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# Power Draw Units (PDUs) on the QS Link

Lutron has created an easy-to-use method for standardizing power requirements when designing QS systems known as the Power Draw Unit or PDU. The PDU is a pre-calculated value assigned to every QS device, exhibiting the power prerequisites of each power group, and allows for quick layouts of complicated systems to be determined without the need for lengthy calculations.

## PDU

Power Draw Unit: a value assigned to each QS device specifying power that is either supplied or consumed. A device with a positive (+) PDU value supplies power on the QS Link while a device with a negative (–) PDU value consumes power. Devices with a zero PDU value neither supply nor consume power on the link.

## Power Group

A collection of wired devices, where one device supplies power and the other devices consume power. The power supplied must sufficiently power all connected devices that consume power to ensure proper function.

- When the PDU values are added together, the count must be zero (0) or greater
- One power-supplying device per power group

## Connections

- Power groups are connected by the power wires (V+ and COM). The data wires (MUX and $\overline{\text{MUX}}$) are not required for the device to be included in a power group.
- Connect the data wires (MUX and $\overline{\text{MUX}}$) and COM between power groups (**NEVER** connect V+).

## QS Link Features

- Wiring can be T-tapped or daisy-chained
- QS Link has a limit of 100 total devices
- For QS device and system limits: see system or product specifications at www.lutron.com

## Wire Sizes (check compatibility in your area)

| QS Link Wiring Length | Wire Gauge | Lutron Cable Part Number |
|---|---|---|
| Less than 500 ft (153 m) | Power (terminals 1 and 2)<br>1 pair 18 AWG (1.0 $mm^2$) | GRX-CBL-346S (non-plenum)<br>GRX-PCBL-346S (plenum)<br>QS-CBL-LSZH (LSZH) |
| | Data (terminals 3 and 4)<br>1 twisted, shielded pair 22 AWG (0.5 $mm^2$) | |
| Up to 2000 ft (610 m) | Power (terminals 1 and 2)<br>1 pair 12 AWG (4.0 $mm^2$) | GRX-CBL-46L (non-plenum)<br>GRX-PCBL-46L (plenum) |
| | Data (terminals 3 and 4)<br>1 twisted, shielded pair 22 AWG (0.5 $mm^2$) | |

**Notes:**

- For more information regarding Lutron cable specifications, please see Lutron P/N 369596, 369597, and 3691078 at www.lutron.com
- For wire runs over 2000 ft (610 m), please contact Lutron Customer Assistance.

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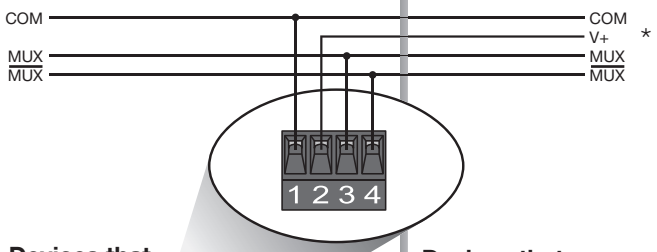
# PDU Calculation Example

