

**QSE-IO Control Interface**



**Description**

- Integrates a *GRAFIK Eye* QS control system with equipment that has contact-closure I/O, including:
  - Motion and occupant sensors.
  - Timeclocks and push buttons.
  - Motorized projection screens, skylights, window shades, and movable walls.
  - AV equipment.
  - Security systems.
- May be programmed to control or be controlled by any combination of *GRAFIK Eye* QS control units or control any combination of *Sivoia* QS window treatments on the QS link.

**Inputs/Outputs**

- Provides five inputs and five dry contact closure outputs.
- Provides both normally open (NO) and normally closed (NC) contacts.
- Using the inputs, contact closures in other equipment can operate control units to:
  - Select scenes.
  - Adjust scenes to reflect status of movable walls.
  - Toggle any combination of zones in the system between Off and a configurable preset value.
  - Turn lights on or off and/or move shades based on room occupancy.
  - Perform special functions such as sequencing, panic, control lockout, or timeclock disable.
- Using the outputs, scene and/or zone changes in control units can:
  - Trigger outputs to control other equipment.
  - Provide status feedback to other equipment.
- Using the inputs, contact closures in other equipment can operate *Sivoia* QS window treatments to:
  - Open or close.
  - Raise, lower, or stop.
  - Select one of three adjustable presets.
- Using the outputs, key presses on QS window treatment keypads or *GRAFIK Eye* QS window treatment buttons can:
  - Trigger outputs to other motorized window treatment equipment.

<b>Job Name:</b>	<b>Model Numbers:</b>
<b>Job Number:</b>	

## Specifications

### Power

- Low-voltage PELV (Class 2: USA). Operating voltage: 12 - 24 V<sub>DC</sub>, 200 mA.
- Provides 2-way interface between preset lighting controls or window treatments and dry contact closure devices.
- Provides 5 inputs and 5 outputs. Outputs can control other manufacturers' equipment.

### Operating Modes


- Scene selection
- Zone toggle
- Special functions
- Partitioning
- Occupant sensor
- Shade input
- Shade output

### Five Input Terminals

- Accept maintained inputs and momentary inputs with 40 msec minimum pulse times.
- Off-state leakage current must be less than 100 µA.
- Open circuit voltage: 24 V<sub>DC</sub> maximum.
- 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<sub>DC</sub> and sink 3.0 mA.
  - Open collector PNP or active-high on-state voltage must be greater than 12 V<sub>DC</sub> and source 3.0 mA.

### Five Output Terminals

- Provide selectable maintained or momentary (1/4-second) outputs (PELV/Class 2: USA rated only).
- The QSE-IO is not rated to control unclamped, inductive loads. Inductive loads include, but are not limited to, relays, solenoids, and motors. To control these types of equipment, a flyback diode must be used (DC voltages only). See diagram at right.
- Output relays are non-latching (if relays are closed and power is lost, relays will open).

Supply Voltage	Resistive Load 
0-24 V <sub>DC</sub>	1.0 A
0-24 V <sub>AC</sub>	0.5 A

### Status LEDs

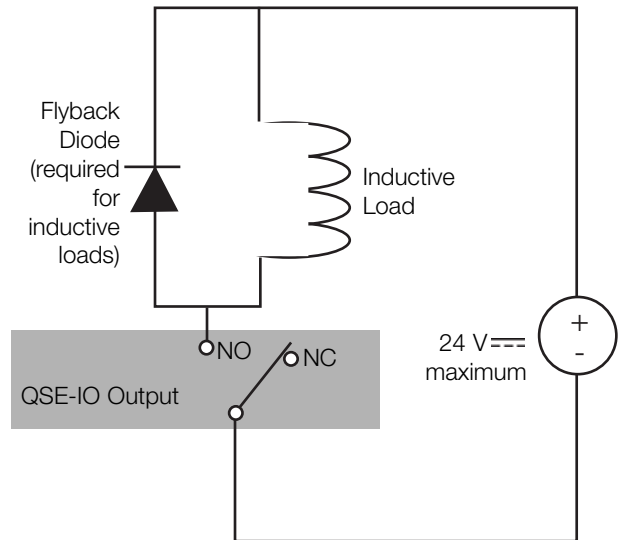
Five Status LEDs light when associated output is active (on).

