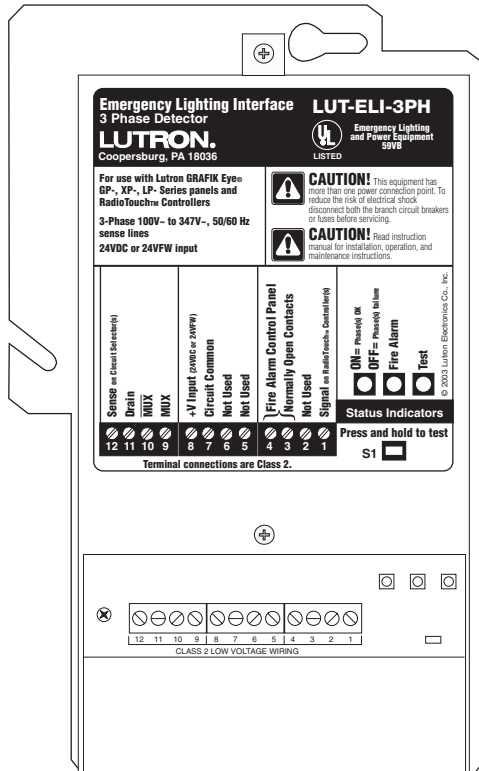


Emergency Lighting Interface LUT-ELI-3PH and LUT-ELI-1PH

For use with Lutron GRAFIK Eye® GP, XP, LP panels and RadioTouch™ lighting controls

Installation and Operating Instructions



Caution: This device does not provide emergency power. An emergency (Essential) power source must be provided.

Listing

The Emergency Lighting Interface – LUT-ELI is **UL924 Listed** as “Emergency Lighting and Power Equipment.” The interface shall be used with Lutron *GRAFIK Eye* GP, LP dimming panels, XP switching panels, and *RadioTouch* Controllers only.

Description

The LUT-ELI senses the line voltage on all three phases (3PH) or a single phase (1PH) and controls the emergency signal to the *RadioTouch* Controller or Circuit Selector for GP, XP, and LP panels. When one or more phases of power are lost, the LUT-ELI sends a signal to the *RadioTouch* Controller or Circuit Selector activating the emergency lighting mode. Any lights controlled by these devices will go to the emergency light level setting (factory set to 100% intensity). When normal power is restored, the lights will return to their previous intensities.

System Ratings

Voltage – 100 VAC–347 VAC 50/60 Hz, 1 and 3 phase versions
Current – 20 Amp maximum circuit breaker

Features

- Can be added to an existing system.
- Status indicator, indicates the phase status. Indicator ‘ON’ is normal mode, ‘OFF’ is emergency mode.
- A test switch is provided to perform a functional test of the system by simulating an emergency situation.
- The interface has inputs for a Fire Alarm Control Panel (FACP). A maintained dry contact closure received between the FACP inputs will actuate the emergency mode.

Note:

One LUT-ELI can be used with up to 32 Circuit Selectors or 100 *RadioTouch* Controllers.

Important Safeguards

- Read and follow all safety instructions.
- Do not use outdoors.
- Do not let power supply cords touch hot surfaces.
- Do not mount near gas or electric heaters.
- Equipment should be mounted in locations and at heights where it will not readily be subjected to tampering by unauthorized personnel.
- The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition.
- Do not use this equipment for other than intended use.
- All servicing should be performed by qualified service personnel.

Save these instructions.

Important Notes

1. Observe all national and local electrical codes and safety standards.
2. Follow these instructions.
3. Turn off power before installation.



Danger – Locate and lock the supply breaker(s) in the OFF position, or remove the supply fuse(s) before continuing. This equipment may have more than one power connection point.



Important – Line voltage input to the LUT-ELI MUST be from the NORMAL (Non Essential) power source.

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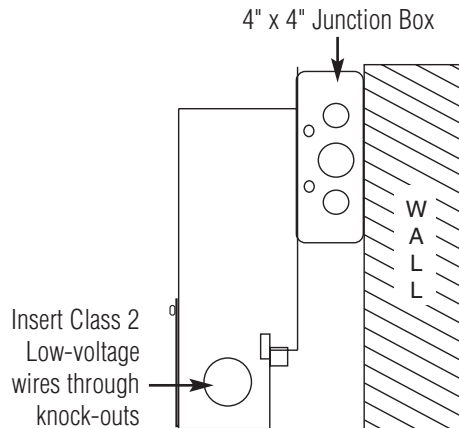
Hardware Installation

LUT-ELI and *RadioTouch* Line Voltage Connections

Mounting the Interface

Mount the LUT-ELI onto a 4" x 4" junction box (not included, but available – Lutron part number 241-496).

Insert the Class 2 wires – through knock-outs as shown in the diagram. Remove front enclosure cover to expose the terminal blocks, test switch, and the status LEDs.



Connect the Class 2 wires to the Circuit Selector or *RadioTouch* Controller. Wiring to these devices will be described in the following steps.



Caution – Be sure all the power wires are completely inside the junction box before tightening the mounting screws.

Note: For emergency fixtures (fixtures that never turn off or have a battery back-up ballast in the fixture), call the Lutron Technical Support Center, (800) 523-9466 for restrictions and wiring requirements.