## Between Power Groups

Only MUX, $\overline{\text{MUX}}$, and COM connect devices that supply PDUs

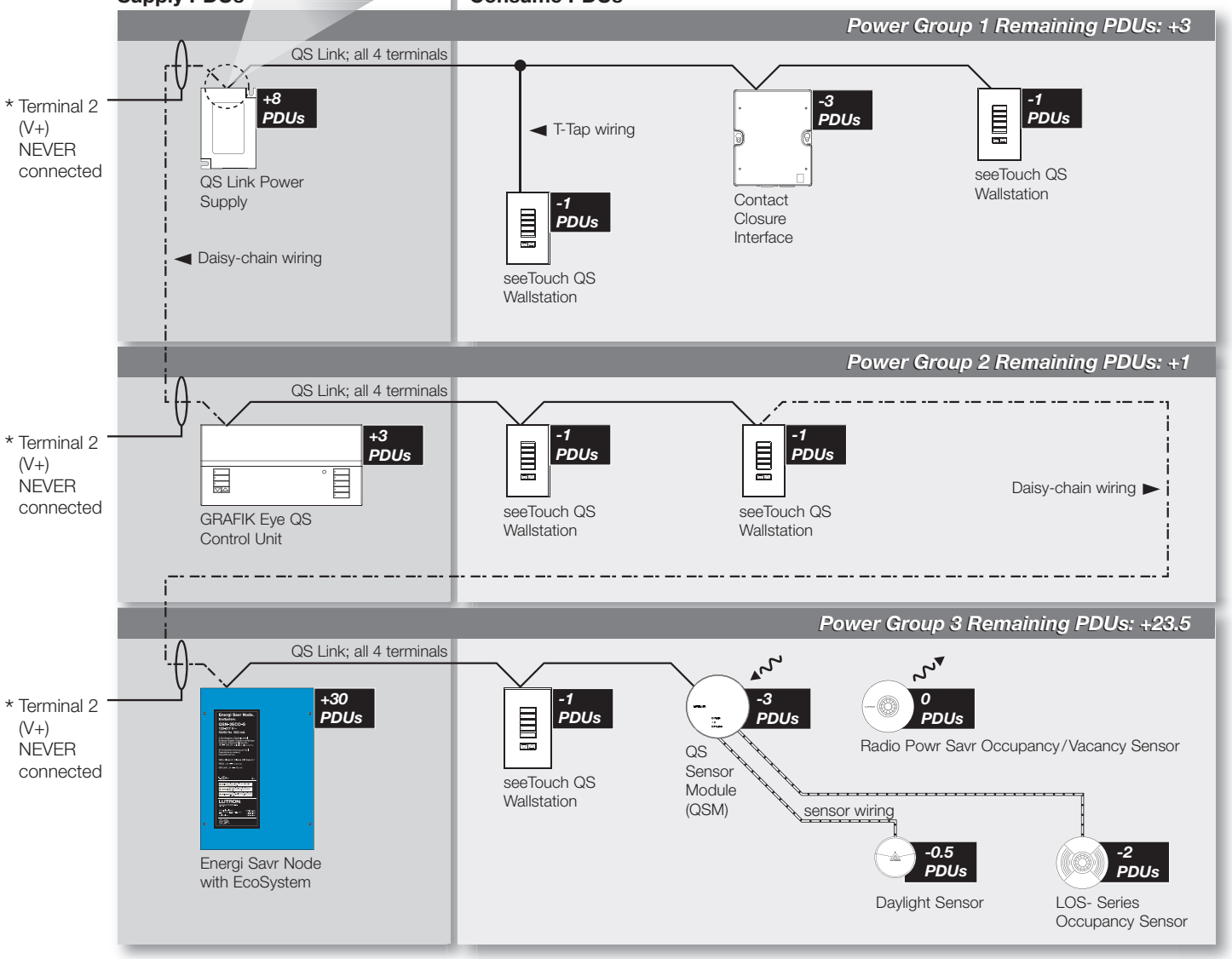
## Within Power Groups

V+ and COM connect devices that consume PDUs




### * QS Link Wiring Rules

Terminal 2 (V+) NEVER connected between devices that supply PDUs.



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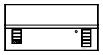
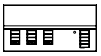
# QS Devices that Supply PDUs

| QS Device[1] | PDU Value |
|---|---|
|  QS Smart Panel[2]<br>QS Smart Enclosure[2] | +8 per Output |
|  myRoom QS Link Power Supply | +30 |
|  QS Link Power Supply | +75 |
|  QS Plug-in Power Supply | +8 |
|  QS J-box Power Supply | +8 |
|  **Generation 1 Energi Savr Node**<br>Energi Savr Node with EcoSystem<br>Energi Savr Node with DALI®<br>T-Series Energi Savr Node | +30 |
|  **Generation 1 Energi Savr Node**<br>Energi Savr Node for 0–10 V⎓<br>Energi Savr Node with Softswitch | +14 |
|  **Generation 2 Energi Savr Node**<br>Energi Savr Node with EcoSystem | +30 |
|  **Generation 2 Energi Savr Node**<br>Energi Savr Node for 0–10 V⎓<br>Energi Savr Node with Softswitch | +14 |
|  Energi Savr Node PRO LED+ Phase Adaptive | 0 (neither supplies nor consumes PDUs) |
|  Energi Savr Node DALI® Universal | 0 (neither supplies nor consumes PDUs) |
|  Energi Savr Node for 0-10 V⎓<br>Energi Savr Node for Softswitch | 0 (neither supplies nor consumes PDUs) |
|  Energi Savr Node for DALI® International<br>Energi Savr Node with EcoSystem International | +3 |
|  Energi Savr Node for 0–10 V⎓ International<br>Energi Savr Node for Switching International | +14 |
|  Energi Savr Node Phase Adaptive International | +4 |
|  Energi Savr Node PRO LED+ Phase Adaptive International | 0 (neither supplies nor consumes PDUs) |
|  GRAFIK Eye QS (all models except GRAFIK Eye QS DALI® with KNX®) | +3 |
|  GRAFIK Eye QS Timeclock (QSGR-TC-3S-WH) | +3 |
|  QP2 Quantum Lighting Hub | Link A : 0<br>Links B, C, D : +33 each |
|  QP3 Quantum Lighting Hub | Links A, B : +33 each |
|  QS Motor Group Controller International | 0 (neither supplies nor consumes PDUs) |
|  myRoom Switching Module<br>myRoom Phase Adaptive Module | +4 |

