



QUANTUM 

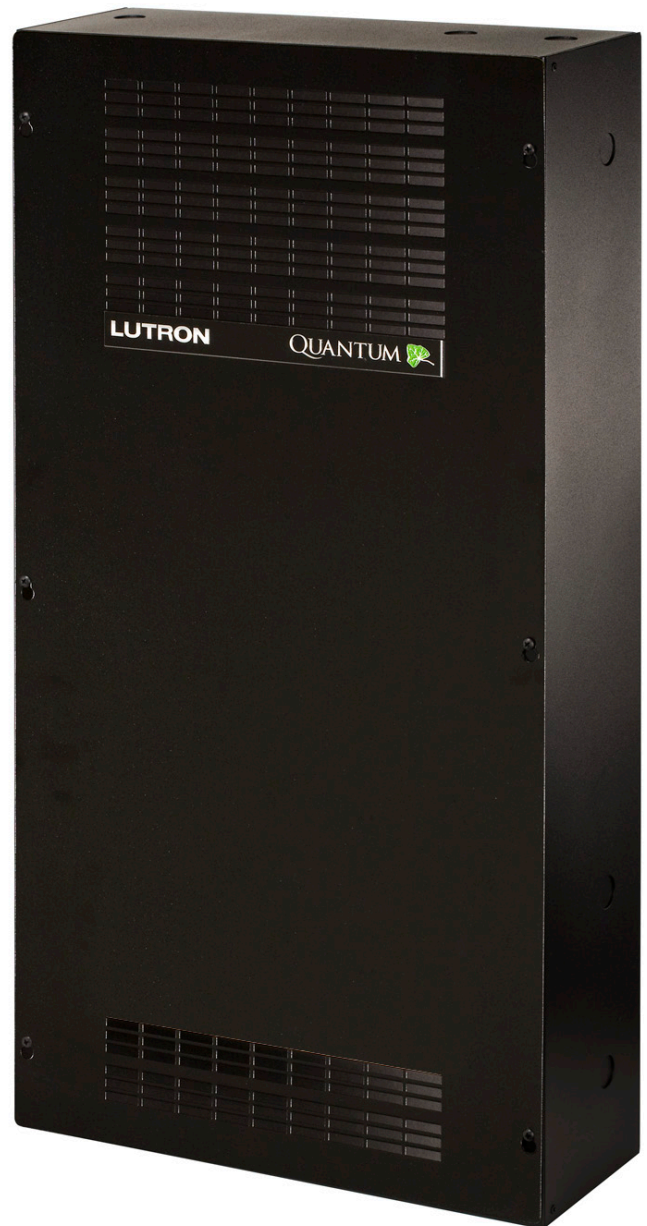
Light Management Hub

Installation Guide for 240 V \sim Models

Please Read

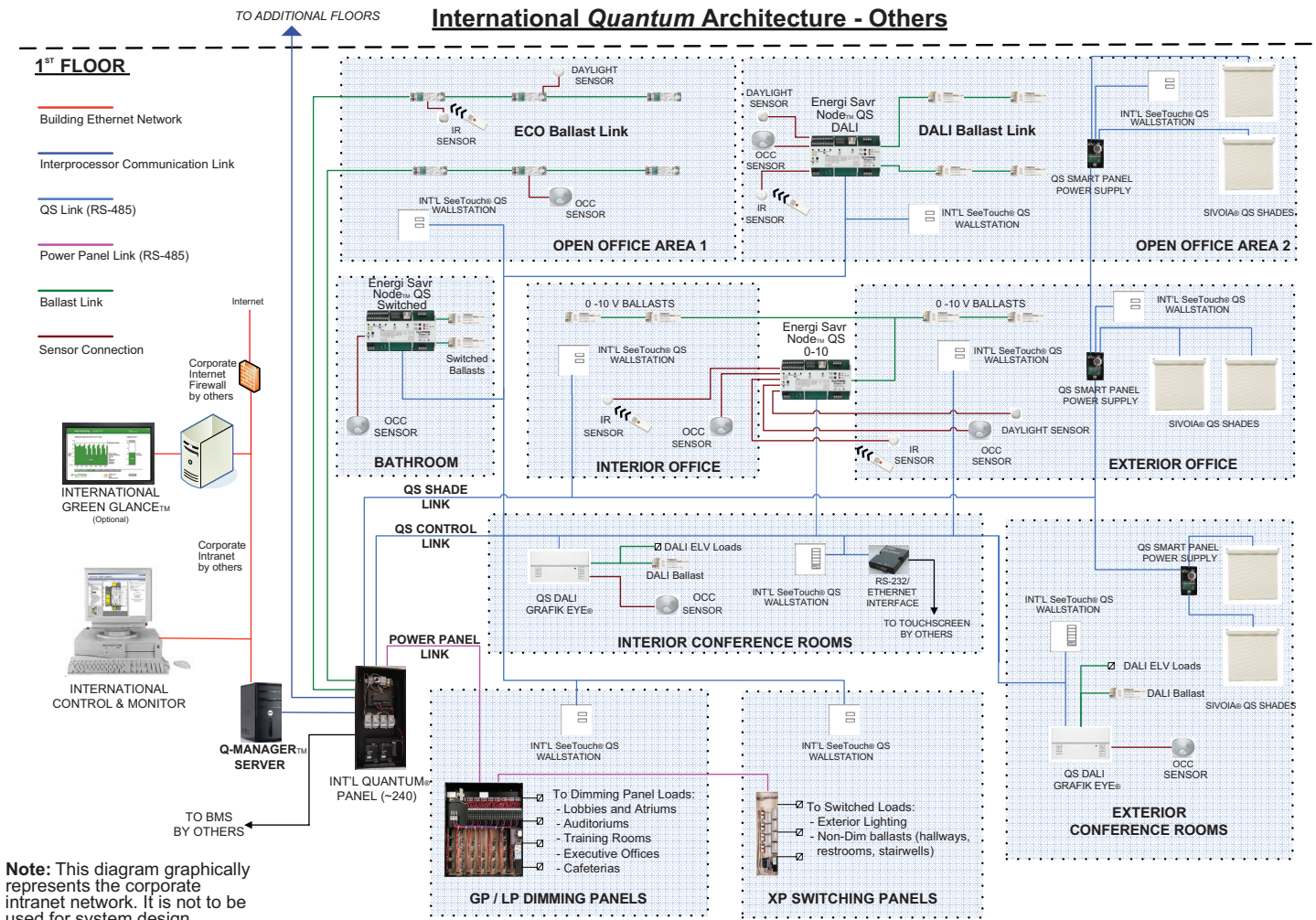
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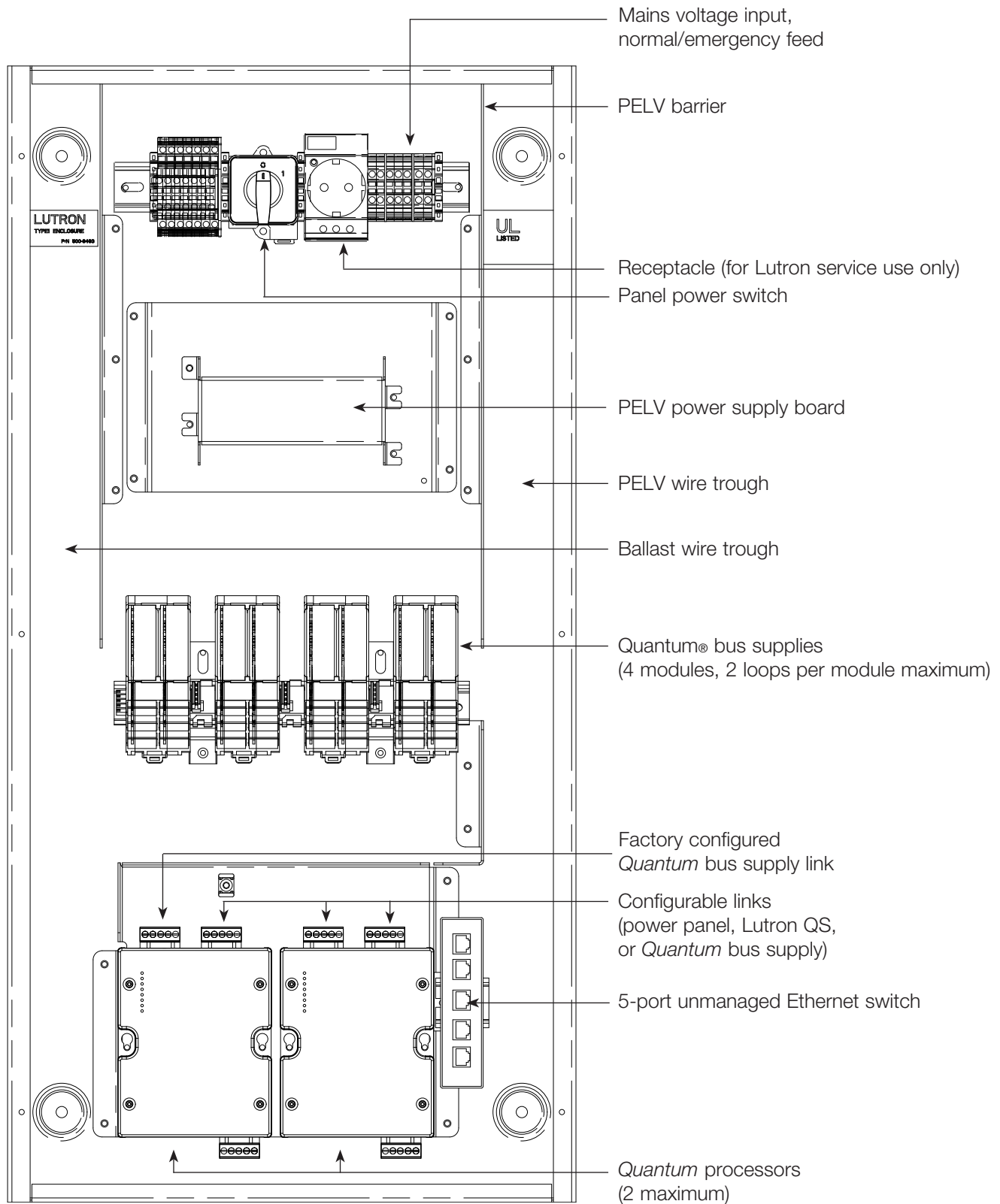


