lighting control solutions | switching systems

LUTRON®

Softswitch128™
standard switching panel

A full line of switching systems with patented Softswitch™ technology for projects of any size

Softswitch128™ switching system
Designed for projects with up to 512 relays.

GRAFIK 7000™ switching system
Ideal for large, networked projects and entire complexes with up to 16,384 zones (192,000 relays).

Lutron switching strategies for any application

- Turn lights on and off based on astronomical and time-of-day time clock schedules
- Switch electric lighting based on the availability of natural light
- Automatically control room lighting based on occupancy
- Manually override automatic control to meet occupant's needs
- Integrate with Building Management Systems (BMS)
- Make centralized building control simple through customizable PictureIT™ software
- Provide normal or emergency capability
- Meet or exceed demanding energy codes, including CEC Title 24 (California Energy Commission). Enhanced functions include after-hours mode with flash-warn and manual override

Visit www.lutron.com/switchingsystems for technical information on Lutron's switching solutions.

Lutron switching systems — designed and manufactured to provide exceptional value

Ease of use
Lutron switching panels are easy to program and operate. Wallstations are easily reprogrammed in the field.

Reliability
Lutron's patented Softswitch™ relay is rated to last a minimum of one million cycles for ultimate quality and durability, significantly reducing maintenance and service costs. See page 10 for more information on Lutron's patented Softswitch™ technology.

Lower installed cost
Switching panels can be purchased with or without circuit breakers to achieve the most economical installation. Low-voltage, daisy-chain wiring between panels and wallstations minimizes home-run wiring. Additionally, all panels are preassembled and pretested for easy shipment and timely delivery. Ask about our quick delivery capability.

Contractor friendly, rough-in solution
Panels can be ordered and delivered in two parts: the empty "tub" for rough-in and the prewired panel interior.

Outstanding service
Lutron representatives and project management teams are available to help design and specify the right switching system for your project and to commission the installation.

Photograph © Tim Rice.

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Switching system for stand-alone projects with up to 512 relays

Lutron's Softswitch128 switching system is ideal for the following switching applications:

- Office buildings/lobbies
- Tenant spaces
- Retail stores/supermarkets
- Parking garages
- Schools
- Building exteriors/landscape

