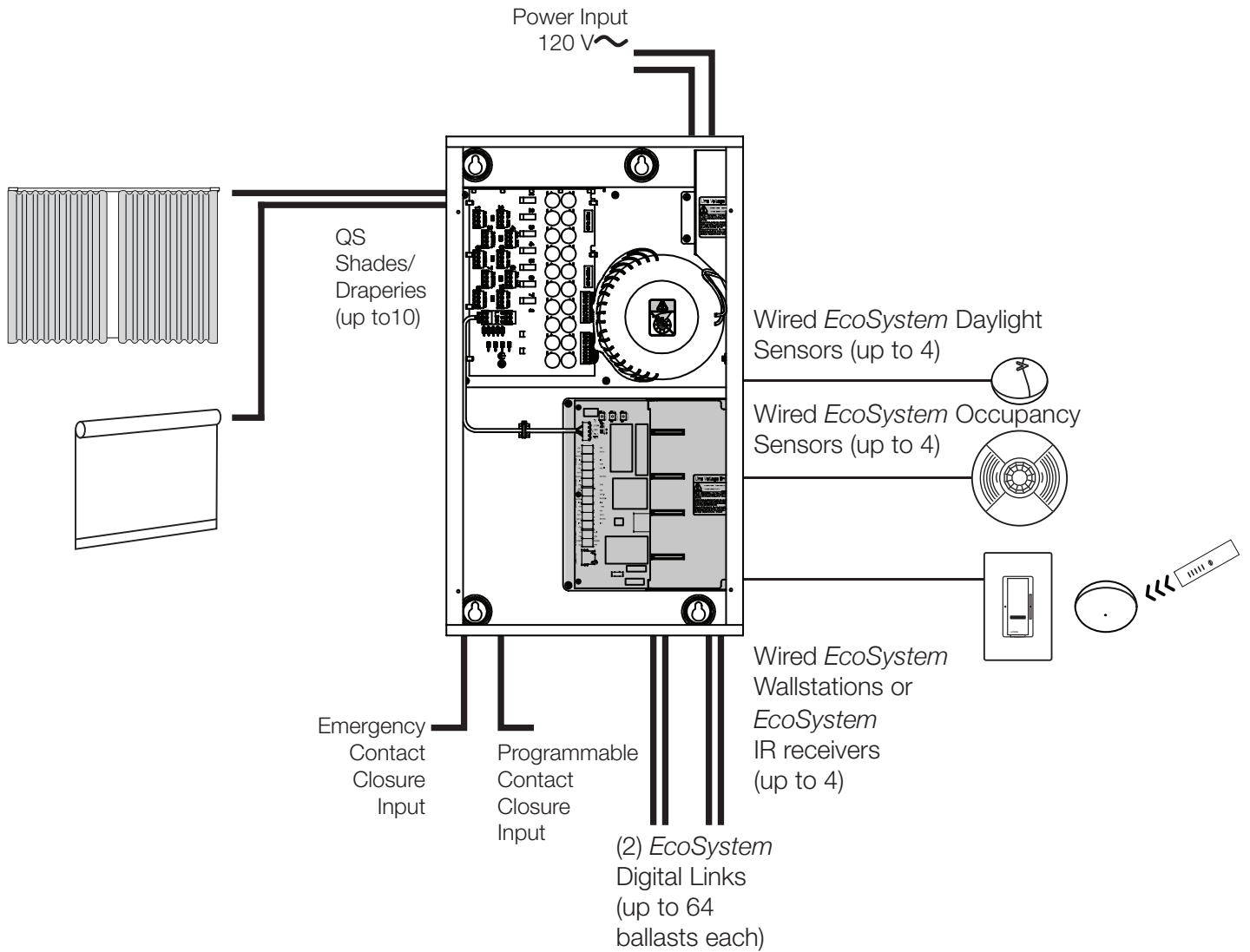


System Overview



Job Name:	Model Numbers:
Job Number:	

