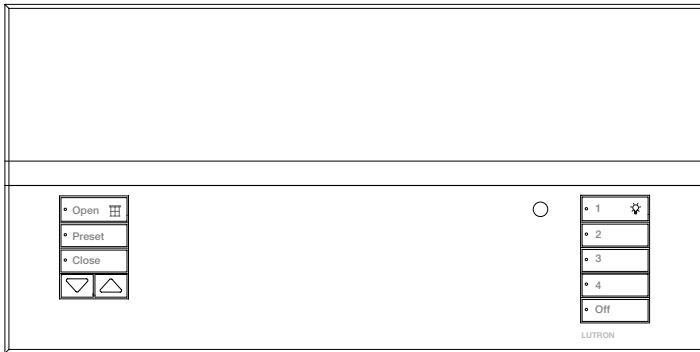


GRAFIK Eye® QS Wireless Control Unit with EcoSystem®



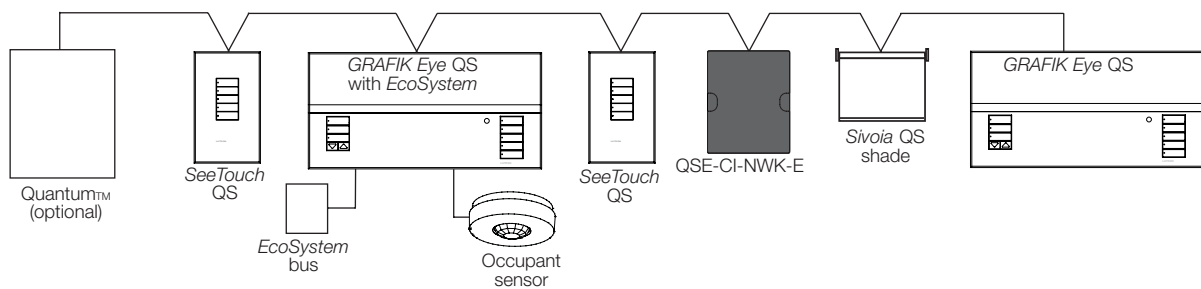
Description

GRAFIK Eye QS Wireless with EcoSystem is the premier energy-saving lighting and shade control. *GRAFIK Eye QS* features an astronomic timedlock and intuitive lighting presets, which are seamlessly integrated with *EcoSystem* fluorescent ballasts and LED drivers, and Lutron's QS components and systems. Now with wireless technology and an integral *EcoSystem* bus supply, you can use the *GRAFIK Eye QS Wireless with EcoSystem* to control ballasts and shades without interfaces, and integrate with a variety of Lutron wireless products and systems, including Radio Powr Savr™ occupancy and vacancy sensors, Sivoia® QS wireless shades, Pico™ wireless control, and other *GRAFIK Eye QS* wireless control units. Additionally, the *GRAFIK Eye QS* wireless is compatible with all Lutron wired QS products and systems.

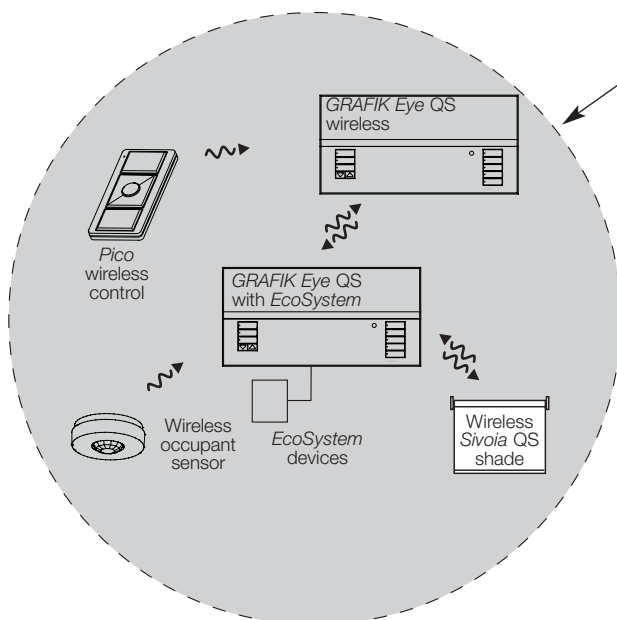
System Topologies

The *GRAFIK Eye QS Wireless with EcoSystem* can be specified in three different system topologies:

