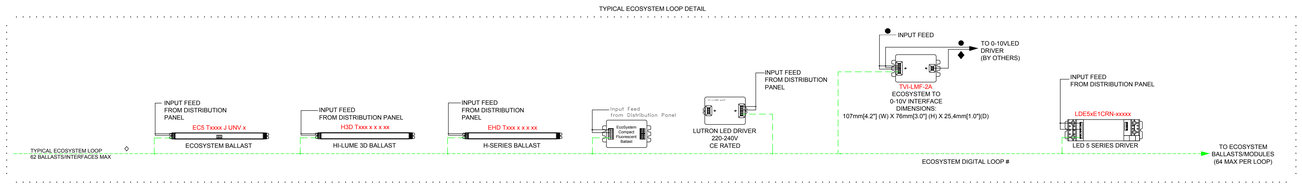
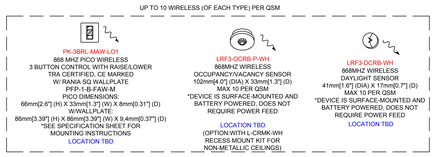
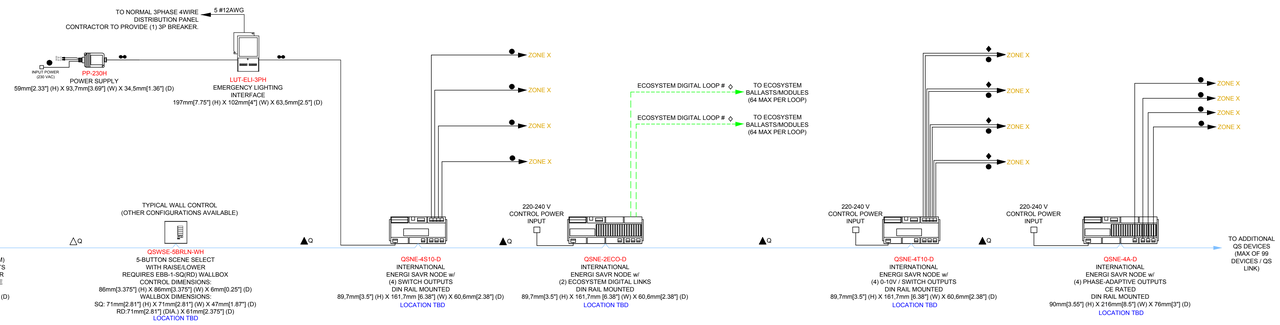
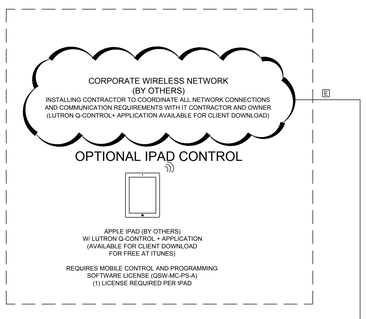
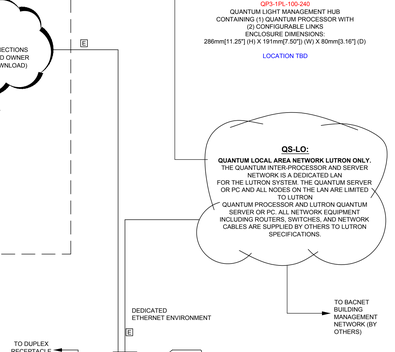
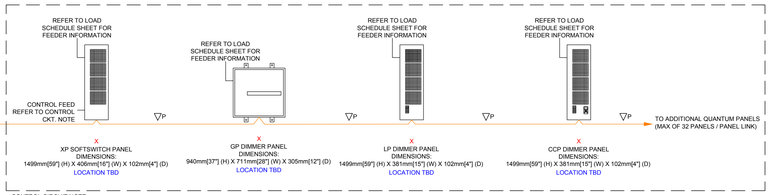






