Emergency Lighting with a Vive System

Overview

Emergency lighting is an important aspect of designing a lighting system for commercial spaces. The system requirements are defined by several codes and standards. These requirements can be fulfilled by using a variety of equipment and methods.

The purpose of this application note is to provide an understanding of basic emergency system components, how those components work with Lutron products, and to show how to wire emergency load control devices to Vive system devices. It is not intended to provide a design guide for emergency systems. This guide focuses on installations in the United States and Canada. Consult local and national codes for emergency lighting requirements in other countries.

NOTE: If your system uses the following PowPak modules and you are using a Vive hub without a LUT-ELI-3PH please refer to Application Note #795 (P/N 048795) at www.lutron.com

RMJS-8T-DV-B-EM

FCJS-010-EM

RMJS-5T-347-EM

RMJS-5R-347-EM

RMJS-PNE-DV-EM

RMJS-16R-DV-B-EM

FCJS-ECO-EM

For emergency lighting applications using QS systems including Quantum, Athena and myRoom, refer to Application Note #106 (P/N 048106) at www.lutron.com

For emergency lighting applications using KetraNet systems, refer to Application Note #730 (P/N 048730) at www.lutron.com.

For emergency lighting applications using Limelight systems, refer to Application Note #715 (P/N 048715) at www.lutron.com.

What Lutron Product Do You Have?

Fire Alarm Integration using the Vive Hub

- Hub is powered by normal power - Page 7
  – Fire Alarm Operation - Page 9

Emergency and Optional Fire Alarm Integration using the Vive Hub and LUT-ELI on a UPS

- Hub is powered by normal and emergency power on a UPS - Page 10
  – Fire Alarm Operation - Page 13

PowPak 0–10 V⎓ Dimming Module - (U)RMJS-8T-DV-B, RMJS-8TN-DV-B and FCJS-010

- Module is powered by normal and emergency power - Page 15
  – Fire Alarm Operation - Page 17
- Module is powered by normal power - Page 18
  – Fire Alarm Operation - Page 20

PowPak Relay Module With Softswitch - (U)RMJS-16R-DV-B; RMJS-5R-DV-B; (U)RMJS-16RCCO1DV-B; RMJS5RCCO1-DV-B; RMJS-20R-DV-B; RMJS-20RCCO1DV-B

- Module is powered by normal and emergency power - Page 21
  – Fire Alarm Operation - Page 23
- Module is powered by normal power - Page 24
  – Fire Alarm Operation - Page 26

PowPak EcoSystem Fixture Control - FCJS-ECO; RMJS-ECO32-SZ

- Module is powered by normal and emergency power - Page 27
  – Fire Alarm Operation - Page 29

PowPak 347 V∼ Dimming Module with 0–10 V⎓ Control - RMJS-5T-347

- Module is powered by normal and emergency power - Page 30
  – Fire Alarm Operation - Page 32
- Module is powered by normal power - Page 33
  – Fire Alarm Operation - Page 35

PowPak 347 V∼ Relay Module - RMJS-5R-347

- Module is powered by normal and emergency power - Page 36
  – Fire Alarm Operation - Page 38
- Module is powered by normal power - Page 39
  – Fire Alarm Operation - Page 41

PowPak Phase Select Dimming Module - RMJS-PNE-DV

- Module is powered by normal and emergency power - Page 42
  – Fire Alarm Operation - Page 45
- Module is powered by normal power - Page 46
  – Fire Alarm Operation - Page 49

What Lutron Product Do You Have? *(continued)*

Maestro Wireless 0–10 V⎓ Dimmer - MRF2S-8SD010 and MRF2S-8SVD010

- Dimmer is powered by normal and emergency power - Page 50
  – Fire Alarm Operation - Page 52

Maestro Wireless Dimmers Not Requiring a Neutral Connection - MRF2S-6CL

- Dimmer is powered by normal and emergency power - Page 53
  – Fire Alarm Operation - Page 55
- Dimmer is powered by normal power - Page 56
  – Fire Alarm Operation - Page 58

Maestro Wireless Dimmers Requiring a Neutral Connection - MRF2S-6ND

- Dimmer is powered by normal and emergency power - Page 59
  – Fire Alarm Operation - Page 61
- Dimmer is powered by normal power - Page 62
  – Fire Alarm Operation - Page 64

Maestro Wireless Dimmers Requiring a Neutral Connection - MRF2S-6ELV120

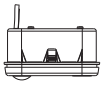
- Dimmer is powered by normal power - Page 65
  – Fire Alarm Operation - Page 67

Maestro Wireless Switches Requiring a Neutral Connection - MRF2S-6ANS; MRF2S-8ANS120; UMRF2S-8ANS-120

- Switch is powered by normal and emergency power - Page 68
  – Fire Alarm Operation - Page 70
- Switch is powered by normal power - Page 71
  – Fire Alarm Operation - Page 73

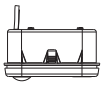
Maestro Wireless Switches Not Requiring a Neutral Connection - MRF2S-8S-DV; MRF2S-8SS; MRF2S-8SSV; UMRF2S-8S

- Switch is powered by normal and emergency power - Page 74
  – Fire Alarm Operation - Page 76
- Switch is powered by normal power - Page 77
  – Fire Alarm Operation - Page 79



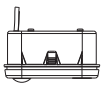
Vive Integral Fixture Control with an EcoSystem Driver - DFCSJ-OEM-OCC/RF with DFC-OEM-DBI

- Fixture is powered by normal and emergency power and controlling an emergency load - Page 80
  – Fire Alarm Operation - Page 83



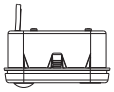
Vive Integral Fixture Control and Driver with Self-Powered DALI Link - DFCSJ-OEM-OCC/RF

- Fixture is powered by normal and emergency power and controlling an emergency load- Page 84
  – Fire Alarm Operation - Page 86



Vive Integral Fixture Control with EcoSystem Driver and Battery Backup

- Fixture is powered by normal power and controlling an emergency load - Page 87



Vive Integral Fixture Control and Driver with Self-Powered DALI Link with Battery Backup

- Fixture is powered by normal power and controlling an emergency load - Page 89

Fire Alarm Override & Emergency Lighting Controls

For the previously listed Vive Normal (non-emergency) Load Controllers, power can be turned on to full upon receipt of a contact closure signal from an external device, such as a Fire Alarm Control Panel. This is useful if an external event, such as the activation of a fire alarm, needs to turn the lights on to full, even if normal power is still present. The following table lists devices that provide compatible fire alarm contacts.

This solution will also ensure the lights turn on in the event that normal power is lost, whether a generator or Uninterruptable Power Supply (UPS) is used as the power source.

Fire Alarm Compatible Devices	
Fire Alarm tie-in included	HJS-x with optional LUT-ELI-3PH controlling Emergency PowPak units
Fire Alarm Contact Compatible LVS Devices	
Fire Alarm tie-in included	LUT-ALCR, LUT-ALCR-FM, LUT-ALCR-D, LUT-ALCR-D-FM, LUT-SHUNT-D, LUT-SHUNT-D-FM, LUT-ATS-D, LUT-ALCR-D-HV-347
Fire Alarm interface required	LUT-SHUNT, LUT-SHUNT-FM

Dry Contacts

For fire alarm operation with Vive Normal (non-emergency) Load controllers, the above mentioned LVS devices must be used in conjunction with normally closed OR normally open fire alarm contacts. The type of contact depends on the device per the recommendations in the table below. Dry contacts must be rated for 100 mA (24 V⎓ or greater) and a 10 V⎓ to 30 V⎓ power supply (1 W or greater) must be present as well. A maximum of 20 devices can share one fire alarm dry contact. The 1 W minimum power supply must be provided for each device regardless of the quantities of dry contacts being shared. These fire alarm devices are polarity neutral for DC power supply inputs.

Device	Dry Contact Type	Additional Requirements
LUT-ELI	Normally Open OR Normally Closed	HJS-0, HJS-1, or HJS-2 and Emergency PowPak units
LVS Devices		
LUT-ALCR, LUT-ALCR-FM,LUT-ALCR-D, LUT-ALCR-D-FM, LUT-SHUNT-D, LUT-SHUNT-D-FM, LUT-ALCR-D-HV-347	Normally Open (Closed= Fire Alarm Condition, Open= Normal Condition)	DC Power Supply
LUT-ATS-D	Normally Closed (Closed= Normal Closed, Open= Fire Alarm Condition)	DC Power Supply and Dipswitch Positions 0,0,1,0
LUT-SHUNT, LUT-SHUNT-FM	Normally Closed (Closed= Normal Closed, Open= Fire Alarm Condition)	LVS TR-A-2 Device

Applications of Override and Lockout with a Vive System

In this section, the text and wiring diagrams explain how the Vive hub and various Vive load controllers work with override and lockout applications (such as emergency, fire alarm and security incident) using the Vive hub, the LUT-ELI-3PH and other third-party equipment. All information presented here is for reference only. Always check the appropriate codes and standards, the Authority Having Jurisdiction (AHJ), and the installation instructions for the requirements of all equipment included in the design of an emergency lighting system.

Applications for Vive Hub

The Vive hub (firmware version 1.13 or higher) can activate Override and Lockout with a contact closure integration from a Fire Alarm Control Panel or a LUT-ELI-3PH. This will send lights to defined levels and lock out controls in the case of a fire alarm, power loss, or security incident. The contact closure input 2 (CCI2) on the back of the hub must be set to normally closed when used for override and lockout.

Override and Lockout can also be activated through API integration or manually through the Vive app.

Common override and lockout scenarios involving the Vive hub are as follows:

- Emergency Lighting and Fire Alarm Integration, Single Lighting Response: In this application, the lights will override and lockout to the same levels with a loss of normal power or a fire alarm input. This can be achieved using a LUT-ELI-3PH connected to CCI2 on the Vive hub (see page 10), or using LVS devices at each load controller.
- Emergency Lighting and Fire Alarm Integration, Separate Lighting Responses: In this application, the lights will override to full-on with loss of normal power using LVS devices, and a programmable level during fire alarm operation (page 7).
- Emergency Lighting Only: In this application, the lights will override and lockout to a programmable level with the Vive hub and LUT-ELI-3PH (see page 10), or to full on using LVS devices at each load controller.
- Fire Alarm Integration Only: In this application, the lights will override and lockout to a programmable level with the Vive hub responding to a contact closure from a Fire Alarm Control Panel.

Additional Notes

1. Fire alarm integration is only available with Emergency PowPak devices when used in conjunction with the:
   - Vive hub with or without a LUT-ELI-3PH

     OR
   - Other emergency devices provided by LVS
2. A Vive hub should **NEVER** be used to commission a standalone Vive system. Emergency PowPak devices require communication from the hub to prevent permanent lockout (even after return to normal power operation) if a power loss were to occur.

Vive Emergency Lighting

Some Vive products can achieve emergency lighting requirements without using third-party devices (e.g., ALCRs, battery backup ballasts). When designing an emergency lighting system, it may not be necessary to force all lighting to 100%, which can help to reduce the load on a backup power source (e.g., a generator). The table below shows which Vive products have programmable emergency light levels and the methods for programming them. This programming is available only when not using third-party emergency devices, which typically force all connected lighting to 100%.

Vive Emergency Load Controllers

Product	Model Number	Vive Hub	Emergency Light Level	How to Program
Vive Relay Emergency PowPak units	RMJS-16R-DV-B-EM RMJS-5R-347-EM	With hub	ON or OFF	Vive app or web page
Vive 0–10 V⎓ Emergency PowPak units	RMJS-8T-DV-B-EM FCJS-010-EM RMJS-5T-347-EM	With hub	0–100%	Vive app or web page
Vive Emergency EcoSystem PowPak units	FCJS-ECO-EM	With hub	0–100%	Vive app or web page
Vive Phase Select PowPak	RMJS-PNE-DV-EM	With hub	0–100%	Vive app or web page
Vive Integral Fixture Control	DFCSJ-OEM-OCC, DFCSJ-OEM-RF	With hub	0–100%	Vive app or web page