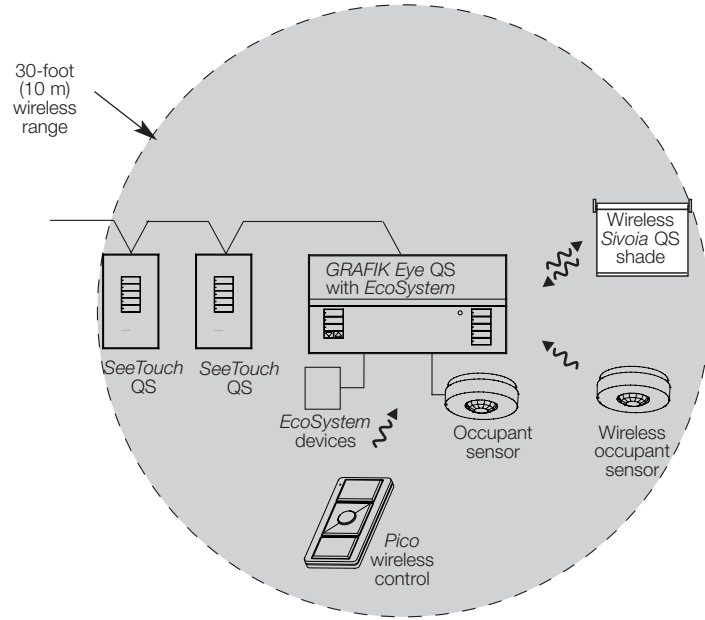
Wired System



GRAFIK Eye-centric Wireless System



Mixed Wired/GRAFIK Eye-centric Wireless System



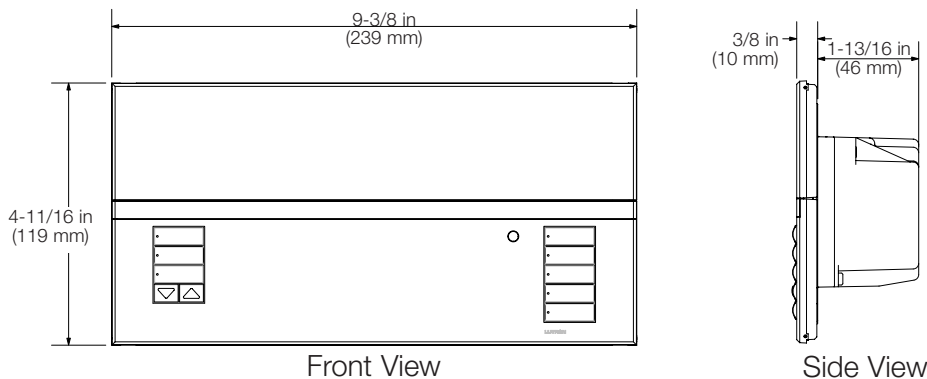
Job Name:	Model Numbers:
Job Number:	

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

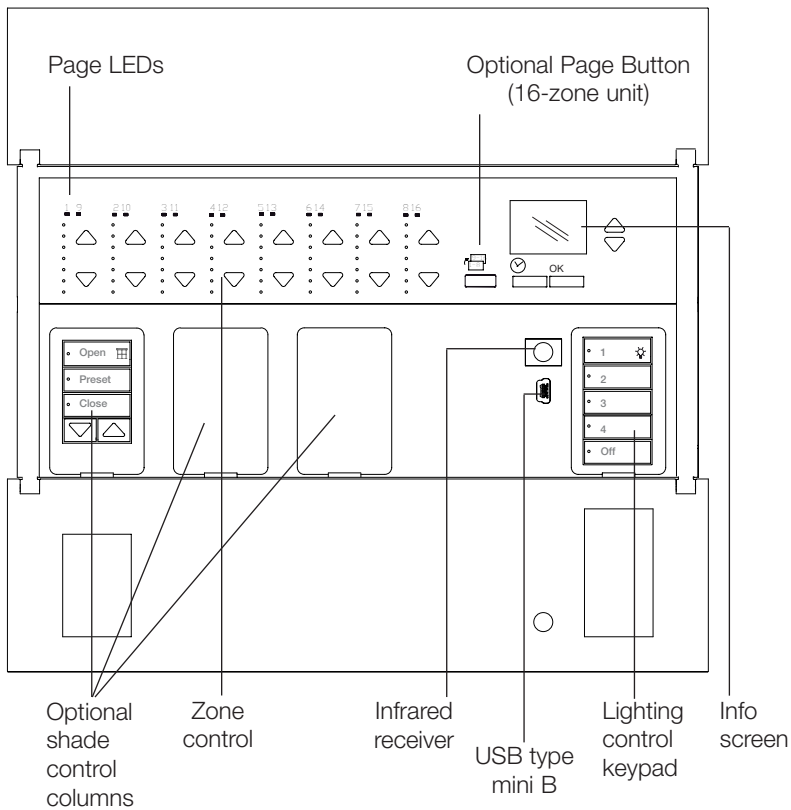
	<i>GRAFIK Eye QS Wireless with EcoSystem</i>	<i>EcoSystem Bus Supply</i>
Suggested/Recommended Applications	Single rooms, partitioned spaces e.g., conference room, classroom, ballroom, lobby	Open spaces, multiple enclosed rooms e.g., open office, window offices
Programming Method	Info Screen on the QS control unit	Via PDA or <i>EcoSystem</i> keypads
Timeclock	Yes (integral)	No
Compatible with SeeTouch® QS Keypads	Yes	No
Compatible with <i>EcoSystem</i> Wall Controls	No	Yes
Compatible with <i>EcoSystem</i> IR Sensors	No	Yes
Programming from <i>EcoSystem</i> PDA	No	Yes
Programming from <i>EcoSystem</i> 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 <i>EcoSystem</i> 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
Compatible with other wireless QS Devices	Yes	No

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:	



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.
- Compatible with all Lutron QS system components.
- Wireless communication for seamless integration with a variety of Lutron wireless products and systems, including Radio Powr Savr™ occupancy and vacancy sensors, Sivoia® QS wireless shades, Pico™ wireless controls, and other *GRAFIK Eye* QS Wireless control units.
- 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*)
- Backlit buttons with engraving make unit easy to locate and operate.
- Available in a variety of colors and finishes.