Specifications

Power

- 120 V~ 60 Hz input voltage
- 8 A / Panel
- **Note:** Use only high magnetic breakers
- 1 panel per dedicated 15 A circuit or 2 panels per dedicated 20 A circuit
- 30 A maximum breaker size
- 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
- (+/-) 16kV ESD protection
- QS Link Output: 24 V $\overline{=}$
- Fuse on each shade output
2 spares included
(5x20mm, 2.5 A fuse) for miswire protection
- 10-year power failure memory: restores lighting to levels prior to power interruption

Regulatory Approvals

UL Listed: #E42071

- Lutron® Quality Systems registered to ISO 9001.2000
- UL 508 Limited Voltage/Limited Current Circuit (NEC® approved class 2 power source)

Environment

- Ambient Temperature Operating Range: 32° F to 104°F (0 °C to 40 °C)
- Relative humidity: less than 90% non-condensing
- For indoor use only

Terminals

EcoSystem Link

- *EcoSystem* Digital Link Wiring: 18 AWG–12 AWG (1.0 mm²–2.5 mm²)
- Sensor Wiring: 22 AWG–12 AWG (0.5 mm²–2.5 mm²)

QS Link

- 10-14 AWG (6-2.5 mm²) stranded input wiring
- 4 conductor 12-26 AWG (4-0.15 mm²) stranded, twisted/shielded output wiring

Mounting

- Surface mount
- 35 lbs (15.8 kg)

Job Name:	Model Numbers:
Job Number:	

Specifications (continued)

EcoSystem

- Control up to 64 *EcoSystem*-compatible devices (ballast, modules, or LED drivers) per *EcoSystem* Digital Link (up to 128 devices per *Energi Savr Node* unit)
 - *EcoSystem* ballasts and modules
 - *EcoSystem* H-Series ballasts
 - Hi-lume® 3D ballasts
 - *Hi-lume* LED drivers
 - *Hi-lume* A Series LED drivers
- Digitally define zones and configure wired or wireless sensors and controls to control devices on multiple *EcoSystem* Digital Links and/or multiple *Energi Savr Node* units
- Automatically assigns a replacement ballast, module or driver to the system
- *EcoSystem* Digital Link can be wired as class 1 or class 2 for maximum wiring flexibility

EcoSystem Occupancy Sensors

- Use *EcoSystem* LOS series of wired occupancy sensors in occupancy mode to control one or more areas.
- Use *EcoSystem* occupancy sensors in vacancy mode to automatically turn the lights off in an area a fixed time after it becomes vacant.
- Use *EcoSystem* occupancy sensors in occupancy mode to automatically turn the lights on in area when it becomes occupied and to automatically turn the lights off in an area a fixed time after it becomes vacant.
- Each of the four occupancy input groups can power one *EcoSystem* occupant sensor.
- Each area's occupied light level and unoccupied light level can be programmed.

EcoSystem IR Wallstation or Receiver Input

- Four inputs for *EcoSystem* IR receivers or wallstations for control of lighting zones can be connected directly to the *Energi Savr Node* unit.
- Use CC-1BRL-WH or CC-4BRL-WH wallstations to control one or more zones.
- Use EC-IR-WH or EC-DIR-WH to control one or more zones.

EcoSystem Daylight Sensors

- *EcoSystem* daylight sensors allow daylight harvesting with programmable effect on electric light output.
- Four daylight sensors can be connected directly to the *EcoSystem Energi Savr Node* unit.
- Use EC-DIR-WH sensors to control one or more daylight rows.
- Control 4 daylight rows per area with a maximum of 2 daylight sensors per area.