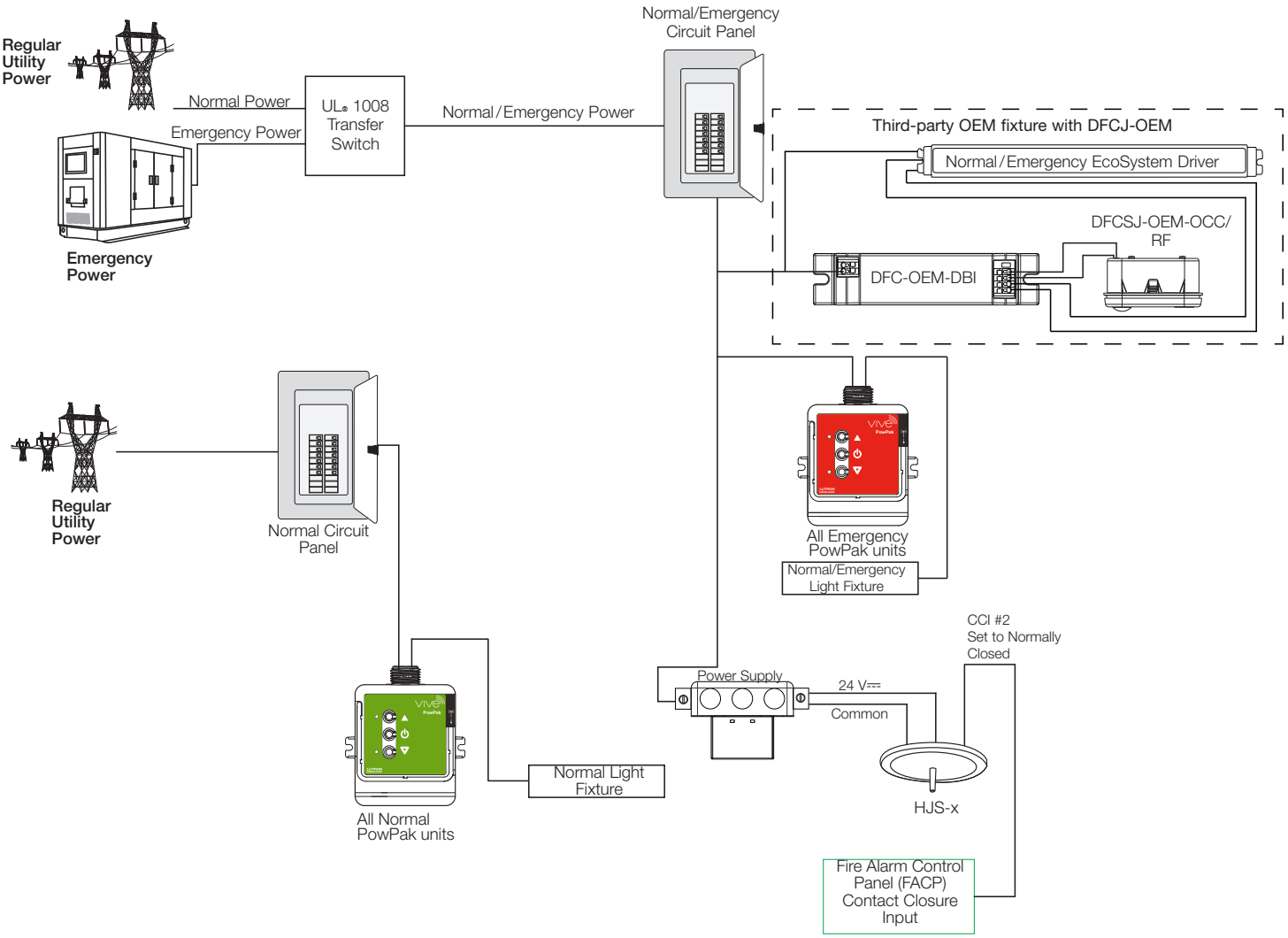
Vive Normal (non-emergency) Load Controllers

All other load controllers may not override to a configurable level and lockout upon loss of normal power. Equipment can be used to sense loss of normal power, such as the LUT-SHUNT and the LUT-ATS-D. This equipment would bypass the controls to send the load to 100% (not configurable). Since the controls would be powered down and bypassed, the emergency lighting level is not determined by the controls.

Fire Alarm Integration using the Vive Hub

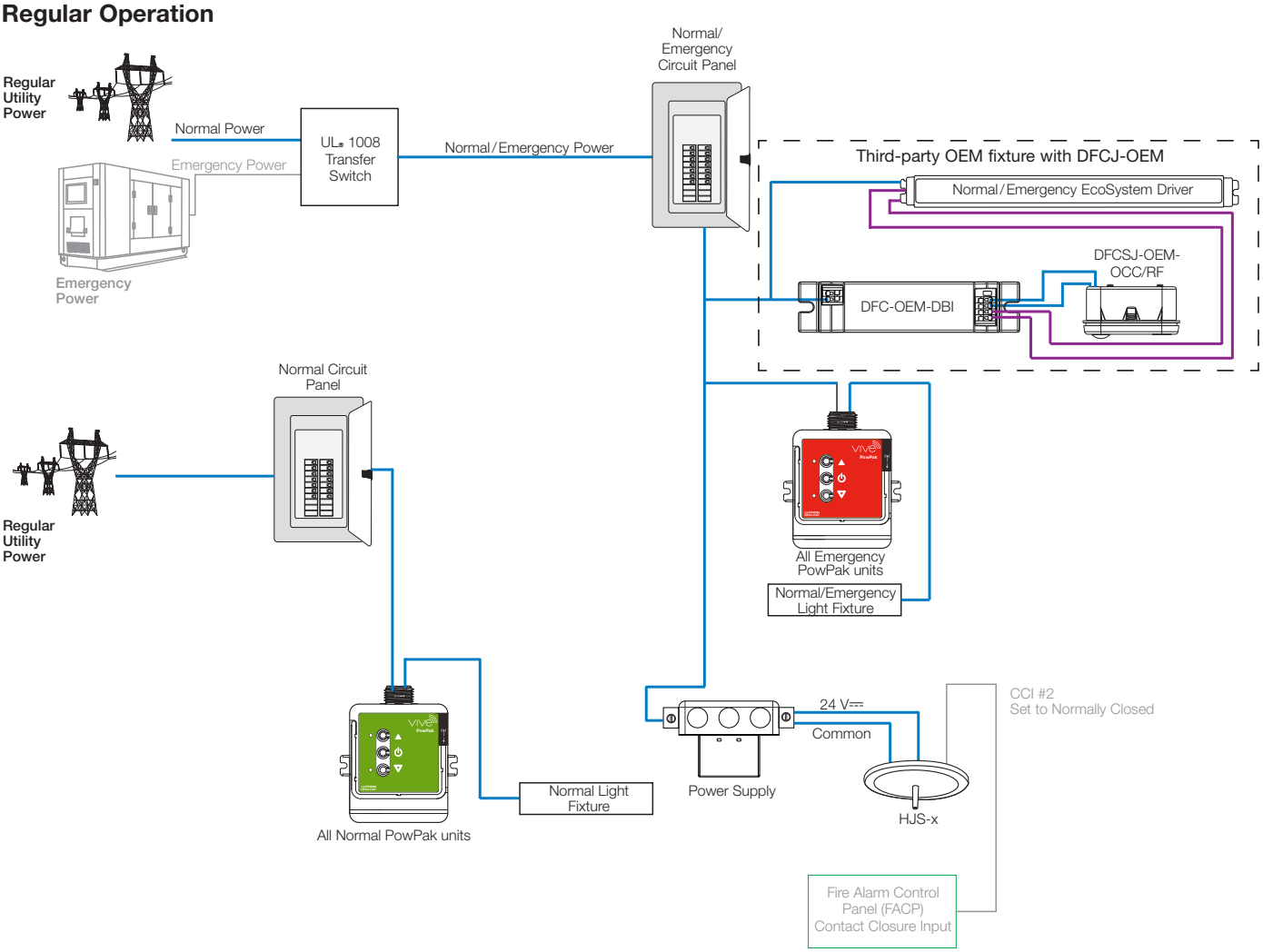
A Fire Alarm Control Panel can integrate with the Vive hub through the contact closure input 2 on the back of the Vive hub. When the Fire Alarm Control Panel sets the CCI2 on the back of the Vive hub to OPEN, the Vive hub then sends all emergency Vive PowPak devices and Vive integral fixture controllers designated as emergency associated with that hub to defined lighting levels and locks out controls. CCI2 on the Vive hub must be programmed as an emergency input, set to normally closed.

Wiring Schematic



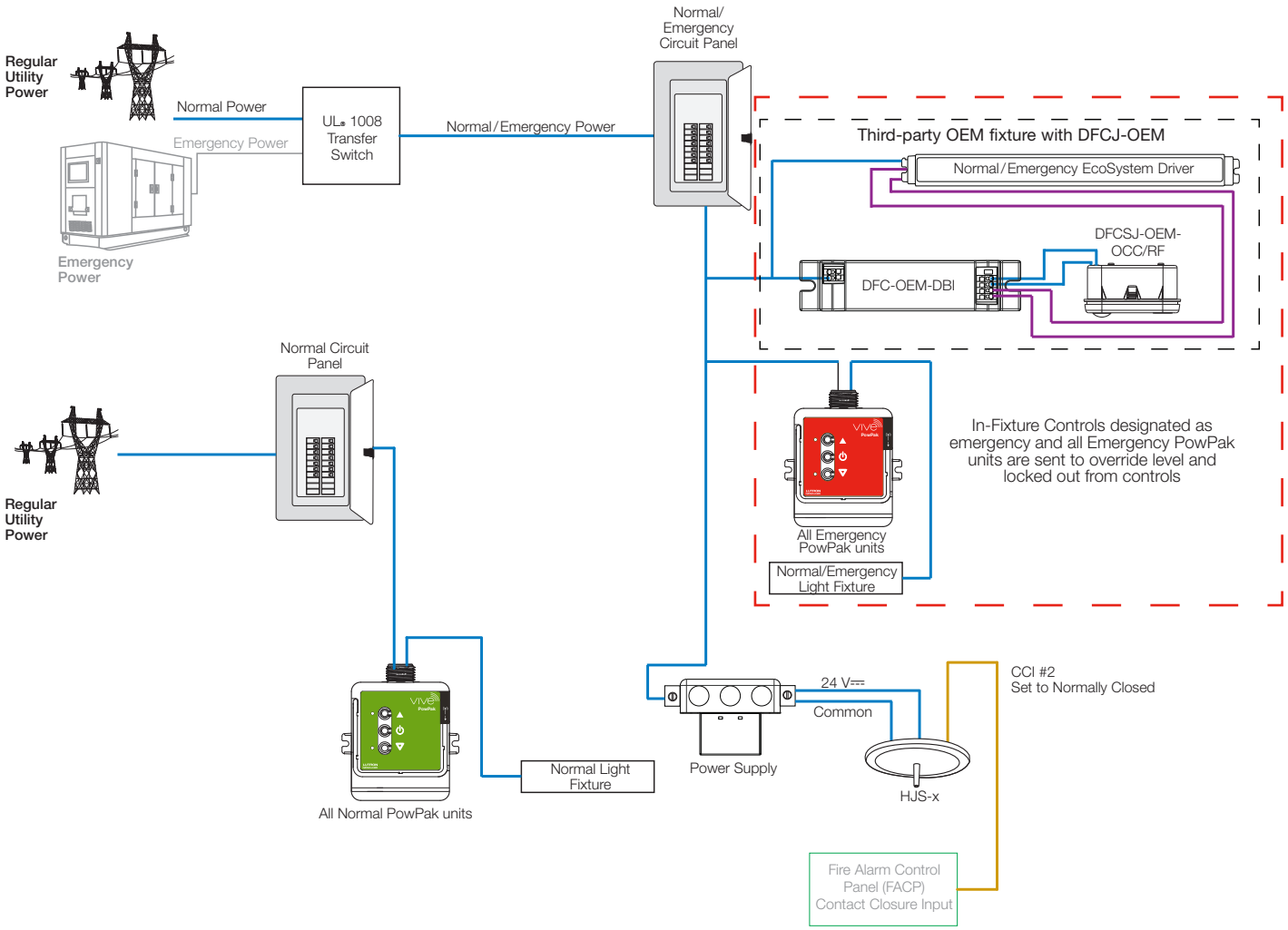
Fire Alarm Integration using the Vive Hub *(continued)*

Regular Operation



Fire Alarm Integration using the Vive Hub *(continued)*

Fire Alarm Activated



Emergency Lighting and Optional Fire Alarm Integration using a Vive Hub

The Vive hub, emergency PowPak units, and Vive integral fixture controllers have been evaluated by UL® for use in emergency lighting systems in accordance with UL 924 when paired with the LUT-ELI-3PH (UL® file E234628).

The LUT-ELI-3PH interfaces with the Vive hub through the contact closure input on the back of the Vive hub. When the LUT-ELI-3PH senses that any phase of normal power is lost, it sends a contact closure to the Vive hub. The Vive hub then sends all loads designated as emergency connected to the Vive hub to defined levels and locks out all controls. When using this application, remember these key points:

- The Vive hub cannot lose power during the transfer between normal and emergency power. If the building emergency power is supplied by a generator, which will experience a brief loss of power during the transition from utility power to generator power, a small inverter must be added to supply the Vive hub. Lutron recommends the LUT-LVU-2 provided by LVS Controls.
- The input on the back of the Vive hub must be programmed as an emergency input set to normally closed.
- All Emergency Lighting load controllers must be fed by normal and emergency power.
- If EcoSystem devices are part of the emergency lighting, they must be powered by normal and emergency power.
- If using a power interface that controls emergency lighting, that interface must be powered by normal and emergency power.

Please refer to the LUT-ELI-3PH and Vive hub installation instructions for full wiring and programming instructions for this application.

Emergency Lighting and Optional Fire Alarm Integration using a Vive Hub and Emergency PowPak Modules

Note: The system will respond identically whether the signal comes from a fire alarm system or from the loss of normal power.

