

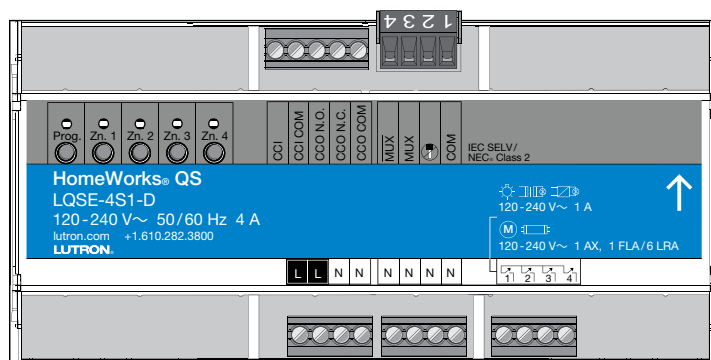
Switching Power Module

The Switching Power Module family is a group of modular products for the control of lighting loads. This product is compatible with Lutron® HomeWorks® QS systems only. This document describes the following product:

- LQSE-4S1-D: 4-zone power module for switching only.

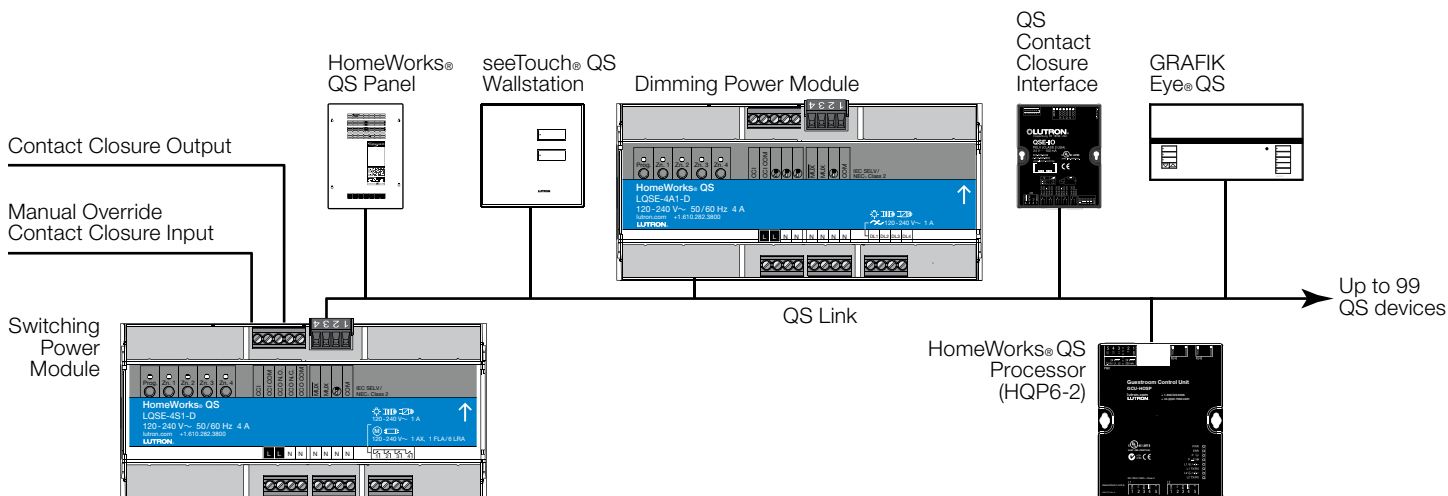
Features

- Adaptive zero-cross switching maximizes relay life. Activity adapts to variations in relay timing.
- Rated for lighting loads as defined by IEC/EN 60669, NEMA 410, as well as INC, MLV, and ELV.
- Includes QS link for seamless connection to a HomeWorks® QS system.
- LEDs on the module provide diagnostic information.
- Buttons on module provide load override control.
- Manual Override Contact Closure Input (CCI).
- Contact Closure Output (CCO).
- Power failure memory.



LQSE-4S1-D (shown)

System Example



Job Name:	Model Numbers:
Job Number:	

Specifications

Regulatory Approvals

- IEC/EN 60669
- UL® Listed
- cUL Listed
- NOM Certified
- Lutron® Quality Systems registered to ISO 9001.2008

Power

- 120–240 V~ 50/60 Hz
- Single input feed
- 4 A maximum input current
- Lightning strike protection meets ANSI/IEEE standard C62.41 and IEC 61000-4-5. Can withstand voltage surges up to 6 000 V~ and current surges up to 3 000 A.
- ESD-protection exceeds agency requirements per IEC-61000-4-2
- For ungrounded delta feed applications, contact Lutron.