Job Name: Job Number:	Model Numbers:
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Specifications (continued)

Contact Closure Input (CCI)

- Activate lighting scenes using momentary or maintained closures from an external device like a timeclock.
- Start or stop Afterhours mode.
- Enable or disable Load Shed mode to save energy during peak demand periods.
- The attached device must provide a dry contact closure or solid state output. The input can be configured as normally open (NO) or normally closed (NC). The default configuration is normally closed.
- Input is miswire-protected up to 36 V $\overline{\text{---}}$.

Emergency Contact Closure Input

- By default, contact closure input from LUT-ELI, security, or fire alarm systems turns all lighting zones on to full output when emergency state is activated.
- Response of each lighting zone is configurable.
- No operations will be allowed until emergency signal is cleared.
- The attached device must provide a dry contact closure or solid-state output.
- Input is miswire-protected up to 36 V $\overline{\text{---}}$.

Input Default Associations

- EcoSystem Energi Savr Node units are pre-programmed from the factory to respond to inputs wired directly to the EcoSystem Energi Savr Node unit. The table below details which EcoSystem link a wired input is pre-programmed to control:

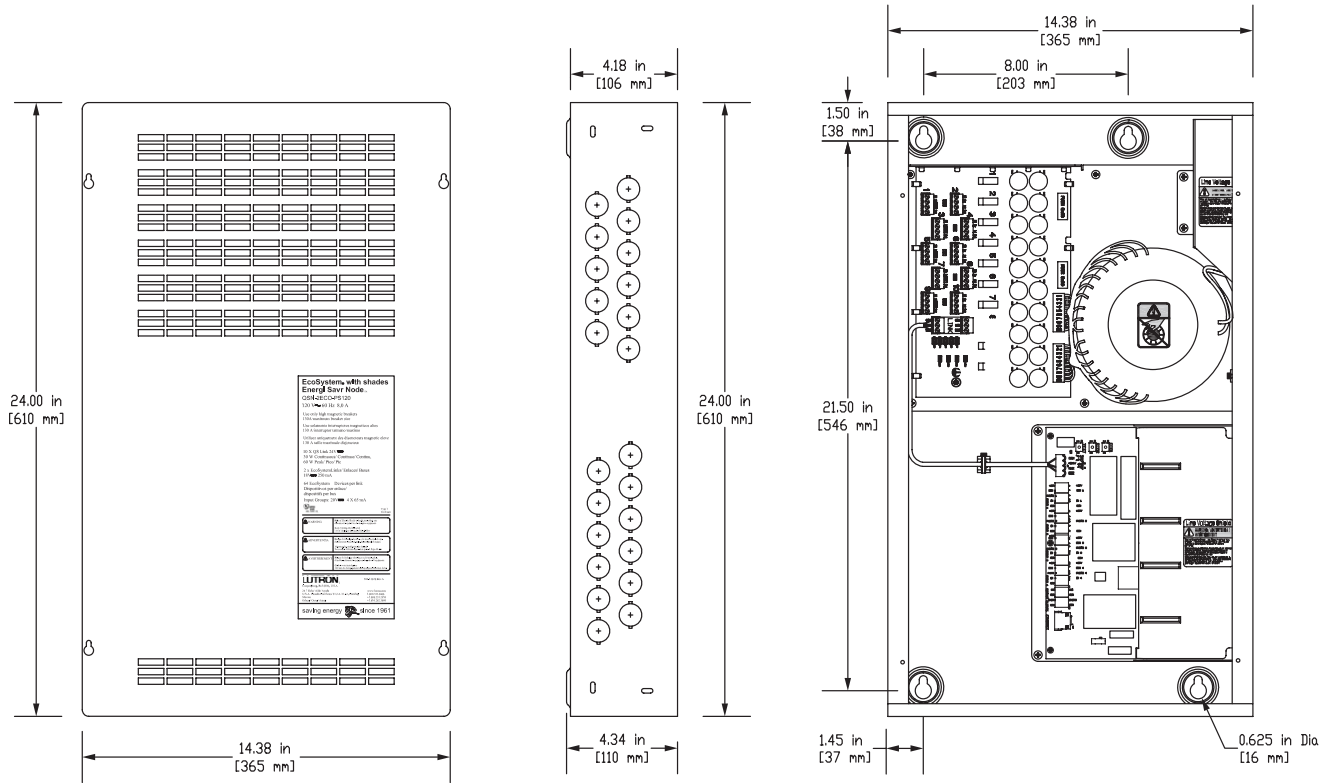
	Inputs/Outputs	Link 1	Link 2
Group 1	Occ 1	X	
	Daylight 1	X	
	IR 1	X	
Group 2	Occ 2		X
	Daylight 2		X
	IR 2		X
Group 3	Occ 3	X	X
	Daylight 3	X	X
	IR 3	X	X
Group 4	Occ 4	X	X
	Daylight 4	X	X
	IR 4	X	X
	Programmable CCI	X	X
	Emergency CCI	X	X

