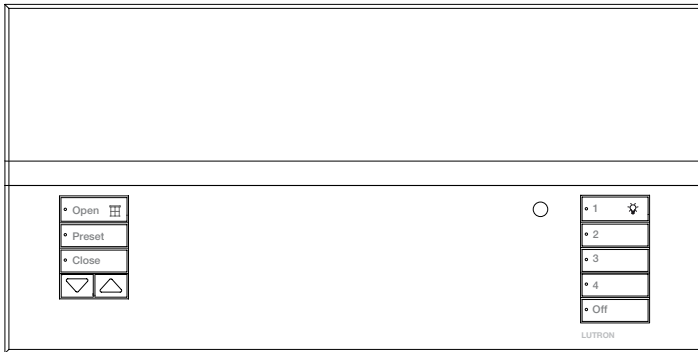


GRAFIK Eye® QS Control Unit with EcoSystem®



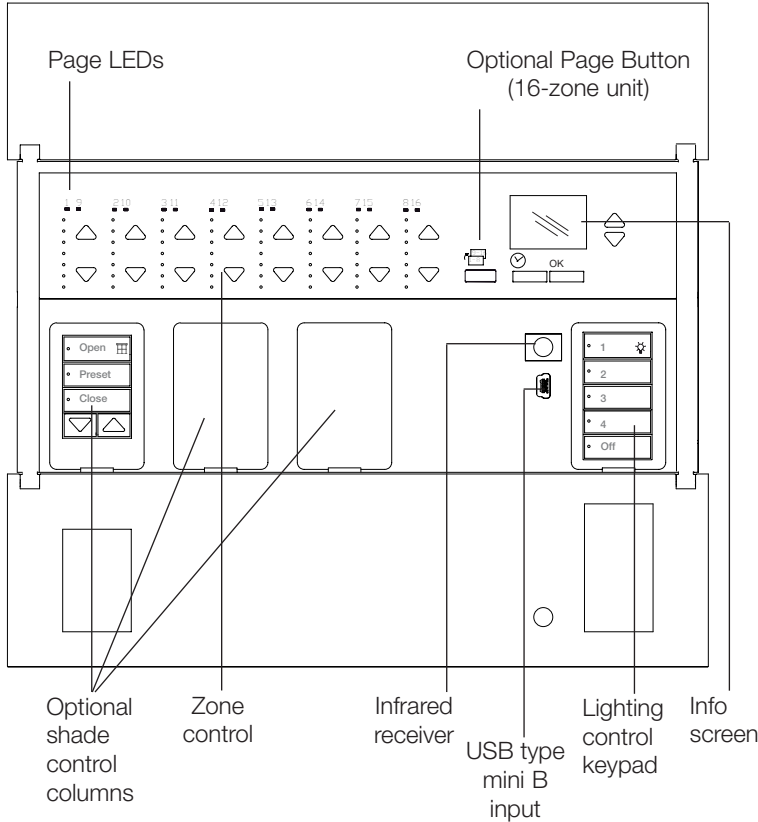
Description

GRAFIK Eye QS with EcoSystem is the premier energy-saving lighting and shade control. GRAFIK Eye QS features an astronomic timeclock and intuitive lighting presets, which are seamlessly integrated with EcoSystem fluorescent ballasts and LED drivers, and Lutron's QS components and systems. You can now use the GRAFIK Eye QS to control ballasts and shades without interfaces.

Application Suggestions and Differences between GRAFIK Eye QS with EcoSystem and Standard EcoSystem Bus Supply

	<i>GRAFIK Eye QS with EcoSystem</i>	<i>EcoSystem Bus Supply</i>
Suggested/Recommended Applications	Single rooms, partitioned spaces e.g., conference room, classroom, ballroom, lobby	Open spaces, multiple enclosed rooms e.g., open office, window offices
Programming Method	Info Screen on the QS control unit	Via PDA or EcoSystem keypads
Timeclock	Yes (integral)	No
Compatible with SeeTouch® QS Keypads	Yes	No
Compatible with EcoSystem Wall Controls	No	Yes
Compatible with EcoSystem IR Sensors	No	Yes
Programming from EcoSystem PDA	No	Yes
Programming from EcoSystem Wall Control	No	Yes
Includes dry contact closures for integration to BMS or Security Systems	No	Yes (2)
Input Voltage	120 V~ 50/60 Hz	120/240/277 V~ 50/60 Hz
Number of EcoSystem Busses	1	1 or 2
Number of Zones	6, 8, or 16	--
Number of Line-Voltage Outputs	3 (Zones 1-3 only)	--
Compatible with other QS Devices	Yes	No

Job Name:	Model Numbers:
Job Number:	



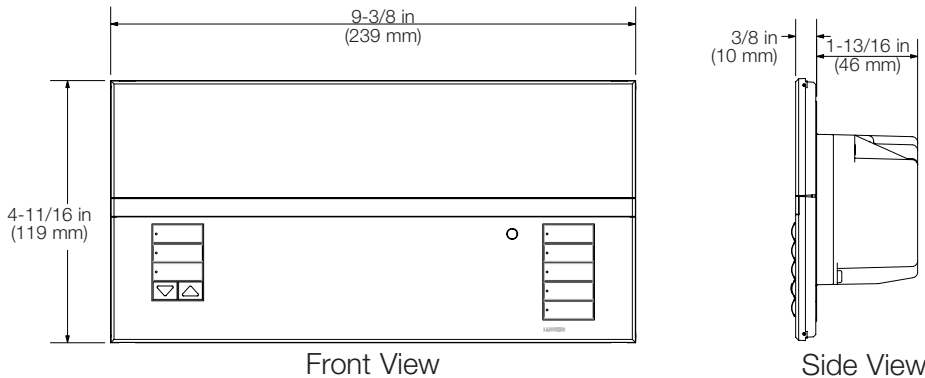
Note: General Engraving (-EGN) shown.