The *Quantum* light management hub provides the ability to control Lutron EcoSystem[®] digital ballast modules, DALI ballasts, Lutron GRAFIK Eye[®] power panels, GRAFIK Eye[®] QS, and Sivoia[®] QS shades from one centralised location.

Quantum® System Overview

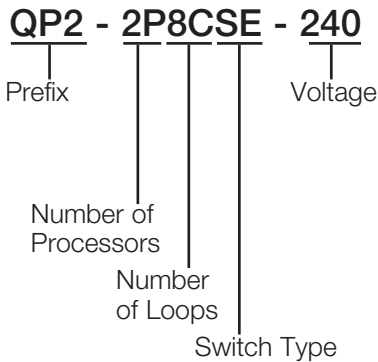


Hub Overview



Model Number Guide

Example



Prefix

QP2 = Quantum® Processor

Number of Processors

0P = 0 *Quantum* processors

1P = 1 *Quantum* processor

2P = 2 *Quantum* processors

Number of Loops

0C = 0 *EcoSystem*® loops

2C = 2 *EcoSystem* loops

4C = 4 *EcoSystem* loops

6C = 6 *EcoSystem* loops

8C = 8 *EcoSystem* loops

Switch Type

SE = Ethernet 5-port

Voltage

240 for 220-240 V~

50/60 Hz 10 A

Available Model Numbers

Contact Lutron for options not listed below.

QP2-0P0CSE-240

QP2-1P0CSE-240

QP2-1P2CSE-240

QP2-1P4CSE-240

QP2-1P6CSE-240

QP2-1P8CSE-240

QP2-2P0CSE-240

QP2-2P2CSE-240

QP2-2P4CSE-240

QP2-2P6CSE-240

QP2-2P8CSE-240

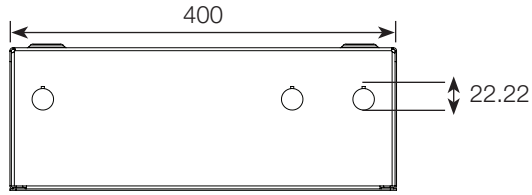
QS Device Consumption Rules

The table below lists the devices available on the QS link. See below for each device's count toward the link maximums for switch legs, devices, and power draw. A *Quantum* QS link can have up to 512 switch legs (outputs), 99 devices, and 32 power draw units.

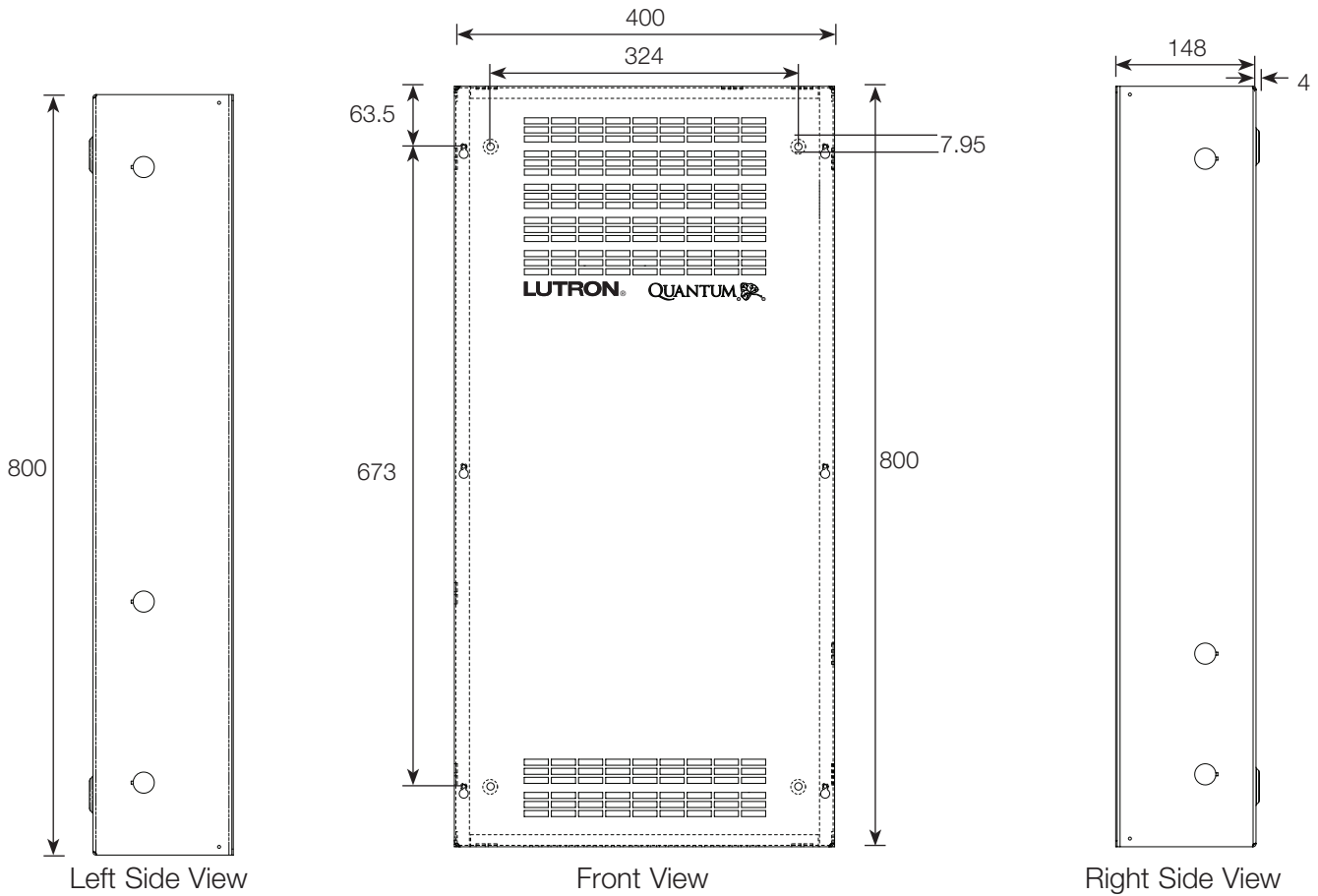
QS Device Description	Switch Leg Count	Device Count	Power Draw Units
3-zone <i>GRAFIK Eye</i> ® QS	3	1	0
4-zone <i>GRAFIK Eye</i> QS	4	1	0
6-zone <i>GRAFIK Eye</i> QS	6	1	0
6-zone <i>GRAFIK Eye</i> QS DALI	6	1	0
8-zone <i>GRAFIK Eye</i> QS DALI	8	1	0
16-zone <i>GRAFIK Eye</i> QS DALI	16	1	0
seeTouch® QS	0	1	1
<i>Sivoia</i> ® QS Roller 64™	1	1	0
<i>Sivoia</i> QS Roller 100™	1	1	0
<i>Sivoia</i> QS Roller 225™	1	1	0
QS contact closure interface	up to 5	1	3
QS network interface	0	1	3
QS smart power panel	0	1	0
Digital Fluorescent Controls (Energi Savr Node™ QS)	up to 128	1	0