Job Name:	Model Numbers:
Job Number:	

Specifications

Input Power

- 120 V \sim 50/60 Hz

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 or on a full conduction non-dim basis through separate Lutron PHPM series power modules:

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

Key Design Features

- RF meets IEC 1000-4-2.
- 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.
- 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 at the 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 (June 2009).
- NOM (July 2009).
- CEC listed (Title 24).
- FCC listed.

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 interfaces.
- 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 feature allows occupants to temporarily override timeclock events.

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).
- A QS system can have up to 30 wireless devices.
- 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 Wallstations (QSW2)

- Each GRAFIK Eye QS can power up to 3 wired SeeTouch QS controls.
- Wired SeeTouch QS keypads provide the following features:
 - Access to one or more of the 16 scenes on the GRAFIK Eye QS Wireless
 - Zone toggle, partitioning, sequencing, fine tune, panic mode, and timeclock enable/disable
 - Contact closure inputs
 - Various other functions that are available on specific wallstation configurations. Refer to the SeeTouch specification submittal.

Accessory Controls: Pico® Wireless Control (QSR4P)

- The Pico Wireless Control is battery powered. It can control GRAFIK Eye QS wireless control units within a

30-foot range. It provides the following features:

- Control of one or more zones on the GRAFIK Eye QS Wireless: turns zone(s) on or off, raises/lowers zone(s), and goes to user-programmable preset level
- Scene control: the Pico can access scene 1, scene 16, and Off on the GRAFIK Eye QS, and can raise and lower lighting levels

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
 - Up to 3 wireless Radio Powr Savr™ occupancy or vacancy sensors (model numbers starting with LRF2)
 - Contact closure sensor(s) wired to EcoSystem ballasts or interfaces
- Occupant sensors act in a logical OR fashion to activate scenes on the GRAFIK Eye QS:
 - If any associated sensor detects occupancy, then the GRAFIK Eye QS will go to the designated occupied scene
 - If all associated sensors detect vacancy, then the GRAFIK Eye QS will go to the designated unoccupied scene
 - If any associated sensor detects occupancy and the GRAFIK Eye QS is in any scene other than the unoccupied scene, the GRAFIK Eye QS will not change scenes (prevents unwanted scene changes when the space is occupied)

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⁻⁻⁻.
- Each GRAFIK Eye QS can supply 50 mA maximum at 24 V⁻⁻⁻.
 - 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)
QSGRJ - 6E	800	800	61.5
QSGRJ - 8E	800	800	61.5
QSGRJ - 16E	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 <i>GRAFIK Eye</i> QS	3	1
 4-zone <i>GRAFIK Eye</i> QS	4	1
 6-zone <i>GRAFIK Eye</i> QS	6	1
 <i>seeTouch</i> QS	0	1
 <i>Sivoia</i> QS	1	1
 6-zone <i>GRAFIK Eye</i> QS with <i>EcoSystem</i>	6	1
 8-zone <i>GRAFIK Eye</i> QS with <i>EcoSystem</i>	8	1
 16-zone <i>GRAFIK Eye</i> QS with <i>EcoSystem</i>	16	1
 Contact closure interface	2	1
 Network interface	0	1
 QS smart power panel	0	1

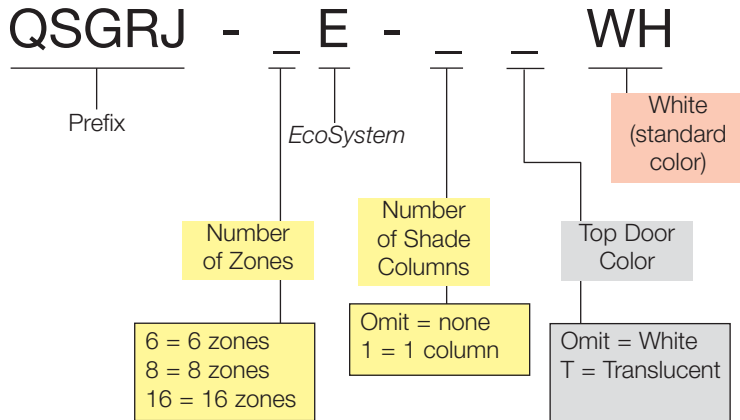
Job Name:	Model Numbers:
Job Number:	

GRAFIK Eye QS Wireless with EcoSystem®

Standard Model Numbers

See following pages for Ordering Custom (Non-Standard) Model Numbers

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



Example:

QSGRJ-6E-1TWH

6-zone standard white unit with 1 shade column and translucent top door.