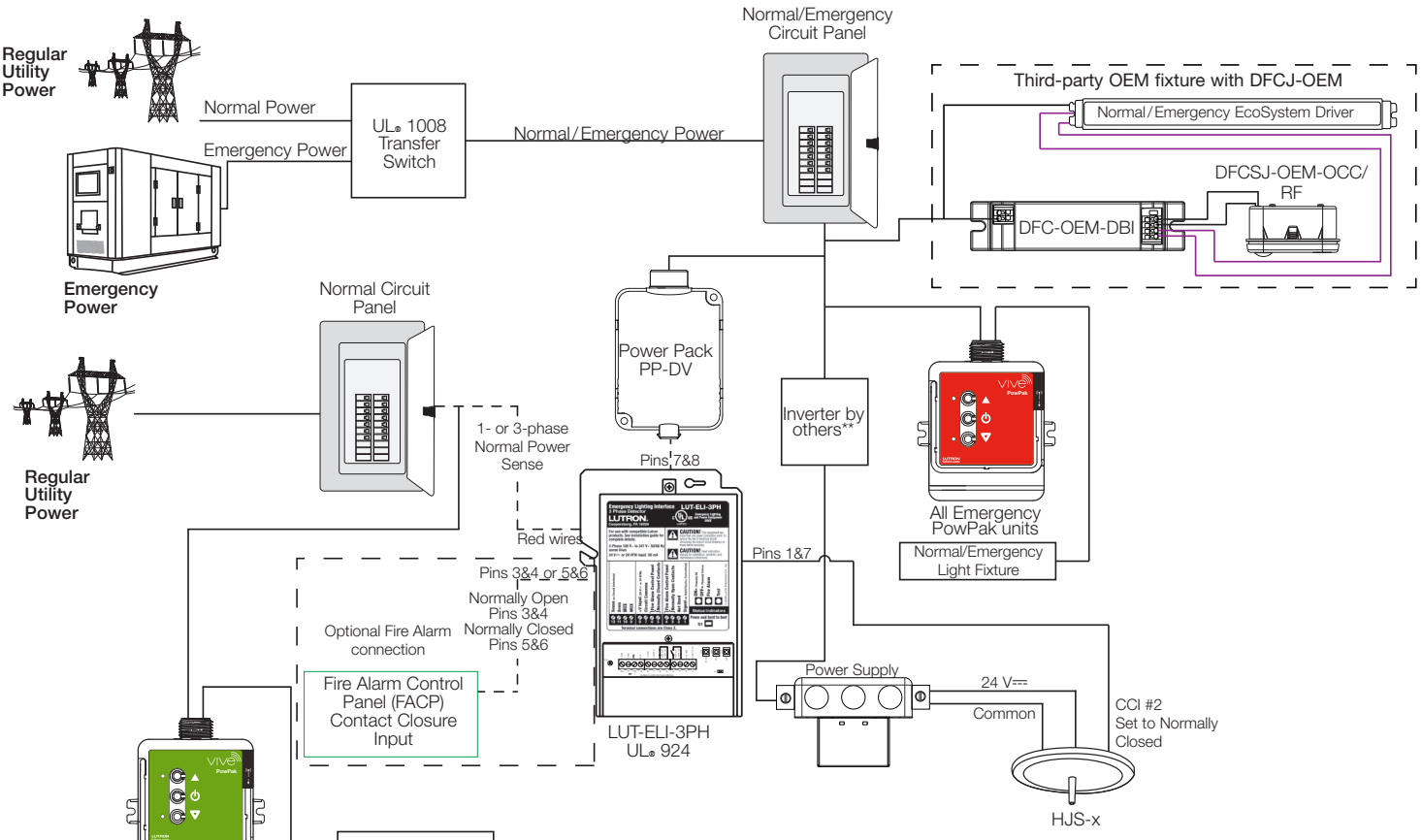
If emergency power source is a generator, an inverter must be added to supply power to the Vive hub. Hub cannot lose power during transfer from normal to emergency. If emergency power source is a UPS and thus will not experience a dropout of power between utility and inverter power, no additional inverter on the Vive hub is required.

In this application, the Vive hub, Vive integral fixture controllers designated as emergency and emergency PowPak modules are powered by normal and emergency power. The LUT-ELI-3PH is powered by normal and emergency power, and senses normal power. During regular operation, the Automatic Transfer Switch is in the Normal position, allowing regular utility power to the Vive hub, Vive integral fixture controllers designated as emergency, emergency PowPak modules and LUT-ELI-3PH.

During emergency operation, the Automatic Transfer Switch is in the Emergency position, allowing emergency backup power to power the device. As a result, the LUT-ELI-3PH senses the loss of normal power and will open the contact closure input (CCI2) on the Vive hub. The Vive hub will send the Vive integral fixture controllers designated as emergency and emergency PowPak modules to their emergency lighting level until the LUT-ELI-3PH senses normal power and re-makes the contact with CCI2 on the Vive hub. The Vive hub will then release the Vive integral fixture controllers designated as emergency and emergency PowPak modules to their normal operation.

During fire alarm operation, normal power may still be present. The Fire Alarm Control Panel will set a contact on the LUT-ELI-3PH which will cause the LUT-ELI-3PH to open the contact closure input (CCI2) on the Vive hub. The Vive hub will send the Vive integral fixture controllers designated as emergency and emergency PowPak modules to their emergency lighting level. When the FACP contact is cleared, the LUT-ELI-3PH will re-make the contact with CCI2 on the Vive hub. The Vive hub will then release the Vive integral fixture controllers designated as emergency and emergency PowPak modules to their normal operation.

Wiring Schematic

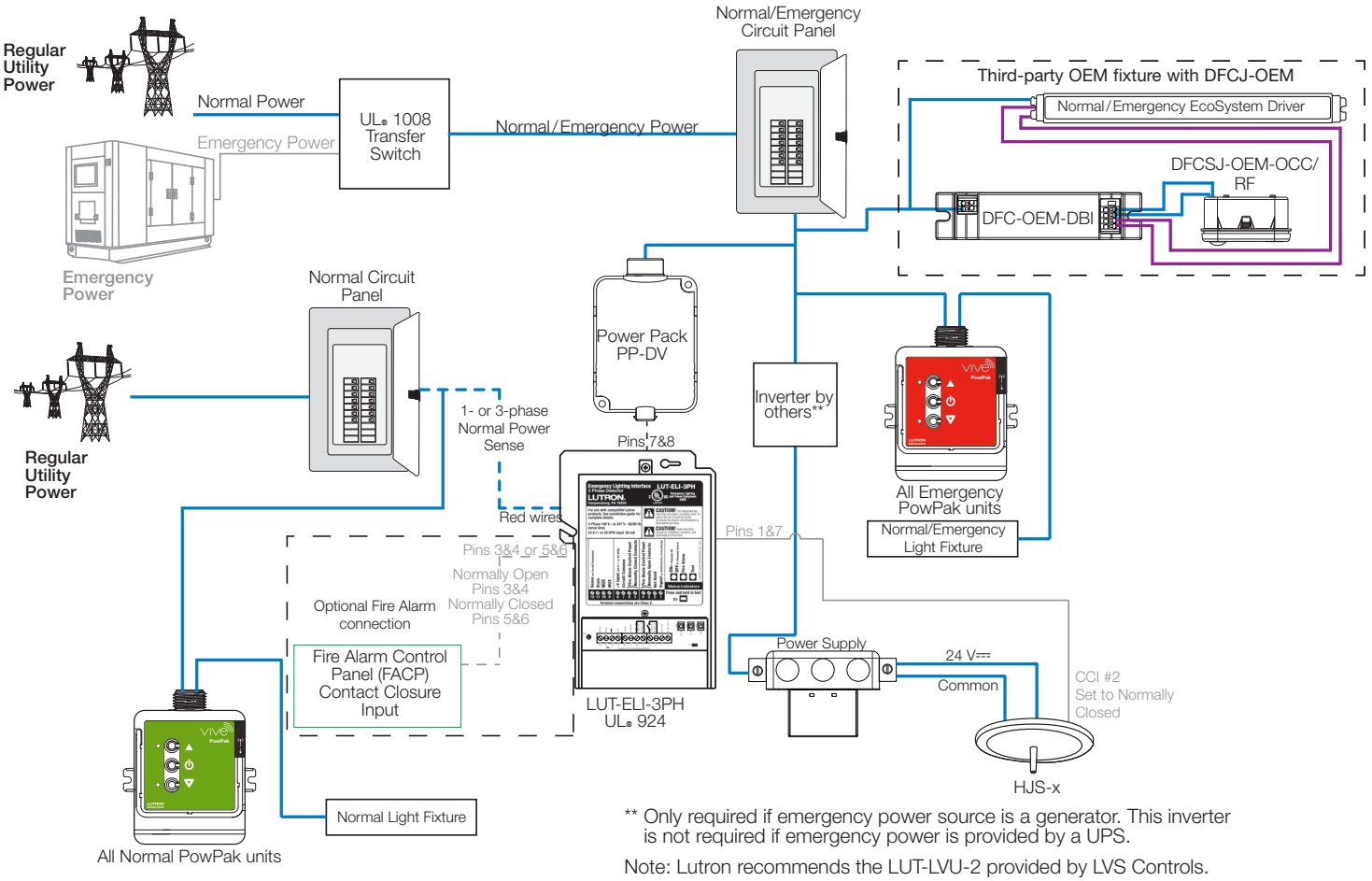


** Only required if emergency power source is a generator. This inverter is not required if emergency power is provided by a UPS.

Note: Lutron recommends the LUT-LVU-2 provided by LVS Controls.

Emergency Lighting and Optional Fire Alarm Integration using a Vive Hub and Emergency PowPak modules *(continued)*

Regular Operation

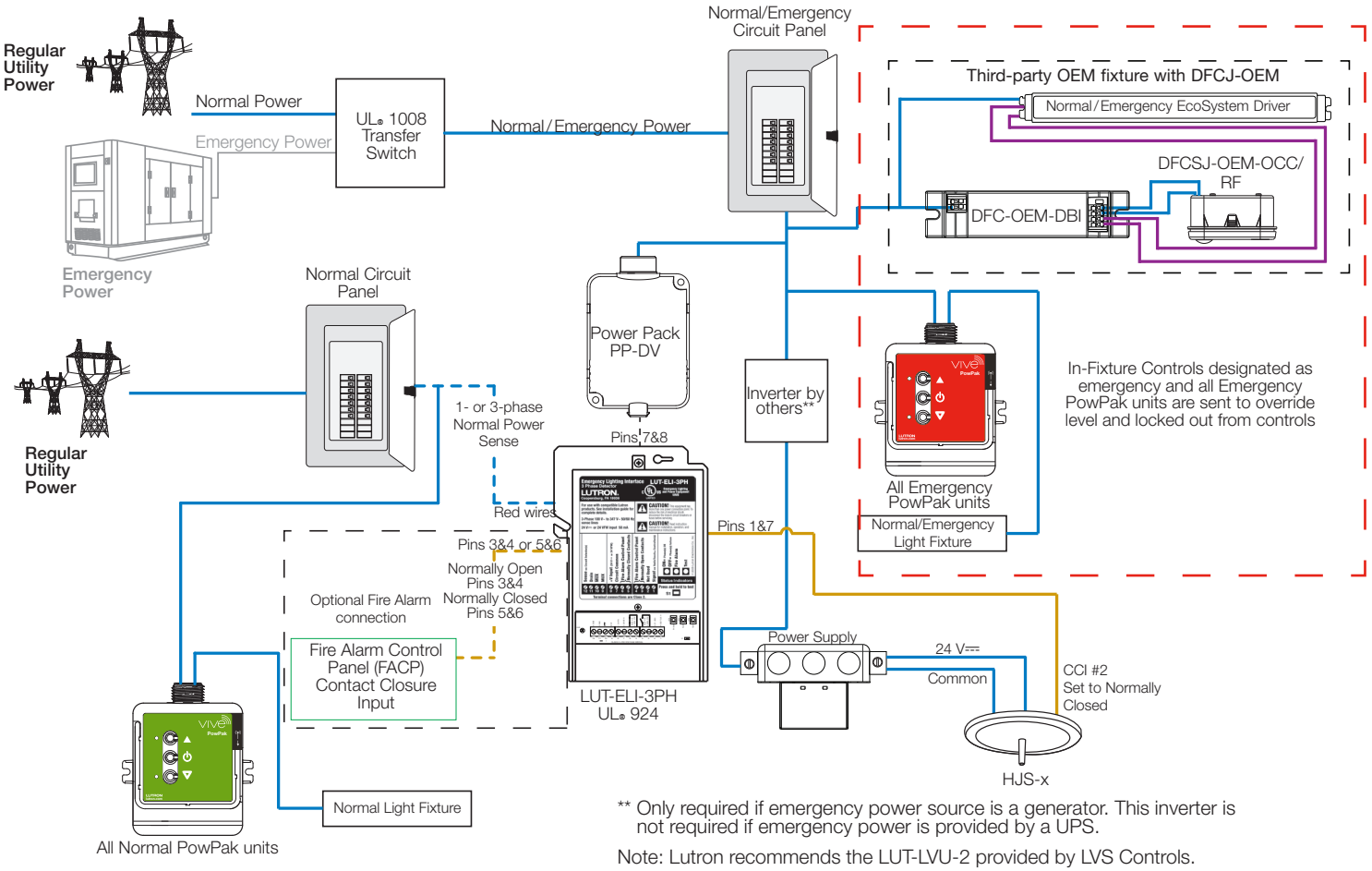


** Only required if emergency power source is a generator. This inverter is not required if emergency power is provided by a UPS.

Note: Lutron recommends the LUT-LVU-2 provided by LVS Controls.