Installation of LUT-ELI with Line Voltage Connections in a *RadioTouch* System

Step 1: Wiring from Mains

Turn power off

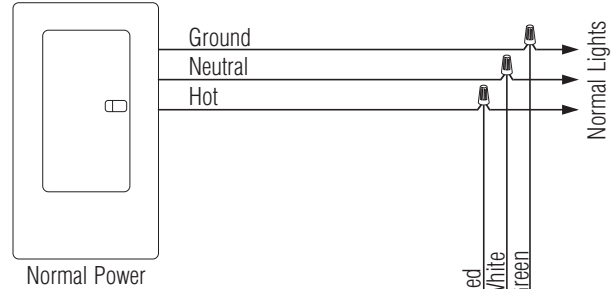


Danger – Locate and lock the supply breaker(s) in the OFF position, or remove the supply fuse(s) before continuing. This equipment may have more than one power connection point.



Important – Line voltage input to the LUT-ELI MUST be from the NORMAL power source. The LUT-ELI accepts 100 VAC-347 VAC 50/60 Hz input.

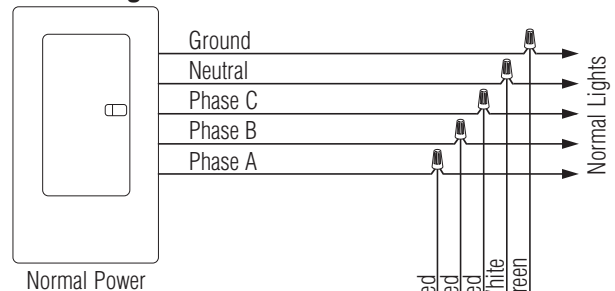
Single Phase Diagram



Guide to Power Source Wiring

Wire:	Connects to:
Red Wire	Hot
White Wire	Neutral
Green Wire	Ground

3 Phase Diagram



Guide to Power Source Wiring

Wire:	Connects to:
Red Wire	Phase A
Red Wire	Phase B
Red Wire	Phase C
White Wire	Neutral
Green Wire	Ground



Danger – Proper short circuit and overcurrent protection must be provided at the distribution panel. You can use up to a **20A maximum** circuit breaker for your installation.



Note: If your *RadioTouch* Controller, model number RTA-RX-F, RTA-RX-F-SC, or RTA-RX-SW was shipped before August 1, 2002 please contact Lutron Technical Support at (800) 523-9466 before connecting your LUT-ELI.



Hardware Installation

LUT-ELI and *RadioTouch* Low-voltage (Class 2) Connections

Note: When wiring for a backup/emergency source of power the *RadioTouch* Controller (models RTA-RX-F, RTA-RX-F-SC, RTA-RX-SW), being used for the backup/emergency lights (Unit A & B) **cannot** be controlled by an occupant sensor. Units A and B DIP switch #2 must be in the down position.

Step 2: Class 2 wiring to *RadioTouch* Controllers

One LUT-ELI can be connected in parallel with up to 100 *RadioTouch* Controllers.

Step A - Flip DIP switch #2 on the *RadioTouch* Controller to the down position.

Step B - Disconnect any occupant sensors wired to the *RadioTouch* Controller.

Step C - Make the following connections.

LUT-ELI	<i>RadioTouch</i> Controller
Terminal 8 (+24V)	Terminal 4 (+24V), Unit A only
Terminal 7 (Common)	Terminal 6 (Circuit Common)
Terminal 1 (Signal)	Terminal 2 (Occ. Signal)



Important Note: When wiring multiple *RadioTouch* Controllers to the same emergency closure circuit, **only one Controller can be connected to the +24 (number 4) terminal.** Wiring +24 to multiple Controllers can damage your *RadioTouch* Controller and/or the LUT-ELI. See diagram below.

Step 3: Test the System

Please perform the following tests to ensure proper installation.

Loss of Normal (Non-Essential) power can be simulated by turning off one of the Normal (Non-Essential) phase(s) breaker(s) that the LUT-ELI is monitoring.