Dimensions

All dimensions in mm.



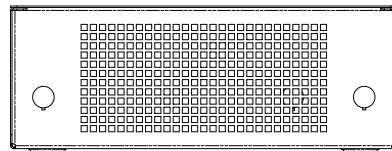
Top View



Left Side View

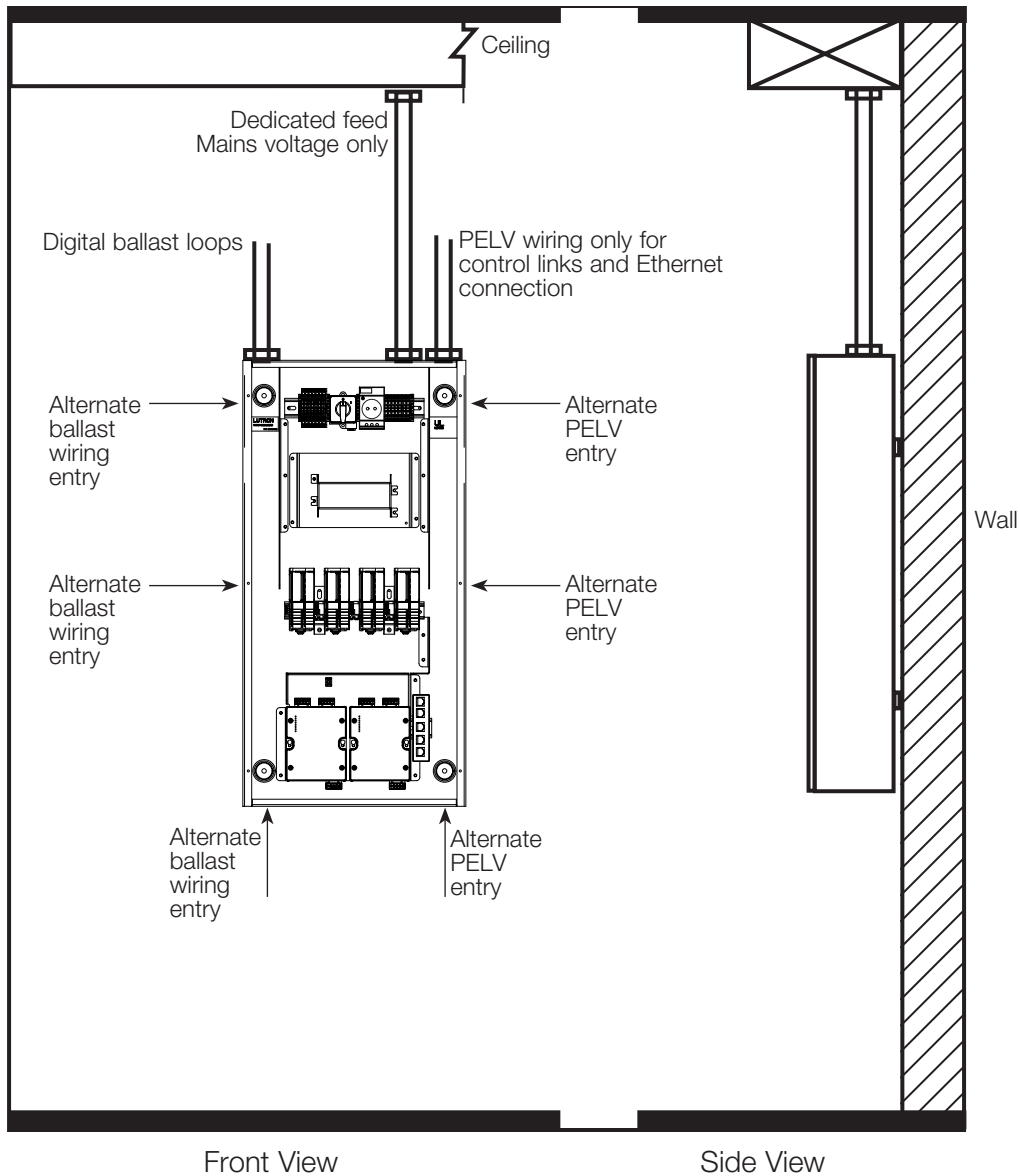
Front View

Right Side View



Bottom View

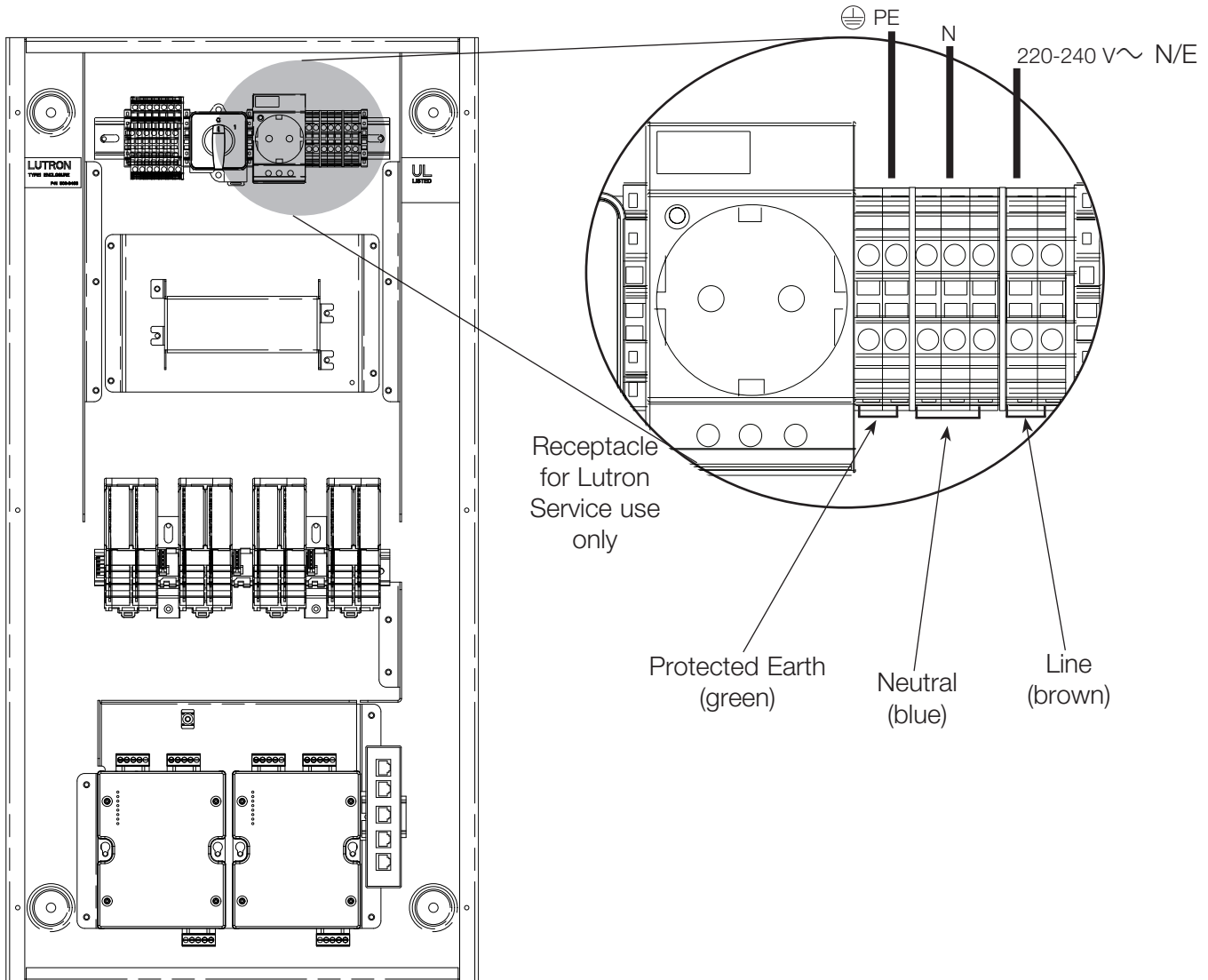
Mounting and Conduit Entry



Notes

- Water damages equipment. Mount in a location where the hub and processors will not get wet. Mount within 7° of true vertical.
- Digital ballast wiring can be mains or PELV; always keep mains and PELV wiring separate, and follow all applicable local and national electric codes.