Features

- Pushbutton recall of four preset lighting scenes, plus Off.
- Twelve (12) additional scenes accessible through other QS devices, such as seeTouch® QS wallstations.
- Zones 1, 2, and 3 can control many light source types directly and others using power modules.
- Optional integrated shade control buttons, which can also be added to the unit after installation.
- Master override buttons to raise and lower all lights.
- Allows setup of lighting scenes and shade presets using buttons on the control unit.
- Built-in infrared (IR) receiver.
- External IR connection.
- Built-in astronomic timeclock.
- Info screen shows zone light level percentage, energy savings, zone labeling, programming, and EcoSystem setup.
- Lockout option prevents accidental changes.
- One occupant sensor input and 24 V_{AC} power for occupant sensor.
- QS communication link for seamless integration of lights, motorized window treatments, occupant sensors, wallstations, and integration interfaces.
- Backlit buttons with engraving make unit easy to locate and operate.
- Available in a variety of colors and finishes.
- Compatible with all Lutron QS system components.
- Control up to 6, 8, or 16 EcoSystem zones from internal bus supply.
- Zones 1, 2, and 3 are integral line voltage dimming zones and can be optionally programmed as EcoSystem zones.
- Up to 64 EcoSystem or HiLume® 3D ballasts can be addressed and grouped to zones.
- Integral EcoSystem setup and programming replaces the need for a handheld programmer (C-PDA-CLR does not communicate with GRAFIK Eye QS with EcoSystem)

Mechanical Dimensions

Fits into a U.S. 3.5 in (89 mm) deep 4-gang backbox (available from Lutron, P/N 241-400).



Job Name:	Model Numbers:
Job Number:	

Specifications

Input Power

- 120 V \sim 50/60 Hz
- Lightning strike protection meets ANSI/IEEE standard 62.41-1980. Can withstand voltage surges of up to 6000 V \sim and current surges of up to 3000 A.

Lighting Sources/Load Types

- *EcoSystem*, Hi-lume® 3D, and Hi-lume® LED ballasts (available on all zones).

Zones 1, 2, and 3 control the following lighting sources with a smooth, continuous square law dimming curve or on a full conduction non-dim basis:

- Incandescent.
- Halogen.
- Magnetic low-voltage transformer.
- Lutron Tu-Wire® electronic fluorescent dimming ballast.
- Neon and cold cathode.
- Non-dim (incandescent, magnetic low-voltage, *Tu-Wire*, or neon/cold cathode).

Zones 1, 2, and 3 control the following lighting sources with a smooth, continuous square law dimming curve through separate Lutron PHPM series power modules:

- Electronic low-voltage transformer.
- Lutron Hi-Lume®, Eco-10™, and Compact SE electronic fluorescent dimming ballast.

Key Design Features

- Tested to withstand 16 kV electrostatic discharge without damage or memory loss.
- RTISS™-equipped: Compensates in real time for incoming line voltage variations (no visible flicker with +/- 2% change in RMS voltage per cycle, and +/-2% Hz change in frequency per second).
- Power failure memory automatically restores lighting to the scene selected prior to power interruption, and stores timeclock and scene programming.
- Faceplate is hinged top and bottom and stays open at 180° for ease of access.
- Direct control of 120 V \sim and 277 V \sim *EcoSystem*, Hi-lume® 3D, and Hi-lume® LED ballasts (no interface required).

Environment

- 32-104 °F (0-40 °C).
- Relative humidity less than 90% non-condensing.

Standards

- UL listed.
- CSA.
- CEC listed (Title 24).

Scene and Shade Buttons

- Large, rounded buttons are easy to use.
- Backlit buttons with optional engraving make it easy to find and to operate the control unit in low light conditions (backlight can be disabled).
- Optional button engraving is angled up to the eye for easy reading.
- Predefined label stickers are included for field labeling.

Preset Light and Shade Control

- 4 preset lighting scenes, plus Off, are accessible from the front of the control unit.
- 12 additional scenes are stored in the control unit and are accessible from SeeTouch® QS wallstations and QS integration.
- Light levels fade smoothly between scenes. Fade time can be set differently for each scene: 0 to 59 seconds, or 1 to 60 minutes. Maximum fade time from Off is 3 seconds.
- Up to 3 columns of shade control.
- Open, preset, close, and raise/lower shade buttons. Each shade column can be programmed to operate one shade or a group of shades.

Zone Control

- Each zone has a dedicated raise and lower button to adjust the zone.
- Each zone has a dedicated 7 LED bar graph for level status. Percentage of light level and energy saved is displayed on the info screen.
- All zone information has blue backlit LEDs. Backlight turns off when idle for 30 seconds.

Info Screen

- OLED (organic LED) screen is viewable from all angles.
- Screen turns off when idle for 30 seconds.
- Programmable zone labels.
- Programmable scene labels.
- Status of real-time zone percentage and energy savings.
- Programmable timeclock schedules.
- Programmable shade labels.

Job Name:	Model Numbers:
Job Number:	

Specifications

Astronomic Timeclock

- Integral to all units.
- 7 daily schedules available.
- One available holiday schedule is programmable by date up to one year in advance.
- 25 events per day maximum.
- Astronomic times are programmable by integral city database or by entering latitude and longitude. Times automatically adjust throughout the year based on location.
- Automatically adjusts for Daylight Saving Time (DST), adjusted for the new dates; DST is programmable.
- Afterhours setting available

System Communications and Capacities

- Low-voltage type PELV (Class 2: USA) wiring connects control units, wallstations, motorized shades, and control interfaces.
- A QS system can have up to 100 devices and 100 zones (see system limits table on next page).
- Class 1/Class 2 wiring connects ballast to control unit.