### System Communications and Capacity

- Low-voltage type PELV (Class 2: USA) wiring connects the QSE-IO Interface to control units and other components.
- QSE-IO counts as 1 device toward system maximum of 100 devices
- 3 wallstations maximum can be powered from one *GRAFIK Eye* QS control unit without external 24 V<sub>DC</sub> power supply; or 1 wallstation powered by a QSE-IO (QSE-IO counts as two wallstations in this use).

### Environment

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



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## Operating Modes and DIP Switch Settings

- For scene selection and special function modes, one control unit or a group of control units may be assigned to be operated by the QSE-IO.
- With partitioning, zone toggle, and occupant sensor modes, a different control unit or group of control units may be assigned for each I/O closure.

Mode	Dipswitch 4 5 6 7 8	Contact Closures Invoke:						
		Input 1	Input 2	Input 3	Input 4	Input 5	Inputs	Outputs
Scene selection		Scene 1	Scene 2	Scene 3	Scene 4	Scene off	Maintained or momentary	Maintained
		Scene 5	Scene 6	Scene 7	Scene 8	Scene off		
		Scene 9	Scene 10	Scene 11	Scene 12	Scene off		
		Scene 13	Scene 14	Scene 15	Scene 16	Scene off		
		Scene 1	Scene 2	Scene 3	Scene 4	Scene off	Maintained or Momentary	Momentary
		Scene 5	Scene 6	Scene 7	Scene 8	Scene off		
		Scene 9	Scene 10	Scene 11	Scene 12	Scene off		
		Scene 13	Scene 14	Scene 15	Scene 16	Scene off		
Special (maintained)		Sequence 5-16	Zone lockout	Scene lockout	Panic mode	Timeclock disable	Maintained only	Maintained
Special (momentary)		Sequence 5-16	Zone lockout	Scene lockout	Panic mode	Timeclock disable	Momentary only	
Shade input preset ("stop if moving")		Shade Open	Shade Preset 1	Shade Preset 2	Shade Preset 3	Shade Close	Maintained or momentary	Maintained
Shade input preset (no "stop if moving")								
Shade input raise, lower, stop		Shade Open	Shade Raise	Shade Lower	Shade Stop	Shade Close	Maintained	Maintained
Shade output		Open 1	Stop 1	Close 1	Open 2	Close 2	Maintained or momentary	Maintained (grouped 1-3; 4-5)
Partitioning (momentary)		Wall 1	Wall 2	Wall 3	Wall 4	Wall 5	Momentary only	Maintained
Partitioning (maintained)		Wall 1	Wall 2	Wall 3	Wall 4	Wall 5	Maintained only	Maintained
Occupant sensor (automatic on / off)		Closure causes scene 1 Open causes scene off					Maintained only	Maintained
Occupant sensor (manual on, automatic off)		Closure causes nothing Open causes scene off					Maintained only	Maintained

Note: "Stop if moving" means that if the shades are moving and the input closes, the shades will stop moving.

(chart continued next page)

Job Name:	Model Numbers:
Job Number:	

## Operating Modes and DIP Switch Settings (continued)

Mode	Dipswitch 4 5 6 7 8	Contact Closures Invoke:						
		Input 1	Input 2	Input 3	Input 4	Input 5	Inputs	Outputs
Zone Toggle (maintained)		Toggle 1 <sup>1</sup>	Toggle 2 <sup>1</sup>	Toggle 3 <sup>1</sup>	Toggle 4 <sup>1</sup>	Toggle 5 <sup>1</sup>	Maintained	Maintained
Zone Toggle (momentary)		Toggle 1 <sup>1</sup>	Toggle 2 <sup>1</sup>	Toggle 3 <sup>1</sup>	Toggle 4 <sup>1</sup>	Toggle 5 <sup>1</sup>	Momentary	
Zone Toggle with Raise/Lower (maintained)		Toggle 1 <sup>1</sup>	Toggle 2 <sup>1</sup>	Toggle 3 <sup>1</sup>	Raise <sup>2</sup>	Lower <sup>2</sup>	Maintained	
Zone Toggle with Raise/Lower (momentary)		Toggle 1 <sup>1</sup>	Toggle 2 <sup>1</sup>	Toggle 3 <sup>1</sup>	Raise <sup>2</sup>	Lower <sup>2</sup>	Momentary	