- A minimum of 305 mm unobstructed space is required in front of and below the hub for ventilation.
- Enclosure: IP-20 protection
- Weight: 20.4 kg
- Surface mount only
- For indoor use only
- 0 - 40 °C
- Relative humidity less than 90% non-condensing

Mains Voltage Wiring



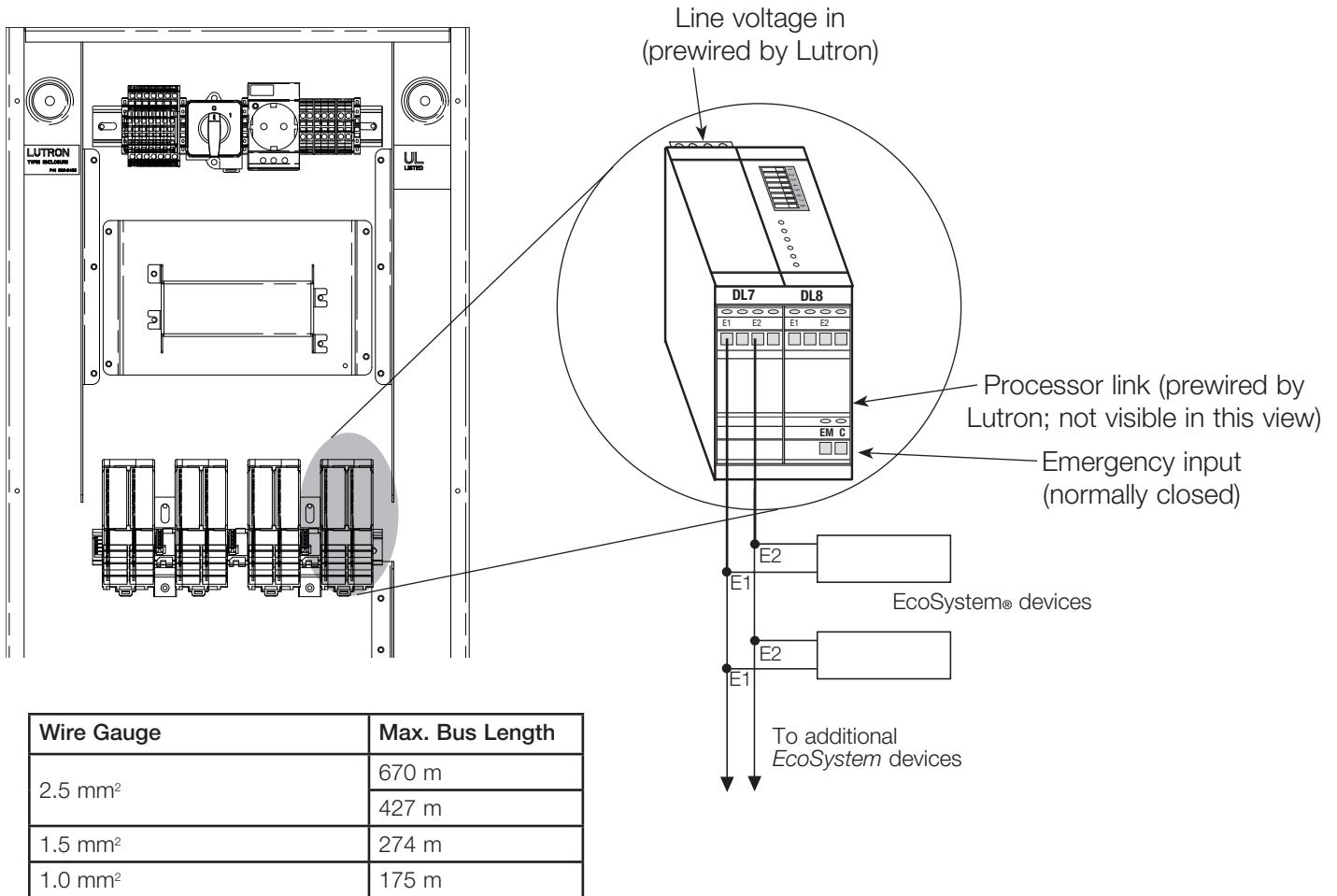
Notes

- Mains voltage must enter hub from top right of hub.
- Run a dedicated 220-240 V~ normal/emergency feed.
- Run wiring so mains line voltage is separate from PELV wiring.