Unit will ship unengraved with engraving certificate that customer can redeem at no charge.

Available Standard Model Numbers

<u>6 Zones</u>	<u>8 Zones</u>	<u>16 Zones</u>
QSGRJ-6E-WH	QSGRJ-8E-WH	QSGRJ-16E-WH
QSGRJ-6E-TWH	QSGRJ-8E-TWH	QSGRJ-16E-TWH
QSGRJ-6E-1WH	QSGRJ-8E-1WH	QSGRJ-16E-1WH
QSGRJ-6E-1TWH	QSGRJ-8E-1TWH	QSGRJ-16E-1TWH

Important Note:

For any non-standard units, you must order **BOTH** a base unit and a Faceplate Kit. Please see the Custom Ordering Information on the following pages.

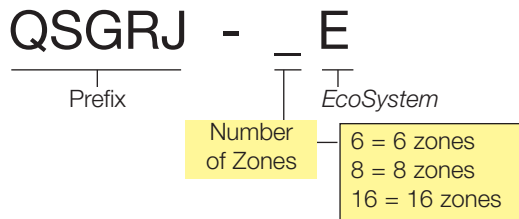
Job Name:	Model Numbers:
Job Number:	

GRAFIK Eye® QS Wireless with EcoSystem® Custom Color Options and Model Numbers

You must order a Base Unit and a Faceplate Kit

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

Base Unit

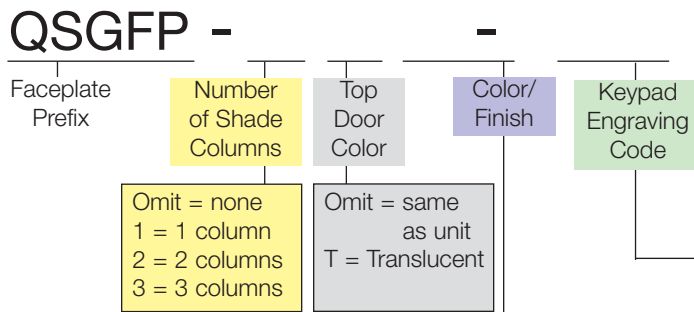


Example:

QSGRJ-6E
6-zone base unit and
QSGFP-2IV-EGN
Ivory faceplate kit with two shade columns and general engraving

Faceplate Kit

(includes coordinating stripe and buttons)



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

Keypad Engraving Codes

Omit = Unengraved
Ships with engraving certificate that customer can redeem at no charge
EGN = General Engraving

• 1	• Open
• 2	• Preset
• 3	• Close
• 4	
• Off	

Lighting keypad
Shade column

NST = Non-Standard Text Engraving
Please visit the *GRAFIK Eye QS* website at www.lutron.com/grafikyeqs for custom engraving forms. Submit completed form with order, and unit will ship engraved as specified by customer.

Job Name:	Model Numbers:
Job Number:	

GRAFIK Eye® QS Wireless 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

Custom 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)

Button Kit Custom Color/Finish Codes

Architectural Matte Finishes

White WH
 Ivory IV
 Beige BE
 Gray GR
 Brown BR
 Black BL
 Almond AL
 Light Almond LA

Satin Color Matte Finishes

Snow SW
 Biscuit BI
 Eggshell ES
 Taupe TP

Keypad Engraving Codes

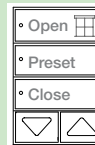
Omit = Unengraved

Ships with engraving certificate that customer can redeem at no charge

EGN = General Engraving



Lighting keypad



Shade column

NST = Non-Standard Text Engraving

Please visit the *GRAFIK Eye QS* website at www.lutron.com/grafikeyeqs for custom engraving forms. Submit completed form with order, and unit will ship engraved as specified by customer.

Custom Stripe Kit

QSGS - WH

Stripe Kit Prefix

Stripe Color/Finish

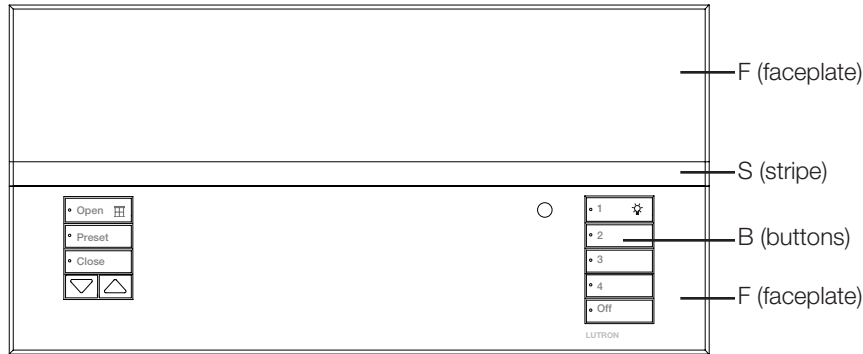
Stripe Custom Color/Finish Codes

Same as Faceplate colors on previous page

Job Name:	Model Numbers:
Job Number:	