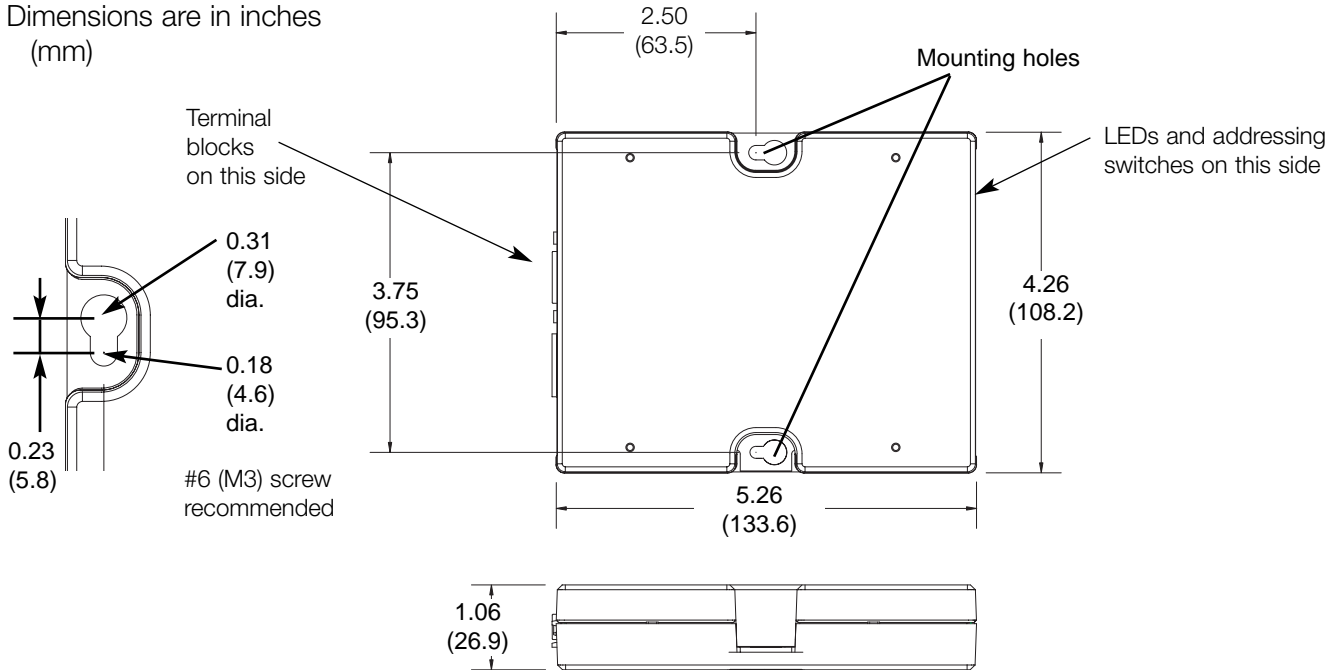
<sup>1</sup>Toggles user-assigned *GRAFIK Eye* QS zone(s) between Off and a preset value programmed by the user.

<sup>2</sup>Raise and Lower commands affect the last *GRAFIK Eye* zone(s) that were toggled by the QSE-IO.

Job Name:	Model Numbers:
Job Number:	

**Dimensions**

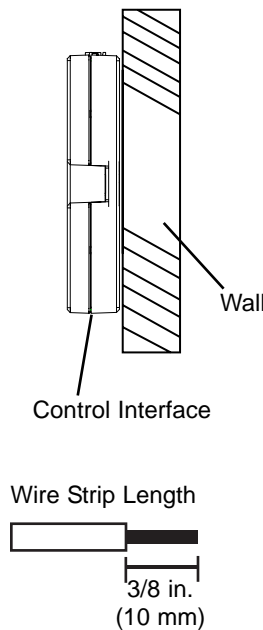
Dimensions are in inches (mm)



**Mounting**

1. Mount the control interface directly on a wall, as shown in the Mounting Diagram, using screws (not included). When mounting, provide sufficient space for connecting cables. The unit can also be placed in the LUT-19AV-1U AV rack using the screws provided with the unit. The LUT-19AV-1U will hold up to four units. If conduit is desired for wiring, the LUT-5x10-ENC can be used to mount one unit. Mount where terminal blocks, switches, and LEDs are accessible.
2. Strip 3/8 in. (10 mm) of insulation from wires. Each data link terminal will accept up to two #18 AWG (1.0 mm<sup>2</sup>) wires.
3. Connect wiring as shown in the Wiring Diagram (next page).