- Programmable CCI activates a scene using a normally open momentary closure by default

Job Name:	Model Numbers:
Job Number:	

Mechanical Dimensions

All dimensions shown as inches (mm)



Panel must be mounted in the orientation shown

Job Name:	Model Numbers:
Job Number:	

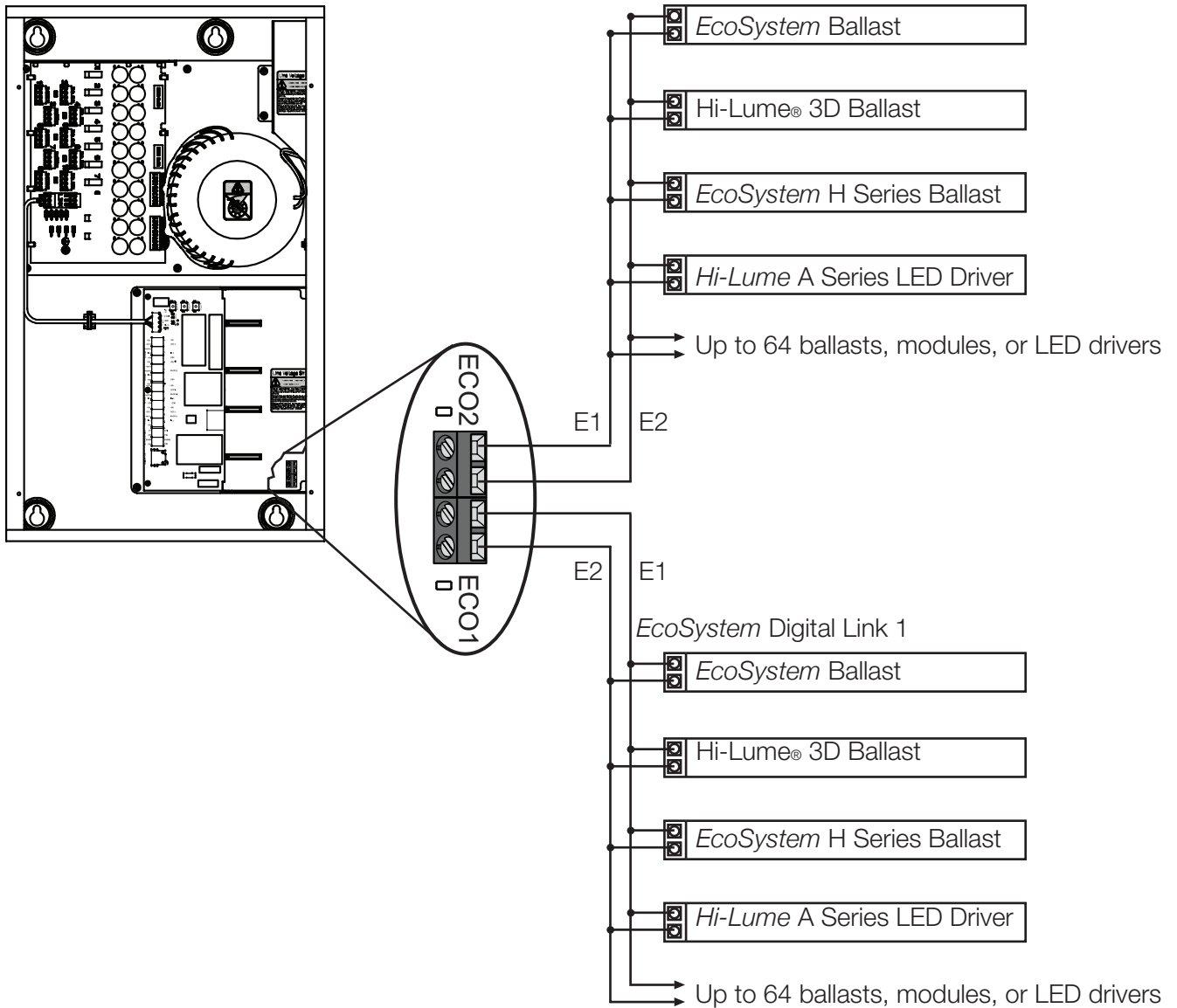
Wiring Diagram: *EcoSystem* Digital Link