Environment

- For thermal specifications, see **Mounting** section
- Relative humidity: less than 90% non-condensing
- For indoor use only

Terminals

- Mains wiring: 1.0 mm² to 2.5 mm² (18 AWG to 12 AWG) (single wire, solid or stranded)
- CCI/CCO wiring: 0.5 mm² to 2.5 mm² (22 AWG to 12 AWG) (single wire, solid or stranded)
- Zone wiring: 1.0 mm² to 2.5 mm² (18 AWG to 12 AWG) (single wire, solid or stranded)
- QS Link: 0.5 mm² to 2.5 mm² (22 AWG to 12 AWG) (single wire, solid or stranded)

Manual Mode Operation

- Zone button on the unit can be used to turn loads on and off.

Manual Override Contact Closure Input (CCI)

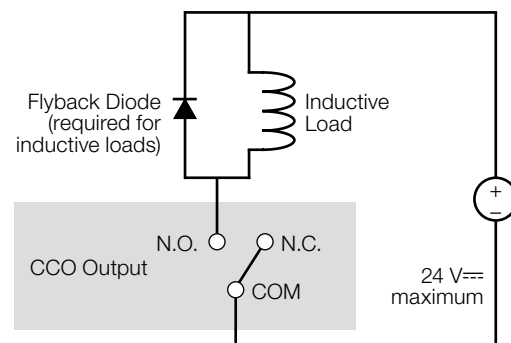
- When the CCI is open, the Switching Power Module will enter Manual Override Mode, which will turn on all loads to their override level and disable control of all local zones and QS devices.
- When the CCI is closed or jumpered (factory default), the Switching Power Module zones will return to the settings or levels they were at prior to entering Manual Override Mode.

Contact Closure Output (CCO)

- Accepts voltages of 0–24 V~/0–24 V==; see chart below for load switching capacities:

Switching Voltage	Resistive Load I_R
0–24 V==	1.0 A
0–24 V~	0.5 A

- Provides both normally open (N.O.) and normally closed (N.C.) dry contacts.
- Maintained or momentary output type.
- Output relay is non-latching (if relay is closed and power is lost, relay will open).
- The CCO 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 (not included) must be used (DC voltages only). See diagram below.



Job Name:

Model Numbers:

Job Number:

Specifications - (continued)

Programming and Compatibility Requirements

- LQSE-4S1-D can be used with only the HomeWorks® QS system.
- Setup and programming of the Switching Module is done through the HomeWorks® QS programming software.
- HomeWorks® QS software version 9.0 or higher required.

HomeWorks® QS Wallstations

- HomeWorks® QS wallstations can be configured to control Switching Modules with the HomeWorks® QS programming software.
- Wallstation LED indicators display the status of programmed lights.

QS Link Limits

- A QS link in a HomeWorks® QS system can have up to 512 zones (outputs) and 100 devices (required HomeWorks® QS processor counts as 1 device on the QS link).
- Each Switching Module counts as one device toward the 100 device limit, and up to 4 zones toward the 512 zone limit.

Output Zone Ratings

- Each zone is rated at 1 A for switching. Rated for resistive, inductive, or capacitive lighting loads as defined by IEC/EN 60669, NEMA 410.
- Air gap off per output
- No minimum load per output
- Output should not be used to control general purpose receptacles.
- Run a separate neutral for each load circuit. A common neutral connection is not recommended.
- Unit may be powered by Ground Fault Interrupter (GFI) or Residual Current Circuit Breaker with Overload (RCBO) protected circuit if required.
- For applications requiring higher wattage ratings, use GRX-TVI or LQSE-4S10-D for 230 V~; PHPM-SW-DV-B or GRX-TVI for 120 V~.

