

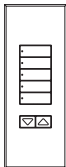
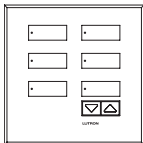
QS Wallstations Installation Guide

Please Read

IEC PELV/NEC® Class 2
24 V $\overline{=}$ 30 mA

Contents

Overview	2
Power Group Wiring Example	3
Wiring/Installation	4
Mounting	7
Troubleshooting	8



For Programming, see the QS Wallstation Programming Guide (P/N 0301639) at www.lutron.com/qs

Wallstation circuits are classified as IEC PELV/NEC® Class 2 circuits. As Class 2 circuits, they comply with the requirements of NFPA® 70, National Electrical Code® (NEC®). As PELV circuits, they comply with the requirements of IEC 60364-4-41, VDE 0100 Part 410, BS7671:1992, and other equivalent standards. When installing and wiring to these wallstations, follow all applicable national and/or local wiring regulations. External circuits connected to input, output, and other communication terminals of wallstations must be supplied from a listed Class 2 source or comply with the requirements for PELV circuits, as applicable in your country.

QS Wallstation Models

seeTouch® Keypads

QSWAS-1B
QSWAS-2B
QSWAS-3B
QSWAS-5B
QSWAS-7B
QSWAS-2BRL
QSWAS-3BRL
QSWAS-5BRL
QSWAS-2BRLIR
QSWAS-3BRLIR
QSWAS-5BRLIR
QSWAS-1RLD
QSWAS-2RLD
QSWAS-3BD

Signature Series™ Keypads

QSWAS-1B
QSWAS-2B
QSWAS-3B
QSWAS-5B
QSWAS-7B
QSWAS-2BRL
QSWAS-3BRL
QSWAS-5BRL
QSWAS-1RLD
QSWAS-2RLD
QSWAS-3BD

Notes

- Read all instructions carefully before starting installation.
- Lutron recommends that wallstations be installed by a qualified electrician.
- Use only a cloth with warm water and mild soap to clean faceplates (no chemical cleaners).

seeTouch® International Keypads

QSWE-2B
QSWE-3B
QSWE-4B
QSWE-5BRL
QSWE-5BRLIR
QSWE-6BRL
QSWE-7BRL
QSWE-8BRL
QSWE-8BRLIR
QSWE-10BRL

Architrave™ Keypads

QSWA-KP5-DN
QSWA-KP5-DW
QSWA-KP7-DN
QSWA-KP7-DW

Overview

- QS wallstations can be programmed to control lights, shades, or lights and shades.
- Unprogrammed (out-of-box) QS wallstations, Sivoia® QS shades, GRAFIK Eye® QS control units, and Energi Savr Nodem™ units will all work together until they are programmed otherwise.
- Contact closure inputs allow operation with occupancy/vacancy sensors, partitioning, and more.

QS Link Limits

- The QS wired communication link is limited to 100 devices and 100 zones. Each QS wallstation counts as 1 device and 0 zones.
- QS wallstations use 1 power draw unit (PDU) on the QS link. Refer to the QS Link Power Draw Units specification submittal (Lutron P/N 369405) and the diagram on the opposite page for more information concerning Power Draw Units.

Compatible Components

The following devices are compatible with the QS link. For more information on each, refer to www.lutron.com/qs

