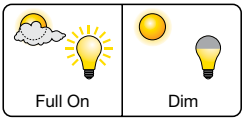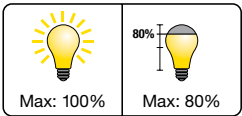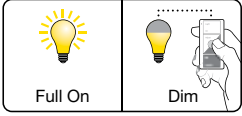**3** Add Quantum® for whole-building light management
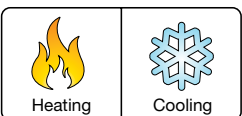
Quantum is a centralised control system that allows facility managers to utilise electric light and daylight for maximum energy efficiency, comfort, and productivity. Easily configure, monitor, analyse, and report on the light throughout an entire building from one location.

Daylight sensors

Occupancy sensors

Wired sensor group

Personal controls

Fluorescent or LED loads

Energi Savr Node™ with Ecosystem

QS link

seeTouch® QS keypad

QS sensor module

Wireless occupancy sensor

Wireless daylight sensor

Pico™ wireless controller

ENERGY-SAVING CONTROL STRATEGIES

Potential savings

Occupied: On / Vacant: Off	**Occupancy/vacancy sensing** turns lights on when occupants are in a space and off or dimmed when they vacate the space.	20 – 60% Lighting[1]
Full On / Dim	**Daylight harvesting** dims electric lights when daylight is available to light the space.	25 – 60% Lighting[2]
Max: 100% / Max: 80%	**High-end trim** sets the maximum light level based on customer requirements in each space.	10 – 30% Lighting[3]
Full On / Dim	**Personal dimming control** gives occupants the ability to set the light level.	10 – 20% Lighting[4]
Heating / Cooling	**HVAC integration** controls heating, ventilation and air conditioning systems through contact closure.	5 – 15%[5] HVAC

1 VonNieda B, Maniccia D, & Tweed A. 2000. An analysis of the energy and cost savings potential of occupancy sensors for commercial lighting systems. Proceedings of the Illuminating Engineering Society. Paper #43.

2 Reinhart CF. 2002. Effects of interior design on the daylight availability in open plan offices. Study of the American Commission for an Energy Efficient Environment (ACE) Conference Proceedings. To achieve maximum lighting savings, automated shades are utilised.

3 Williams A, et al. 2012. Lighting Controls in Commercial Buildings. Leukos. 8(3) pg 161-180.

4 Galasiu AD, et al. 2007. Energy saving lighting control systems for open-plan offices: A field study. Leukos. 4(1) pg 7-29.

5 Lutron study based on reduction in heating (base 60°F) and cooling (base 55°F) degree days with a 2°F thermostat setback and 60% space un-occupancy. EnergyPlus modeling simulations were conducted and predicted similar savings.