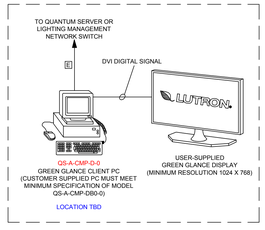




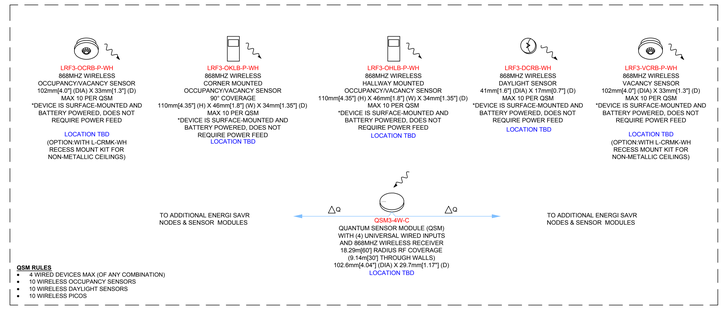


CONTROL CIRCUIT NOTE:
- SUPPLIES POWER FOR INTERNAL OPERATION.
- LUTRON RECOMMENDS A DEDICATED 120V OR 277V, 20A 1 PHASE 2 WIRE FEED TO POWER THE CONTROL CIRCUIT IN THE PANEL.
- IF THE CONTROL CIRCUIT IS TAPPED FROM A CIRCUIT THAT POWERS A RELAY IN THE PANEL, IT DRAWS A MAXIMUM OF 1.5A TOWARD THE TOTAL LOAD FOR THAT CIRCUIT.

OPTIONAL GREEN GLANCE



ALTERNATIVE OCCUPANCY/VACANCY SENSORS FOR SPECIFIC APPLICATIONS



QSM RULES
- 4 WIRED DEVICES MAX (OF ANY COMBINATION)
- 10 WIRELESS OCCUPANCY SENSORS
- 10 WIRELESS DAYLIGHT SENSORS
- 10 WIRELESS PICOS

WIRING LEGEND:

△Q QS CONTROL LINK (SEE WIRE DESCRIPTION BELOW)
▲Q QS CONTROL LINK (SEE WIRE DESCRIPTION BELOW)
(CONNECT WIRES 1, 3 AND 4. DO NOT CONNECT WIRE # 2)

QS WIRING AS REQUIRED BY CONTROL LINK LENGTH
(REFER TO QS SMART PANEL POWER SUPPLY WIRING GUIDE FOR SHADE WIRING NOTES):

TOTAL CONTROL LINK LENGTH	Wire Gauge	AVAILABLE FROM LUTRON IN ONE CABLE
LESS THAN 500ft (153 m)	POWER (TERMINALS 1&2): 1 PAIR 18 AWG (1.0 mm²)	GRX-CBL-346S OR GRX-PCBL-346S
	DATA (TERMINALS 3&4): 1 PAIR 22 AWG (0.5 mm²), TWISTED AND SHIELDED*	
500ft (153 m) TO 2,000ft (600 m)**	POWER (TERMINALS 1&2): 1 PAIR 12 AWG (4 mm²)	GRX-CBL-46S OR GRX-PCBL-46S
	DATA (TERMINALS 3&4): 1 PAIR 22 AWG (0.5 mm²), TWISTED AND SHIELDED*	

*ALTERNATE DATA-ONLY CABLE: USE APPROVED DATA LINK CABLE (22 AWG [0.5 mm²] TWISTED/SHIELDED) FROM BELDEN (MODEL # 9461).