GRAFIK Eye® QS Wireless 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:

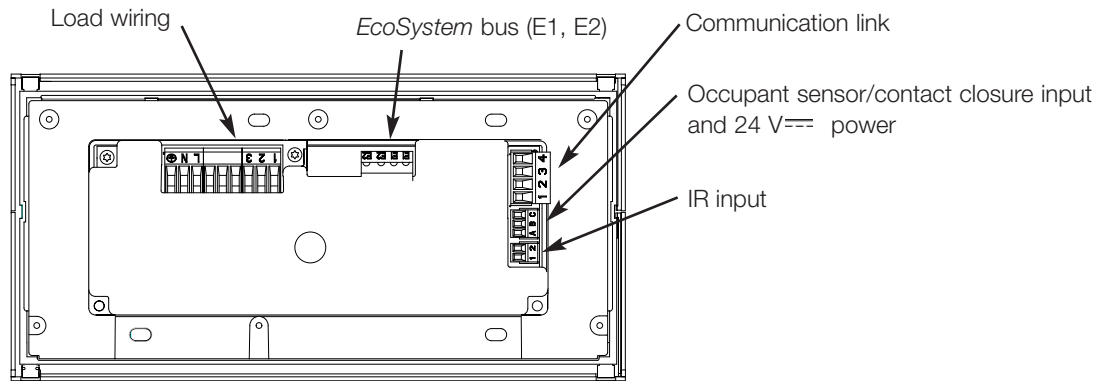
If you order QSGRJ-6E-1WH, your *GRAFIK Eye QS* with 6 lighting zones and 1 shade column will come with a white faceplate (both top and bottom), gray stripe, and white buttons.

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



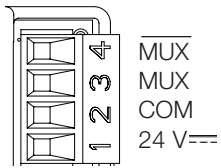
<u>Wire Gauge</u>	<u>Maximum EcoSystem Bus Length</u>
12 AWG (4.0 mm ²)	2200 ft (671 m)
14 AWG (2.5 mm ²)	1400 ft (427 m)
16 AWG (1.5 mm ²)	900 ft (275 m)
18 AWG (1.0 mm ²)	570 ft (175 m)

Job Name:	Model Numbers:
Job Number:	

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

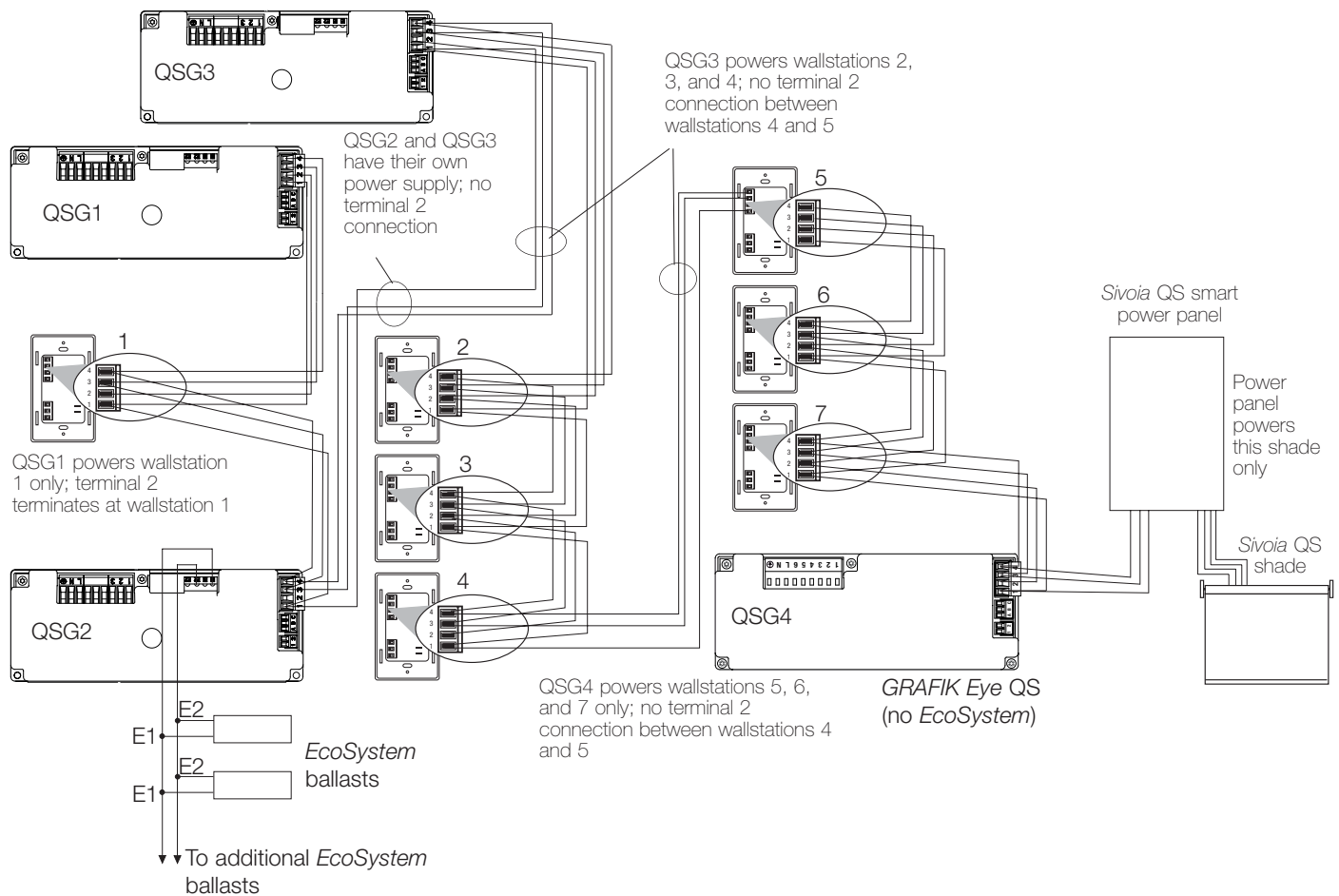
- Each PELV (Class 2: USA) terminal accepts up to two 18 AWG (1.0 mm²) wires.
- Connect the terminal 1, 3, and 4 connections to all control units, wallstations, and control interfaces.
- Each control unit has its own power supply. Terminate the terminal 2 connection (24 V_{DC} power) so that each control 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