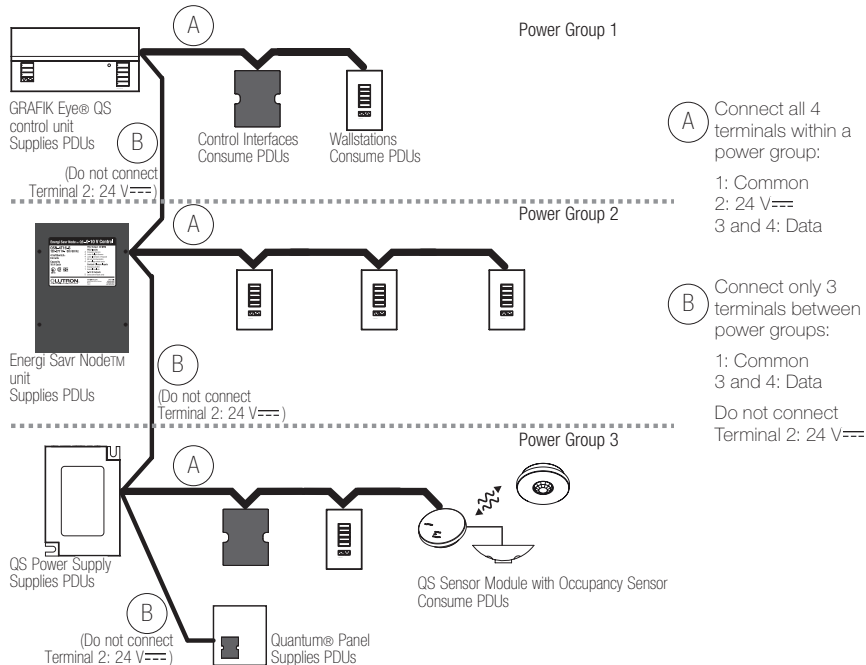
- GRAFIK Eye® QS control units
- QS wallstations
- Sivoia® QS shades
- QS Interfaces (contact closure, Ethernet/RS232)
- Quantum® system
- Energi Savr Nodem™ units
- QS Sensor Module
- QS Keyswitch

Power Group Wiring Example

On the QS link, there are devices that supply power and devices that consume power. Each device has a specific number of Power Draw Units (PDUs) it either supplies or consumes. A Power Group consists of one device that supplies power and one or more devices that consume power; each Power Group may have only one power-supplying device. Refer to the QS Link Power Draw Units specification submittal (Lutron P/N 369405) for more information concerning PDUs.

Within Power Groups on the QS link, connect all 4 terminals (1, 2, 3, and 4), shown by the letter A in the diagram. Between devices on the QS link that supply power, connect only terminals 1, 3, and 4 (NOT terminal 2), shown by the letter B on the diagram.

Wiring can be T-tapped or daisy-chained.



Wiring/Installation

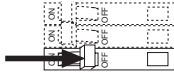
- Refer to the system installation guide and Lutron job drawings for power cable and data cable (control link) wiring restrictions and limitations.
- Connect the wallstation to the control link inside the wallstation's wallbox or in a junction box (provided by others).
- Use the wire connector required by local code.

- Control link wiring must **not** be run in the same raceway as line voltage.
- The drain/shield wire must be maintained throughout the control link. Do **not** connect the shield to earth/ground or allow contact with the grounded wallbox.
- Do not connect high-voltage power to low-voltage terminals. Improper wiring can result in personal injury or damage to the control or to other equipment.



Warning! Shock hazard. May result in serious injury or death. Always turn OFF the circuit breaker/MCB or remove the main fuse from the power line before doing any work.

- Turn Power OFF.** Turn power OFF at circuit breaker/MCB (or remove fuse).
- Mount Wallbox.** Ensure correct size. See "Mounting" for details.
- Prepare Wallstations.** Remove the faceplate and set aside.
- Prepare wires.** Strip insulation from wires so that $\frac{3}{8}$ in (10 mm) of bare wire is exposed.