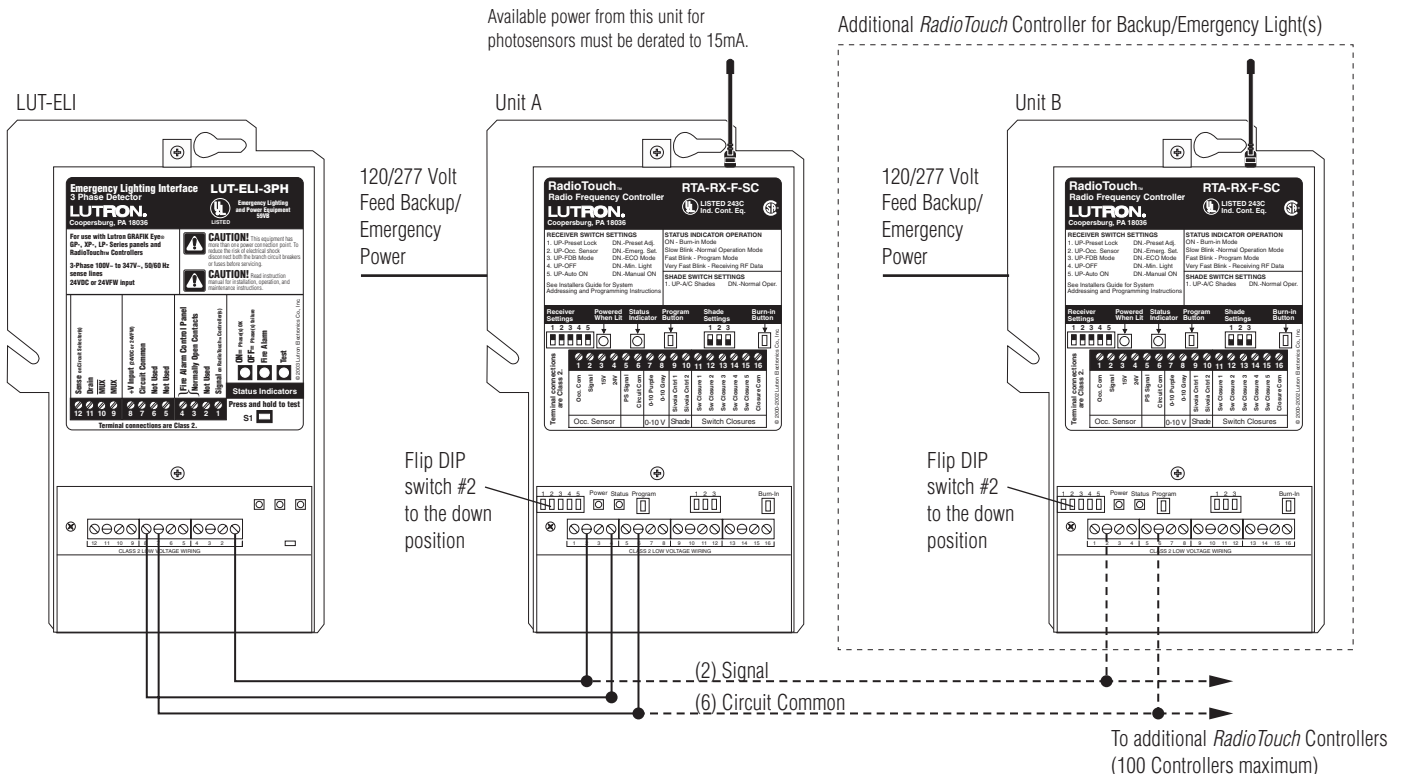
You should expect the following,

- All lights controlled by Emergency (Essential) Panel will go to FULL INTENSITY (factory set).
- PHASE ON/OFF Status Indicator (Green) will turn OFF as the above test creates a phase failure.

Or, press and hold Switch SW1 on the LUT-ELI

You should expect the following,

- TEST LED (Orange) will turn ON.
- All lights controlled by Emergency *RadioTouch* Controller will go to FULL INTENSITY (factory set).
- Note:** PHASE ON/OFF Status Indicator (Green) will not turn OFF as the above test does not create a phase failure.
- Upon releasing the switch SW1 all lights will return back to their original intensities.





Hardware Installation

LUT-ELI and *GRAFIK Eye* GP, XP, and LP Panel Line Voltage Connections

Installation of LUT-ELI with Line Voltage Connections with *GRAFIK Eye* GP, LP, and XP Panels

Step 1: Wiring from GP panel or Wiring from Mains (XP, LP)

Turn OFF power.



Danger – Locate and lock the supply breaker(s) in the OFF position, or remove the supply fuse(s) before continuing. This equipment may have more than one power connection point.



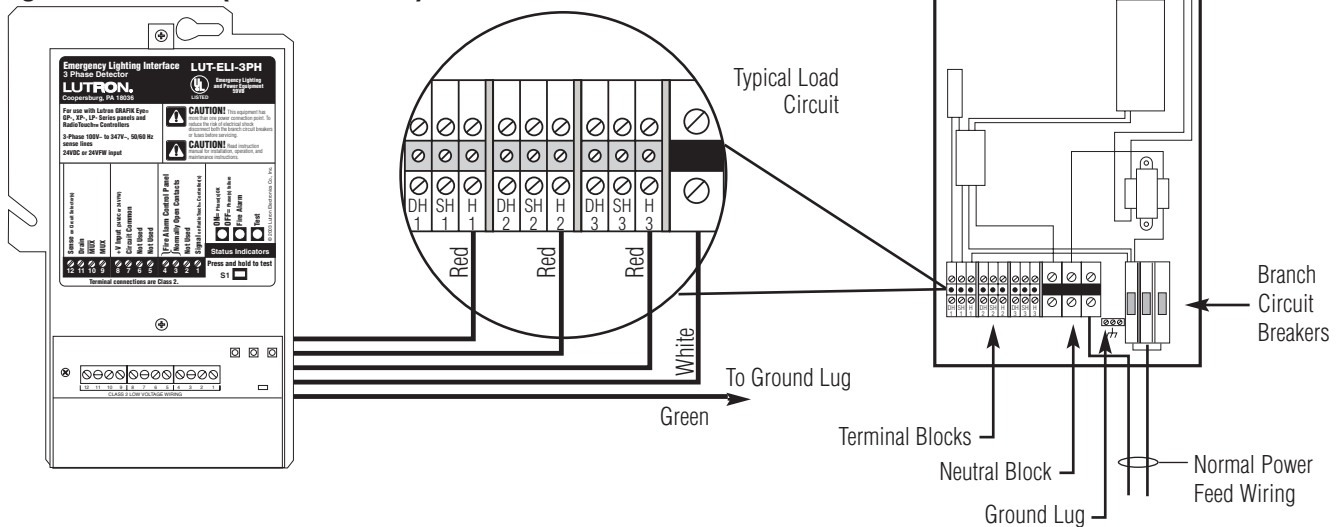
Important – Line voltage input to the LUT-ELI MUST be from the NORMAL power source – the same as to NORMAL (Non-Essential) panels.