Infrared

- Infrared (IR) receiver allows infrared transmitters to select 8 scenes, raise/lower lighting zones, or raise/lower shades.
- Transmitter buttons imitate buttons on faceplate.
- 50 ft (15 m) line of sight range.
- Terminal block infrared input for direct contact with external IR connection.
- IR can be disabled via programming.
- Works with Lutron GRX-IT and GRX-8IT infrared remote controllers.

Accessory Controls

- *SeeTouch* QS controls can be added to the control link.
- Each *GRAFIK Eye* QS can power up to 3 *SeeTouch* QS controls.

Occupant Sensor(s)

- Each *GRAFIK Eye* QS can be programmed to respond to up to four (4) occupancy/vacancy sensors.
- Occupant sensors may include:
 - Contact closure sensor wired to CCI input on back of *GRAFIK Eye* QS
 - Contact closure sensor(s) wired to *EcoSystem* ballasts or interfaces

Contact Closure Input (CCI) with Power Supply Output

- Each *GRAFIK Eye* QS has one contact closure input (Terminal A).
 - The attached device must provide a dry contact closure or solid-state output.
 - Input is miswire-protected up to 36 V_{DC}.
- Each *GRAFIK Eye* QS can supply 50 mA maximum at 24 V_{DC}.
 - Useful for powering occupant sensors.
 - An auxiliary power supply must be used if the device requires more than 50 mA.

Daylight Sensor(s)

- Each *GRAFIK Eye* QS can be programmed to respond to up to four (4) *EcoSystem* daylight sensors.
- Daylight sensors can be mapped to control groups of *EcoSystem*-controlled fixtures independent of the zones on the *GRAFIK Eye* QS (useful for creating daylighting rows).
- Daylight sensors can be mapped to control zones 1, 2, and 3 if the zones are set to a load type other than *EcoSystem*.

Job Name:	Model Numbers:
Job Number:	

Specifications












Capacities

Model Number	Unit Capacity (watts)	Zone Capacity (watts)	Unit Dissipation (BTUs/hour)
QSG - 6E120	800	800	61.5
QSG - 8E120	800	800	61.5
QSG - 16E120	800	800	61.5

Load Type Notes (Zones 1, 2 and 3)

- All electronic low-voltage (ELV) lighting used with an interface must be rated for reverse phase control dimming. Before installing an ELV light source, verify with the manufacturer that their transformer can be dimmed. When dimming, an ELV interface (such as the PHPM-PA-DV-WH) must be used with the control unit.
- Not all zones must be connected; however, connected zones must have a minimum load of 25 W.
- Maximum total lighting load for a magnetic low-voltage (MLV) load is 600 W after transformer. Maximum load per MLV zone is 800 VA or 600 W.
- No zone may be loaded with more than 800 W.

System Limits

QS Device	Zone Count	Device Count
 3-zone QSG	3	1
 4-zone QSG	4	1
 6-zone QSG	6	1
 see <i>Touch</i> QS	0	1
 <i>Sivoia</i> QS	1	1
 6-zone QSG with <i>EcoSystem</i>	6	1
 8-zone QSG with <i>EcoSystem</i>	8	1
 16-zone QSG with <i>EcoSystem</i>	16	1
 Contact closure interface	2	1
 Network interface	0	1
 QS smart power panel	0	1

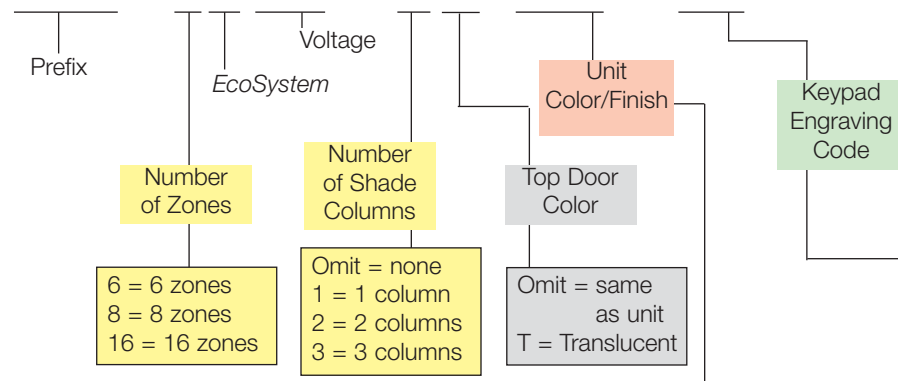
Job Name:	Model Numbers:
Job Number:	

GRAFIK Eye QS with EcoSystem® Model Numbers

See following page for Custom Options and Model Numbers

See Standard Color Combinations page for faceplate, stripe, and button colors

QSG - E120 -



Example:

QSG-6E120-3WH-EGN

6-zone unit with 3 shade columns, white unit with matching top door, and general engraving.