Typical System

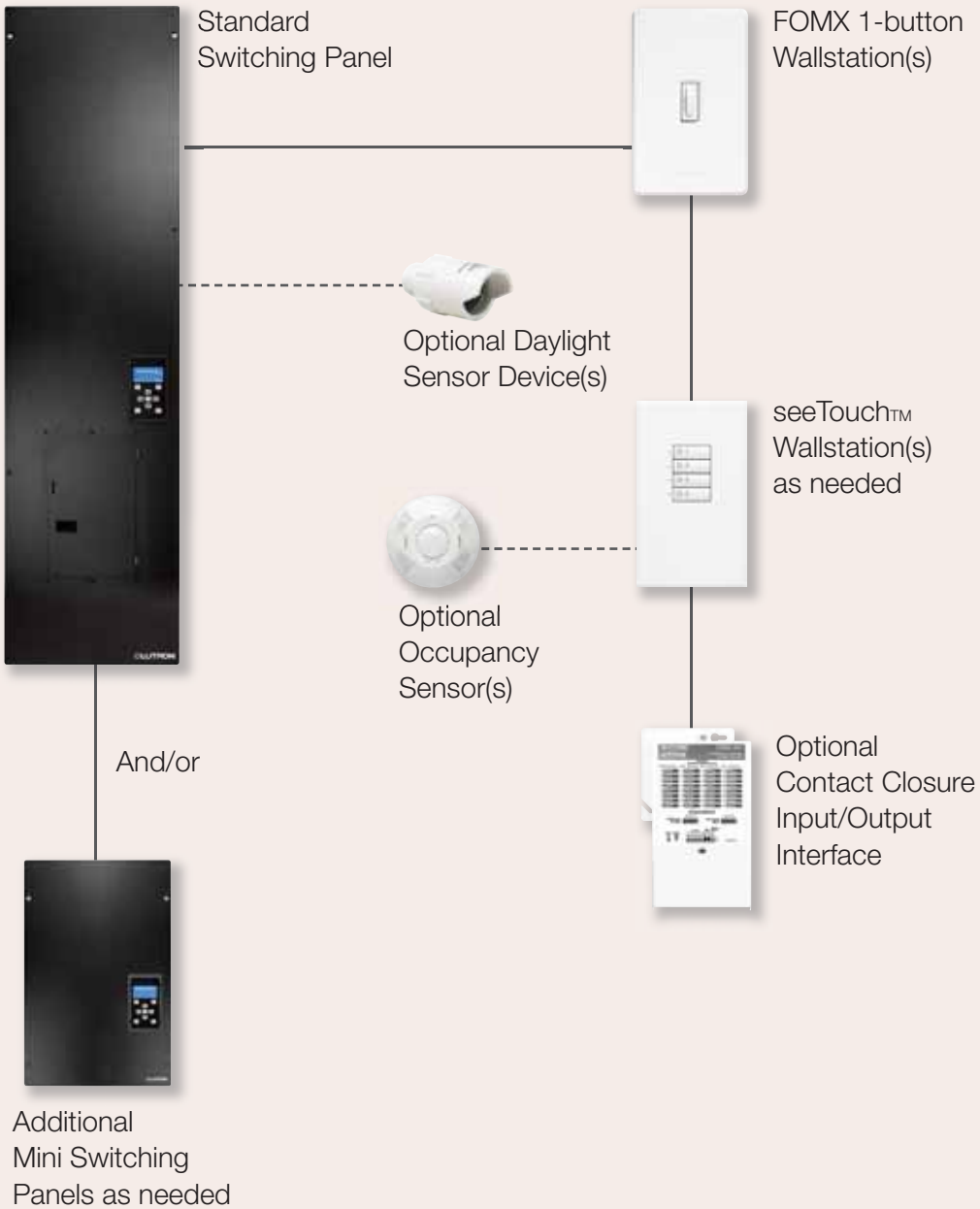
- Softswitch128 switching panel with built-in LCD controller and easy-to-use built-in astronomical time clock (Title 24/CEC compliant)
- Low-voltage wallstations programmed directly from in-panel LCD controller

Options

- Contact closure input/output devices to integrate with occupancy sensors, daylight sensors and window shades/projection screens
- RS232 interfaces for enhanced integration with other building systems
- Occupancy sensors
- Daylight sensors

Mini switching panel and FOMX 1-button wallstation

Softswitch128™ switching system map



Photograph © Ben Tanner.

System Maximums

- 512 relays/zones
- 16 panels
- 96 wallstations and interfaces (with expansion module)

Please visit www.lutron.com/switchingsystems for detailed specifications.

Photograph © MH Concepts.
Architect: Thompson, Ventulett, Stainback and Associates.

Switching system for large, networked projects

Lutron's GRAFIK 7000 switching system provides switching solutions for large, networked spaces with up to 16,384 zones. Typical applications include:

- Stadiums
- Arenas
- Convention centers
- Business complexes

Typical System

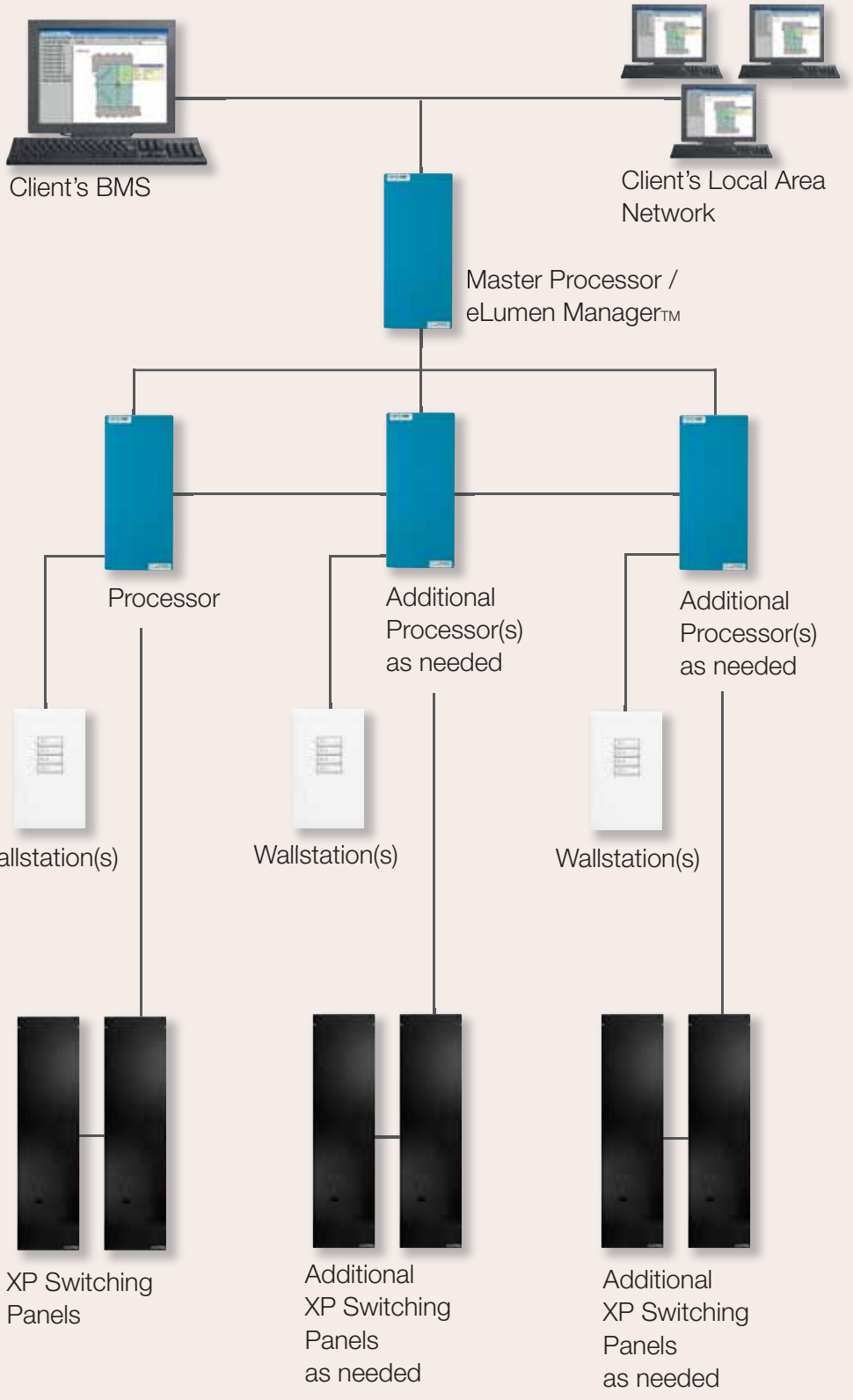
- XP switching panels with Softswitch™ technology
- Network-based eLumen Manager™
- DesignIT™ software for lighting modeling and control strategies
- ControlIT™ software for web-based real-time operation of the system
- PictureIT™ software for floor-plan-based graphical navigation and control
- Lighting control processor(s) for centralized control of the system
- Low-voltage wallstations programmed via PC-based software

Options

- Contact closure input/output devices to integrate with occupancy sensors, daylight sensors and window shades/ projection screens
- BACnet or RS232 interfaces for enhanced integration with other building systems
- DMX512 integration