For installation directly to XP and LP panels consult the Lutron Technical Support Center at (800) 523-9466.

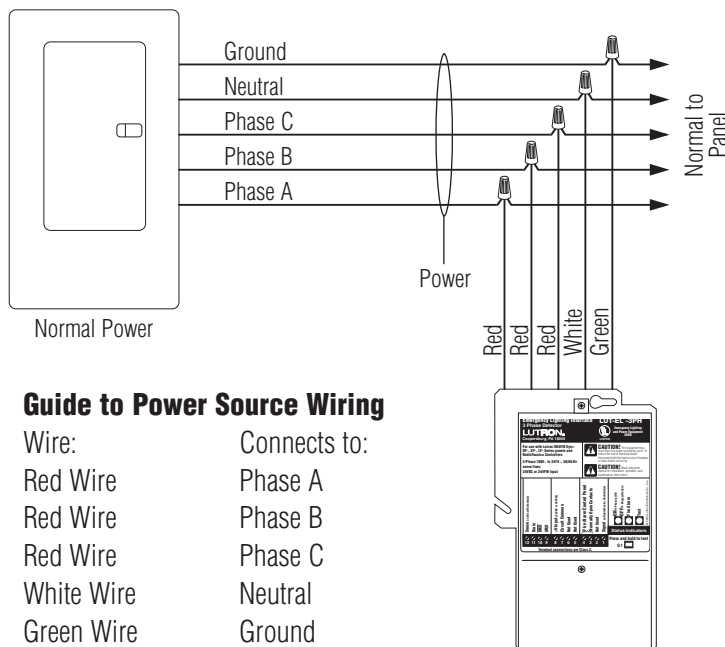


Danger – Proper short circuit and overcurrent protection must be provided at the distribution panel. You can use up to a **20A maximum** circuit breaker for your installation.

Option 1 Wiring from Normal (Non-Essential) GP Panel



Option 2 Wiring From Mains with GP, XP, and LP Panels



Guide to Power Source Wiring

Wire:	Connects to:
Red Wire	Phase A
Red Wire	Phase B
Red Wire	Phase C
White Wire	Neutral
Green Wire	Ground

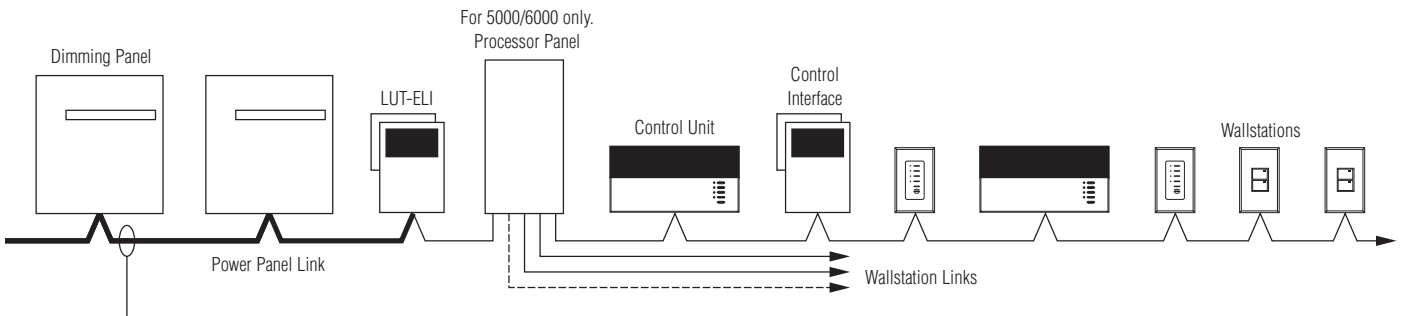


Step 2: GP, XP, and LP Low-voltage Class 2 (PELV) Wiring

Pull low-voltage type Class 2 wiring for system communications.

- Must be daisy-chained!
- Must run separately from line (mains) voltage.

Note: LUT-ELI can be placed anywhere in the power panel link.



Panel-to-Panel wiring[†]

Include one extra #18 AWG (1.0 mm²). Used as a "sense line" for emergency (essential) lighting.