Custom Colors/Finishes	
Architectural Matte Finishes	
Standard (ship in 48 hours)	
White	WH
Ivory	IV
Beige	BE
Gray	GR
Brown	BR
Black	BL
Almond	AL
Light Almond	LA
Architectural Metal Finishes	
Bright Brass	BB
Bright Chrome	BC
Bright Nickel	BN
Satin Brass	SB
Satin Chrome	SC
Satin Nickel	SN
Antique Brass	QB
Antique Bronze	QZ
Anodized Aluminum Finishes	
Clear	CLA
Black	BLA
Brass	BRA
Satin Color Matte Finishes	
Snow	SW
Biscuit	BI
Eggshell	ES
Taupe	TP
Midnight	MN
Limestone	LS
Stone	ST
Desert Stone	DS
Terracotta	TC
Hot	HT
Goldstone	GS
Palladium	PD
Plum	PL
Turquoise	TQ
Bluestone	BG
Sea Glass	SG
Greenbrier	GB
Sienna	SI
Merlot	MR
Mocha Stone	MS

Keypad Engraving Codes
Omit = Unengraved
EGN = General Engraving
NST = Non-Standard Text Engraving
Please visit the <i>GRAFIK Eye QS</i> website at www.lutron.com/grafikeyeqs for custom engraving forms

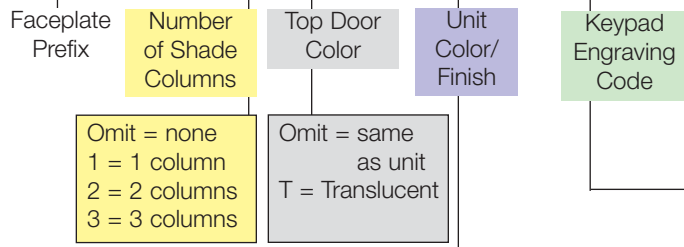
Job Name:	Model Numbers:
Job Number:	

GRAFIK Eye® QS with EcoSystem® Custom Color Options and Model Numbers
 See previous pages for Standard Model Numbers
 See Standard Color Combinations page for faceplate, stripe, and button colors

Faceplate Kit

(includes coordinating stripe and buttons)

QSGF - 3 T WH -



Omit = none
 1 = 1 column
 2 = 2 columns
 3 = 3 columns

Omit = same as unit
 T = Translucent

Stripe Kit

QSGS - WH



Stripe Custom Color/Finish Codes
 Same as Faceplate colors at left

Faceplate Custom Color/Finish Codes

Architectural Matte Finishes		Anodized Aluminum Finishes	
Standard		Clear	CLA
(ship in 48 hours)		Black	BLA
White	WH	Brass	BRA
Ivory	IV		
Beige	BE	Satin Color Matte Finishes	
Gray	GR	Snow	SW
Brown	BR	Biscuit	BI
Black	BL	Eggshell	ES
Almond	AL	Taupe	TP
Light Almond	LA	Midnight	MN
		Limestone	LS
		Stone	ST
Architectural Metal Finishes		Desert Stone	DS
Bright Brass	BB	Terracotta	TC
Bright Chrome	BC	Hot	HT
Bright Nickel	BN	Goldstone	GS
Satin Brass	SB	Palladium	PD
Satin Chrome	SC	Plum	PL
Satin Nickel	SN	Turquoise	TQ
Antique Brass	QB	Bluestone	BG
Antique Bronze	QZ	Sea Glass	SG
		Greenbrier	GB
		Sienna	SI
		Merlot	MR
		Mocha Stone	MS

Keypad Engraving Codes

Omit = Unengraved
 EGN = General Engraving
 NST = Non-Standard Text Engraving
 Please visit the *GRAFIK Eye QS* website at www.lutron.com/grafikeyeqs for custom engraving forms

Job Name:	Model Numbers:
Job Number:	

GRAFIK Eye® QS with EcoSystem® Custom Options and Model Numbers
 See previous pages for Standard and Other Custom Model Numbers
 See Standard Color Combinations page for faceplate, stripe, and button colors

Button Kit

QSGB - 5B - WH -

Custom Button
Kit Prefix

Button
Configuration

Button
Color/
Finish

Keypad
Engraving
Code

3BRL = 3-button with
raise/lower
(shade column)
5B = 5-button
(lighting keypad)

Keypad Engraving Codes
 Omit = Unengraved
 EGN = General Engraving
 NST = Non-Standard Text Engraving
 Please visit the *GRAFIK Eye QS* website at
www.lutron.com/grafikeyeqs for custom
 engraving forms

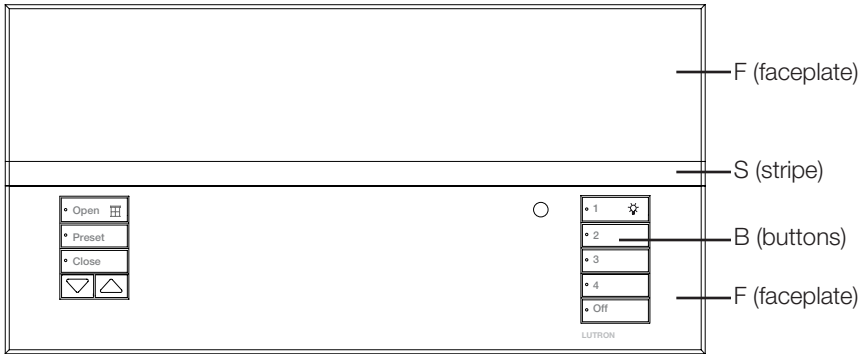
**Button Kit Custom
Color/Finish Codes**

Architectural Matte Finishes		Satin Color Matte Finishes	
White	WH	Snow	SW
Ivory	IV	Biscuit	BI
Beige	BE	Eggshell	ES
Gray	GR	Taupe	TP
Brown	BR		
Black	BL		
Almond	AL		
Light Almond	LA		

Job Name:	Model Numbers:
Job Number:	

GRAFIK Eye® QS with EcoSystem® Standard Color Combinations

See previous pages for Standard and Custom Model Numbers



Faceplate is comprised of a top and bottom. The bottom will always be the color indicated under "faceplate." The top may be the same color or translucent. Use the chart for faceplates that have the same color top and bottom. If a translucent lid is chosen, the stripe will automatically be the same color as the bottom lid.