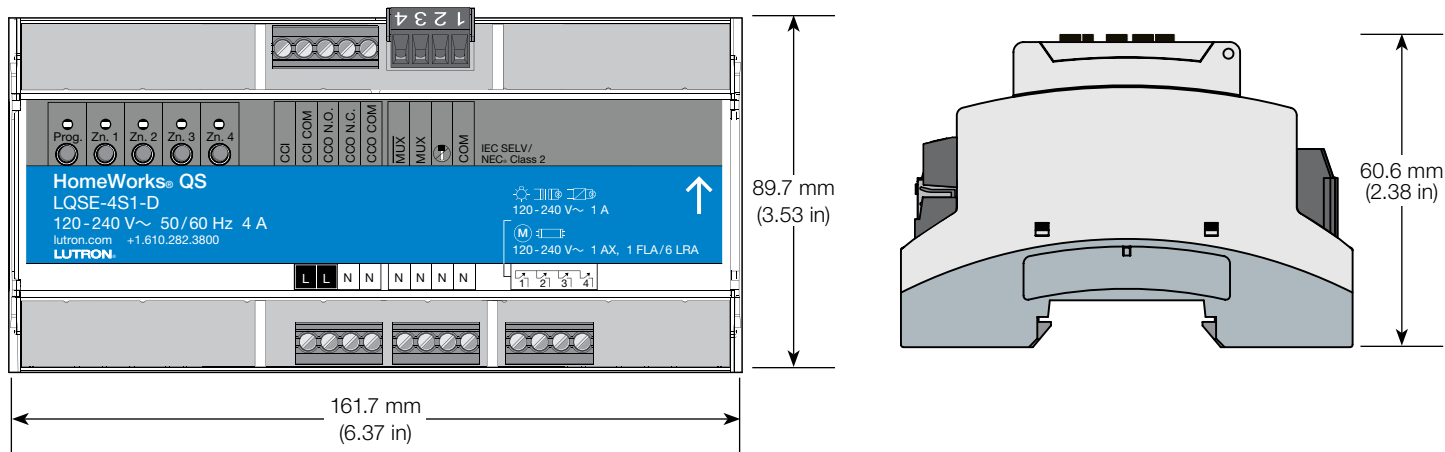
Load Type	Relay Ratings
	120–240 V~
Tungsten ¹	1 A
AC General Use	1 A
Electric Discharge Lamp	1 A
Electric Ballast (NEMA 410)	1 A
Resistive	1 A
Inductive	1 A
Motor ²	1 A

¹ When using tungsten loads, lamps should be from a reputable manufacturer and be fused. Lutron recommends using an IEC 60127-2 compliant 2 A external fuse for each output that is using tungsten loads. Please see Application Note 048566 for additional information.

² Two motors max per module.

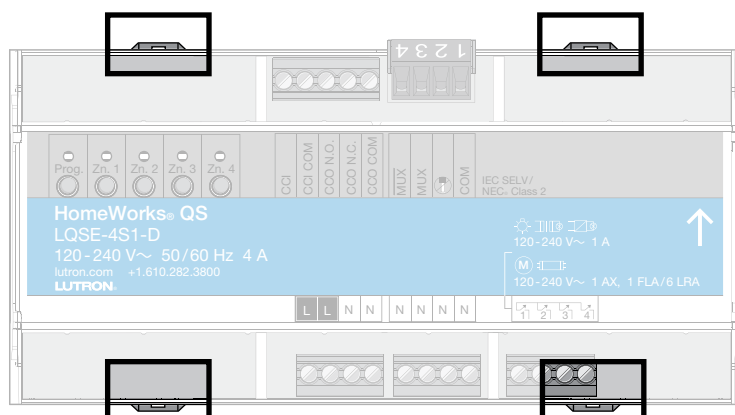
Job Name:	Model Numbers:
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Mechanical Dimensions

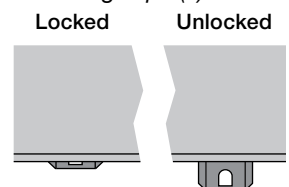


Mounting

- Mount in IP20 (minimum) rated consumer panel or breaker panel with integrated DIN rail.
- For United States and Canada, use NEMA Type 1 minimum rated enclosure.
- Unit is 9 DIN modules (161.7 mm [6.37 in]) wide.
- Mount in an accessible and serviceable location.
- Unit may be mounted by pressing the unit onto the DIN rail with the clips locked. To remove the unit from the DIN rail, unlock the clips using a screwdriver.
- See Lutron® P/N 048466 at www.lutron.com for more information on mounting and installation in panels with integrated DIN rail.
- Mount the Power Module where audible noise is acceptable (internal relays click).
- Unit generates heat, maximum 24 BTUs/hr.
- Mount unit such that all the conditions below are met:
 - Room ambient temperature is between 0 °C and 40 °C (32 °F and 104 °F).
 - Temperature inside mounting panel, within 20 mm (0.80 in) of unit, is between 0 °C and 40 °C (32 °F and 104 °F).
 - Calibration point maximum: 65 °C (149 °F).