Standard XP switching panel and customized graphical control screen

GRAFIK 7000™ switching system map



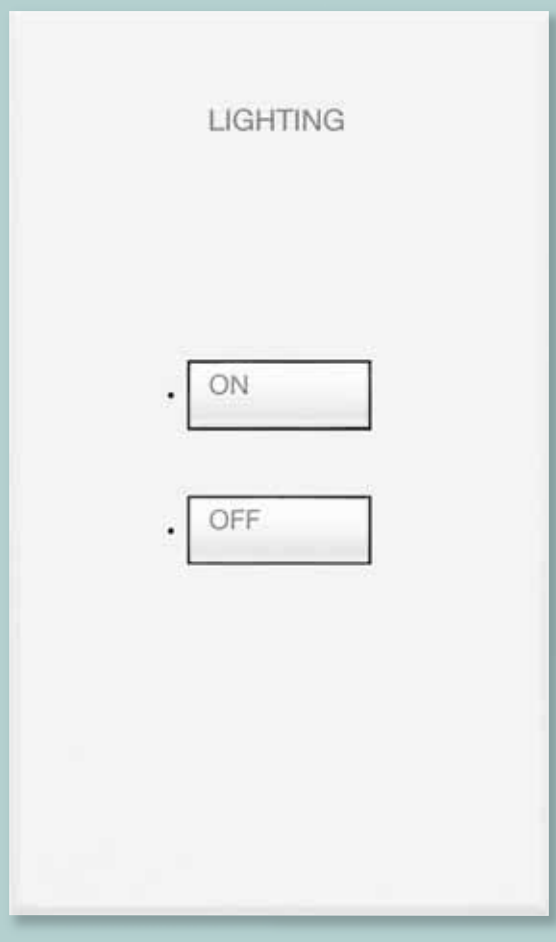
Photograph © Timothy Hursley.

System Maximums

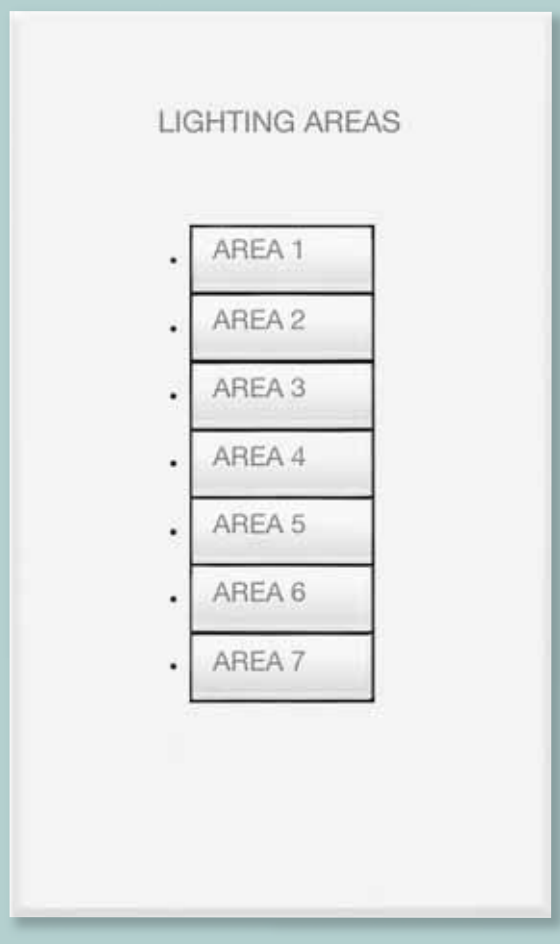
- 16,384 zones
- 32 processors
- 192,000 relays
- 4,000 switching panels
- 6,144 wallstations and interfaces

Please visit www.lutron.com/switchingsystems for detailed specifications.

seeTouch™ wallstations



seeTouch 2-button wallstation.
Shown actual size in white.
(Model SO-2BN-WH)

