The QSE-IO Control Interface provides integration with third-party equipment requiring contact closure inputs (CCIs) or contact closure outputs (CCOs). One QSE-IO Control Interface provides five CCIs and five dry CCOs. The QSE-IO Control Interface provides both normally open (NO) and normally closed (NC) contacts for outputs.

CCIs can use contact closures in third-party equipment to trigger HomeWorks® QS system events (e.g., turn on lights, close shades, adjust HVAC set-points). CCIs can use contact closures from motion sensors, occupancy/vacancy sensors, timeclock events, mechanical switches, A/V equipment, and security systems.

CCOs can be used to control shades/draperies, motorized projection screens, skylights, A/V equipment, security systems, movable partition walls, timeclock events, and LEDs and lamps (for status indication).

**Model Number**

QSE-IO  Control Interface
# QSE-IO Control Interface

## Specifications

<table>
<thead>
<tr>
<th>Model Number</th>
<th>QSE-IO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>12–24 V(\text{AC}) 100 mA</td>
</tr>
<tr>
<td>Typical Power Consumption</td>
<td>2.0 W; 3 Power Draw Units (PDUs); Test conditions: Normally open outputs closed and inputs shorted</td>
</tr>
<tr>
<td>Regulatory Approvals</td>
<td>UL, cUL, CE, C-tick</td>
</tr>
<tr>
<td>Environment</td>
<td>Indoor use only; 32 °F to 104 °F (0 °C to 40 °C); 0 to 90% humidity, non-condensing</td>
</tr>
<tr>
<td>Power Failure</td>
<td>Output relays are non-latching (if relays are closed and power is lost, relays will open).</td>
</tr>
<tr>
<td>Wiring</td>
<td>Control wire must be 1 pair 18 AWG (1.0 mm(^2)) IEC PELV/NEC(^{\text{®}}) Class 2 for power and 1 pair 22 AWG to 18 AWG (0.5 mm(^2) to 1.0 mm(^2)) IEC PELV/NEC(^{\text{®}}) Class 2 twisted/shielded for data (see Wiring)</td>
</tr>
<tr>
<td>Communications</td>
<td>IEC PELV/NEC(^{\text{®}}) Class 2 wiring connects the QSE-IO Interface to control units and other components.</td>
</tr>
<tr>
<td>Link Capacities</td>
<td>QSE-IO counts as one device toward link maximum of 100 devices.</td>
</tr>
<tr>
<td>ESD Protection</td>
<td>Meets or exceeds the IEC 61000-4-2 standard</td>
</tr>
<tr>
<td>Surge Protection</td>
<td>Meets or exceeds ANSI/IEEE standard c62.41.</td>
</tr>
<tr>
<td>Mounting</td>
<td>Surface mount on wall, mount on rack (LUT-19AV-1U), or mount in LV14, LV21, PNL8, or LUT-5x10-ENC enclosures</td>
</tr>
<tr>
<td>Dimensions</td>
<td>4.26 in (108.2 mm) x 5.26 in (133.6 mm) x 1.06 in (26.9 mm)</td>
</tr>
<tr>
<td>Status LEDs</td>
<td>Five status LEDs turn on when corresponding output is active (on).</td>
</tr>
<tr>
<td>DIP Switches</td>
<td>Dip switches do not operate when QSE-IO is part of a HomeWorks(^{\text{®}}) QS system.</td>
</tr>
</tbody>
</table>
QSE-IO Control Interface

Dimensions

Dimensions shown as: mm (in)

Front View

Side View

Mounting Hole Detail

#6 or #8 (M3 or M4) screw recommended
QSE-IO Control Interface

Mounting Options

Mount where terminal blocks, switches, and LEDs are accessible, using #6 or #8 (M3 or M4) screws (not included). Strip 10 mm (3/8 in) of insulation from wires. Each data link terminal will accept up to two 1.0 mm² (18 AWG) wires. Connect wiring as shown in the Wiring section.

Note: Contact closure output relays click audibly when switching. Mount where this is acceptable.

Choose from the following mounting methods:

1: Panel Mounting

Mount the control interface in a LV14, LV21, or PNL8 enclosure. The LV14 enclosure can hold only one control interface. The LV21 and PNL8 enclosures can hold up to two interfaces.

2: Enclosure Mounting

If conduit is desired for wiring, use the LUT-5x10-ENC to mount one control interface.

3: Rack Mounting

Place the unit in the LUT-19AV-1U AV rack which will hold up to four control interfaces.

4: Direct Wall Mounting

Mount the control interface directly on a wall. When mounting, provide sufficient space for connecting cables.
QSE-IO Control Interface

Wiring

QS Link Wiring

- Wire the QSE-IO Interface to the IEC PELV/NEC® Class 2 QS link using the MUX terminal.
- Each terminal accepts up to two 1.0 mm² (18 AWG) wires.
- Wiring may be daisy-chain, star, or T-tap configuration.
- Total length of wire on a QS link must not exceed 610 m (2000 ft)

Note: Use Lutron® Cable GRX-CBL-46L

Data Link:
(1) shielded, twisted pair
1.0 mm² (18 AWG)

IEC PELV/NEC® Class 2 power wiring:
(2) 1.0 mm² (18 AWG) pigtails, 152 mm (6 in) maximum length

Note: Do not connect drain/shield to ground (earth) or wallstation/control interfaces.
Connect the bare drain wires and cut off the outside shield.

(2) 2.5 mm² (12 AWG)

Note: 2.5 mm² (12 AWG) conductors for Common (terminal 1) and
24 V== power (terminal 2) will not fit in terminals;
use 1.0 mm² (18 AWG) pigtails (< 152 mm/6 in)

CCO and CCI Wiring

Five Input Terminals

- Accept maintained inputs and momentary inputs with 40 ms minimum pulse times.
- Off-state leakage current must be less than 100 µA.
- Open circuit voltage: 24 V== 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== 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.

Five Output Terminals

- Provide selectable maintained or momentary (0.25 second) outputs (IEC PELV/NEC® Class 2).
- Outputs can control other manufacturers’ equipment.
QSE-IO Control Interface

Wiring (continued)

Control of Unclamped, Inductive Loads
The QSE-IO control interface is not rated to control unclamped, inductive loads (e.g., relays, solenoids, motors). To control these types of equipment, a flyback diode must be used (DC voltages only).

<table>
<thead>
<tr>
<th>Supply Voltage</th>
<th>Resistive Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–24 VDC</td>
<td>1.0 A</td>
</tr>
<tr>
<td>0–24 VAC</td>
<td>0.5 A</td>
</tr>
</tbody>
</table>

Operation

Note: LED turns ON when CCO NO (normally open contact) is closed.