Wiring Notes

- Can be wired as class 1 or class 2 (see App Note #142, “*EcoSystem* Bus Class 1 and Class 2 Listing” for more details).
- Polarity free.
- Topology free.
- *EcoSystem* links are not electrically isolated from each other

Wire Gauge	Maximum <i>EcoSystem</i> Digital Link Wire Length
12 AWG (4.0 mm ²)	2200 ft (671 m)
14 AWG (2.5 mm ²)	1400 ft (427 m)
16 AWG (1.5 mm ²)	900 ft (275 m)
18 AWG (1.0 mm ²)	570 ft (175 m)

Lights and Shades ESN Unit



Job Name:	Model Numbers:
Job Number:	

QS Link Rules

The following Link rules must be observed for proper operation.

- Maximum of 100 devices (such as a GRAFIK Eye® QS, seeTouch® QS keypad, smart panel power supply [QSPS-P1-10-60], or Sivoia® QS shade / drapery drive unit)
- Maximum of 100 zones - such as a Sivoia QS shade / drapery drive unit, or a lighting zone on a GRAFIK Eye QS
- Maximum 2000 ft (600 m) of cable connecting all QSN-2ECO-PS120 panels
- Maximum 2000 ft (600 m) of cable to devices wired to each QSN-2ECO-PS120
- Only use cable with at least one twisted/shielded pair for communications (MUX and $\overline{\text{MUX}}$)

Note: Secondary wiring must be of type CL2, CL2P, CL2R, CL2X or other cable with equivalent or better electrical, mechanical, and flammability ratings in accordance with local and national electric code.

QSN-2ECO-PS120 Wiring Guidelines for Shade Module Outputs (x10)

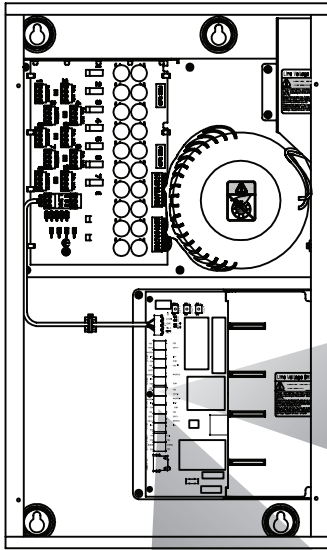
Maximum devices per one output		Maximum distance per one output based on wire gauge		
Shades	+ Controls	12 AWG 4 mm ²	16 AWG 1.5 mm ²	18 AWG 1 mm ²
None	Up to 50 power draw units	1250 ft (375 m)	500 ft (150 m)	250 ft (75 m)
None	Up to 25 power draw units	2000 ft (600 m)	1000 ft (300 m)	600 ft (175 m)
1 Sivoia QS shade or drapery	Up to 1 power draw unit	500 ft (150 m)	200 ft (60 m)	125 ft (35 m)
2 Sivoia QS roller 64, ≤ 30 sq ft (2.75 sq m) each		200 ft (60 m)	75 ft (20 m)	50 ft (15 m)
3 Sivoia QS roller 64, ≤ 20 sq ft (1.8 sq m) each				
2 Sivoia QS roller 100, ≤ 50 sq ft (4.6 sq m) each				