Wire Sizes

- Power feed (live): 2.5 - 4.0 mm²

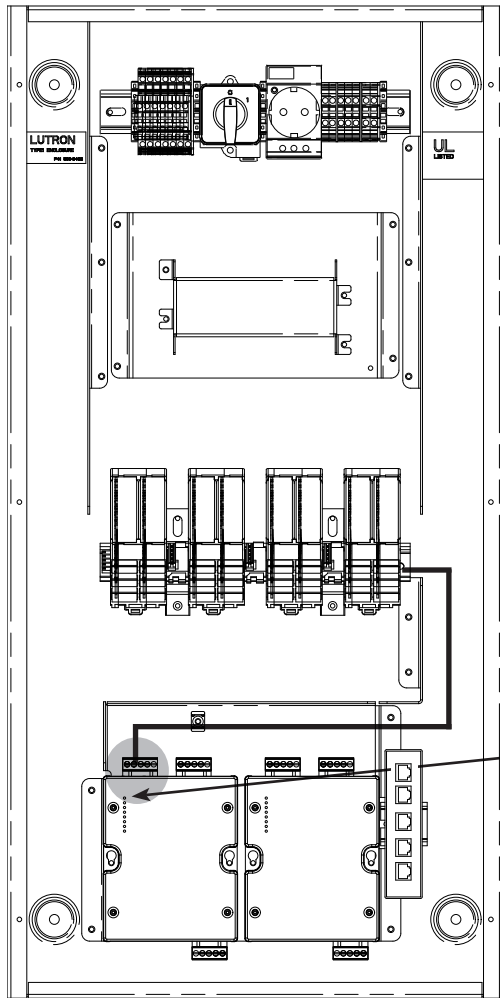
Quantum® Bus Supply Wiring



Notes

- E1 and E2 wires are not polarity sensitive.
- Live, neutral, and protected earth wires are also connected to each lighting fixture; some may have an emergency feed.
- *EcoSystem* bus uses a free wire topology.
- If 15 V_{ac} +/- 1 V_{ac} is not present between E1 and E2, check the *Quantum* bus supply wiring. A short between E1 and E2 will cause the bus supply to stop providing voltage on the bus and will cause the ERR indicator to flash. Removing the short between E1 and E2 will allow the bus supply to operate properly.
- To wire the *Quantum* bus supply for PELV, the *Quantum* bus supply wires must be separated from the mains wiring.

EcoSystem® Link: Quantum® Bus Supply System Diagram



Notes

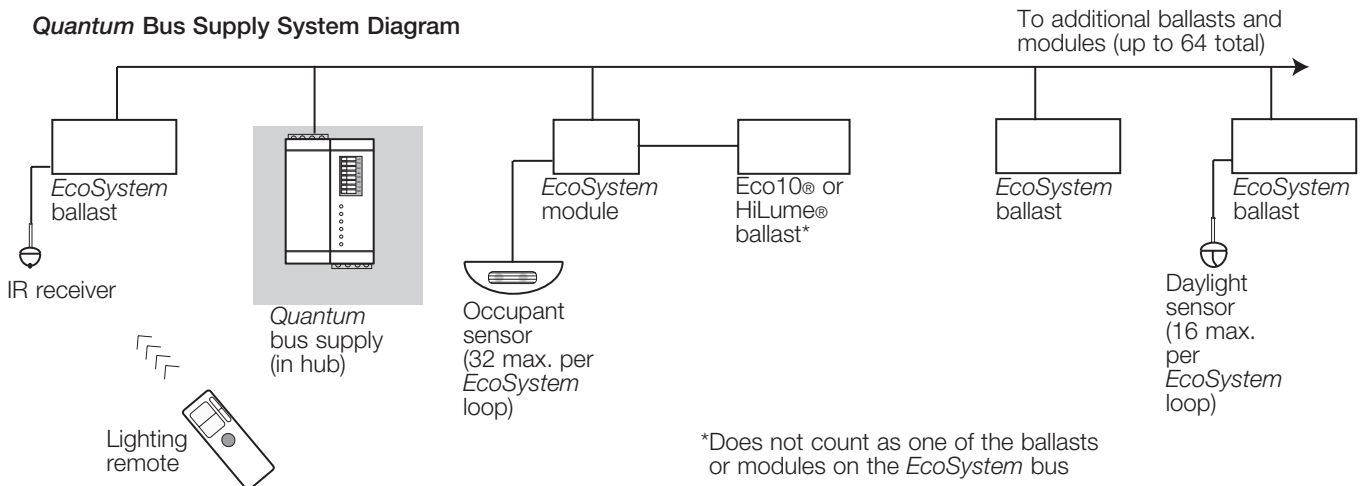
- *EcoSystem* bus may be wired in accordance with Mains or PELV practices
- Sensors and *Quantum* bus supply contact closures must be wired PELV

Dedicated *EcoSystem* link; prewired by Lutron to *Quantum* Bus Supply located in hub

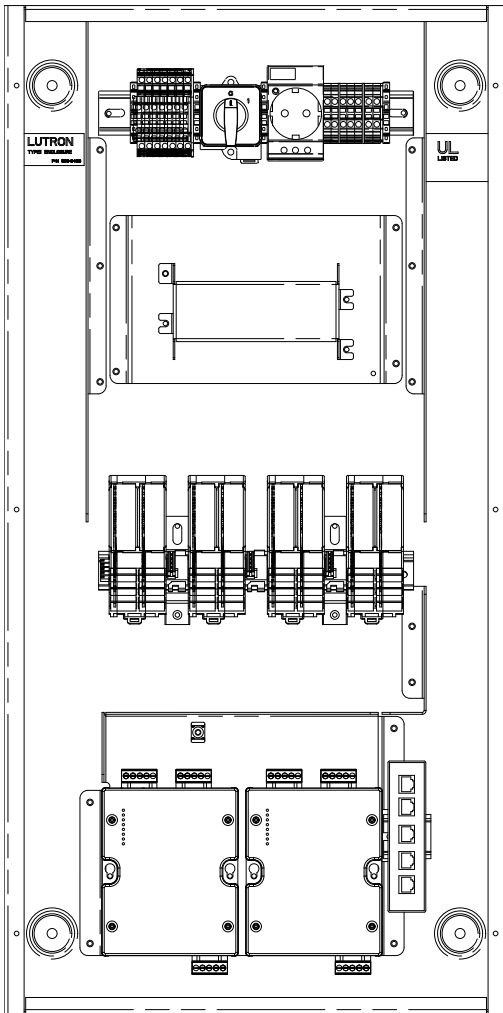
Note: If *EcoSystem* link is not required, this can be used as a configurable link.

QP2-2P8CSE-240 shown

Quantum Bus Supply System Diagram

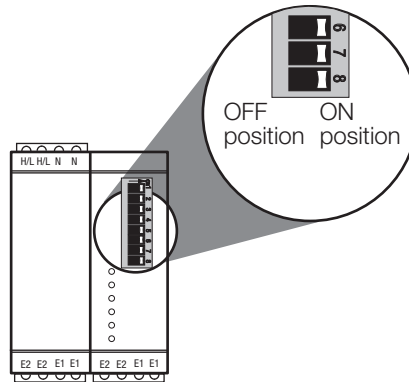


Quantum® Bus Supply OPT Switches and LEDs



OPT Switches

OPT switches are used to configure the Bus Supply. The tables below describe the options. To place an OPT switch in the OFF position, slide the switch to the left; away from the switch's number. Default is ON (next to the switch's number).