Example:

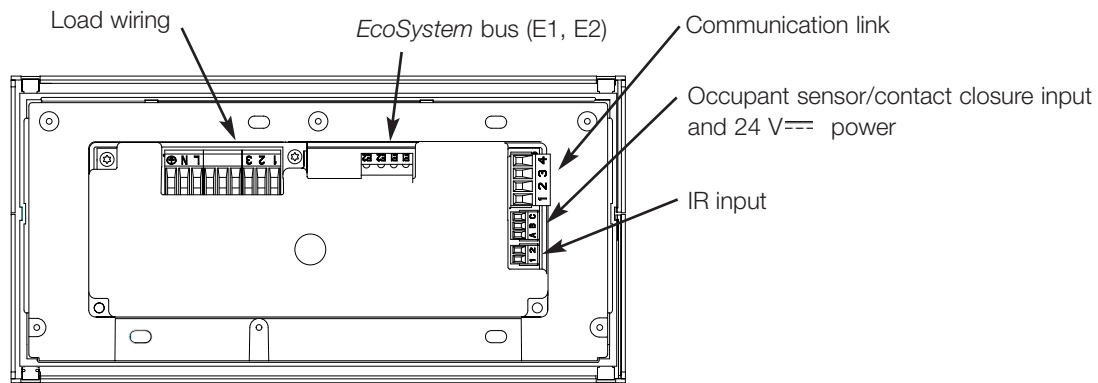
If you order QSG-6E-1WH, your *GRAFIK Eye* QS with 6 lighting zones and 1 shade column will come with a white faceplate (both top and bottom), gray stripe, and white buttons.

Suffix	Faceplate (F)	Stripe (S)	Button (B)	Suffix	Faceplate (F)	Stripe (S)	Button (B)
Architectural Matte				Satin Matte			
WH	White	Gray	White	MN	Midnight	Gray	Black
IV	Ivory	Beige	Ivory	TP	Taupe	Gray	Taupe
BE	Beige	Ivory	Beige	SW	Snow	Gray	Snow
GR	Gray	Black	Gray	ES	Eggshell	Beige	Eggshell
BR	Brown	Black	Brown	BI	Biscuit	Eggshell	Biscuit
BL	Black	Gray	Black	LS	Limestone	Gray	Gray
AL	Almond	Light Almond	Almond	ST	Stone	Gray	Gray
LA	Light Almond	Almond	Light Almond	DS	Desert Stone	Taupe	Taupe
Architectural Metal				TC	Terracotta	Taupe	Taupe
BB	Bright Brass	Black	Black	BG	Bluestone	Gray	Gray
BC	Bright Chrome	Black	Black	HT	Hot	Taupe	Taupe
BN	Bright Nickel	Black	Black	MR	Merlot	Taupe	Taupe
SB	Satin Brass	Black	Black	SI	Sienna	Brown	Brown
SC	Satin Chrome	Black	Black	GB	Greenbrier	Gray	Gray
SN	Satin Nickel	Black	Black	SG	Sea Glass	Gray	Gray
QB	Antique Brass	Black	Black	MS	Mocha Stone	Taupe	Taupe
QZ	Antique Bronze	Black	Black	GS	Goldstone	Ivory	Ivory
Anodized				PD	Palladium	Gray	Gray
CLA	Clear	Black	Black	PL	Plum	Taupe	Taupe
BLA	Black	Black	Black	TQ	Turquoise	Gray	Gray
BRA	Brass	Black	Black				

Job Name:	Model Numbers:
Job Number:	

Overview

Terminations



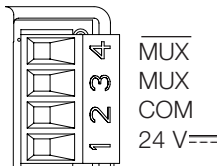
<u>Wire Gauge</u>	<u>Maximum EcoSystem Bus Length</u>
12 AWG (4.0 mm ²)	2200 ft (671 m)
14 AWG (2.5 mm ²)	1400 ft (427 m)
16 AWG (1.5 mm ²)	900 ft (275 m)
18 AWG (1.0 mm ²)	570 ft (175 m)

Job Name:	Model Numbers:
Job Number:	