Mounting clips (4) on unit



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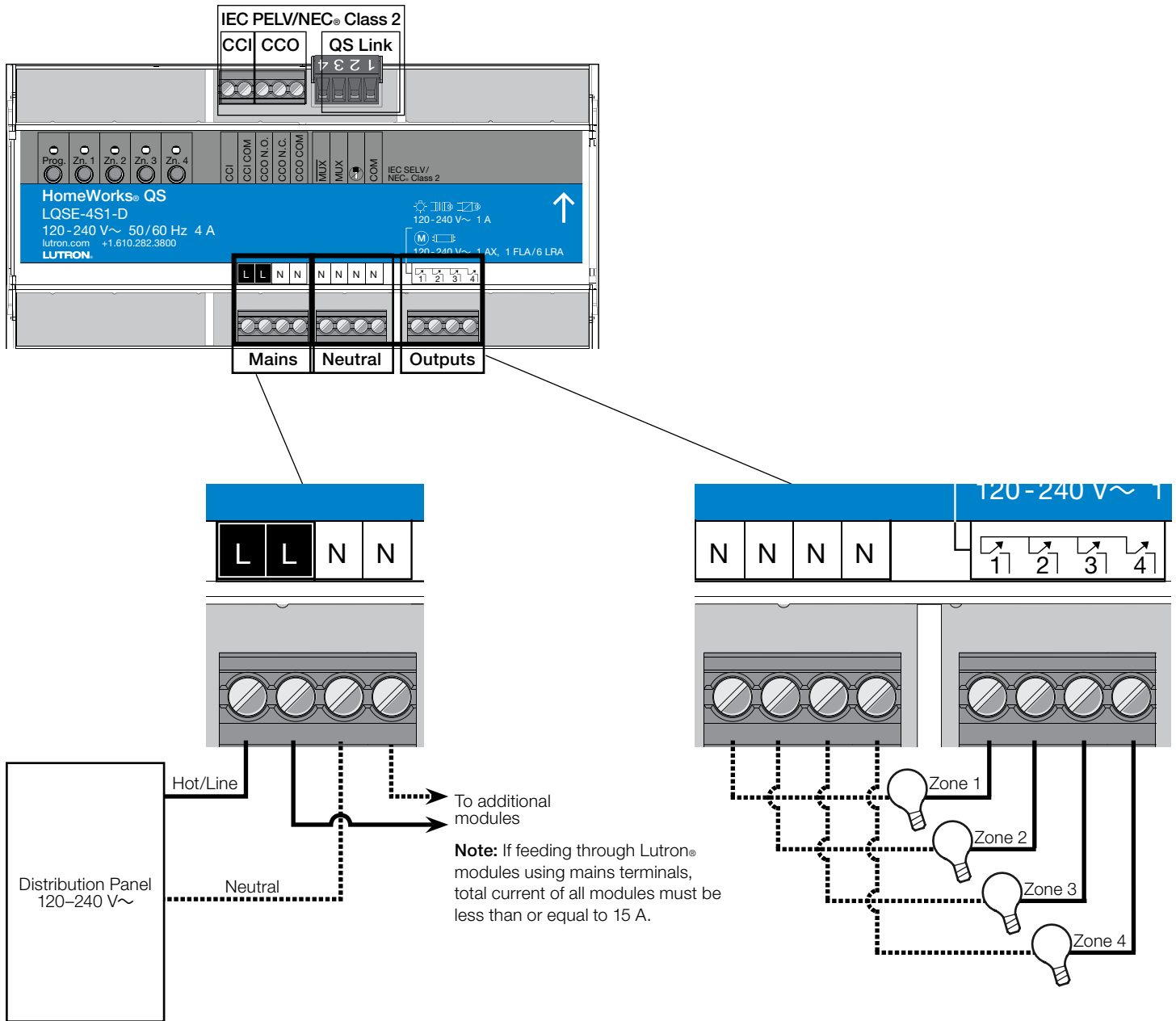
Wiring: Mains and Output Zones

Wiring from Distribution to Switching Power Module

- Turn off all circuit breakers or isolators feeding the Switching Power Module at the distribution panel.
- Run line/hot and neutral wires from a 120–240 V~ 50/60 Hz feed to the Switching Power Module unit.
- Run a separate neutral for each load circuit. A common neutral connection is not recommended.