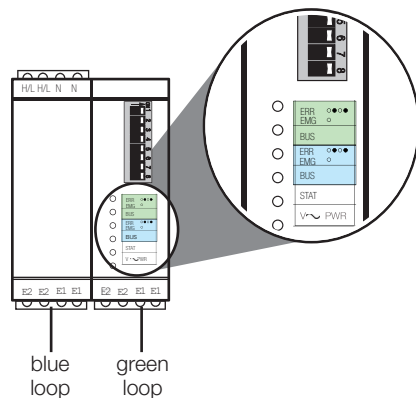


OPT Switch Functions

1	Addressing				
2	Set address for bus supply's loops (2 loops per bus supply)	Bus Supply 1 Addresses 1, 2	Bus Supply 2 Addresses 3, 4	Bus Supply 3 Addresses 5, 6	Bus Supply 4 Addresses 7, 8
4	Green loop (right side)				
5	Manual override levels	Lights stay at current level	Lights go to "high" level	Lights go to "low" level	Lights go to Off
6	Blue loop (left side)				
7	Manual Override levels	Lights stay at current level	Lights go to "high" level	Lights go to "low" level	Lights go to Off
8	Manual Override	Manual override levels will be used			Lights will go to the level specified by the system

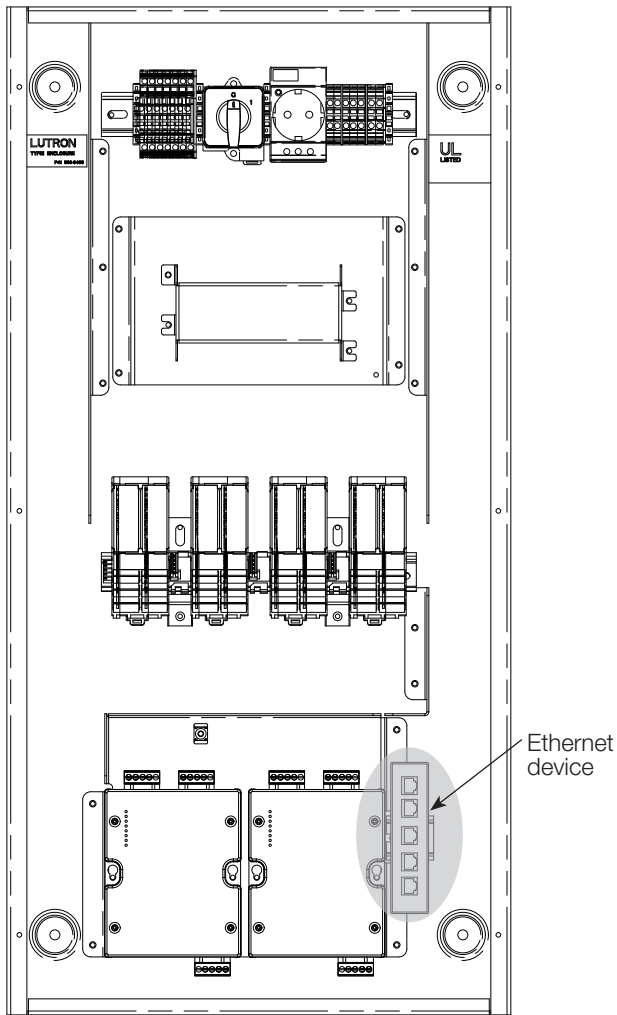
Status LEDs

LEDs on the *Quantum* Bus Supply indicate network status. The specific LEDs, color and flashing method is detailed below.



LED	Normal Operation	Problem Indicator	Probable Cause
V~ PWR	On	Off	No Mains power
STAT	Steady flash	Off	No Mains power or unit fault
		On	Unit fault
BUS	Intermittent flash or Off	On	Unit fault
ERR / EMG	Off	On	Emergency contact closure is active
		Steady flash	Miswire detected on corresponding bus