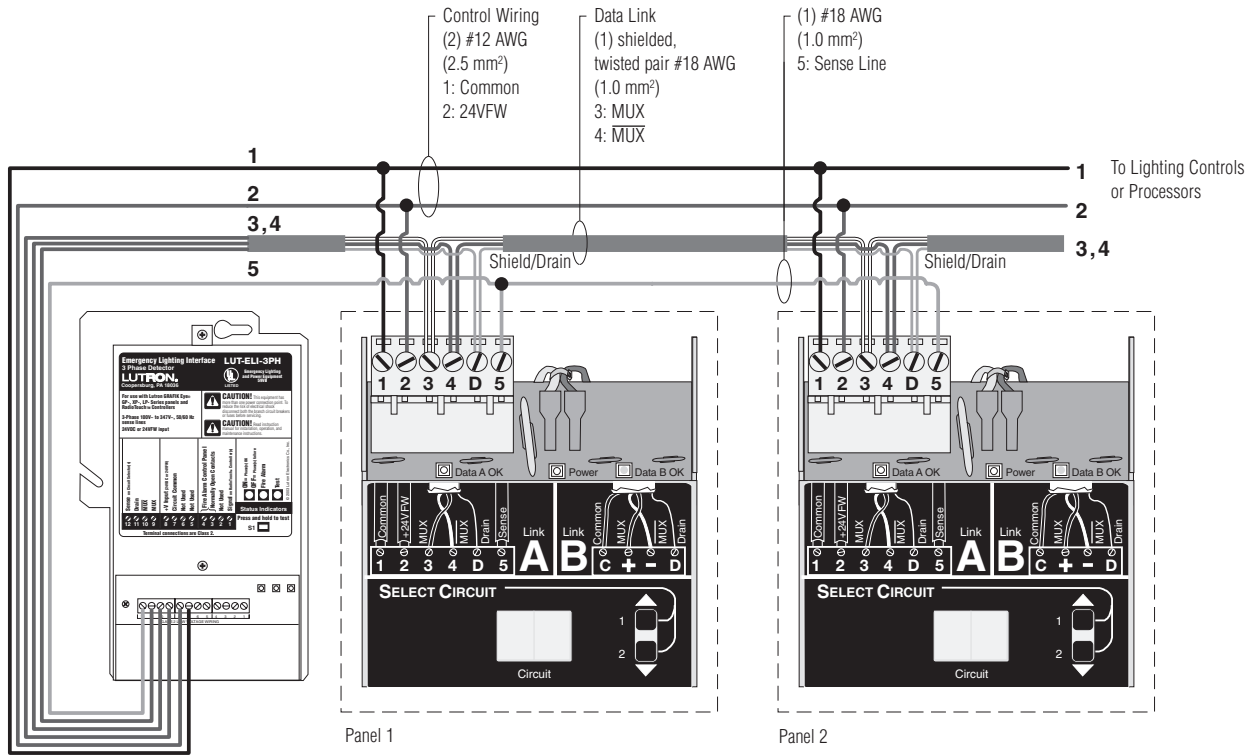
[†] If you use Lutron cable, you can use smaller-gauge wires.

- If a Class 2 (PELV) wiring link is less than 500 feet (152 m), you can use GRX-CBL-346S:
 - Two #18AWG (1.0 mm²) for control wiring.
 - One twisted, shielded pair #22 AWG (.625 mm²) for data link.
 - No "sense line" included - add your own #18 AWG (1.0 mm²).
- If a Class 2 (PELV) wiring link is 500 to 2000 feet (152 to 610 m), you can use GRX-CBL-46L:
 - Two #12 AWG (2.5 mm²) for control wiring.
 - One twisted, shielded pair #22 AWG (.625 mm²) for data link.
 - One #18 AWG (1.0 mm²) for sense line between Panels.
- Lutron has also approved smaller-gauge cable from Belden, Liberty, Alpha, and Signature. Ask for Lutron *GRAFIK Eye* Cable.



Step 2: (Continued)

Class 2 (PELV) Panel-to-panel wiring (all models)



Make the following connections.

LUT-ELI

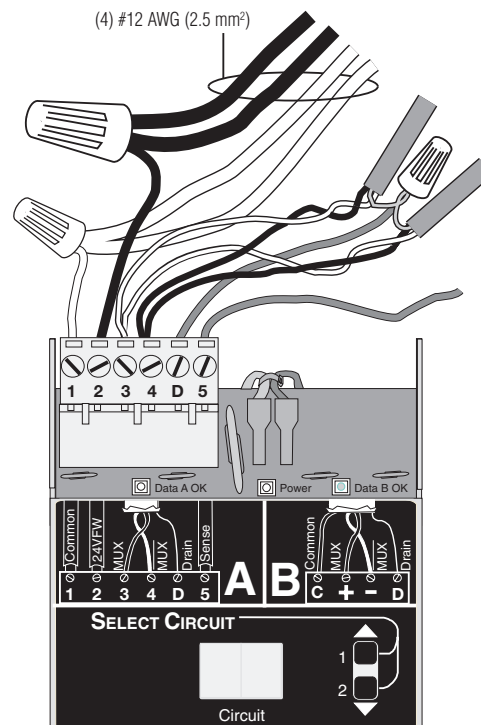
- Terminal 12 (Sense)
- Terminal 11 (Drain)
- Terminal 10 (MUX)
- Terminal 9 (MUX)
- Terminal 8 (+24V)
- Terminal 7 (Common)

Circuit Selector

- Terminal 5 (Sense)
- Terminal D (Drain)
- Terminal 4 (MUX)
- Terminal 3 (MUX)
- Terminal 2 (+24V)
- Terminal 1 (Circuit Common)

Notes:

1. Emergency Power: The additional #18 AWG (1.0 mm²) wire is a "sense" line from terminal 12 on the LUT-ELI. This sense line allows an Emergency (Essential) Lighting Panel to "sense" when Normal (Non-Essential) power is lost. If more than one Emergency Lighting Panel needs to sense off a specific LUT-ELI, you may have to run a dedicated wire between each LUT-ELI and Emergency (Essential) panel(s).
2. Shield/Drain: Connect shielding as shown.
 - Do not connect to Ground (Earth) or Circuit Selector.
 - Connect the bare drain wires and cut off the outside shield.