PELV (Class 2: USA) QS Link Low-Voltage Wiring

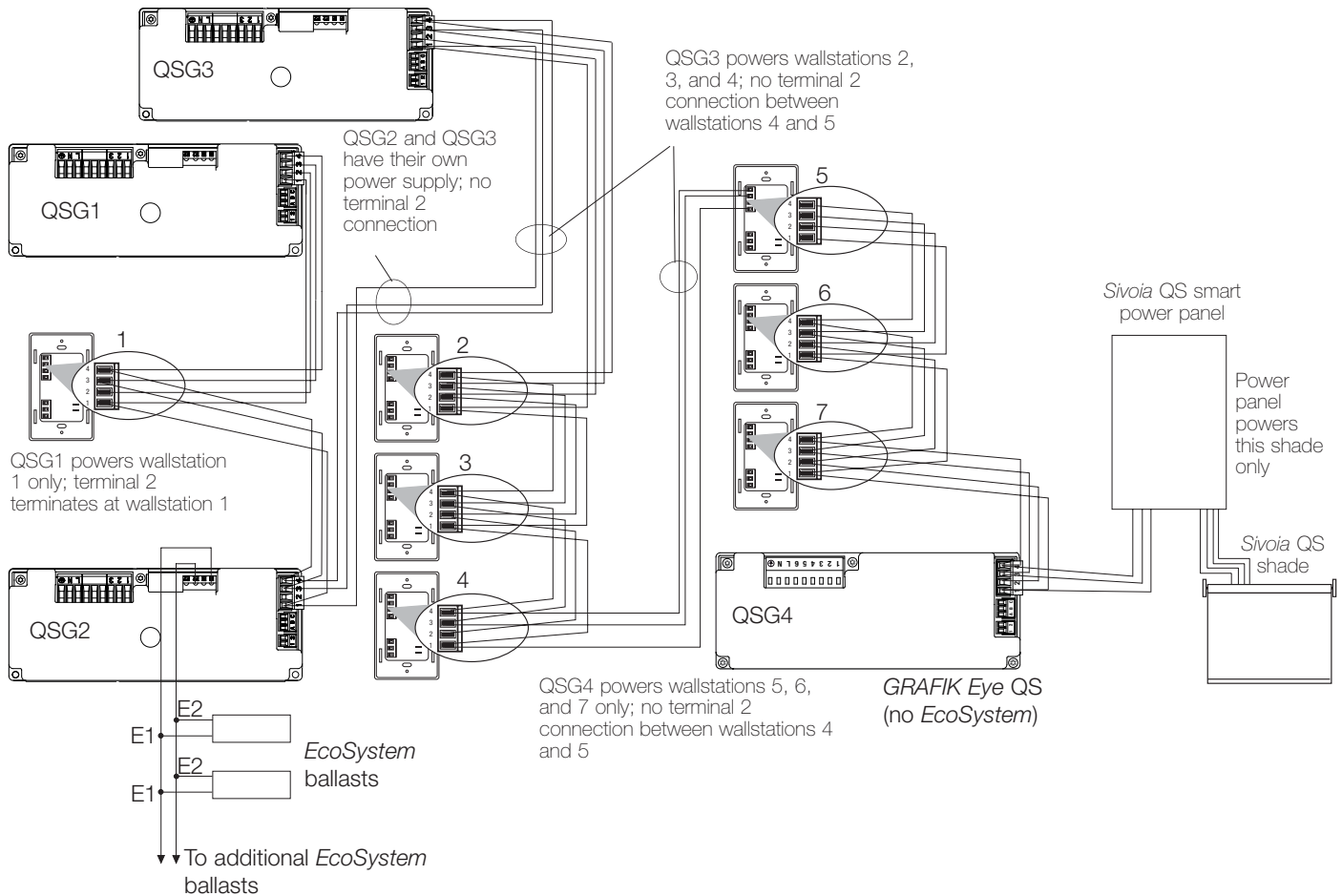
- Each PELV (Class 2: USA) terminal accepts up to two 18 AWG (1.0 mm²) wires.
- Connect the terminal 1, 3, and 4 connections to all control units, wallstations, and control interfaces.
- Each control unit has its own power supply. Terminate the terminal 2 connection (24 V_{DC} power) so that each control unit supplies power to a maximum of three wallstations. Each wallstation should receive power from only one control unit.
- Total length of control link must not exceed 2000 ft. (610 m).
- Do not allow PELV (Class 2: USA) wires to contact line/mains wires.

Communication Link Terminal Detail



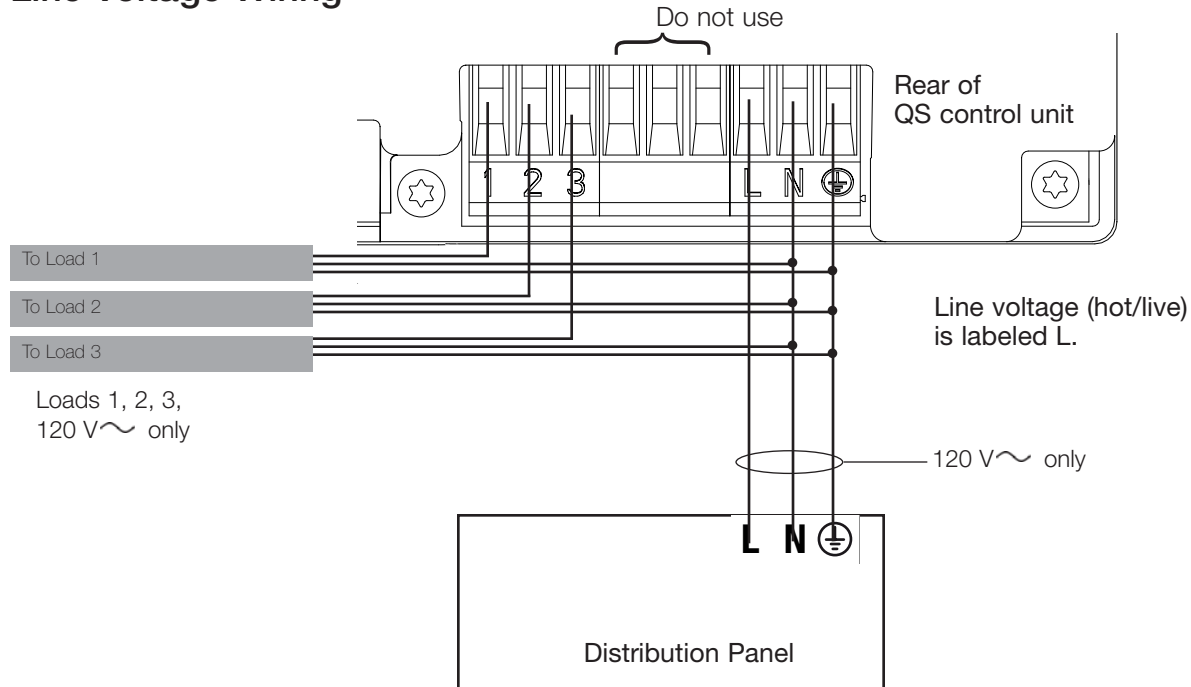
Low-Voltage Wiring Example

Control units (QSG) shown in rear view



Job Name:	Model Numbers:
Job Number:	