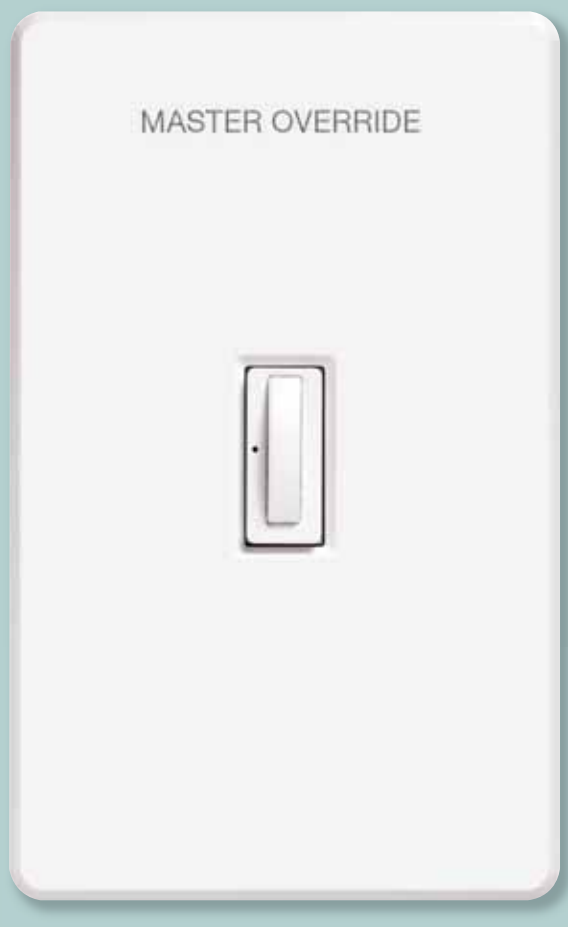


seeTouch 7-button wallstation.
Shown actual size in white.
(Model SO-7BN-WH)

seeTouch wallstations make it easy to turn lights on and off in one or more areas.

- Available with 1 button to 7 buttons
- Large, rounded buttons are easy to use
- Optional engraving that is angled up to the eye for easy reading
- On-button engraving and backlit buttons for improved clarity of control functions in low-light conditions
- Standard with contact closure inputs
- User-changeable button and faceplate assemblies make customization easy
- Standard green LED status lights
- Available in six standard matte, two gloss, seventeen Satin Colors™ matte and eleven metal finishes. Available in standard and custom engraving options.

FOMX 1-button wallstation



Shown actual size in white with Fassada™ wallplate. (Model FOMX-1B-SL-WH)

Keyswitch wallstation

Shown actual size in white. (Model NTOMX-KS-WH)

FOMX 1-button wallstation offers classic styling and a cost-effective solution for switching projects.

- Toggle control of any group of relays in a switching system
- Classic styling fits behind any standard wallplate or Lutron's Fassada™ wallplate
- Available with or without green LED status light
- Available in white. Available in custom engraving options.

Keyswitch wallstation offers secure control of lighting in areas requiring restricted access.

- Turns clockwise and counterclockwise for two programmable switch closures
- Available in six matte and eleven metal finishes. Available in custom engraving options.

Please visit www.lutron.com/switchingsystems for detailed specifications.

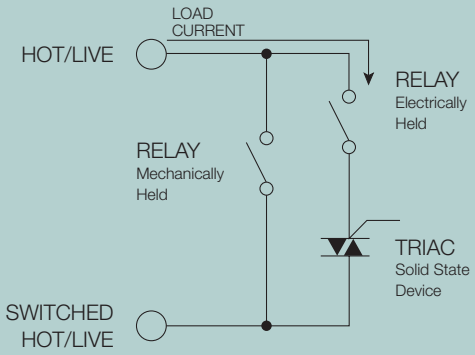
Patented Arcless Softswitch™ circuit

Arcing: the cause of relay failure
Each time a relay closes, the contacts "bounce" several times. Under load, the current flowing through the relay creates an arc. This arcing erodes the contacts leading to premature relay failure.

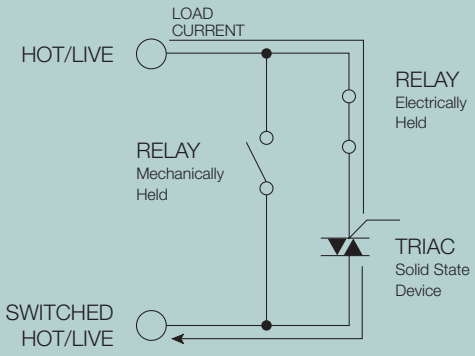
The Lutron solution
Lutron's exclusive Softswitch circuitry opens and closes the relay contacts without arcing. Even when fully loaded, the arc elimination extends a relay's average rated life to more than 1,000,000 on/off cycles.