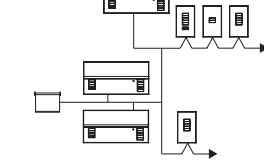


Allowable Wiring Configurations

Daisy chain



T-Tap



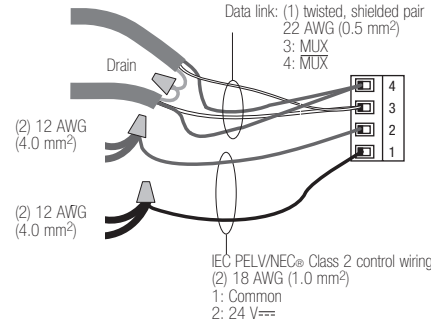
Wire Sizes (check compatibility in your area)

QS Link Wiring Length	Wire Gauge	Lutron Cable P/N
Less than 153 m (500 ft)	Power (terminals 1 and 2) 1 pair 1.0 mm ² (18 AWG)	GRX-CBL-346S (non-plenum) GRX-PCBL-346S (plenum)
	Data (terminals 3 and 4) 1 twisted, shielded pair 0.5 mm ² (22 AWG)	
153 to 610 m (500 to 2000 ft)	Power (terminals 1 and 2) 1 pair 4.0 mm ² (12 AWG)	GRX-CBL-46L (non-plenum) GRX-PCBL-46L (plenum)
	Data (terminals 3 and 4) 1 twisted, shielded pair 0.5 mm ² (22 AWG)	

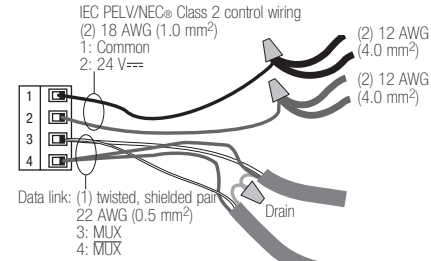
Wiring the QS Link

Connect two 22 AWG (0.5 mm²) shielded, twisted pair wires to terminals 3 and 4 of the wallstation's control link connector. Shielding (drain) of the twisted pair wires must be connected together as shown, but do not connect the shielding to earth/ground or the wallstation and do not allow it to contact the grounded wallbox.

500 to 2000 ft/153 to 610 m seeTouch®, seeTouch® International



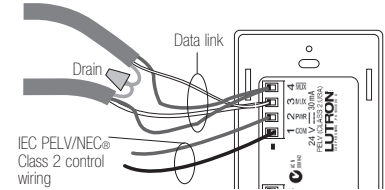
Signature Series™, Architrave™



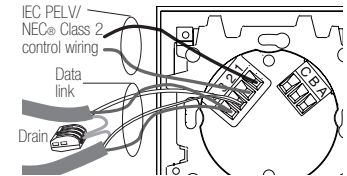
Connect the appropriate size wires to terminals 1 and 2 for power, according to your link length (see table opposite).

<500 ft/153 m

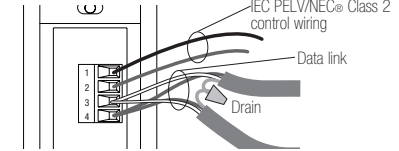
seeTouch®



seeTouch® International



Signature Series™, Architrave™



Data link: (1) twisted, shielded pair
22 AWG (0.5 mm²)
3: MUX
4: MUX

IEC PELV/NEC® Class 2 control wiring
(2) 18 AWG (1.0 mm²)
1: Common
2: 24 V---

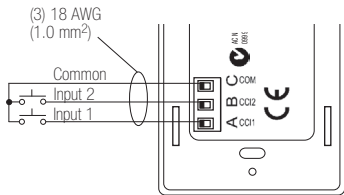
Wiring the Contact Closure Input (CCI)

The contact closure inputs must be dry contact closure, solid state, open collector, or active-low (NPN)/active-high (PNP) output.

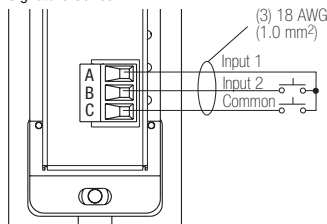
- Open collector NPN or active-low on-state voltage must be less than 2 V and sink 3.0 mA.
- Open collector PNP or active-high on-state voltage must be greater than 12 V and source 3.0 mA.
- The outputs must stay in the closed or open states for at least 60 msec in order to be recognized by the wallstation.