Line Voltage Wiring

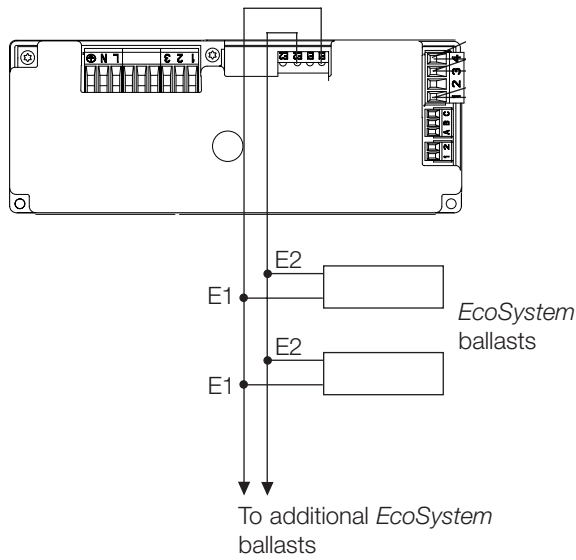


- Pull power wiring from distribution panel and to light fixtures.
- Each line voltage terminal can accept one 12 AWG (2.5 mm²) wire.
- Consult Lutron for non-dim relay wiring and/or load side emergency transfer wiring.

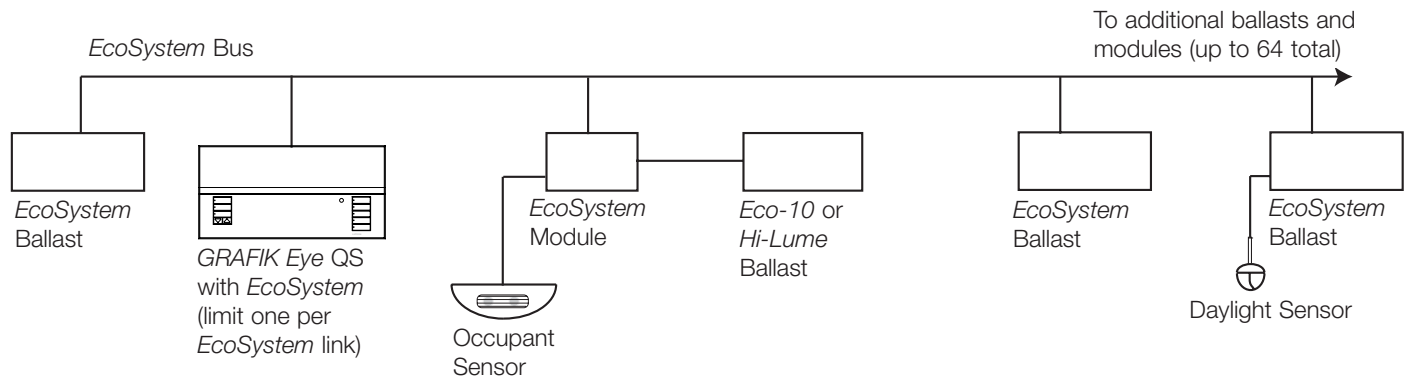
Job Name:	Model Numbers:
Job Number:	

EcoSystem® Bus Wiring

EcoSystem Bus Link Terminal Detail



EcoSystem Bus Wiring Example

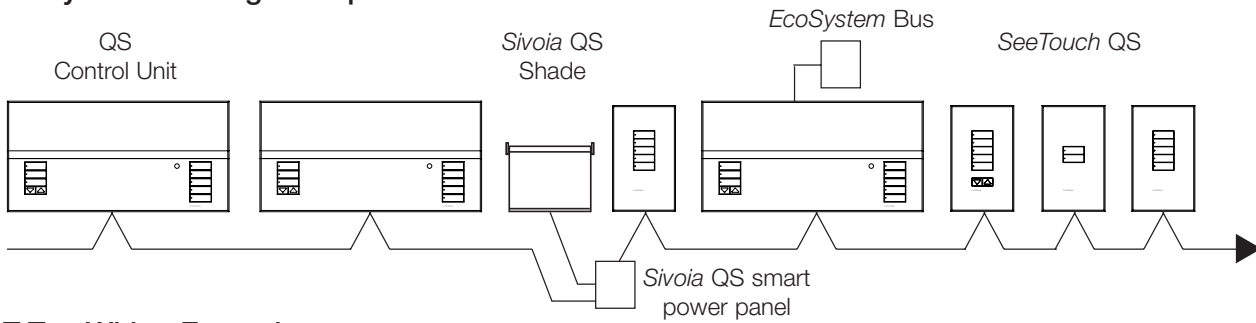


Job Name:	Model Numbers:
Job Number:	