QSN-2ECO-PS120 Wiring Guidelines for Light Module Output

Maximum devices per one output	Maximum distance per one output based on wire gauge		
Controls	12 AWG 4 mm ²	16 AWG 1.5 mm ²	18 AWG 1 mm ²
Up to 30 power draw units	2000 ft (600 m)	750 ft (225 m)	500 ft (150 m)

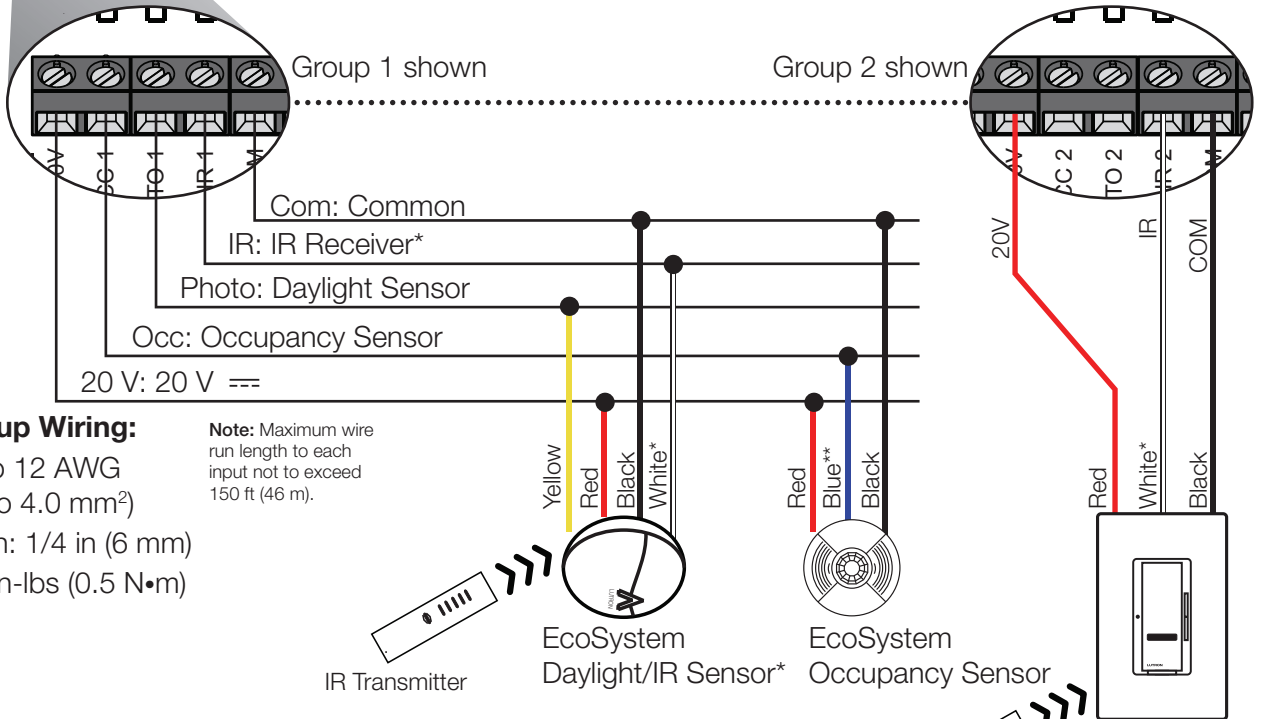
Job Name:	Model Numbers:
Job Number:	

Wiring: NEC® Class 2/PELV Inputs



NOTE: There are four input groups. Each group has the same inputs as shown in the diagram below.