If there is any question as to whether the third-party device generating these outputs is compatible with these specifications, contact the manufacturer.

seeTouch®



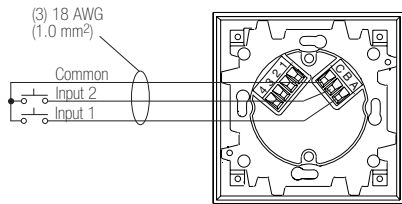
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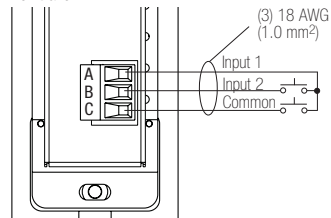
Note: If a wallstation has devices connected to it through contact closure inputs, CCI1 "presses" the top button and CCI2 "presses" the bottom button. To change this behavior, refer to Application Note 428 (seeTouch® Advanced Programming Mode) at www.lutron.com.

Exception: On a 2-button wallstation configured for partitioning, panic, or sequencing functionality, CCI1 closure action follows the top button and opening action follows the bottom button.

seeTouch® International



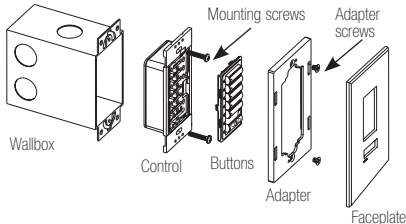
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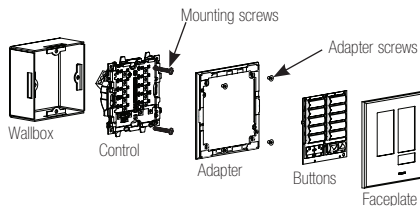
Mounting

Carefully mount and align the wallstation as shown. Screw top and bottom screw into the control and wallbox. Replace adapter (for insert versions; screw to control), button assembly, and faceplate in the order shown.

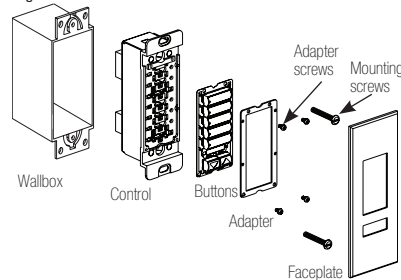
seeTouch®



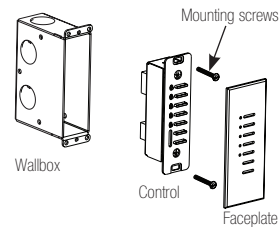
seeTouch® International



Signature Series™



Architrave™



Wallstation Type	Wallbox Size (high x wide x deep)	Lutron P/N
seeTouch®	3.7 x 2.2 x 2.75 in 95 x 55 x 70 mm	241519
seeTouch® International	3 x 3 x 1.4 in 75 x 75 x 35 mm	241683
Signature Series™	4.4 x 1.5 x 2.8 in 113 x 39 x 71 mm	WBOX-SA1-Q1
Architrave™	4.4 x 1.25 x 2.75 in 112 x 32 x 70 mm	241399

Power Up

Turn ON control breaker, or replace main fuse.

Installation is Complete

For Programming functions, see the QS Wallstation Programming Guide at www.lutron.com/qs.