Class 2 (PELV) Terminal Connections

Each low-voltage Class 2 (PELV) terminal can accept only two #18 AWG (1.0 mm²) wires. Two #12 AWG (2.5 mm²) conductors won't fit. Connect as shown.



Step 3: Set Circuit Selector Switch Position

Circuit Selector Switch (SW6) position (Normal/Emergency Switch)

Panels are shipped with SW6 (located at the base of each Circuit Selector) in the middle position.

All Emergency Panels

- Move SW6 to the right Emergency (Essential) position.

In this arrangement, the LUT-ELI will be the only unit controlling the sense line. If one or more phases go down, LUT-ELI sends a signal through the sense line to Emergency (Essential) panel(s). The lights controlled by these panels will go to 'ord' override levels (factory set to full intensity) When normal power is restored, lights will return to their previous intensities.

When SW6 is in its center position (as shipped), terminal 5 (sense) has no affect on the Circuit Selector operation.



Switch position SW6 on the Circuit Selector MUST be in the Right position on ALL EMERGENCY Panels.

Step 4: Test the System

Please perform the following tests to ensure proper installation.

Loss of Normal (Non-Essential) power can be simulated by turning off one of the Normal (Non-Essential) phase(s) breaker(s) that the LUT-ELI is monitoring.

You should expect the following,

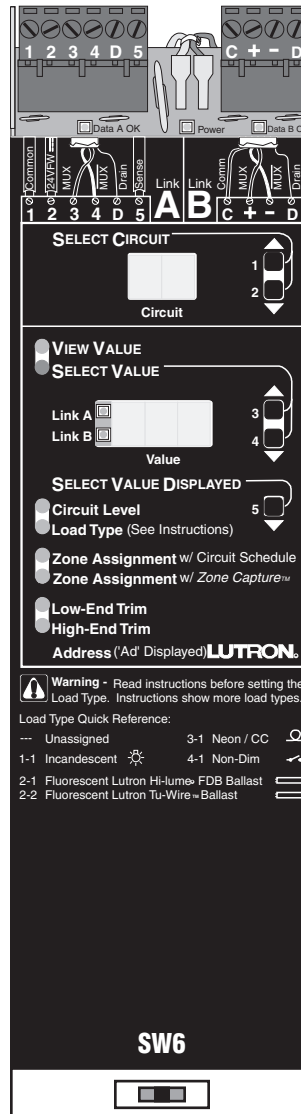
- PHASE ON/OFF Status Indicator (Green) will turn OFF as the above test creates a phase failure.
- Circuit Selector on Emergency (Essential) Panel will go to 'ord' override mode.
- All lights controlled by Emergency (Essential) Panel will go to FULL INTENSITY (factory set).
- All lights controlled by Normal (Non-essential) Panel will freeze at their respective intensities.

OR, Press and hold Switch SW1

You should expect the following,

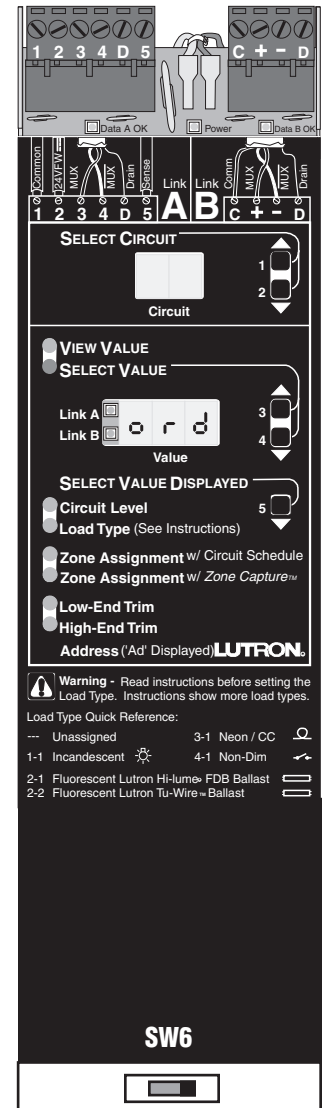
- TEST LED (Orange) will turn ON.
- NOTE:** PHASE ON/OFF Status Indicator (Green) will not turn OFF as the above test doesn't create a phase failure.
- Circuit Selector on Emergency (Essential) Panel will go to 'ord' override mode.
- All lights controlled by Emergency (Essential) Panel will go to FULL INTENSITY (factory set).