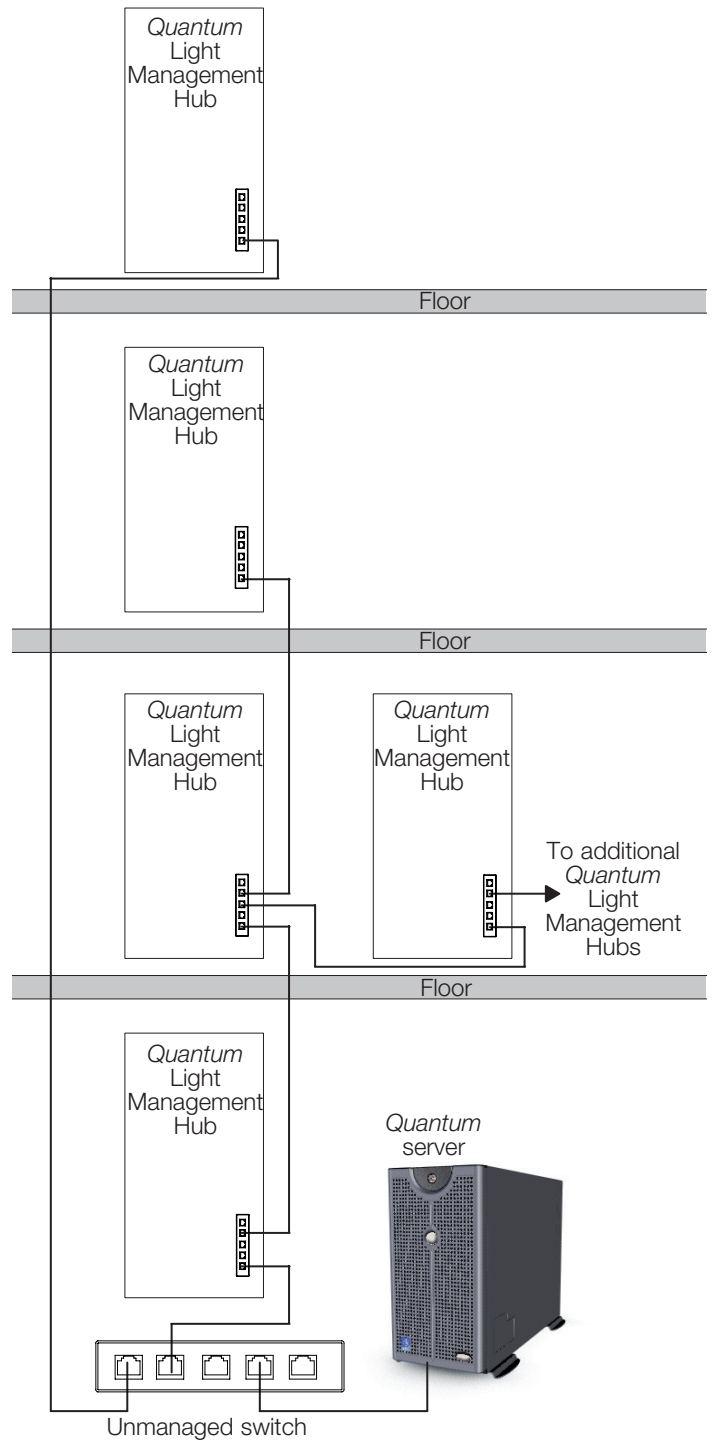
Quantum® Ethernet Wiring



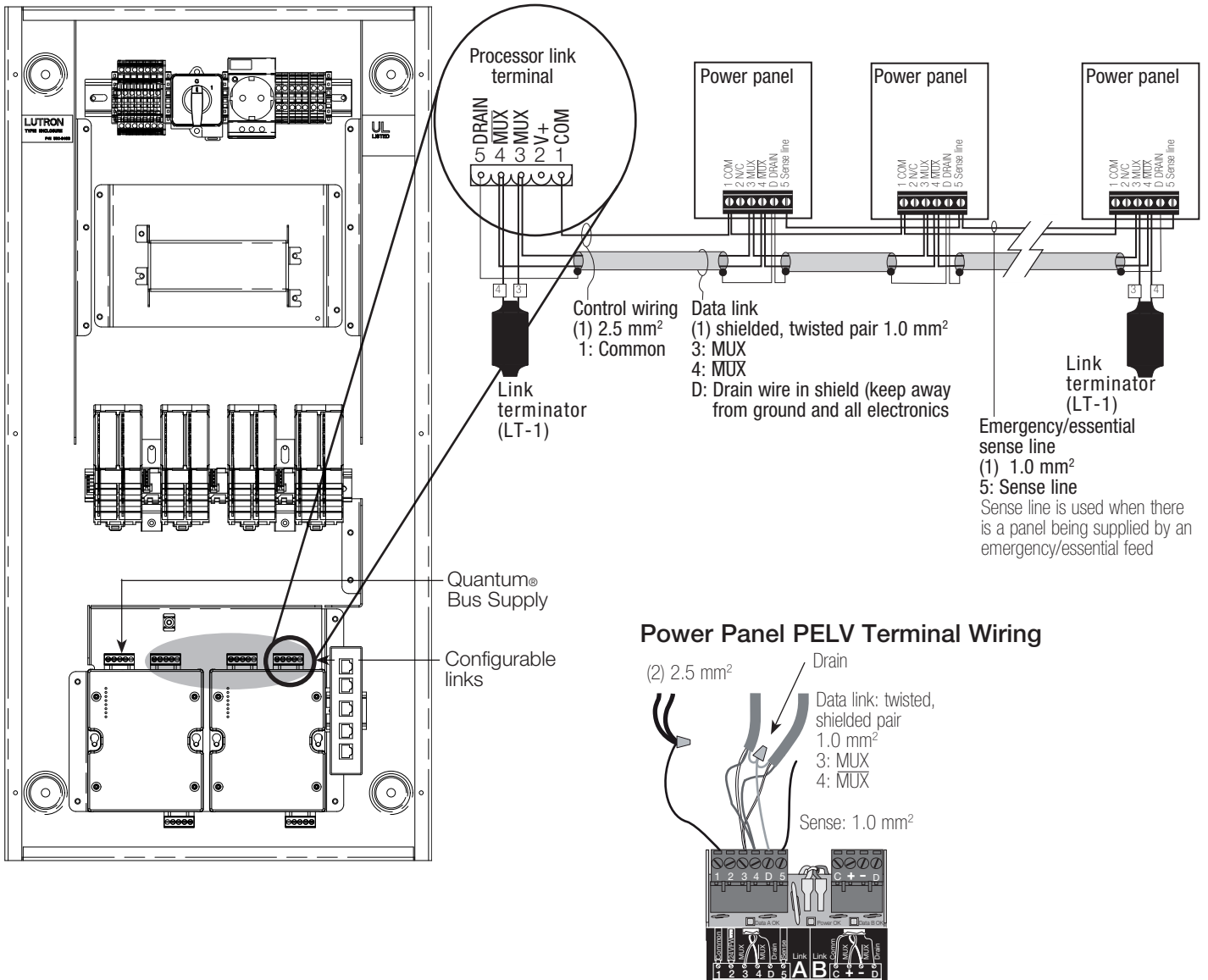
Notes

- Ethernet wiring is considered PELV; do not run in the same conduit as mains voltage wiring.
- Wiring distance for any single Ethernet data link segment is 100 m max; use switches or hubs for longer distances.
- Processors cannot be more than 6 Ethernet hops away from the server.
- Processors communicate over the Ethernet network using multicast UDP; a dedicated network must be used for the lighting control system.
- Wiring between Hubs on a floor must be installed before startup. Wiring between floors can be added later.

Example of Inter-Processor Wiring: Riser Diagram



Configurable Link Wiring: Power Panel Link



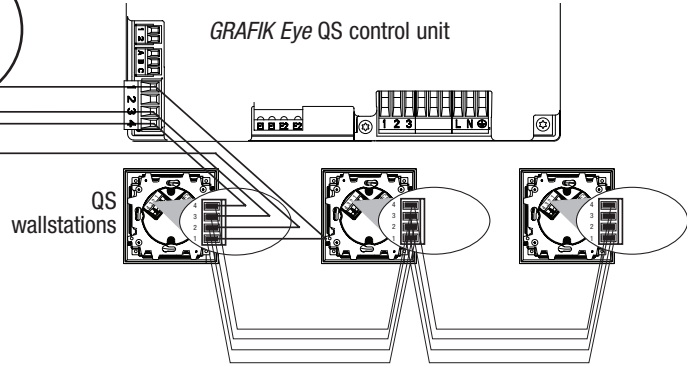
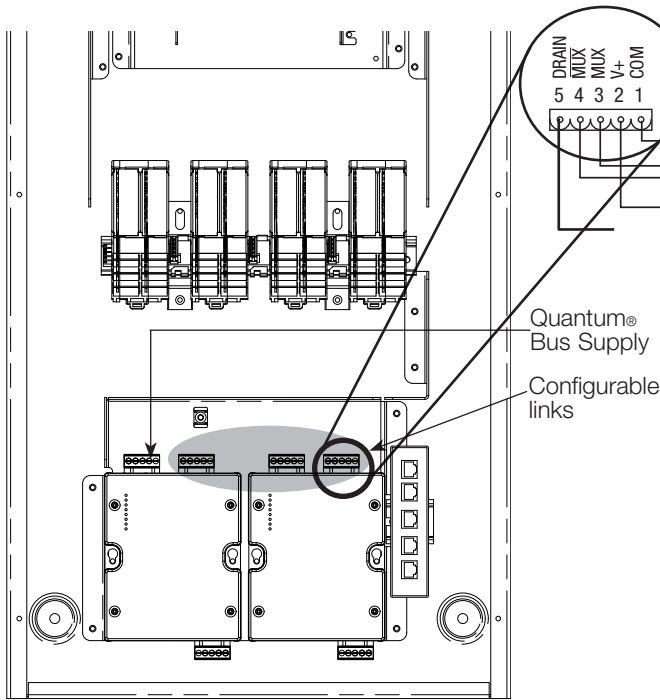
Notes

- Power panel link must be daisy-chained (no T-taps).
- Maximum of 32 power panels per link.
- It is not necessary to have the Quantum® hub at the end of the link.
- The sense wire (terminal 5) is used whenever there is a panel being supplied by an emergency/essential feed.
- Each PELV terminal can accept only two 1.0 mm² wires. Two 2.5 mm² conductors will not fit. Connect as shown using appropriate wire connectors.
- Total length of control link may be no more than 600 m. If link repeater interface and GRX-CBL-46L cable are used, length may be up to 1 200 m.
- GRX-CBL-46L PELV wiring cable is available from Lutron and contains two 2.5 mm² conductors for control power, one twisted, shielded pair of 1.0 mm² for data link, and one 1.0 mm² conductor for emergency (essential) sense line.

Configurable Link Wiring: GRAFIK Eye® QS and Sivoia® QS Shades

GRAFIK Eye QS Link

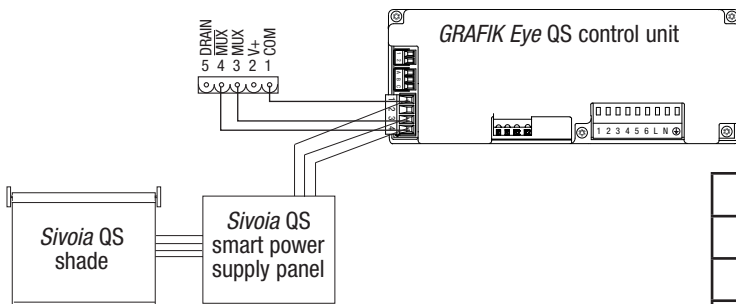
(Drain wire in shield - Connect together to make one continuously linked shield. Keep away from ground and control electronics.)