+20V	OCC 1	PHOTO 1	IR 1	COM	+20V	OCC 2	PHOTO 2	IR 2	COM	+20V	OCC 3	PHOTO 3	IR 3	COM	+20V	OCC 4	PHOTO 4	IR 4	COM
GROUP 1					GROUP 2					GROUP 3					GROUP 4				



Input Group Wiring:

- 20 AWG to 12 AWG (0.5 mm² to 4.0 mm²)
- Strip length: 1/4 in (6 mm)
- Torque: 5 in-lbs (0.5 N•m)

Note: Maximum wire run length to each input not to exceed 150 ft (46 m).

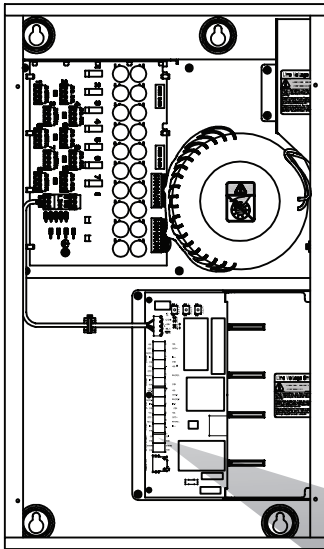
* **Note:** Only one EcoSystem IR device may be connected per input. If the IR signal from a daylight sensor is connected, a wall control may not be connected to the same input, and vice-versa.

**Connect the gray wire on -R model occupancy sensors.

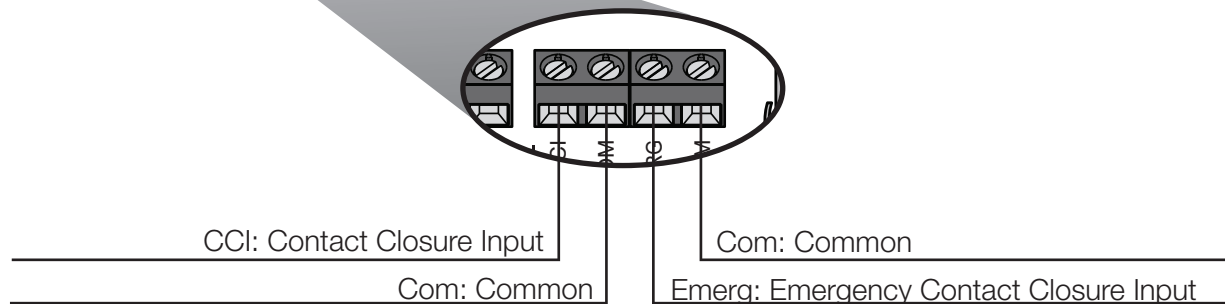
Job Name:	Model Numbers:
Job Number:	

Wiring: Contact Closure Inputs

EcoSystem with shades
Energi Savr Node unit



- Accepts 22 AWG–12 AWG (0.5 mm²–4.0 mm²) solid or stranded wires.
- Maximum wire run distance: 250 ft (76 m).



Emergency CCI

- The attached device must provide a closed dry contact closure or solid-state output.
- Input is miswire-protected up to 36 V .
- The Energi Savr Node unit is shipped with a jumper pre-installed in the Emergency Contact Closure input.
- Emergency mode is activated by opening the Emergency Contact Closure. Pre-installed jumper must be removed to utilize this function.
- See Application Note #140, “EcoSystem Ballasts and Emergency Wiring” at www.lutron.com for more details.