**Mounting Diagram**



LUT-19AV-1U



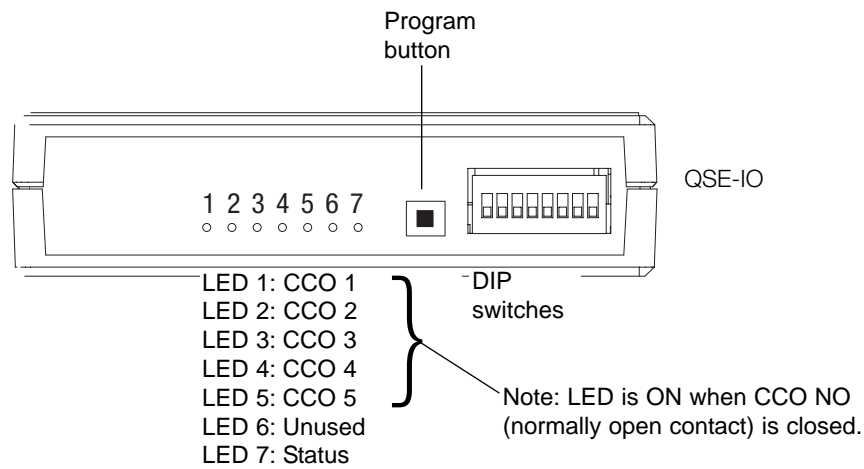
LUT-5x10-ENC

**Note:** Contact closure output relays click audibly when switching. Mount where this will not cause inconvenience.

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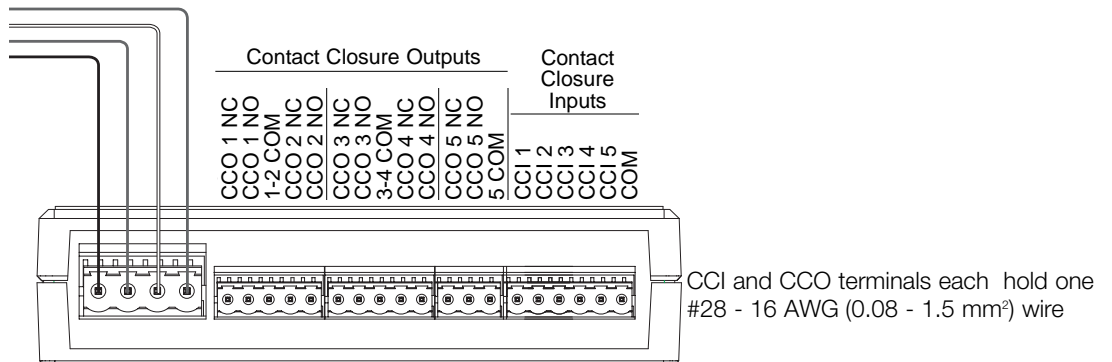
## Low-Voltage PELV (Class 2: USA) Wiring

- Wire the QSE-IO Interface to the PELV (Class 2: USA) QS link using the MUX terminal (3) on the front of the unit.
- Each terminal accepts up to two #18 AWG (1.0 mm<sup>2</sup>) wires.
- Consult *GRAFIK Eye* QS control unit specification submittal for more details.



QS Data Link (to control units, window treatments, and wallstations)