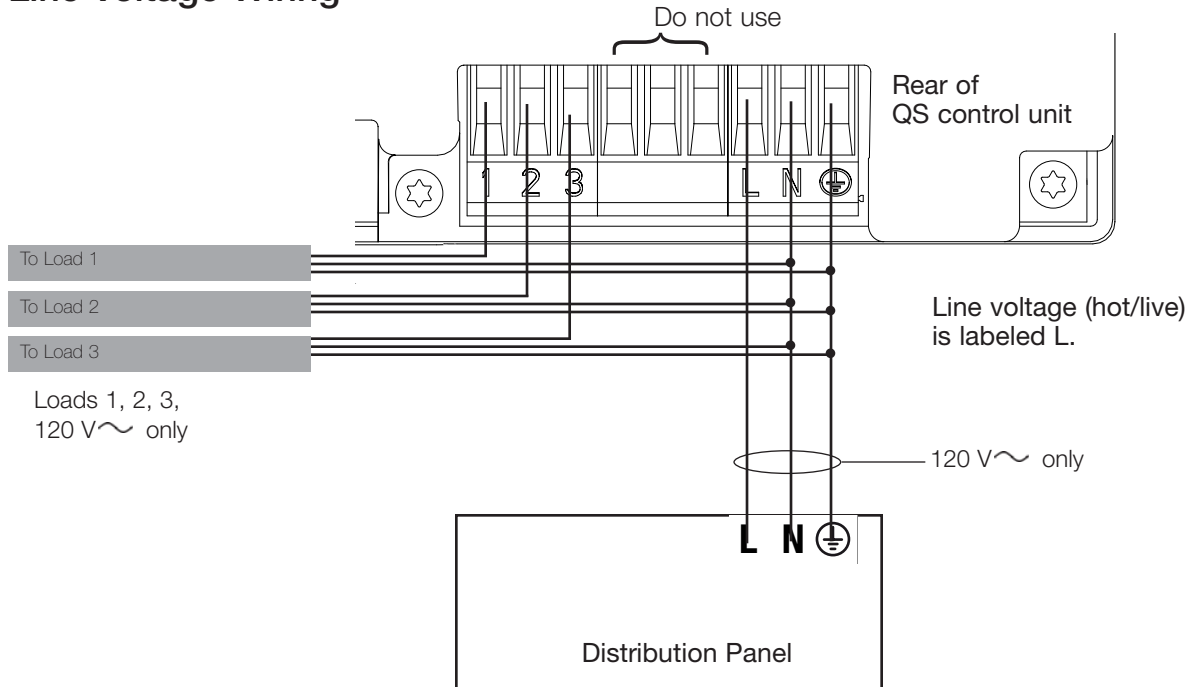
Low-Voltage Wiring Example

Control units (QSG) shown in rear view



Job Name:	Model Numbers:
Job Number:	