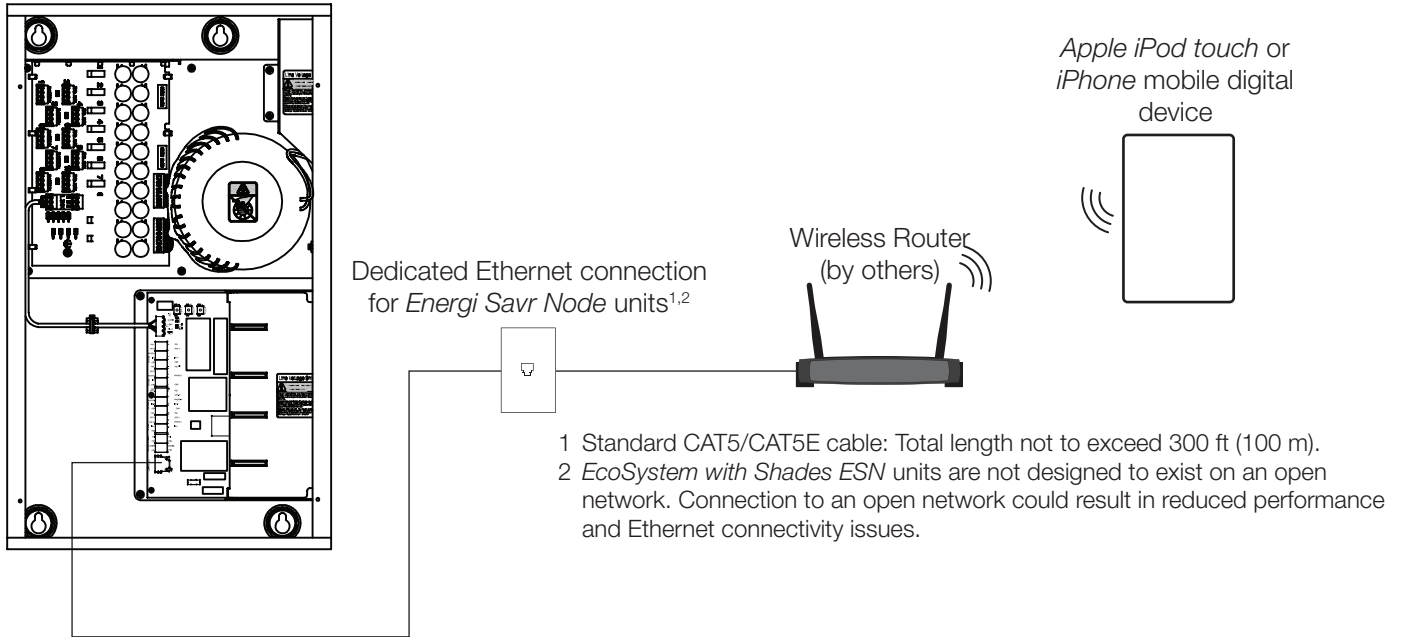
Programmable CCI

- The attached device must provide a dry contact closure or solid-state output.
- Input is miswire-protected up to 36 V **===**.

Job Name:	Model Numbers:
Job Number:	

Wiring: System Programming Connection

*EcoSystem with shades
Energi Savr Node unit*



- Wireless router only required for programming with an Apple iPod touch or iPhone.
- Wireless router may be removed for normal operation.
- Lutron recommends that an *EcoSystem with Shades ESN* unit be wired to an Ethernet jack in the space for ease of access and proximity to power for the wireless router.
- Works with any standard wireless router available.
- Apple iPod touch or iPhone can program other *EcoSystem with Shades ESN* units connected to an *EcoSystem with Shades ESN* unit via the QS Link (except when part of a Quantum® system).
- Energi Savr Node app is required (except when part of a Quantum system) to program *EcoSystem with Shades ESN* units and is available from the Apple iTunes Store online store.

Apple, iPhone, iPod touch, and iTunes Store are trademarks of Apple Inc., registered in the U.S. and other countries.

Job Name:	Model Numbers:
Job Number:	