4: MUX  
3: MUX  
2: 24 V  $\overline{\overline{=}}$   
1: Common

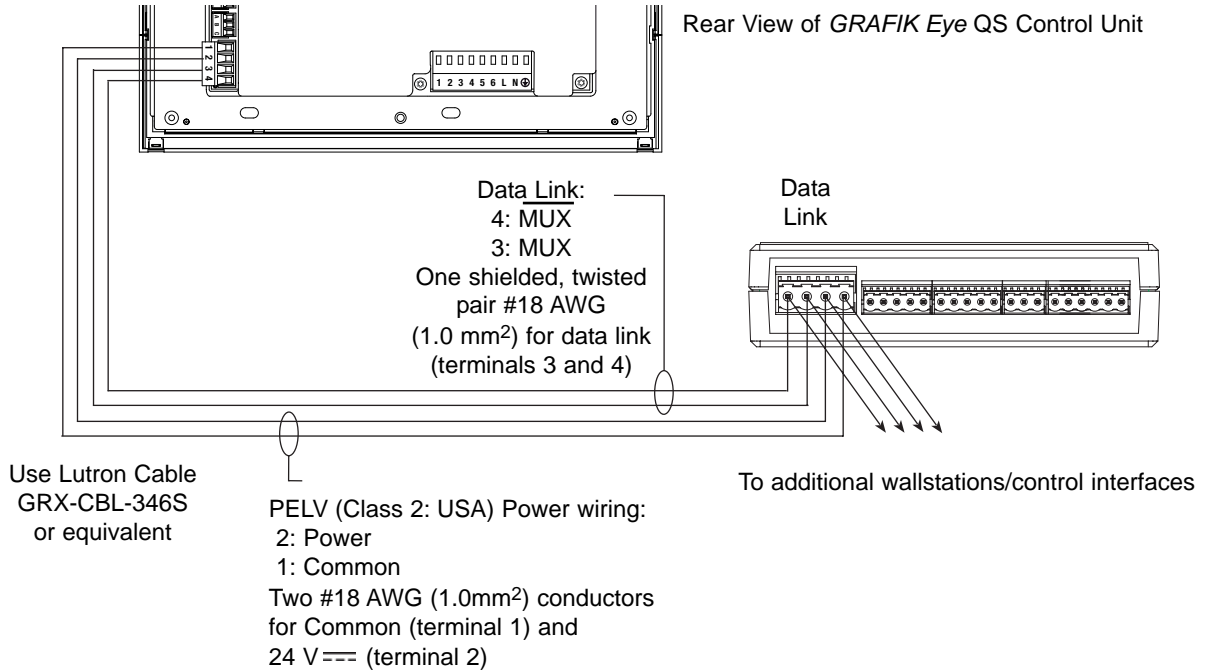


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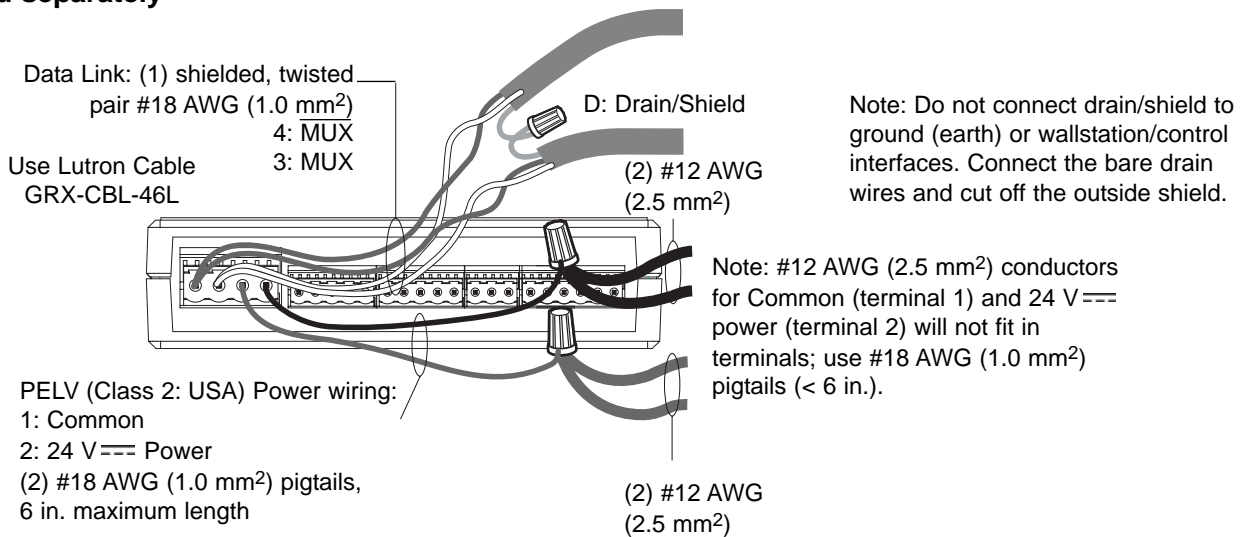
## PELV (Class 2: USA) Terminal Connections

- Install in accordance with all applicable regulations.
- **CAUTION:** Do **not** connect line voltage/mains power to device. Improper wiring can result in personal injury or damage to the device or to other equipment.
- This control can use PELV (Class 2: USA) wiring methods. Check with your local electrical inspector for compliance with national and local codes and wiring practices.
- Each terminal accepts up to two #18 AWG (1.0 mm<sup>2</sup>) wires.

### Control Interface Wiring: Powered by **GRAFIK Eye QS Control Unit**



### Control Interface Wiring: Powered separately



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