Line Voltage Wiring

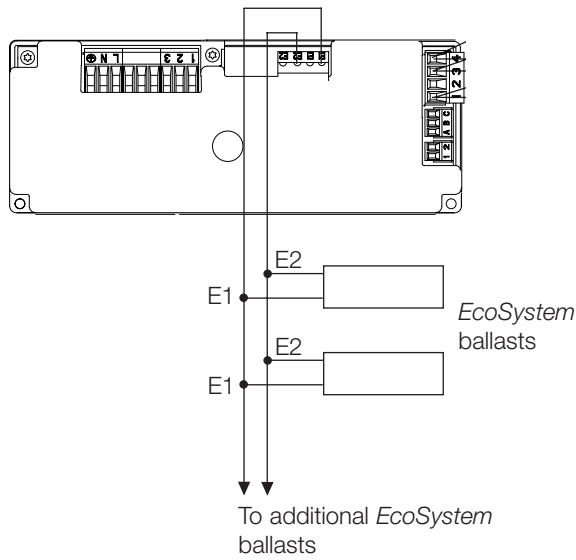


- Pull power wiring from distribution panel and to light fixtures.
- Each line voltage terminal can accept one 12 AWG (2.5 mm²) wire.
- Consult Lutron for non-dim relay wiring and/or load side emergency transfer wiring.

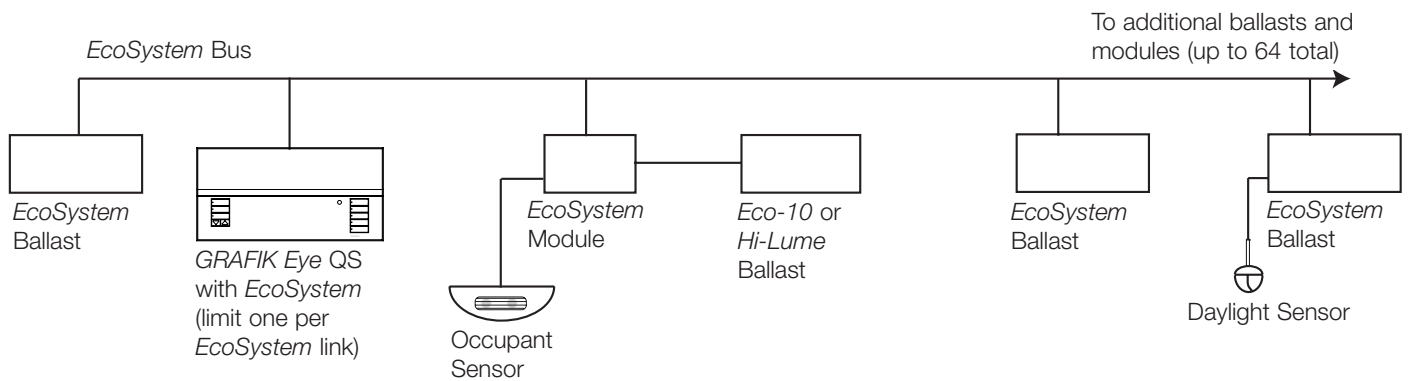
Job Name:	Model Numbers:
Job Number:	

EcoSystem® Bus Wiring

EcoSystem Bus Link Terminal Detail



EcoSystem Bus Wiring Example

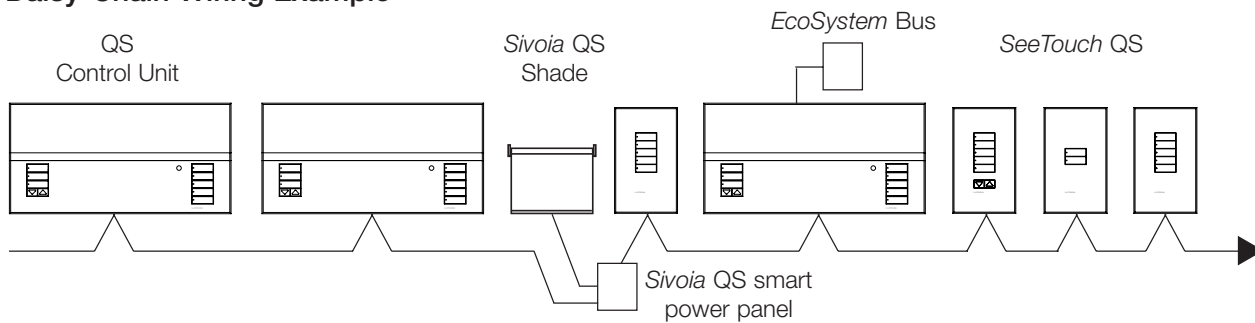


Job Name:	Model Numbers:
Job Number:	