**TOTAL LENGTH OF THE QS LINK MUST NOT EXCEED 2,000 ft (600 m).

WIRING NOTES:

QS LINK RULES:
THE FOLLOWING LINK RULES MUST BE OBSERVED FOR PROPER OPERATION:

- THIS IS A TOPOLOGY-FREE LINK (T-TAP, HOME-RUN, ETC. IS OK); REFER TO TABLE BELOW FOR WIRE RUN LIMITS.
- IF WIRED DIFFERENTLY THAN WHAT IS SHOWN, POWER DRAW UNIT REQUIREMENTS NEED TO BE CONFIRMED; SEE POWER DRAW UNITS (PDUs) SPECIFICATION SHEET INCLUDED IN THIS SUBMITTAL.
- MAXIMUM OF 512 OUTPUTS (BALLASTS, SHADES, CONTACT CLOSURES, ETC).
- MAXIMUM OF 100 OCCUPANCY SENSORS, 100 DAYLIGHT SENSORS/RADIO SHADOW SENSORS AND 100 KEYPADS.
- MAXIMUM OF 100 QS DEVICES (SUCH AS A GRAFIK EYE® QS, SEETOUCH® QS KEYPAD, SMART PANEL POWER SUPPLY [QSPS-PV-10-6Q], ESN, OR SIVOIA® QS SHADE / DRAPERY DRIVE UNIT). QUANTUM PROCESSOR COUNTS AS 1 DEVICE PER LINK.
- MAXIMUM OF 100 ZONES - SUCH AS A SIVOIA QS SHADE / DRAPERY DRIVE UNIT, OR A LIGHTING ZONE ON A GRAFIK EYE QS (DOES NOT APPLY TO QUANTUM SYSTEMS).
- THE 10 OUTPUTS ON A QSPS-Px-10-6Q CANNOT EXCEED A COMBINED LENGTH OF 2,000 ft (600 m).

ECOSYSTEM BUS/LOOP RULES:
THE FOLLOWING LOOP RULES MUST BE OBSERVED FOR PROPER OPERATION:

- THIS IS TOPOLOGY-FREE AND POLARITY FREE WIRING (T-TAP, HOME-RUN, ETC. IS OK).
- KEEP ALL THE BALLASTS/MODULES IN ONE ROOM ON THE SAME LOOP WHENEVER POSSIBLE.
- WIRE DAYLIGHT SENSORS, OCCUPANCY SENSORS AND PERSONAL CONTROLS TO THE CLOSEST ECOSYSTEM BALLAST/ SENSOR MODULE IN THE SAME ROOM.
- ECOSYSTEM LOOPS ARE SHOWN ON THE LIGHTING PLANS. IF THERE IS A DISCREPANCY, AND ROOMS ARE WIRED TO A DIFFERENT LOOP THAN THE ONE SHOWN, LUTRON NEEDS TO BE NOTIFIED. THIS INFORMATION IS IMPORTANT FOR PROGRAMMING THE SYSTEM.
- UP TO 64 BALLASTS/MODULES PER ECOSYSTEM LOOP
- UP TO 64 IR CONTROLS PER LOOP
- UP TO 16 DAYLIGHT SENSORS PER LOOP
- UP TO 32 OCCUPANT SENSORS PER LOOP

QUANTUM NETWORK

WHEN A LIGHTING MANAGEMENT NETWORK (LMN) IS REQUIRED TO ENABLE COMMUNICATIONS BETWEEN INDIVIDUAL LIGHT MANAGEMENT HUBS (LMH) AND BETWEEN LMH AND THE SYSTEM SERVER/DESKTOP/LAPTOP (Q-MANAGER), THE LMN REQUIRES A DEDICATED LAN OR VLAN. IT IS THE RESPONSIBILITY OF THE NETWORK PROVIDER TO ENSURE THE RELIABILITY AND SECURITY OF THE LMN.

CAT5E OR BETTER ETHERNET CABLE TO BE RUN FOR DEDICATED LMN TERMINATED WITH RJ45 CONNECTORS (PROVIDED BY OTHERS). THE NUMBER OF ETHERNET HOPS/SEGMENTS BETWEEN THE SERVER/DESKTOP/LAPTOP (Q-MANAGER) AND ANY LMN NODE SHALL NOT EXCEED 6. TOTAL LENGTH OF ETHERNET CABLE SHALL NOT EXCEED 328 FT (100M) POINT-TO-POINT.