Mains Wiring and IEC PELV/NEC® Class 2 Separation

- Follow appropriate local and national codes to avoid violating required separation guidelines.



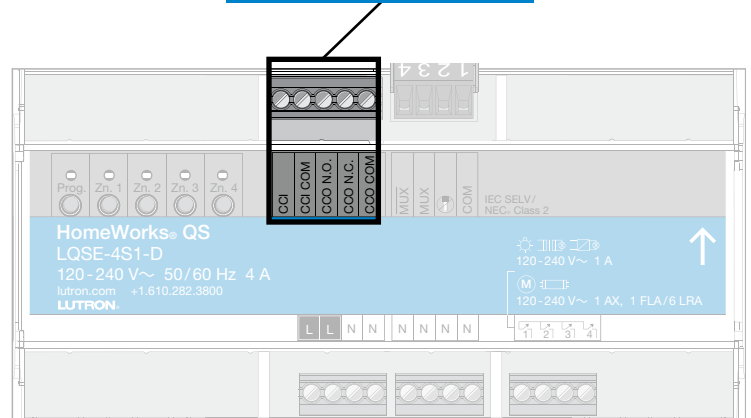
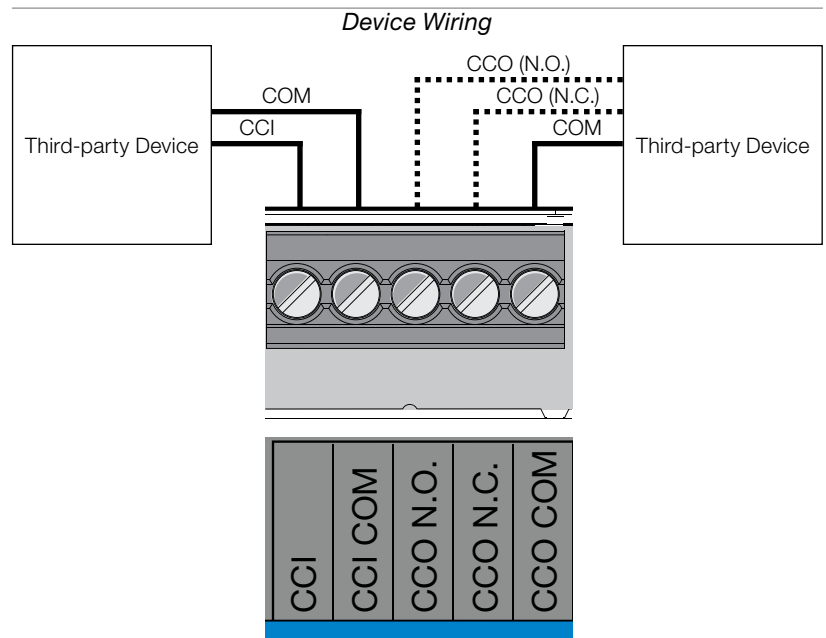
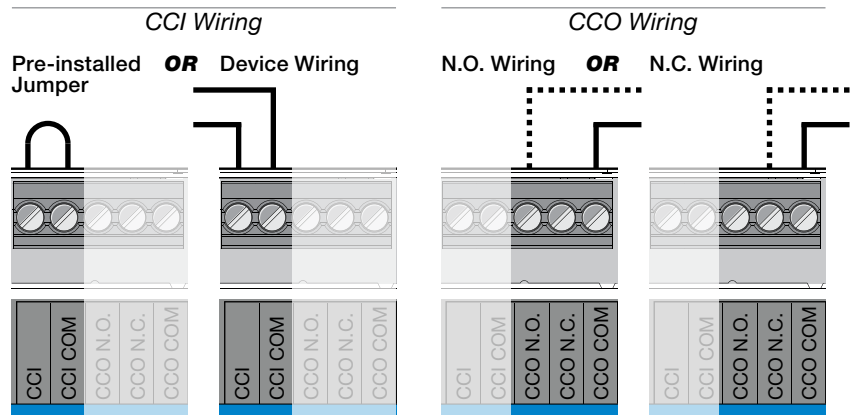
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Wiring: Manual Override Contact Closure Input and Contact Closure Output