Troubleshooting: LED Functionality

LED Behavior	Meaning and Remedy
All Keypad Types	
"Reverse Waterfall" LEDs light beginning at the bottom, continuing to light until all are on; then LEDs go off beginning at the bottom, continuing until all are off. Cycle then repeats.	Unable to communicate on QS link, or alone on QS link. Check link wiring.
No LED feedback at all, even when a button is pushed.	No power to wallstation. Check power wiring. Another device on QS link is in programming or assignment mode. Take that device out of programming mode, or put this keypad into programming mode and then exit programming mode, which turns off programming mode on all devices.
All LEDs are flashing rapidly.	Wallstation is in advanced programming mode. Press and hold the top and bottom buttons for 3 seconds to exit advanced programming mode.
Shade Keypads	
Top and bottom LEDs are flashing together.	Keypad is in assignment mode. Press and hold the top and bottom buttons for 3 seconds to exit assignment mode.
All LEDs flash 3 times, pause, then repeat.	Keypad is in assignment or limit set mode and cannot find or communicate with any shades assigned to the QS link. Check the shade wiring. Wait 60 seconds, and the keypad will automatically return to normal mode (without any user intervention). Or, press and hold the top and bottom buttons for 3 seconds to immediately exit the mode.
Top and bottom LEDs light in an alternating pattern (top LED lights, then goes off, then bottom LED lights, then goes off; cycle repeats).	Keypad is in limit set mode, or another device on the link is in limit set mode. Press and hold the top and raise buttons for 3 seconds to exit limit set mode.
Top and bottom LEDs blink slowly, and one other LED blinks rapidly.	Keypad is in preset adjust mode. Press and hold the top and bottom buttons to exit preset adjust mode.
Other Keypads	
A single LED is flashing.	Keypad is configured for either zone toggle, partitioning, or shade toggle and is in programming mode. Press and hold the top and bottom buttons to exit programming mode.
"Forward Waterfall" LEDs light and go off in sequence from top to bottom.	Keypad is configured for scene, panic, sequence, fine tune, or scene/zone lockout, and is in programming mode. Press and hold the top and bottom buttons to exit programming mode.

Troubleshooting: Shade Functions

Symptom	Possible Causes	Remedy
EDU (electronic drive unit of the shade) will not move	EDU is not powered	Check EDU power
	Shade fabric is caught on something	Check and unbind shade fabric
	EDU is not assigned to a keypad	Assign the EDU to a keypad
EDU (electronic drive unit of the shade) does not fully open or fully close	Presets have been set incorrectly	Try using raise/lower buttons on keypad
	Limits have been set incorrectly	Set limits correctly
	Shade fabric is caught on something	Check and unbind shade fabric
Shade moves in the opposite direction when raise/lower buttons are pushed	Open and close limits have been reversed	Set limits correctly
Keypad LEDs are off and keypad will not control any shade	No power is going to keypad	Check and wire power to keypad
Keypad LEDs are on but keypad will not control any shade	All presets are set to the same height	Try using raise/lower buttons on keypad
	Communications link is not wired to the EDU	Check and wire the EDU link
	EDU has been unassigned from keypad	Reassign the EDU to the keypad
	Open and close limits are the same	Set limits correctly
Keypad does not operate all the shades it is assigned to	EDU has been unassigned from keypad	Reassign the EDU to the keypad
	All presets are set to the same height	Try using raise/lower buttons on keypad
	EDU is not wired correctly	Check and rewire EDU
Shades in a room move on their own	Keypad is not wired correctly	Check and rewire keypad
	EDUs are assigned to a keypad in another room	Reassign the EDU to the correct keypad

Troubleshooting

Symptom	Possible Causes
No communication with GRAFIK Eye® control unit or Energi Savr Node™ unit.	Miswire or loose connection at the control link data lines 3 and 4.
	Wallstation has not been programmed or has been programmed incorrectly.
Wallstation buttons do not work; LEDs do not track; wallstation buttons do not function as intended.	Wallstation is miswired.
	Wallstation is not powered.
	Wallstation is not programmed to the correct device.
	Wallstation has not been programmed or has been programmed incorrectly.
LEDs do not light.	Miswire or loose connection at wallstation(s) or processor on the control link common and power connections 1 and 2.
	Wallstation has been programmed incorrectly.
Contact closure inputs or sensor input do not produce the desired result in the system.	Miswire or loose connection at wallstation sensor/CCI connector.
	Wallstation has not been programmed or has been programmed incorrectly.

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