IF LONGER RUNS ARE REQUIRED, MULTI-MODE FIBER OPTIC CABLE CAN BE USED INSTEAD WITH APPROPRIATE FIBER OPTIC CONNECTORS (PROVIDED BY OTHERS). CONSULT WITH NETWORK PROVIDER FOR STANDARD ETHERNET AND FIBER OPTIC WIRING RULES FOR DISTANCE AND SEPARATION AS WELL AS FOR PLACEMENT OF SWITCHES, ROUTERS, HUBS, ETC.

FOR MORE INFORMATION REGARDING NETWORK EQUIPMENT REQUIREMENTS AND NETWORK CONFIGURATION, PLEASE REFER TO THE QUANTUM LIGHTING MANAGEMENT NETWORK SPECIFICATION SHEET OR CONTACT LUTRON.

Concept Drawing Notes:
Control system drawing is provided for conceptual purposes only and is not intended for construction. Exact equipment requirements, including locations and quantities, should be verified in accordance with the most up-to-date lighting/electrical reflected ceiling plans, lighting fixture schedules, panel schedules, control intent and specifications. Shade equipment should be verified in accordance with architectural plans, specifications and window schedules/details.

- □ INPUT POWER (NORMAL)
- ◪ INPUT POWER (NORMAL-EMERGENCY)
- ● 2 #12AWG (4 mm²)
- ○ 3 #12AWG (4 mm²)
- ◆ 0-10V SIGNAL: 2 #18AWG (1.0 mm²)
- ●● 2 #18AWG (1.0 mm²)
- ○○ 3 #18AWG (1.0 mm²)
- ⧖ LUTRON SENSOR CABLE C-CBL-522S OTHERWISE USE 3 #18 AWG (1.0 mm²)
- ⧗ LUTRON SENSOR CABLE C-CBL-522S OTHERWISE USE 4 #18 AWG (1.0 mm²)
- [E] CAT5E OR BETTER CABLE FOR LUTRON NETWORK TERMINATED WITH RJ45 CONNECTORS (TO BE PROVIDED BY OTHERS). 328 ft (100 m) MAXIMUM RUN.
- [F] FIBER OPTIC CABLE FOR LUTRON NETWORK TERMINATED WITH APPROPRIATE FIBER OPTIC CONNECTORS (TO BE PROVIDED BY OTHERS). NOTE: REQUIRES DEDICATED FIBER OPTIC LINK (SINGLE-MODE OR MULTI-MODE).
- [D] DMX CONTROL
- ◇ ECOSYSTEM BUS/LOOP:
  LUTRON CABLE C-CBL-216-GR-1 (2 #16 CONDUCTOR NON-PLENUM) OR C-PCBL-216-CL-1 (2 #16 CONDUCTOR PLENUM RATED). OTHERWISE USE 2 #16 AWG (1.5 mm²) BY OTHERS.
- DALI LINK
- 1-WAY RF COMMUNICATION
- 2-WAY RF COMMUNICATION
- ▽P PANEL LINK (SEE WIRE DESCRIPTION BELOW)
- ▼P PANEL LINK (SEE WIRE DESCRIPTION BELOW)
  (CONNECT WIRES 1, 2, 3 AND 4. DO NOT CONNECT WIRE # 5)
  LUTRON CABLE GRX-CBL-46L (5 CONDUCTOR NON-PLENUM) OR GRX-PCBL-46L (5 CONDUCTOR PLENUM RATED). OTHERWISE USE 2 #12 AWG (4 mm²), 1 BELDEN #9461 AND BETWEEN PANELS ADD 1 #18 AWG (1.0 mm²) FOR EMERGENCY SENSING CABLE BY OTHERS.

TYPICAL QUANTUM WITH WIRELESS SENSORS

CONCEPT DRAWING NOT FOR CONSTRUCTION

Project Number:	N/A
Drawn By:	MLG
Drawing Revision:	0
Drawing Date:	7.8.13
Sheet:	1 OF 1

LUTRON®
Lutron Electronics Co., Inc.
7200 Suter Road | Coopersburg, PA 18036 | USA
(610) 282-3800 | fax: (610) 282-1146