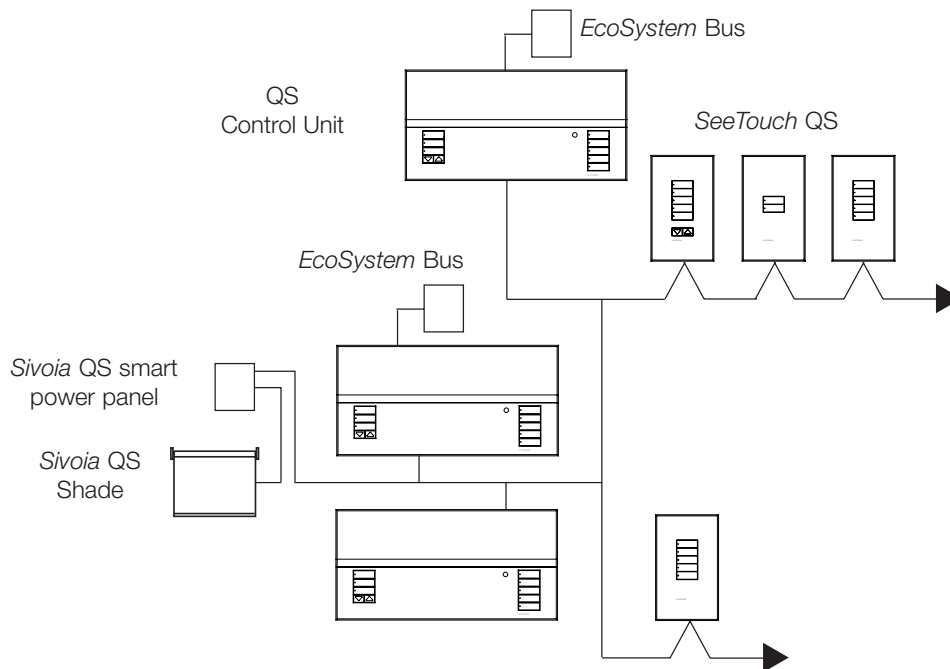
PELV (Class 2: USA) QS Link Wiring

- 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

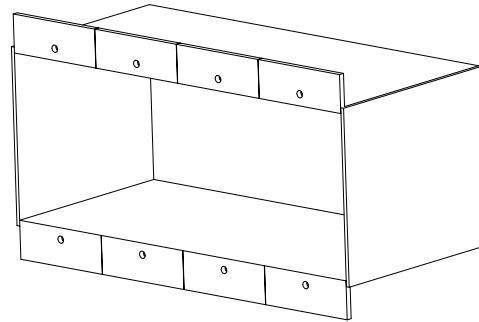


T-Tap Wiring Example

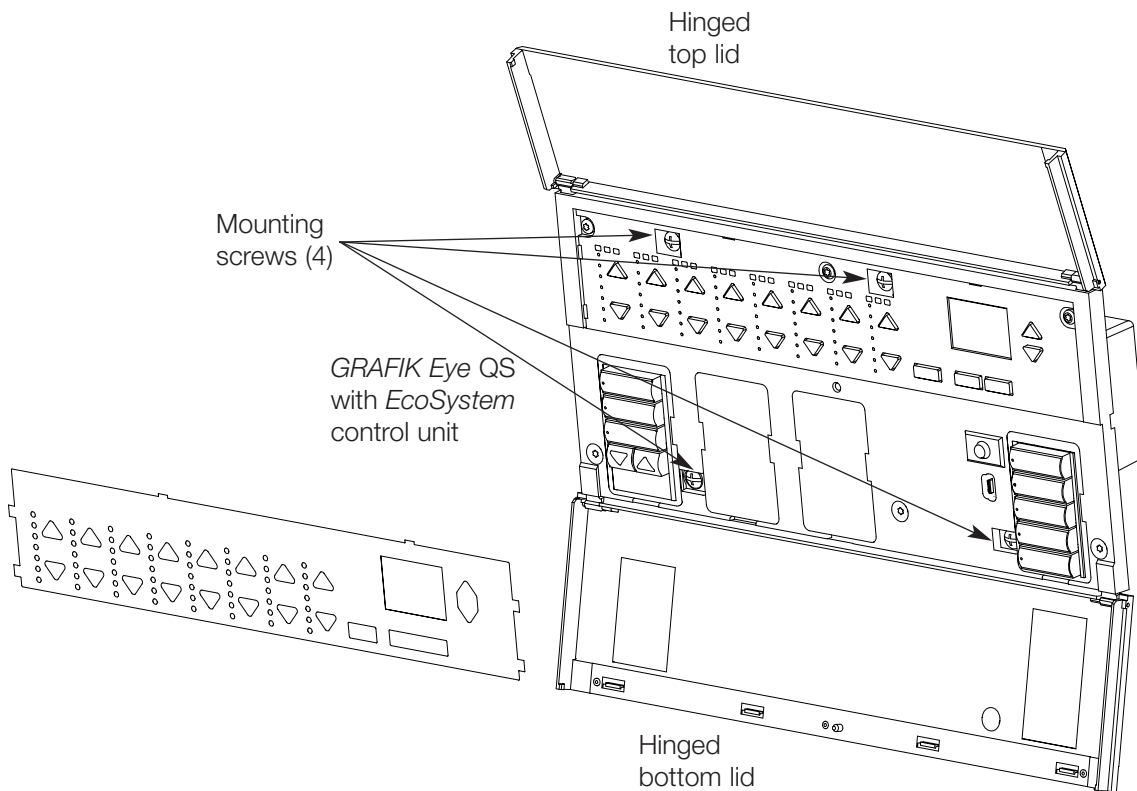


Job Name:	Model Numbers:
Job Number:	

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:	