Note: Wallstations are powered directly from the light management hub (not the GRAFIK Eye QS control unit)

Sivoia QS Shade Link

(do not use the "DRAIN" terminal)



PELV Terminal Wiring

PELV (Class 2: USA) control wiring

(2) 1.0 mm²

1: Common

2: 24 V_{DC}

(2) 2.5 mm²

(2) 2.5 mm²

DRAIN wires

Data link: (1) twisted, shielded pair

1.0 mm²

3: MUX

4: MUX

Wire Gauge	QS Link Max. Length
2.5 mm ²	600 m
1.5 mm ²	250 m
1.0 mm ²	150 m

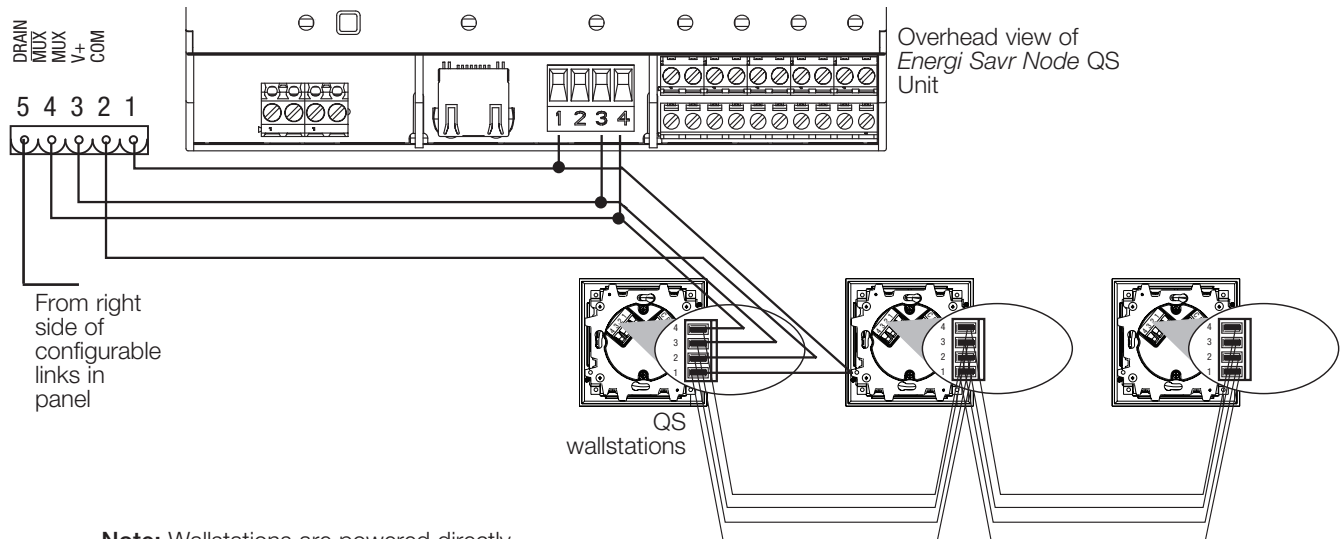
Notes

- System communication uses PELV wiring.
- Follow all local and national electrical codes when installing PELV wiring with mains wiring.
- Each terminal accepts up to two 1.0 mm² wires.
- Total length of control link must not exceed 600 m; if exceeding 600 m, contact Lutron for wiring configuration.
- Make all connections in the control unit's wallbox.
- A Quantum® QS link can have up to 512 switch legs (outputs), 99 devices, and 32 power draw units (see page 4).
- Wiring can be T-tapped or daisy-chained.
- Wire sizes:
 - Two 2.5 mm² conductors for control power.
 - One twisted, shielded pair of 1.0 mm² for data link.
 - Cable is available from Lutron: GRX-CBL-46L (plenum and non-plenum).

Configurable Link Wiring: Energi Savr Node™ QS

Energi Savr Node QS on a QS Link

(Drain wire in shield - Connect together to make one continuously linked shield. Keep away from ground and control electronics.)



Note: Wallstations are powered directly from the light management hub (not the GRAFIK Eye® QS control unit)

Activate the System

You have completed your Quantum® system installation. For onsite factory startup, call Lutron Technical Support and select Startup to schedule a field service visit. Allow for 10 working days between day of call and scheduled visit.

In the United Kingdom: +44.(0)20.7702.0657

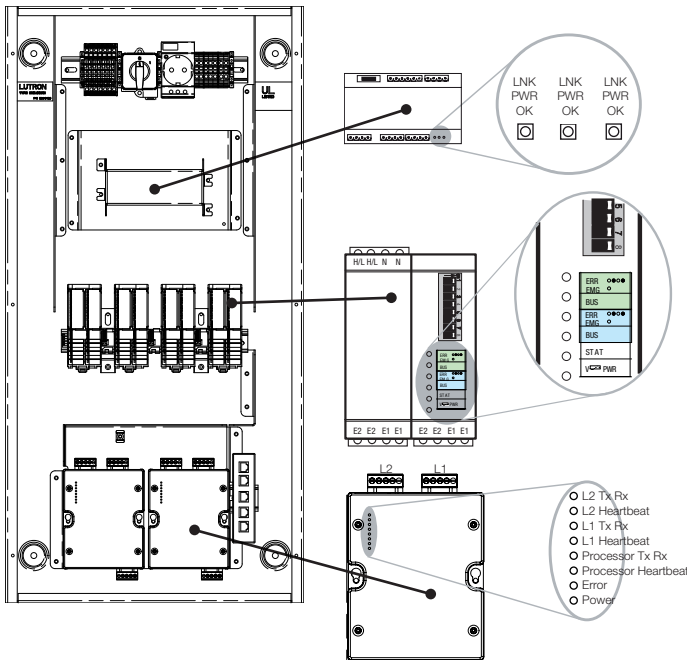
In France: +33.(0)1.56.52.93.01

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In Spain: +34.93.496.57.42

In the United States: +1.800.523.9466

In all other countries: +1.610.282.6701



LED	Normal Operation	Problem Indicator	Probable Cause and Solution
Power Supply			
LNK PWR OK	On	Off	No power from transformer: Check that power feed and power switch are on
Bus Supply			
ERR / EMG	Off	On	Emergency contact closure is active
		Steady flash*	Miswire detected on corresponding bus: Check wiring
BUS	Flash* or Off	On	Unit fault or debug mode: Check to see if bus supply is in debug mode
STAT	Steady flash	Off	No power or unit fault
		On	Unit fault
V ~ PWR	On	Off	No power
Processor			
L1/L2 Tx Rx No links	Off	Off	Link error: Run software diagnostics
L1/L2 Heartbeat No links	Flashing	Off	Link error: Run software diagnostics
L1/L2 Tx Rx with link	Flashing	Off	Link error: Run software diagnostics
L1/L2 Heartbeat with link	Flashing	Off	Link error: Run software diagnostics
Processor Tx Rx	Off	On	Software uploading
		Flashing	Boot mode
Processor Heartbeat	Flashing	Flashing	Boot mode (if Tx Rx also flashing)
Error	Off	On	Link error: Run software diagnostics
Power	On	Off	Check power supply

*If the bus supply ERR/EMG and BUS LEDs are both flashing in unison, the bus supply is in boot mode.

Warranty

Limited Warranty

The warranty for your Lutron system was included with your original system submittal package. It can also be viewed at www.lutron.com/warranty

Lutron, the sunburst logo, Sivoia, Quantum, the Green Leaf, seeTouch, EcoSystem, Eco10, Hi-Lume, and GRAFIK Eye are registered trademarks and Energi Savr Node is a trademark of Lutron Electronics Co., Inc.

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