Emergency Lighting and Optional Fire Alarm Integration using a Vive Hub and Emergency PowPak modules *(continued)*

Fire Alarm Activated

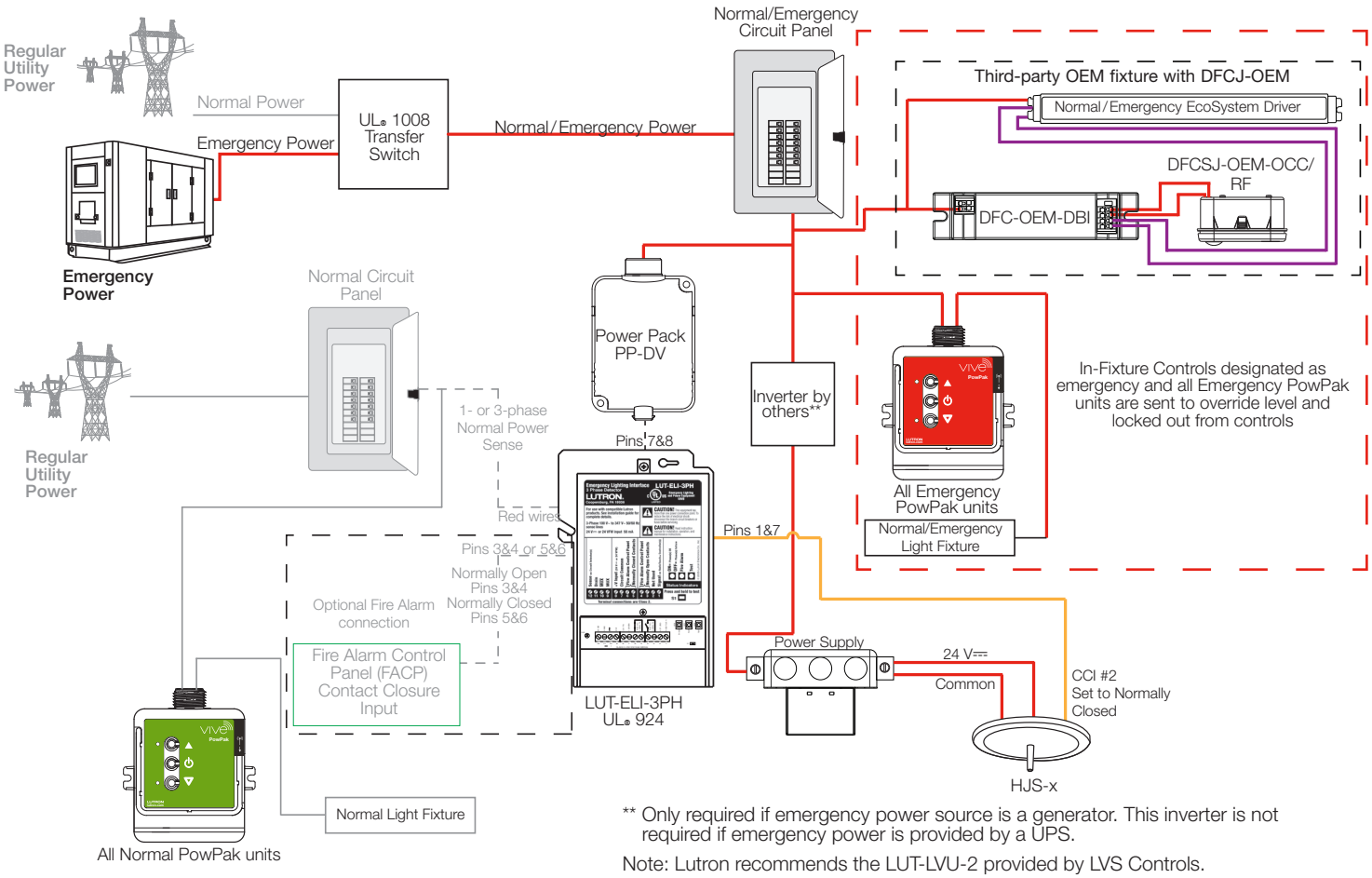


** Only required if emergency power source is a generator. This inverter is not required if emergency power is provided by a UPS.

Note: Lutron recommends the LUT-LVU-2 provided by LVS Controls.

Emergency Lighting and Optional Fire Alarm Integration using a Vive Hub and Emergency PowPak modules *(continued)*

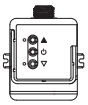
Emergency Operation



** Only required if emergency power source is a generator. This inverter is not required if emergency power is provided by a UPS.

Note: Lutron recommends the LUT-LVU-2 provided by LVS Controls.

PowPak 0–10 V⎓ Dimming Module

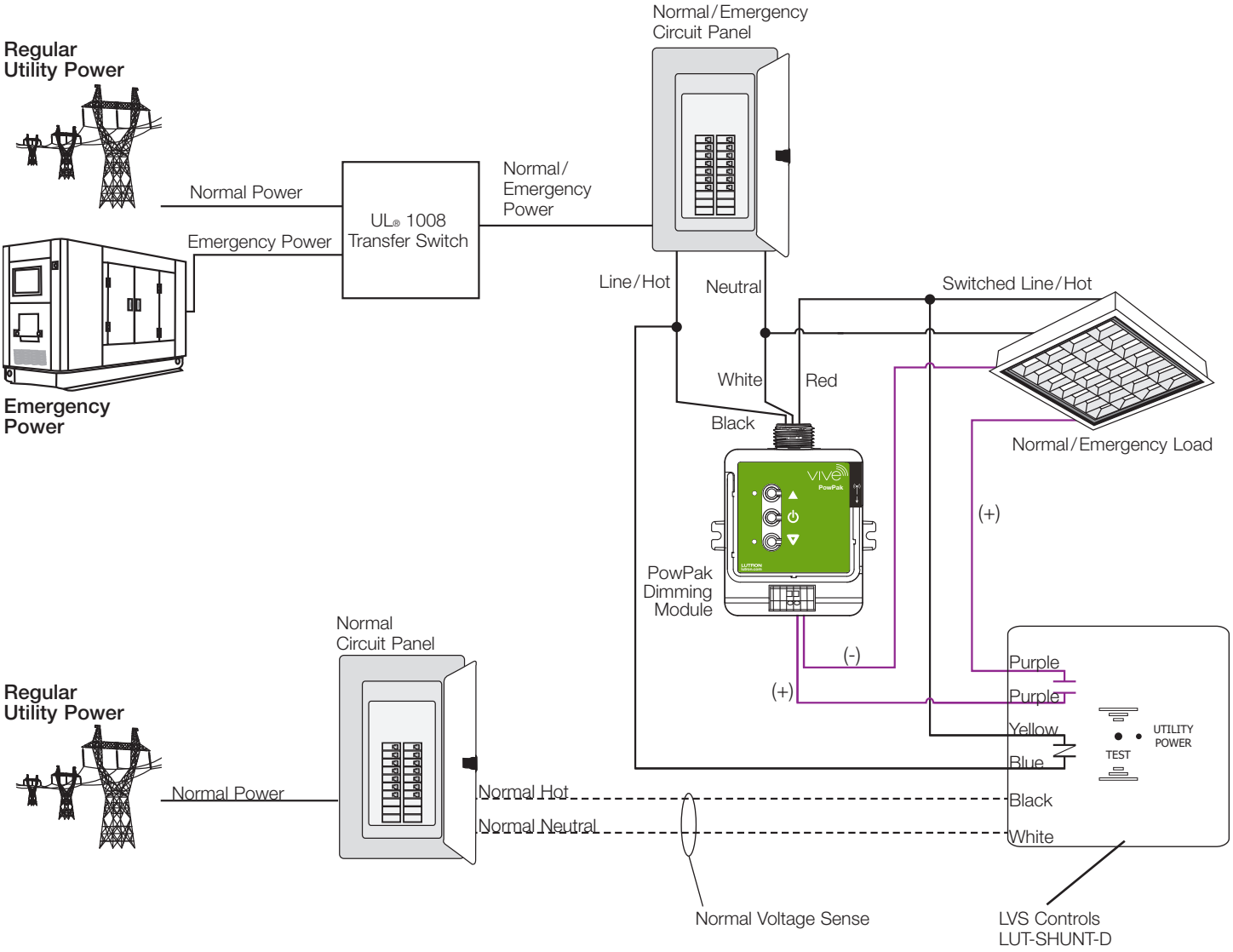


Module is powered by normal and emergency power

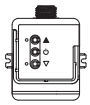
In an application where a 0–10 V⎓ PowPak dimming module is powered by normal and emergency power and controlling emergency loads, an ALCR with a normally open relay and a normally closed relay is used. During regular operation, the module controls the load directly. During emergency operation, the device senses normal power is lost and the normally closed relay closes while the normally open relay opens. Doing this provides power to the load and interrupts the 0–10 V⎓ signal which should cause the load to go to high-end if the ballast or driver complies with IEC 60929 Annex E.
An example of this type of ALCR is the LUT-SHUNT-D from LVS Controls. This applies to:

- **RMJS-8T-DV-B**
- **URMJS-8T-DV-B**
- **RMJS-8TN-DV-B**
- **URMJS-8TN-DV-B**
- **FCJS-010**

Wiring Schematic

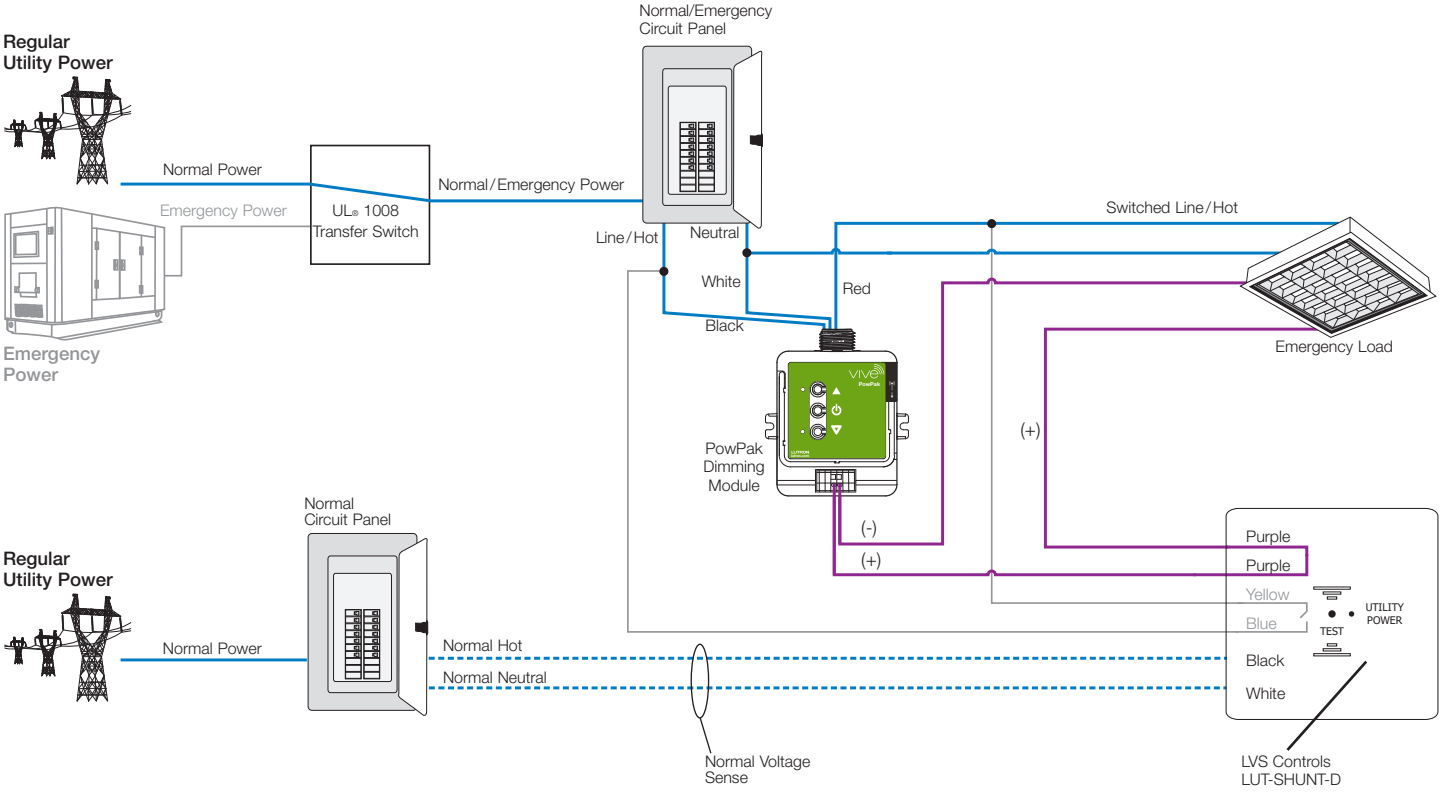


PowPak 0–10 V⎓ Dimming Module *(continued)*

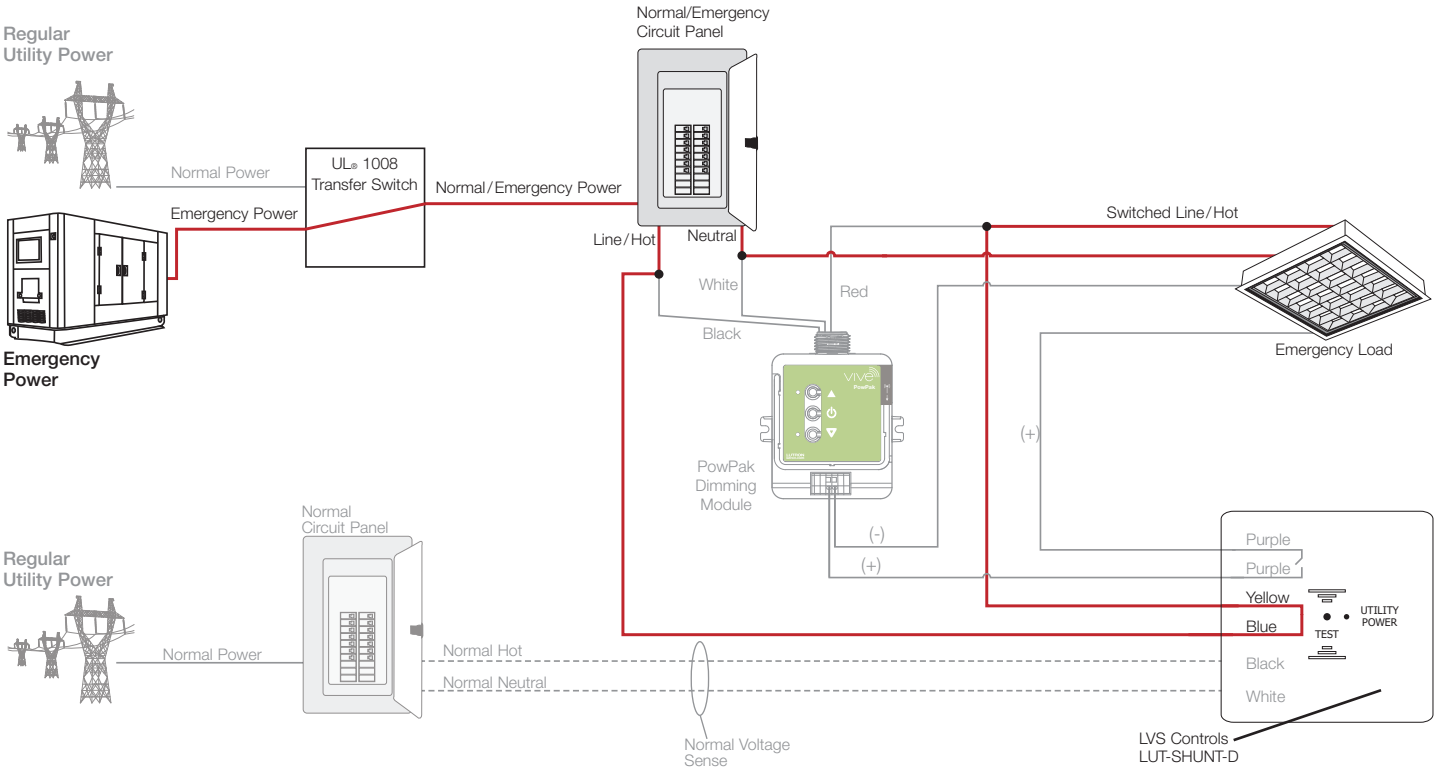


Module is powered by normal and emergency power *(continued)*

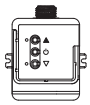
Regular Operation



Emergency Operation

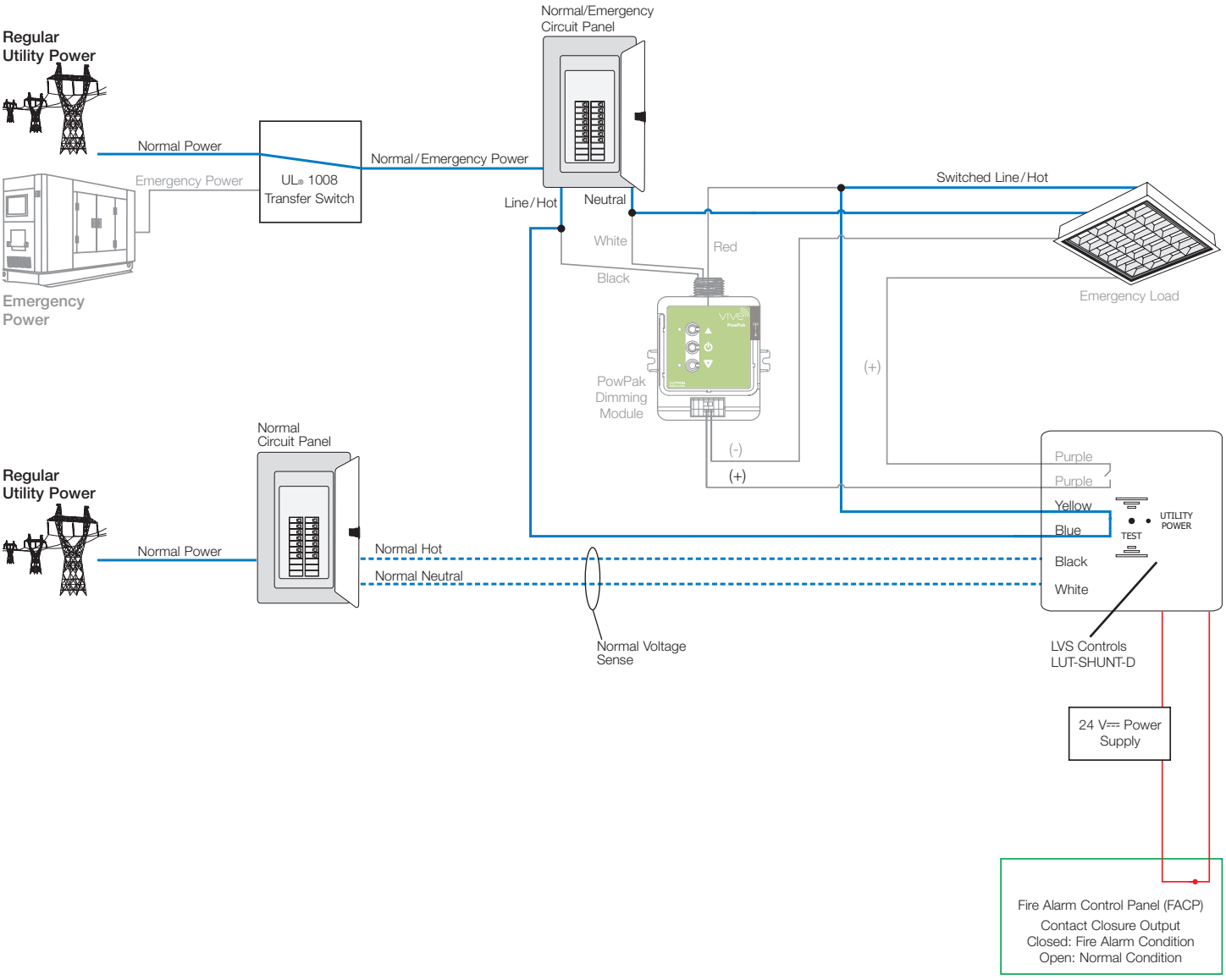


PowPak 0–10 V⎓ Dimming Module *(continued)*

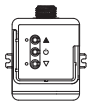


Module is powered by normal and emergency power *(continued)*

Fire Alarm Operation



PowPak 0–10 V⎓ Dimming Module *(continued)*

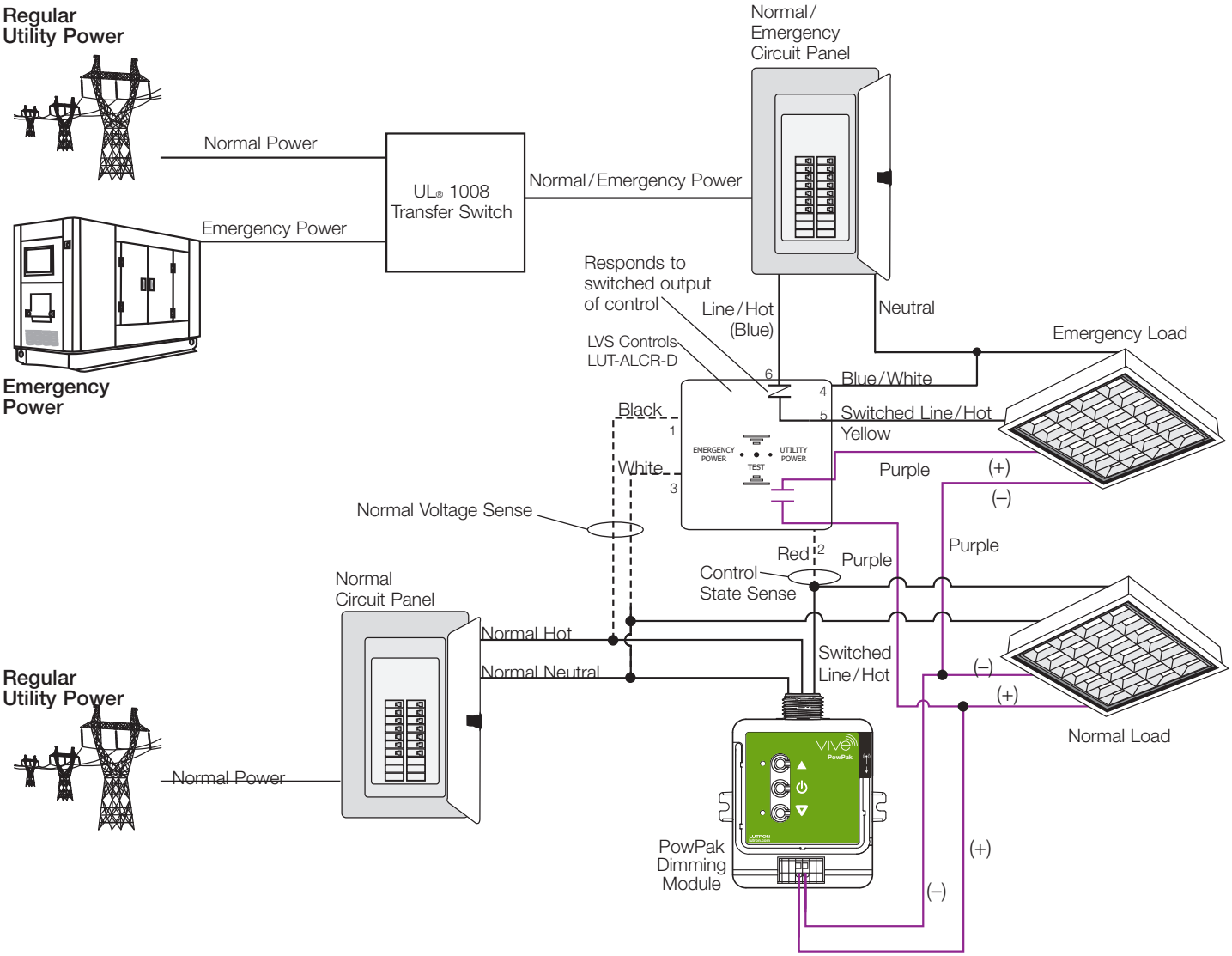


Module is powered by normal power

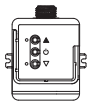
In an application where a 0–10 V⎓ PowPak dimming module is powered by normal power but controls an emergency load, an ALCR is used with a normally open relay and a normally closed relay that responds to a switched hot signal. During regular operation, the normally closed contact responds to the switched hot output of the module, while the normally open contact remains closed. During emergency operation, the device senses normal power is lost and the normally closed relay closes while the normally open relay opens. Doing this provides power to the load and interrupts the 0–10 V⎓ signal which should cause the load to go to high-end if the ballast or driver complies with IEC 60929 Annex E. An example of this type of ALCR is the LUT-ALCR-D from LVS Controls. This applies to:

- **RMJS-8T-DV-B**
- **URMJS-8T-DV-B**
- **RMJS-8TN-DV-B**
- **URMJS-8TN-DV-B**
- **FCJS-010**

Wiring Schematic

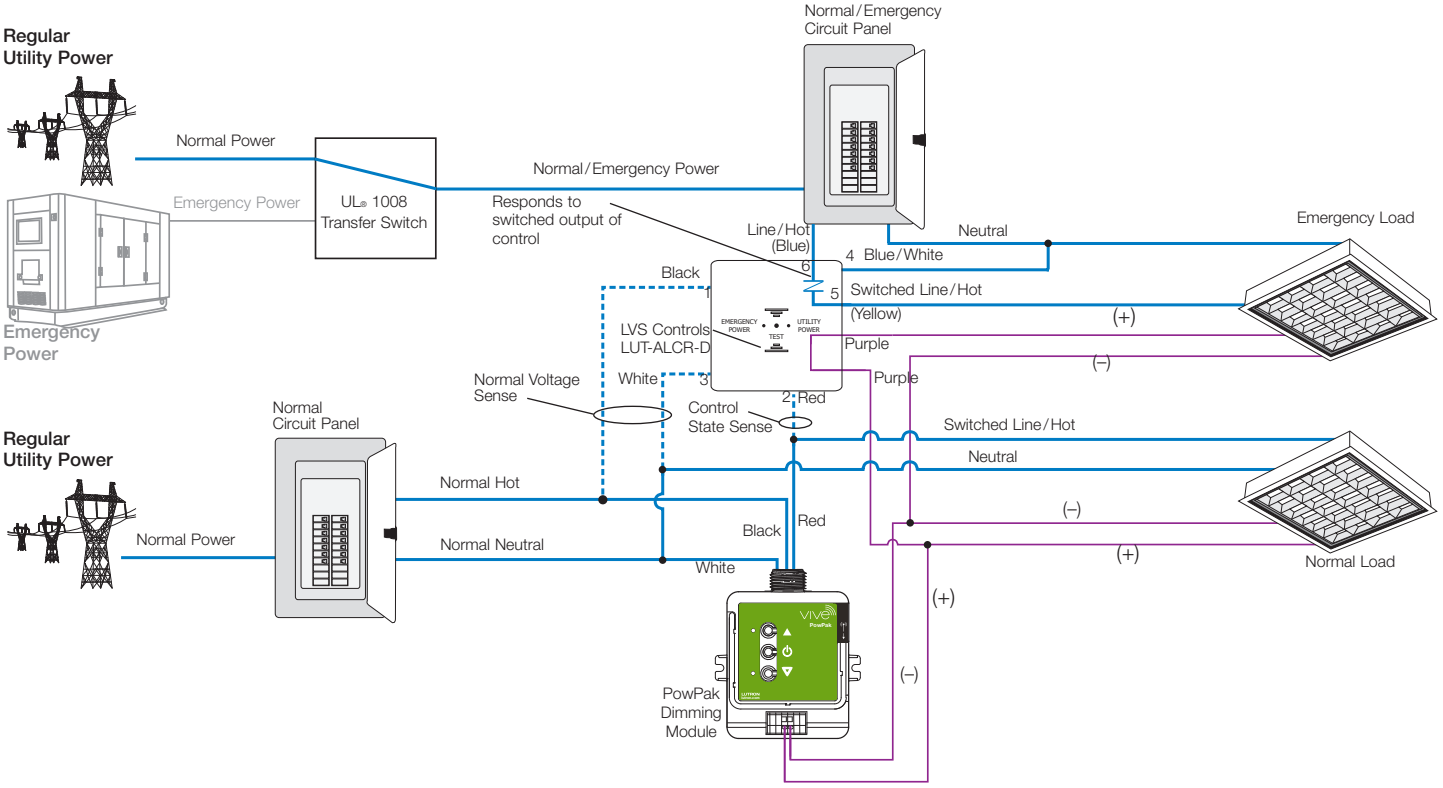


PowPak 0–10 V⎓ Dimming Module *(continued)*

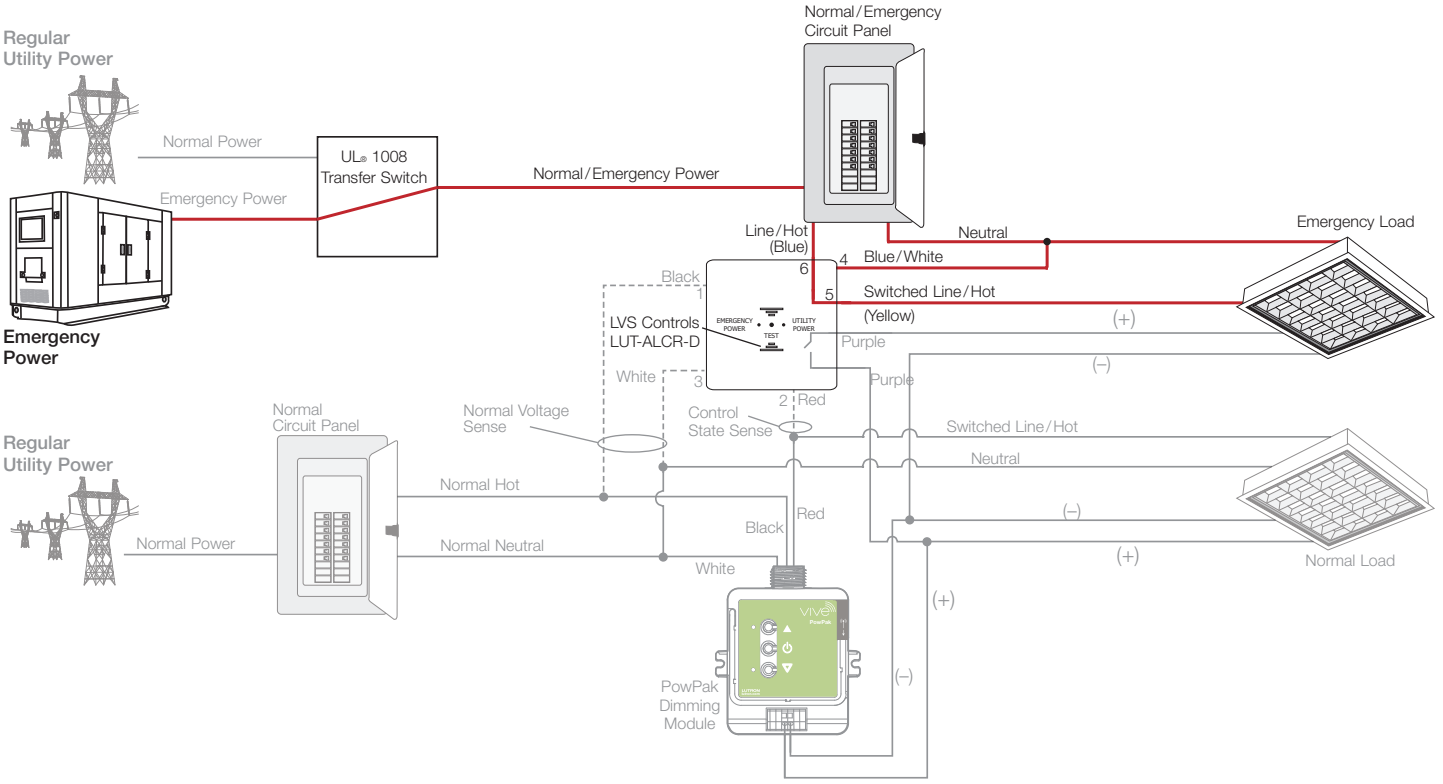


Module is powered by normal power *(continued)*

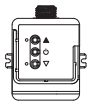
Regular Operation



Emergency Operation

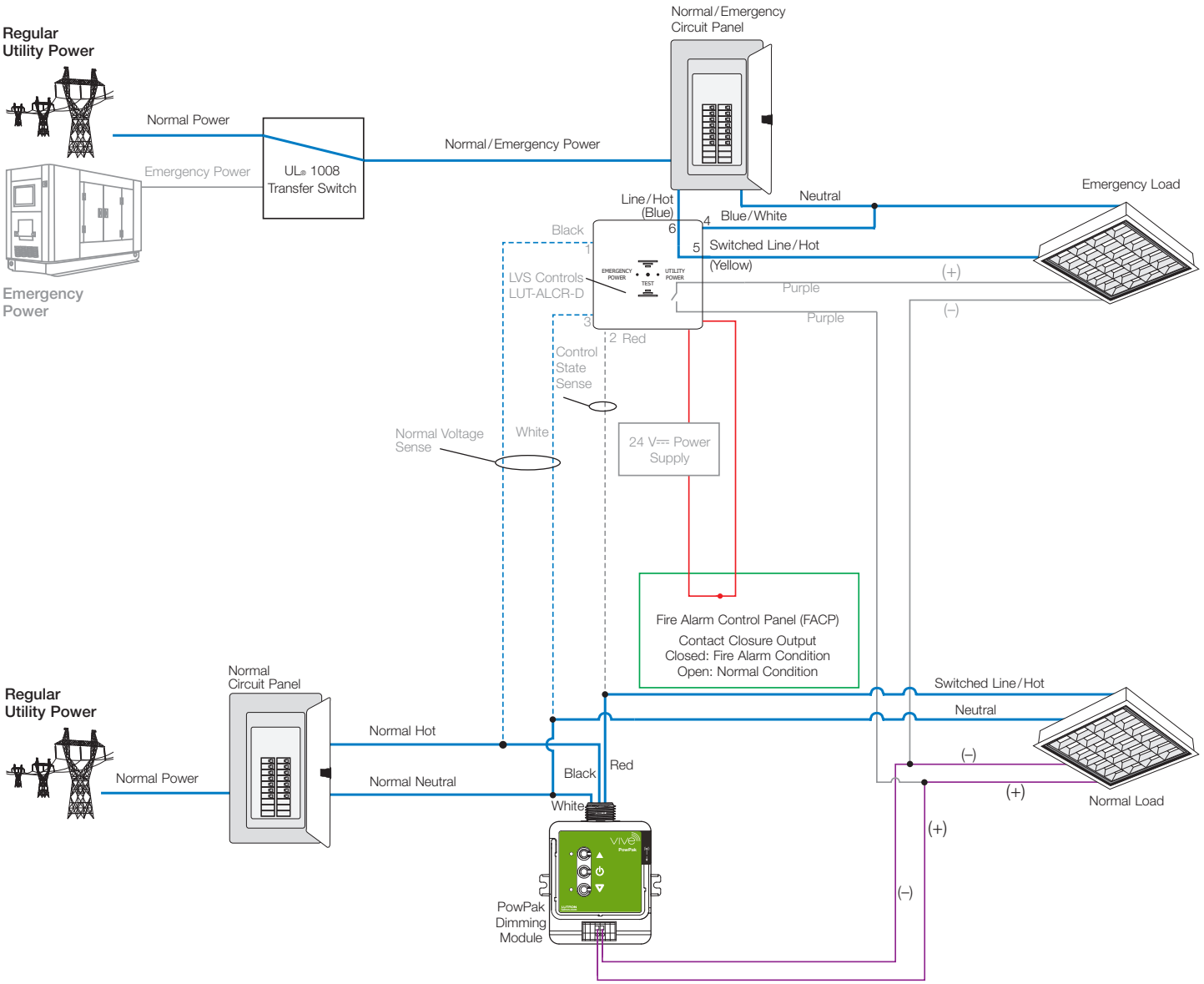


PowPak 0–10 V⎓ Dimming Module *(continued)*



Module is powered by normal power *(continued)*

Fire Alarm Operation



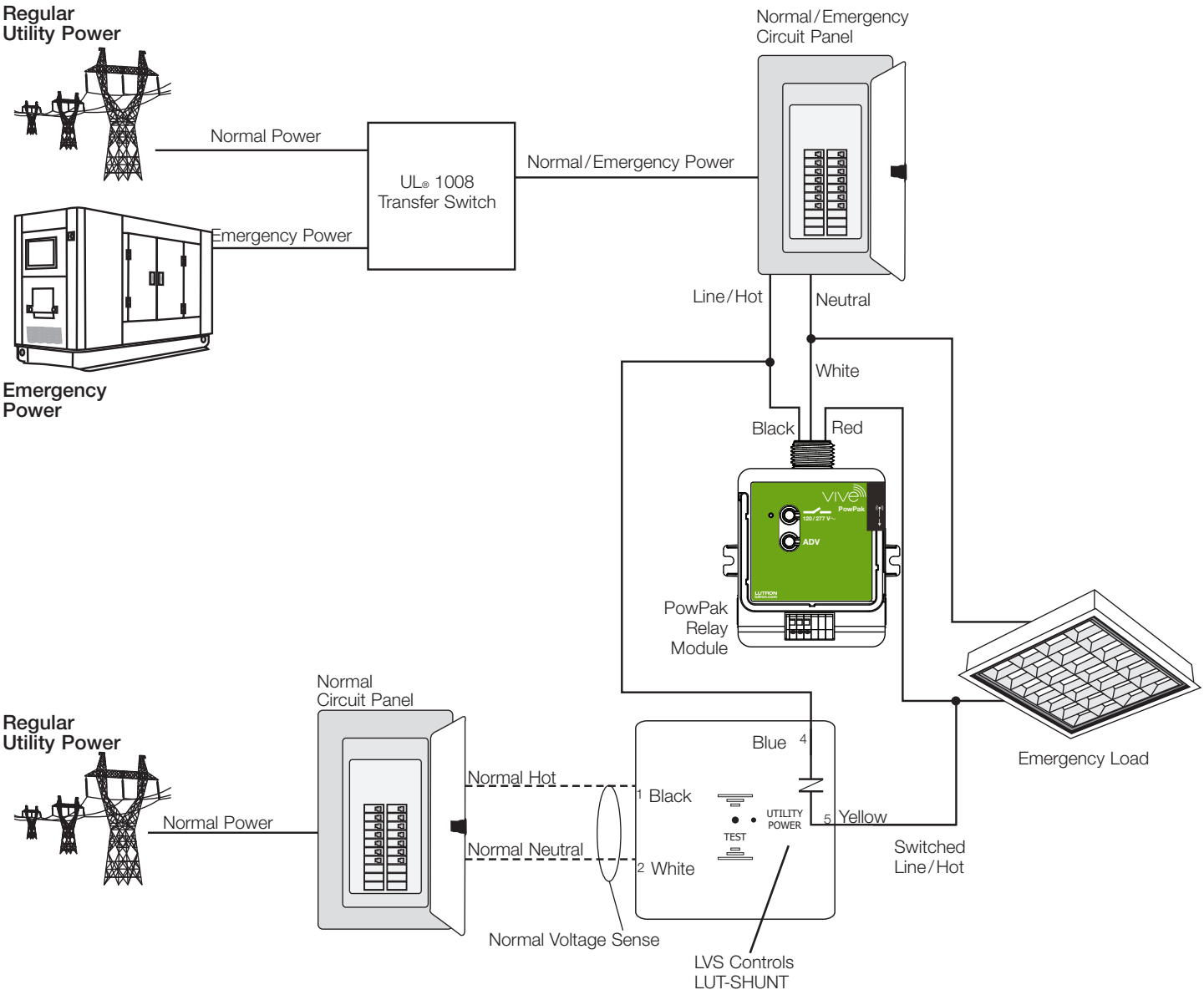
PowPak Relay Module With Softswitch

Module is powered by normal and emergency power

In an application where a PowPak relay module has power during an emergency, an ALCR with a normally closed relay (simple shunt relay) is used. During regular operation, normal power is present and the contact in the shunt relay is open, which allows the module to function. When normal power is lost, the contact in the shunt relay closes and bypasses the local control by providing power to the load. An example of an ALCR with a normally closed relay is LUT-SHUNT from LVS Controls. This shunt relay can be used with switching PowPak modules, which include:

- **RMJS-16R-DV-B**
- **RMJS-5R-DV-B**
- **RMJS-16RCCO1DV-B**
- **RMJS-5RCCO1-DV-B**
- **RMJS-20R-DV-B**
- **RMJS-20RCCO1DV-B**
- **URMJS-16RCCO1DV-B**
- **URMJS-16R-DV-B**