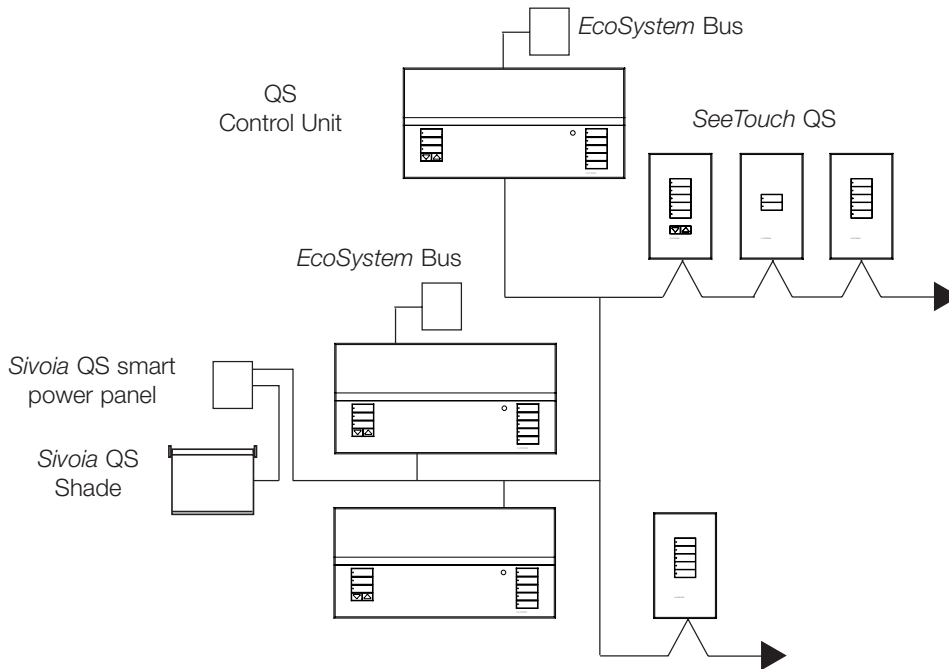
PELV (Class 2: USA) QS Link Wiring

- System communication uses low-voltage wiring.
- Wiring can be daisy-chained or T-tapped.
- Wiring must be run separately from line/mains voltage.
- PELV (Class 2: USA) wiring link requires:
 - Two 18 AWG (1.0 mm²) conductors for control power.
 - One twisted, shielded pair of 22 AWG (1.0 mm²) for data link.
 - Available from Lutron, P/N GRX-CBL-346S; check compatibility in your area.
- Total length of control link must not exceed 2000 ft. (610 m).

Daisy-Chain Wiring Example

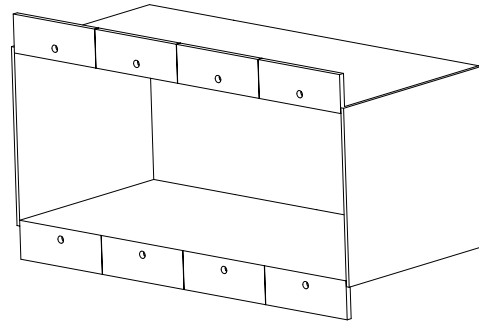


T-Tap Wiring Example

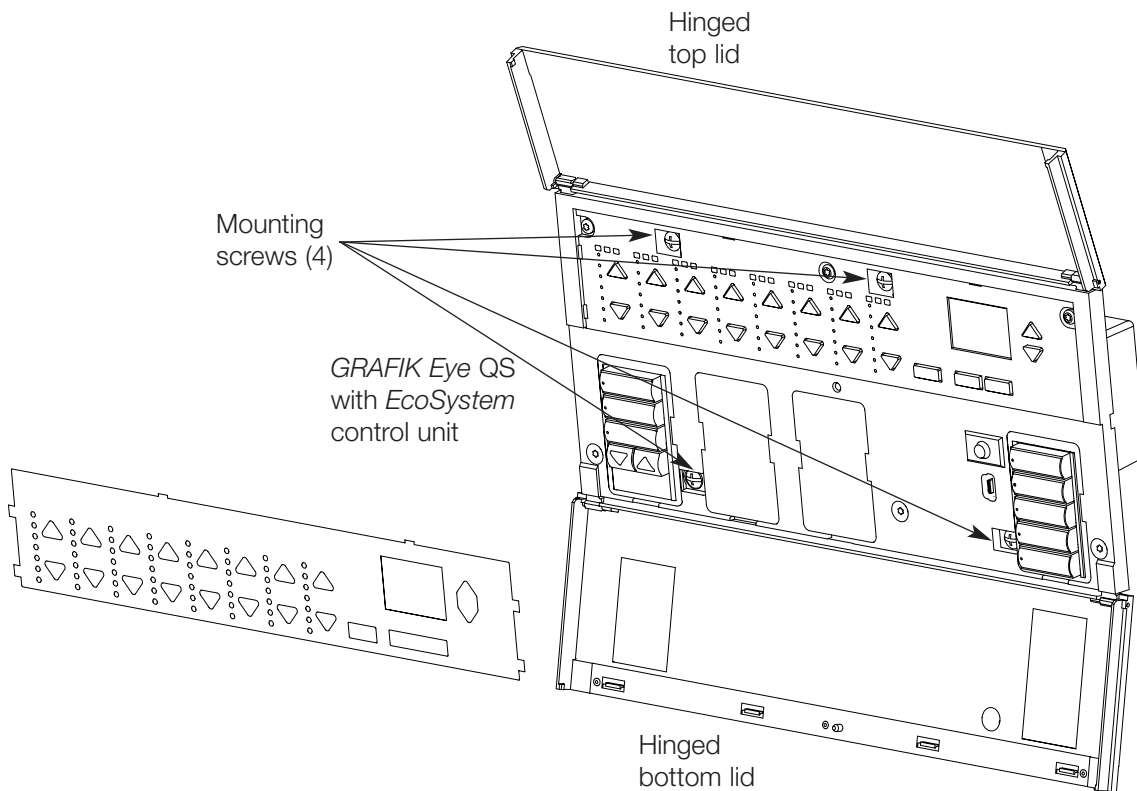


Job Name:	Model Numbers:
Job Number:	

Mounting



Standard 4-gang U.S. wallbox, 3.5 in (89 mm) deep (available from Lutron, P/N 241-400)



Job Name:	Model Numbers:
Job Number:	