The diagram to the right shows the Softswitch turn-on sequence which guards against arcing. The reverse operation is used at turn-off.

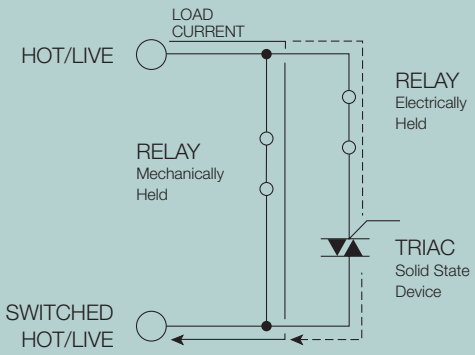
The Lutron Softswitch technology is not a solid state switch. When off, the load is completely disconnected by a mechanical air-gap. When on, the relays create a closed circuit without triac power loss.



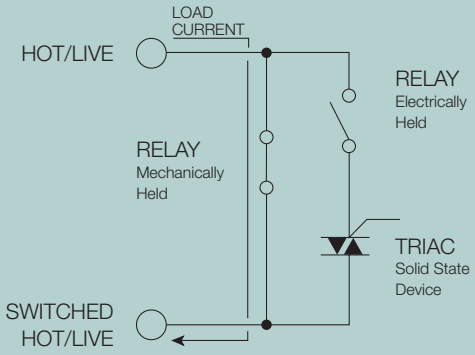
Air-gap Off
Both relays are open providing a true air-gap off, with no leakage current to the load.



Lights Turning On
The series relay is closed first. While these contacts bounce, there is no arcing because the series triac blocks current flow. After the relay contacts stop bouncing, the triac turns on, providing power to the load.



Eliminate Triac Power Loss
While the load current flows through the triac, power loss is dissipated as heat. The parallel relay is closed to bypass the triac. As the parallel relay contacts bounce, the triac and series relay offer an alternative current path that prevents arcing.



Lights On – Full Conduction
After the parallel relays are fully closed, the series relay opens. Any dissipation loss in the triac is eliminated. Full conduction is delivered to the load and the relays have not been damaged in the transition.

Please visit www.lutron.com for a complete technical white paper on Softswitch technology.

	Softswitch 128™	GRAFIK 7000™ Switching
Processor type	Softswitch controller	GRAFIK 7000P
Maximum number of relays per system	512	192,000*
Maximum number of zones per processor	512	16,384*
Number of relays per panel (with breakers)	8-42	4-42
Number of relays per panel (feed through)	8-48	4-48
Maximum number of wallstations and interfaces	96 (with expansion module)	6,144*
Maximum number of switching panels	16	4000*
Astronomical time clock	Yes	Yes
Maximum number of time clock events	500	10,000*
Partitioning and sequencing	-	Standard
Conditional logic	-	Standard
Computer required for set up and changes	-	Yes
DesignIT™ software	-	Optional
ControlIT™ software	-	Optional
PictureIT™ software	-	Optional
BMS integration	BACnet, Lonworks, RS232, or CCI/CCO†	BACnet, Lonworks, RS232, or CCI/CCO†
Telephone interface	Optional	Optional
Standard warranty	1 year (w/o commissioning)††	2 years††
Field commissioning	Optional	Varies by system size

* Increased zone, circuit, control station and switching panel capabilities are available by linking multiple GRAFIK 7000P processors.

† CCI/CCO - Contact closure input/contact closure output.

†† 8 year limited warranty and additional service programs available.

LUTRON

Lutron controls your light.™

www.lutron.com

Lutron Electronics Co., Inc.
7200 Suter Road
Coopersburg, PA 18036-1299

World Headquarters 1.610.282.3800

Barcelona | Beijing | Berlin | Guangzhou | Hong Kong | London | Madrid | Mexico City | Milan | Paris | Rome | Sao Paulo | Shanghai | Singapore | Tokyo

Technical Support Center 1.800.523.9466
Customer Service 1.888.LUTRON1

P/N 367-735