[1] Please contact your local Customer Service or Quotes department to find out more about the availability of these products in your region.
[2] For -NPM (No Power Modules), installation of WIN-PS-5CC-R is required. Refer to P/N 045550 on www.lutron.com for installation instructions.



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# QS Devices that Consume PDUs

| QS Device[1] | PDU Value |
|---|---|
|  QS Wallstation (seeTouch, Architrave and Signature Series) | -1 |
|  GRAFIK T QS Slider | -1 |
|  QS Keyswitch | -1 |
|  International seeTouch QS Wallstation | -1 |
|  QS Contact Closure Interface | -3 |
|  Wallbox Input Closure Interface | -1 |
|  QS Network Interface | -2 |
|  QS DMX Interface | -2 |
|  QS Sensor Module (QSM), not including attached wired sensors (see **Sensors and Control Devices that Consume PDUs** on the following page for more information) | -3 |
|  Energi Savr Node Programming Interface | -2 |
|  QS Infrared (IR) Eye | -1 |
|  Sivoia QS Shade/Drapery (wired and wireless) | Refer to Lutron Spec Submittal (P/N 085335) |
|  Pico Privacy Control | -1 |
|  Pico Corridor Control | -1 |
|  Palladiom Thermostat | -3 |
|  Palladiom Wallstations | -1 (per column) |
|  1 Link Control Unit/Processor (myRoom or HomeWorks QS) | -8 |
|  Alisse Wallstations | -1 (1, 2, or 3 column) |
|  Athena Edge, HomeWorks QSX, myRoom XC Wired Processors | -8 |
|  Legacy Panel Interface for Athena and Panel Link to QS Link Translator | 0 (if power terminals are connected to a 24 V transformer)<br>-5 (if power terminals are connected to a QS link power supply) |

[1] Please contact your local Customer Service or Quotes department to find out more about the availability of these products in your region.



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## Sensors and Control Devices that Consume PDUs

A QSM consumes 3 PDUs. The sensors and devices listed below may consume additional PDUs when connected to a QSM. Please refer to the table below for PDUs consumed by each device when connected to a QSM.

| Sensors and Control Devices[1] | PDU Values When Attached To: | |
|---|---|---|
| | QSM | Control Unit (GRAFIK Eye QS, Energi Savr Node, etc.) |
|  EcoSystem Wallstation | -1 | 0 |
|  Pico Wired Control | -0.5 | 0 |
|  LOS- Series Occupancy Sensor | -2 | 0 |
|  High Bay Occupancy Sensor | -2 | 0 |
|  Lutron Daylight Sensor | -0.5 | 0 |
|  Lutron Infrared (IR) Receiver | -0.5 | 0 |
|  Radio Powr Savr Occupancy/Vacancy Sensor | 0 | 0 |
|  Radio Powr Savr Wireless Daylight Sensor | 0 | 0 |
|  Pico Wireless Control | 0 | 0 |
|  Radio Window Sensor (window and mullion mount) | 0 | 0 |

**Note:** All wireless battery operated devices consume 0 PDUs.

[1] Please contact your local Customer Service or Quotes department to find out more about the availability of these products in your region.





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