Circuit Selector in (Non-Emergency) Panel



Keep in Middle Position

Circuit Selector in Emergency (Essential) Lighting Panel



Move Right

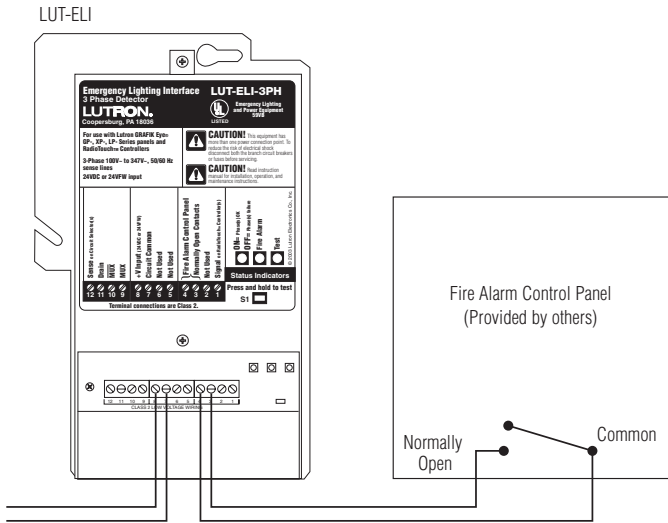
- All lights controlled by Normal (Non-essential) Panel will freeze at their current intensities.
- Upon releasing switch SW1, all lights will return back to their previous intensities.



Hardware Installation

LUT-ELI and Fire Alarm Control Panel

Connections to Fire Alarm Control Panel (FACP) Low-voltage Class 2 Connections



To *RadioTouch* Controller or
GRAFIK Eye Control Unit for +24 Power

Note: Wiring diagram does not show connections to Lutron lighting controls.



Important – Only use with normally open dry contact closure. When the contact closure is triggered it must be maintained for the LUT-ELI to go into Emergency Mode. Once the contact is released (open) the LUT-ELI will return the *GRAFIK Eye* GP, XP, LP panel(s) or *RadioTouch* Controller(s) back to normal operation mode.

Consult your Fire Alarm Control Panel's Instruction manual before connecting the LUT-ELI.



Danger – Do not connect any voltage source to the FACP inputs on the LUT-ELI. If voltage is provided by the FACP and connected to the LUT-ELI, it can damage the LUT-ELI.



Troubleshooting

LUT-ELI and *RadioTouch* Controllers

LUT-ELI Troubleshooting Guide

RadioTouch Controller

Symptom	Possible Cause	Solution
Lights are at full intensity and can not be controlled by an addressed transmitter	<ul style="list-style-type: none"> LUT-ELI is not connected to Signal on the <i>RadioTouch</i> Controller One or more of the phases feeding the LUT-ELI are off (phase LED on the LUT-ELI will be off) Neutral is not connected on the LUT-ELI (phase LED on the LUT-ELI will be OFF) 24VDC is not connected on the LUT-ELI (phase LED on the LUT-ELI will be OFF) There is a short across FACP and normally open contact (FACP LED will be ON) 	<p>Connect terminal 2 “signal” from the <i>RadioTouch</i> Controller to “signal on <i>RadioTouch</i> Controller” on the LUT-ELI</p> <p>Turn ON all normal power phases to LUT-ELI</p> <p>Connect neutral</p> <p>Connect terminal 4 “+24VDC” from <i>RadioTouch</i> Controller to “+24” on the LUT-ELI</p> <p>Remove short</p>



LUT-ELI Troubleshooting Guide

RadioTouch Controller (continued)

Symptom	Possible Cause	Solution
Lights do not turn ON and do not go to high end when the test switch is pressed	<ul style="list-style-type: none"> • DIP switch 2 on the <i>RadioTouch</i> Controller is in the UP position • 24VDC and signal are swapped • 24VDC and common wires are swapped • Common and signal are swapped 	<p>Move DIP switch 2 on the <i>RadioTouch</i> Controller to the DOWN position</p> <p>Connect terminal 4 “+24VDC” from the <i>RadioTouch</i> Controller to “+24” on the LUT-ELI and connect terminal 2 “signal” from the <i>RadioTouch</i> Controller to “signal on <i>RadioTouch</i> Controller” on the LUT-ELI</p> <p>Connect terminal 4 “+24VDC” from the <i>RadioTouch</i> Controller to “+24” on the LUT-ELI and connect terminal 6 “COM” from the <i>RadioTouch</i> Controller to “Common” on the LUT-ELI</p> <p>Connect terminal 6 “COM” from the <i>RadioTouch</i> Controller to “Common” on the LUT-ELI and connect terminal 2 “signal” from the <i>RadioTouch</i> Controller to “signal on <i>RadioTouch</i> Controller” on the LUT-ELI</p>
Lights do not turn ON and do not go to high end when one or more of the normal power phases are turned OFF	<ul style="list-style-type: none"> • DIP switch 2 on the <i>RadioTouch</i> Controller is in the UP position • 24VDC and signal are swapped • That <i>RadioTouch</i> Controller is not powered by the emergency circuit power • The emergency transfer switch is not switching over • LUT-ELI is connected to the emergency circuit • 24VDC and common wires are swapped • Common and signal are swapped 	<p>Move DIP switch 2 on the <i>RadioTouch</i> Controller to the DOWN position</p> <p>Connect terminal 4 “+24VDC” from the <i>RadioTouch</i> Controller to “+24” on the LUT-ELI and connect terminal 2 “signal” from the <i>RadioTouch</i> Controller to “signal on <i>RadioTouch</i> Controller” on the LUT-ELI</p> <p>Power the <i>RadioTouch</i> Controller from the emergency circuit and not from normal</p> <p>Consult transfer switch manufacture for troubleshooting</p> <p>Connect the LUT-ELI to normal power</p> <p>Connect terminal 4 “+24VDC” from the <i>RadioTouch</i> Controller to “+24” on the LUT-ELI and connect terminal 6 “COM” from the <i>RadioTouch</i> Controller to “Common” on the LUT-ELI</p> <p>Connect terminal 6 “COM” from the <i>RadioTouch</i> Controller to “Common” on the LUT-ELI and connect terminal 2 “signal” from the <i>RadioTouch</i> Controller to “signal on <i>RadioTouch</i> Controller” on the LUT-ELI</p>