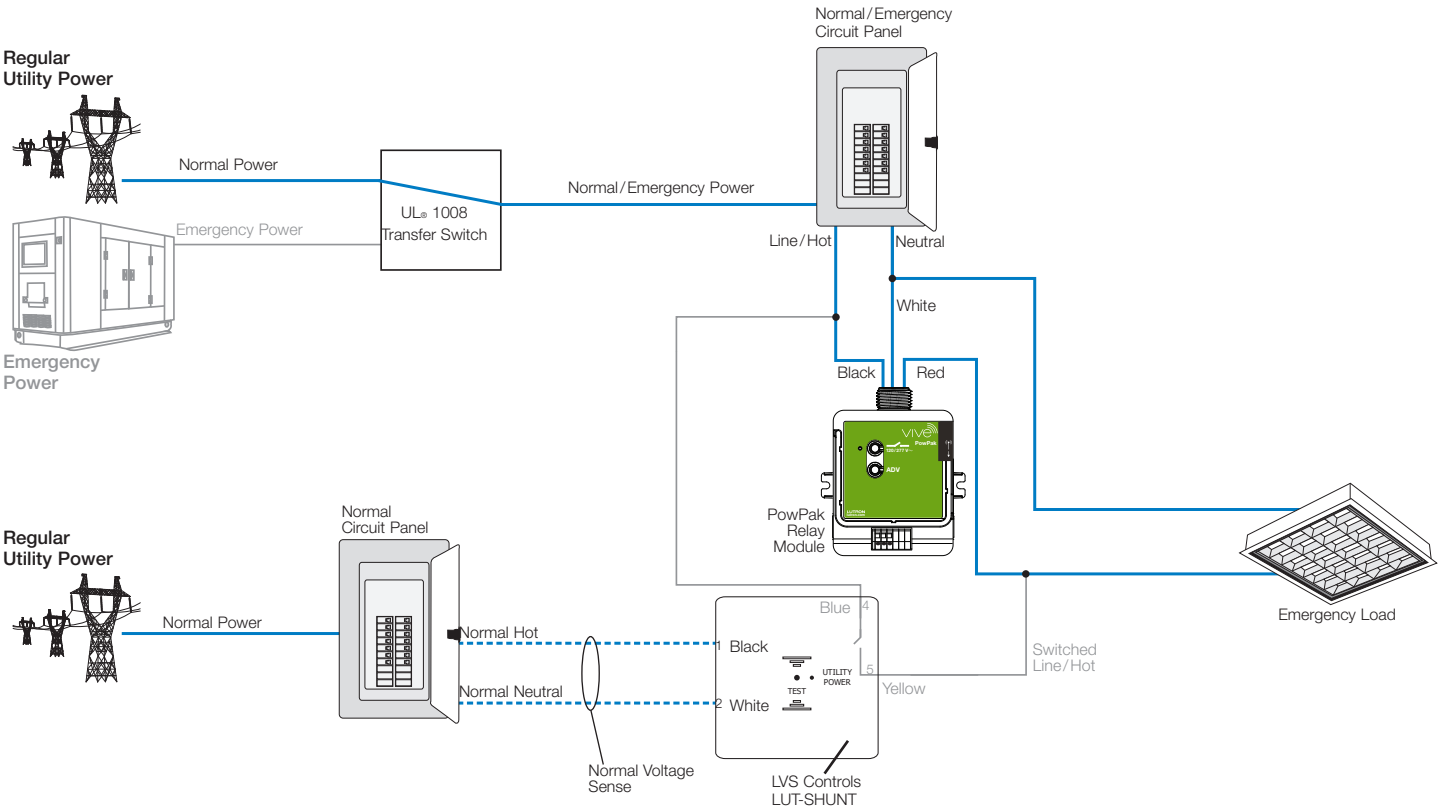
Wiring Schematic



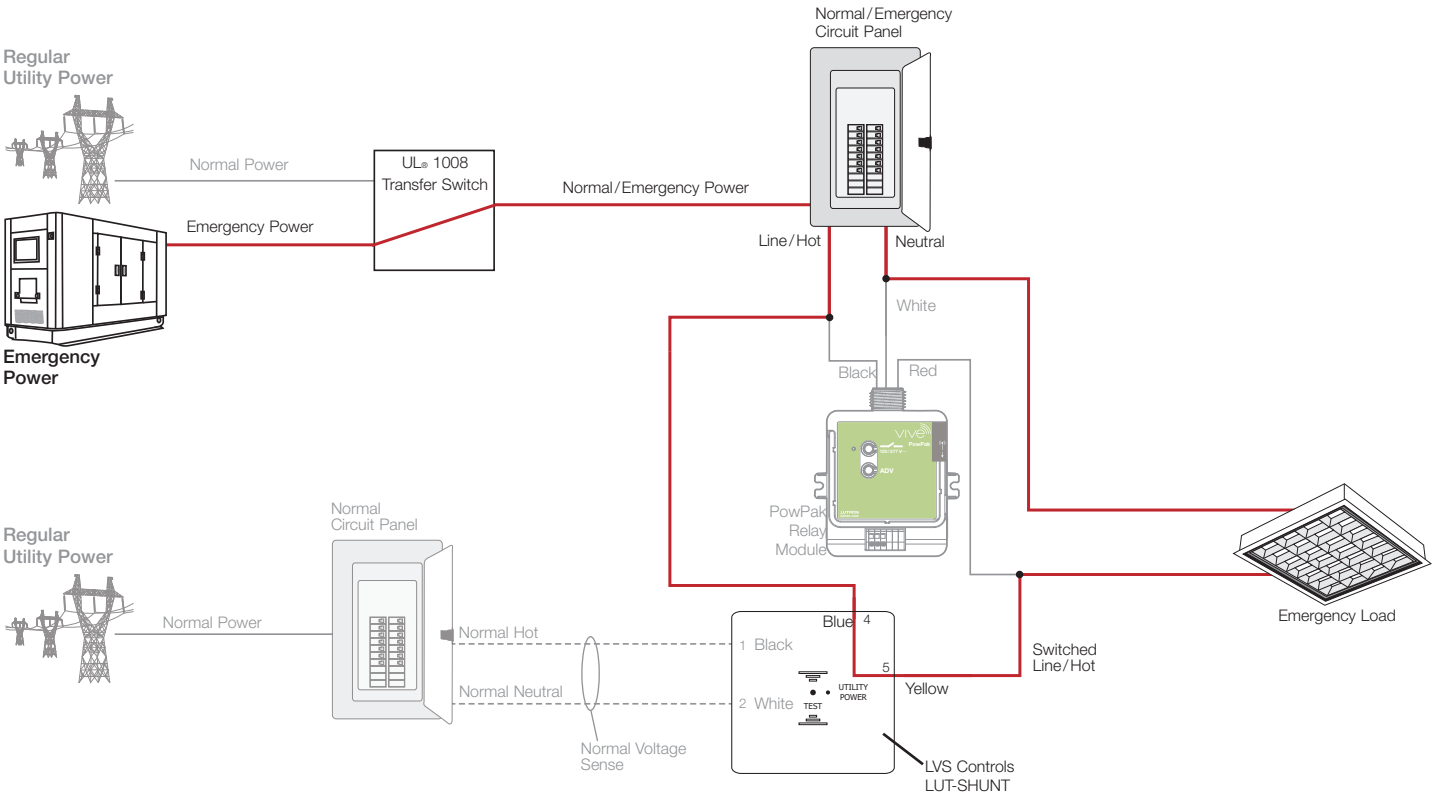
PowPak Relay Module With Softswitch *(continued)*

Module is powered by normal and emergency power *(continued)*

Regular Operation



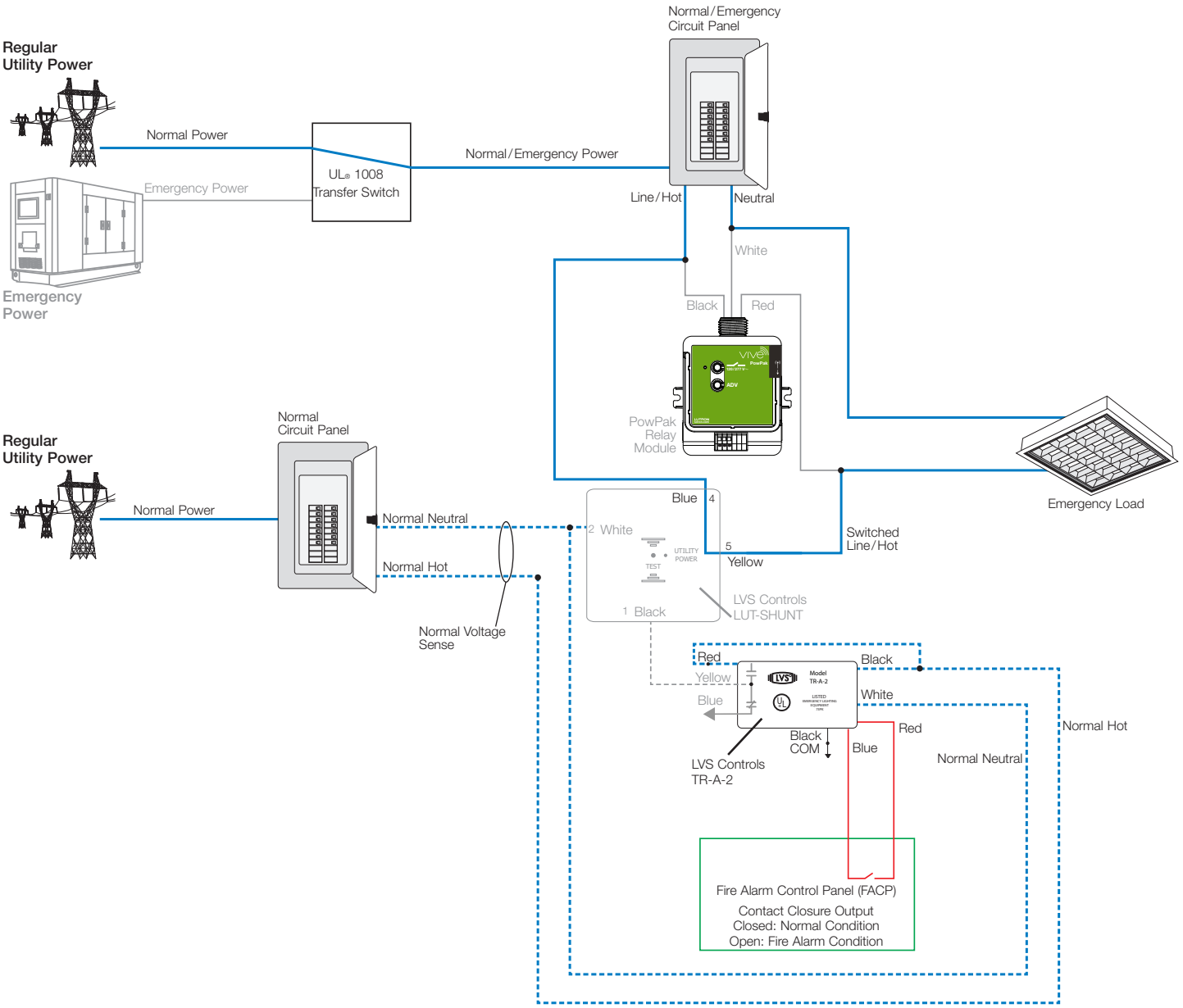
Emergency Operation



PowPak Relay Module With Softswitch *(continued)*

Module is powered by normal and emergency power *(continued)*

Fire Alarm Operation



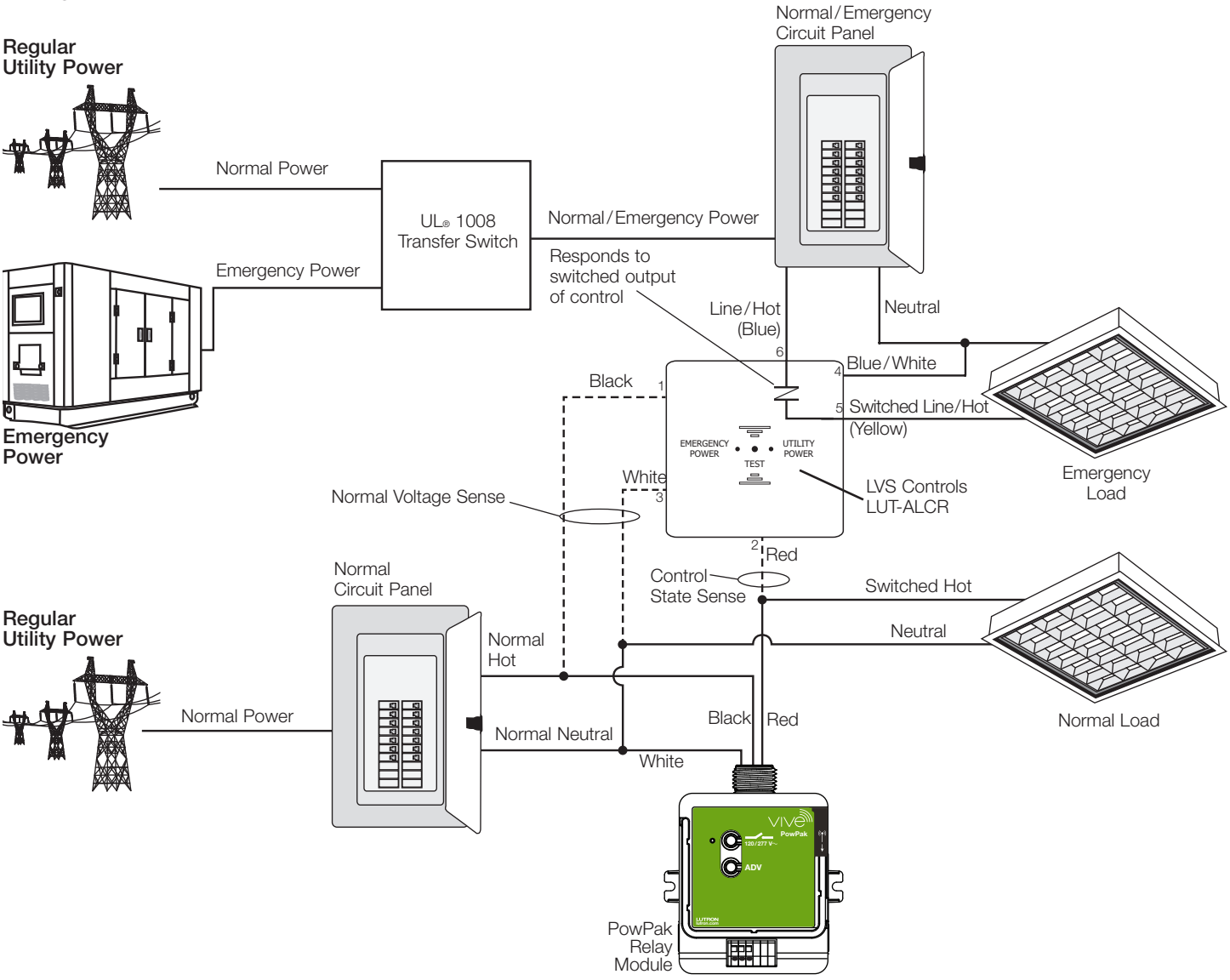
PowPak Relay Module With Softswitch *(continued)*