IEC PELV/NEC® Class 2 Contact Closures

- Manual Override Contact Closure Input (CCI)/Contact Closure Output (CCO) wiring is IEC PELV/NEC® Class 2. Follow all applicable national and local codes for proper circuit separation and protection.
- Turn off all breakers or isolators feeding the Switching Power Module at distribution panel before servicing unit.
- CCI is local control only and cannot control other units over the QS link. CCI on multiple units may be connected to an emergency or manual override device in parallel if event is intended to affect multiple units.
- When in Manual Override Mode:
 - All zone outputs will be at their programmed light level (default is 100%).
 - Controls will not affect units in Manual Override Mode.
 - Controls connected to a unit in Manual Override Mode will continue to affect units on the link that are not in Manual Override Mode.
- Manual override contact closure input is normally closed (N.C.). The Switching Power Module is shipped with a jumper pre-installed.

Note: The Switching Power Module will default to Manual Override Mode if the CCI is left open. If no Manual Override contact input is required, please leave the wire jumper in the CCI terminals.

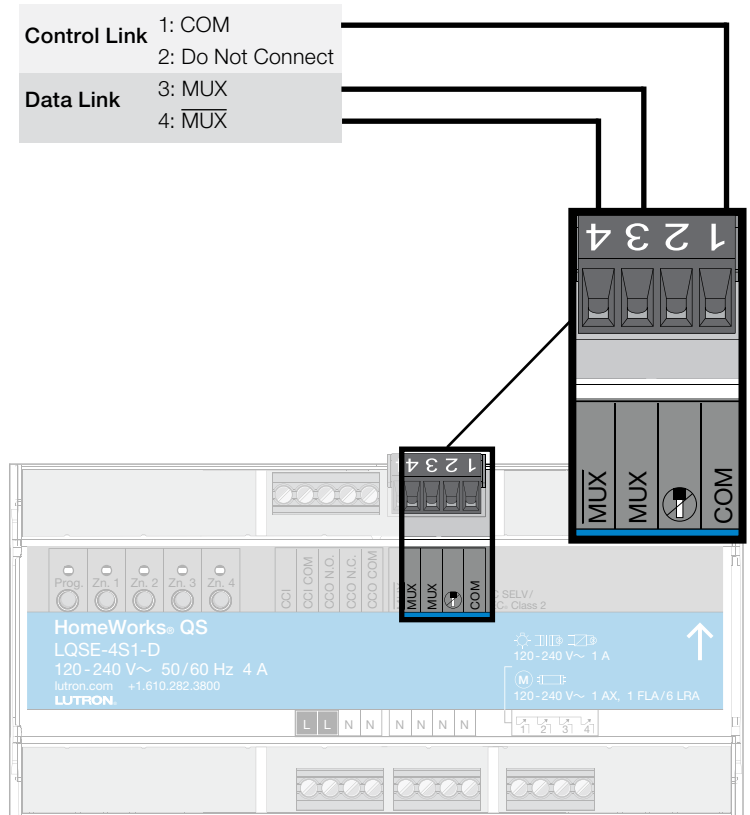


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Wiring: QS Link

QS Link IEC PELV/NEC® Class 2 Wiring

- Link communicates using IEC PELV/NEC® Class 2 wiring.
- Turn off all breakers or isolators feeding the Switching Power Module at distribution panel before servicing unit.
- Follow all applicable national and local codes for proper circuit separation and protection.
- Wiring may be daisy chained or t-tapped.
- Total length of QS link wiring must not exceed 610 m (2 000 ft).
- Wire Gauge:
 - Control (terminals 1 and 2): 1 pair 1.0 mm² (18 AWG).
 - Data (terminals 3 and 4): 1 pair 0.5 mm² to 1.0 mm², (22 AWG to 18 AWG) twisted and shielded.
 - Can use Lutron® cable GRX-CBL-346S-500.
- See “HomeWorks® QS Wiring Guidelines” application note on www.myLutron.com or resi.Lutron.com



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