Troubleshooting LUT-ELI and *GRAFIK Eye* GP, XP, and LP Panels

LUT-ELI Troubleshooting Guide

Circuit Selector (*GRAFIK Eye* GP-, XP-, LP Series Panels)

Symptom	Possible Cause	Solution
Lights are at full intensity and can not be controlled by the wallstation (Circuit Selector reads "ord")	<ul style="list-style-type: none"> • Sense wire is not connected from the Circuit Selector to the LUT-ELI • One or more of the phases feeding the LUT-ELI are off (phase LED on the LUT-ELI will be OFF) • Neutral is not connected on the LUT-ELI (phase LED on the LUT-ELI will be OFF) • 24VFW is not connected on the LUT-ELI (phase LED on the LUT-ELI will be OFF) • There is a short across FACP and normally open contact (FACP LED will be ON) • 24VFW and sense are swapped • Common and sense are swapped 	<p>Connect terminal 5 "sense" from the Circuit Selector to "sense" on the LUT-ELI</p> <p>Turn ON all normal power phases to LUT-ELI</p> <p>Connect neutral</p> <p>Connect terminal 2 "24VFW" from the Circuit Selector to "+24" on the LUT-ELI</p> <p>Remove short</p> <p>Connect terminal 2 "24VFW" from the Circuit Selector to "+24" on the LUT-ELI and connect terminal 5 "sense" from the Circuit Selector to "sense" on the LUT-ELI</p> <p>Connect terminal 1 "Common" from the Circuit Selector to "Common" on the LUT-ELI and connect terminal 5 "sense" from the Circuit Selector to "sense" on the LUT-ELI</p>
Lights do not turn ON and do not go to high end when the test switch is pressed	<ul style="list-style-type: none"> • SW6 on the Circuit Selector is in the middle position or far left position • 24VDC and common wires are swapped 	<p>Move SW6 on the Circuit Selector to the far right position</p> <p>Connect terminal 2 "24VFW" from the Circuit Selector to "+24" on the LUT-ELI and connect terminal 1 "Common" from the Circuit Selector to "Common" on the LUT-ELI</p>
Lights do not turn ON and do not go to high end when one or more of the normal power phases are turned OFF	<ul style="list-style-type: none"> • SW6 on the Circuit Selector is in the middle position or far left position • 24VDC and common wires are swapped • That Emergency Panel is not powered by the emergency circuit • The emergency transfer switch is not switching over • LUT-ELI is connected to the emergency circuit 	<p>Move SW6 on the Circuit Selector to the far right position</p> <p>Connect terminal 2 "24VFW" from the Circuit Selector to "+24" on the LUT-ELI and connect terminal 1 "Common" from the Circuit Selector to "Common" on the LUT-ELI</p> <p>Power the Emergency Panel from the emergency circuit and not from normal power</p> <p>Consult transfer switch manufacture for troubleshooting</p> <p>Connect the LUT-ELI to normal power</p>

Limited Warranty

Lutron will, at its option, repair or replace any unit that is defective in materials or manufacture within one year after purchase. For warranty service, return unit to place of purchase or mail to Lutron at 7200 Suter Rd., Coopersburg, PA 18036-1299, postage pre-paid.

THIS WARRANTY IS IN LIEU OF ALL OTHER EXPRESS WARRANTIES, AND THE IMPLIED WARRANTY OF MERCHANTABILITY IS LIMITED TO ONE YEAR FROM PURCHASE. THIS WARRANTY DOES NOT COVER THE COST OF INSTALLATION, REMOVAL OR REINSTALLATION, OR DAMAGE RESULTING FROM MISUSE, ABUSE, OR DAMAGE FROM IMPROPER WIRING OR INSTALLATION. THIS WARRANTY DOES NOT COVER INCIDENTAL OR CONSEQUENTIAL DAMAGES. LUTRON'S LIABILITY ON ANY CLAIM FOR DAMAGES ARISING OUT OF OR IN CONNECTION WITH THE MANUFACTURE, SALE, INSTALLATION, DELIVERY, OR USE OF THE UNIT SHALL NEVER EXCEED THE PURCHASE PRICE OF THE UNIT.

This warranty gives you specific legal rights, and you may have other rights which vary from state to state. Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitation on how long an implied warranty may last, so the above limitations may not apply to you.

Lutron and GRAFIK Eye are registered trademarks and RadioTouch is a trademark of Lutron Electronics Co., Inc.

Technical and Sales Assistance

If you have questions concerning the installation or operation of this product, call the toll-free **Lutron Technical Support Center**. Please provide exact model number when calling.

U.S.A., Canada, and the Caribbean
(800) 523-9466 27 hrs/7 days

other countries
(610) 282-3800 8:00a.m. – 8:00p.m. ET

Our address on the web is <http://www.lutron.com>

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