Module is powered by normal power

In an application where a PowPak relay module does not have power during an emergency, but is controlling emergency loads during regular operation, an ALCR is used with a normally open relay and a normally closed relay that responds to a switched hot signal. During regular operation, normal power is present and the relay in the ALCR will respond to switched hot output of the module. When normal power is lost, the contact in the ALCR will close and provide power to the emergency load. An example of an ALCR like this is LUT-ALCR from LVS controls. This relay can be used with switching PowPak modules, which include:

- **RMJS-16R-DV-B**
- **RMJS-5R-DV-B**
- **RMJS-16RCCO1DV-B**
- **RMJS-5RCCO1-DV-B**
- **RMJS-20R-DV-B**
- **RMJS-20RCCO1DV-B**
- **URMJS-16RCCO1DV-B**
- **URMJS-16R-DV-B**

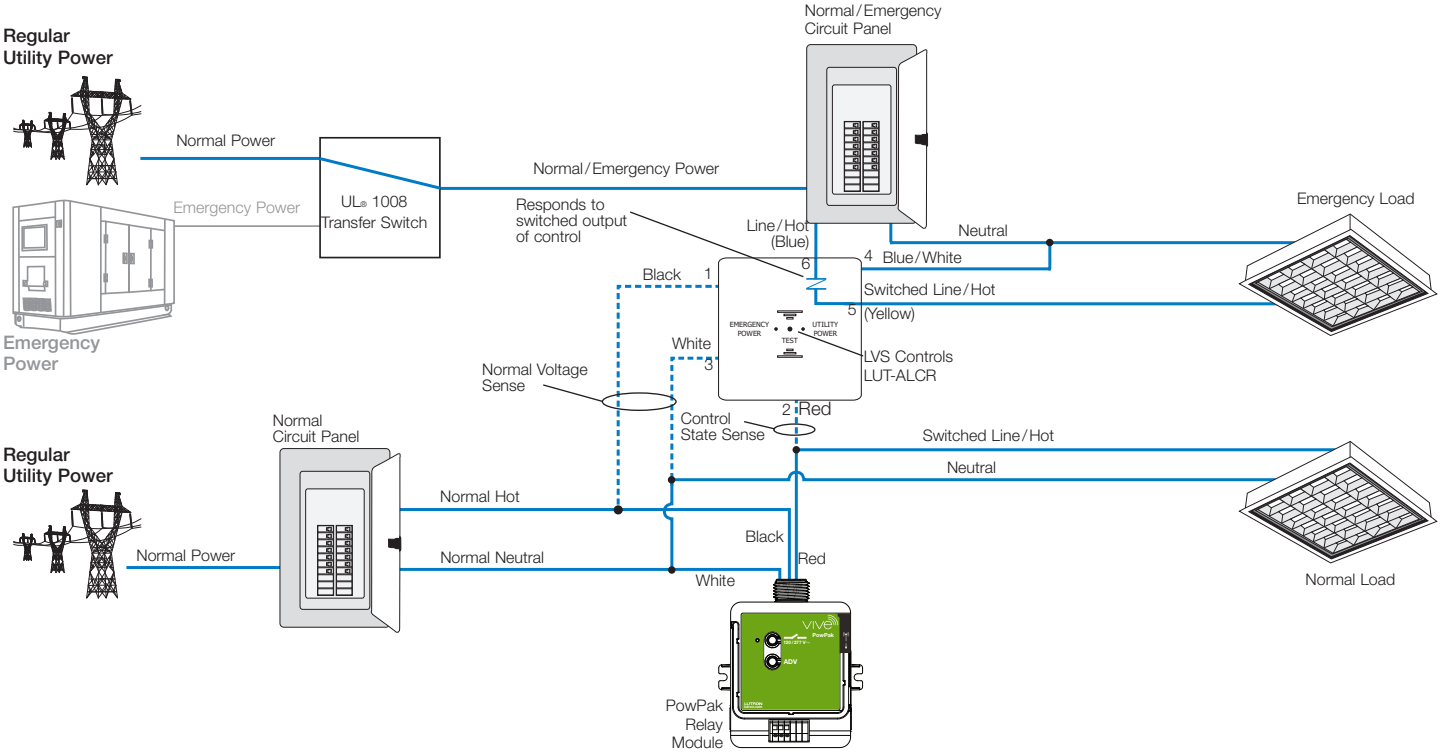
Wiring Schematic



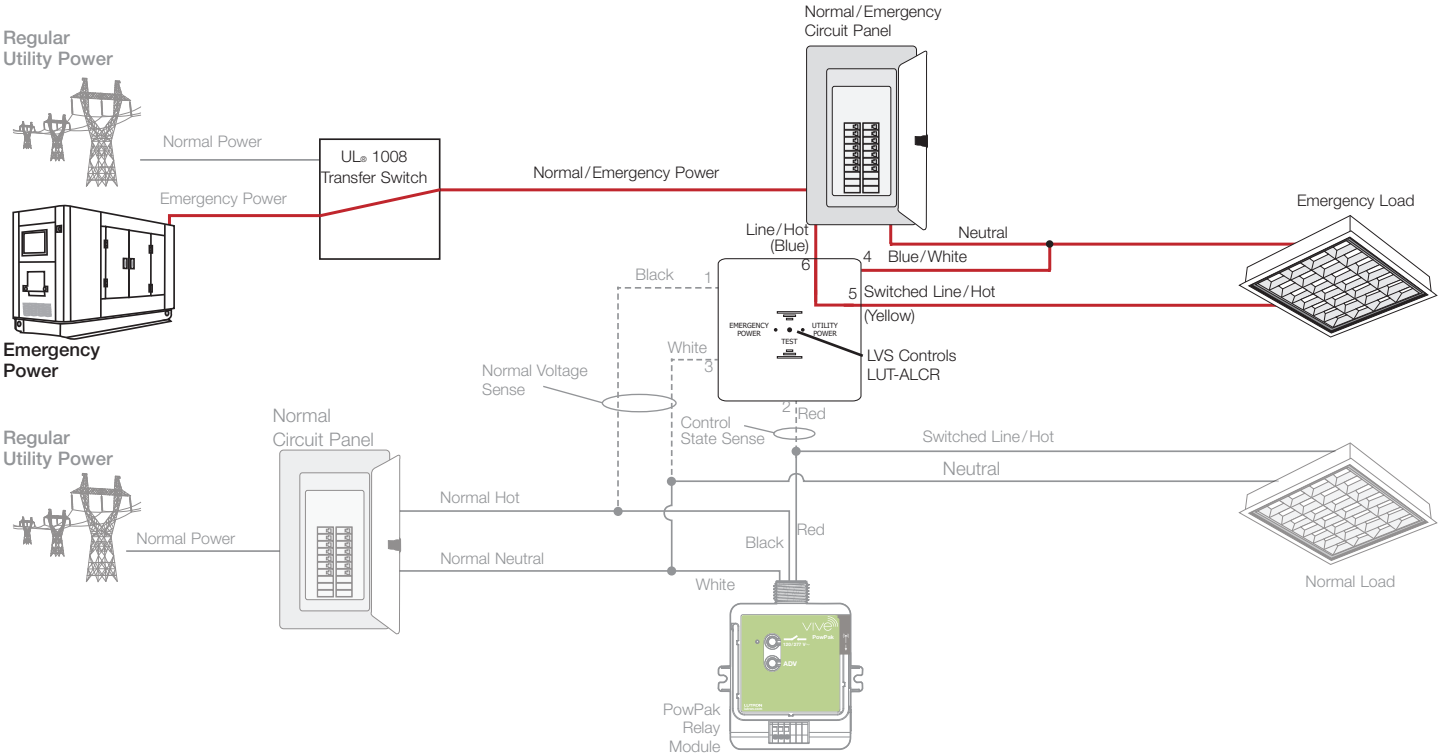
PowPak Relay Module With Softswitch *(continued)*

Module is powered by normal power *(continued)*

Regular Operation



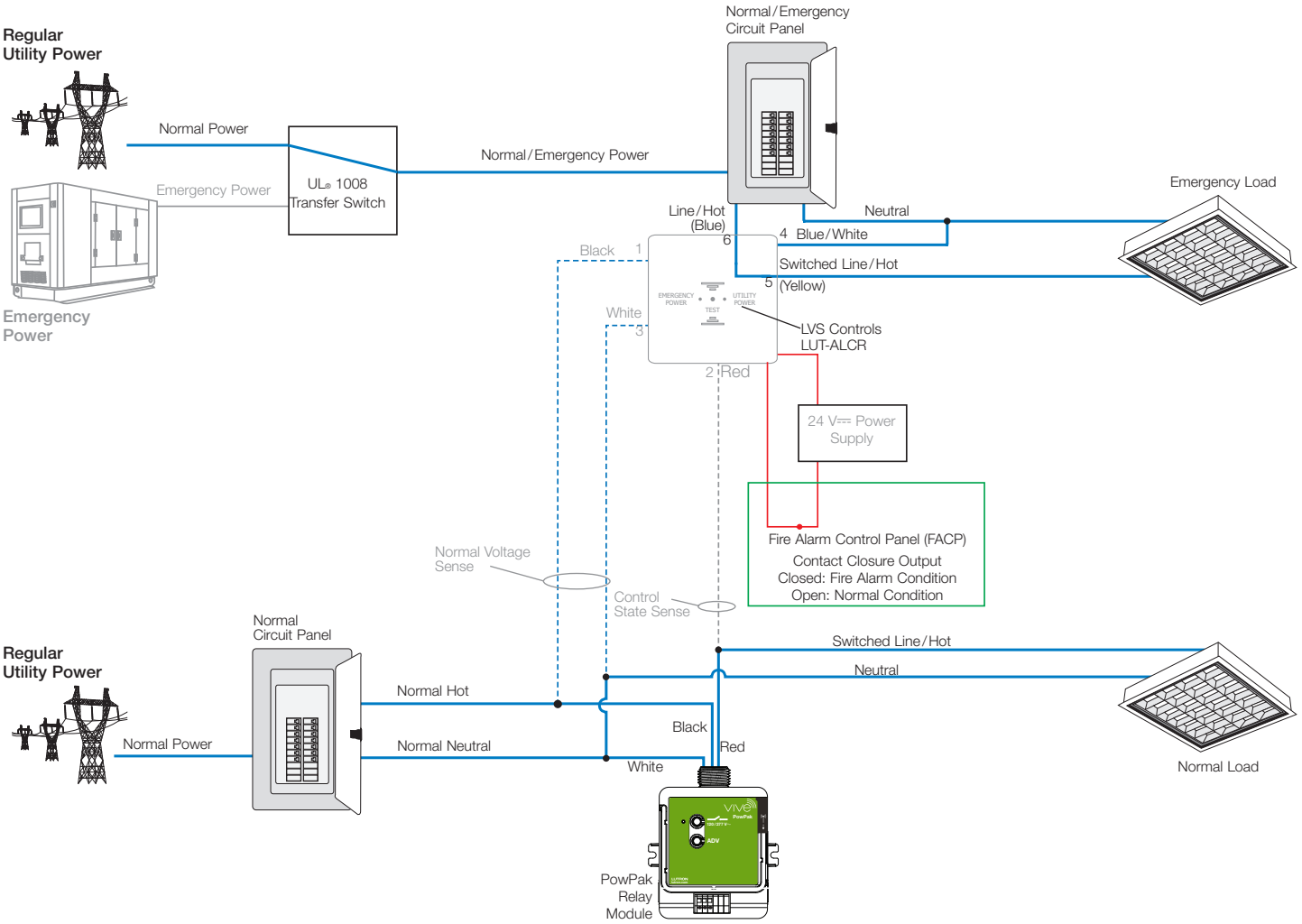
Emergency Operation



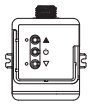
PowPak Relay Module With Softswitch *(continued)*

Module is powered by normal power *(continued)*

Fire Alarm Operation



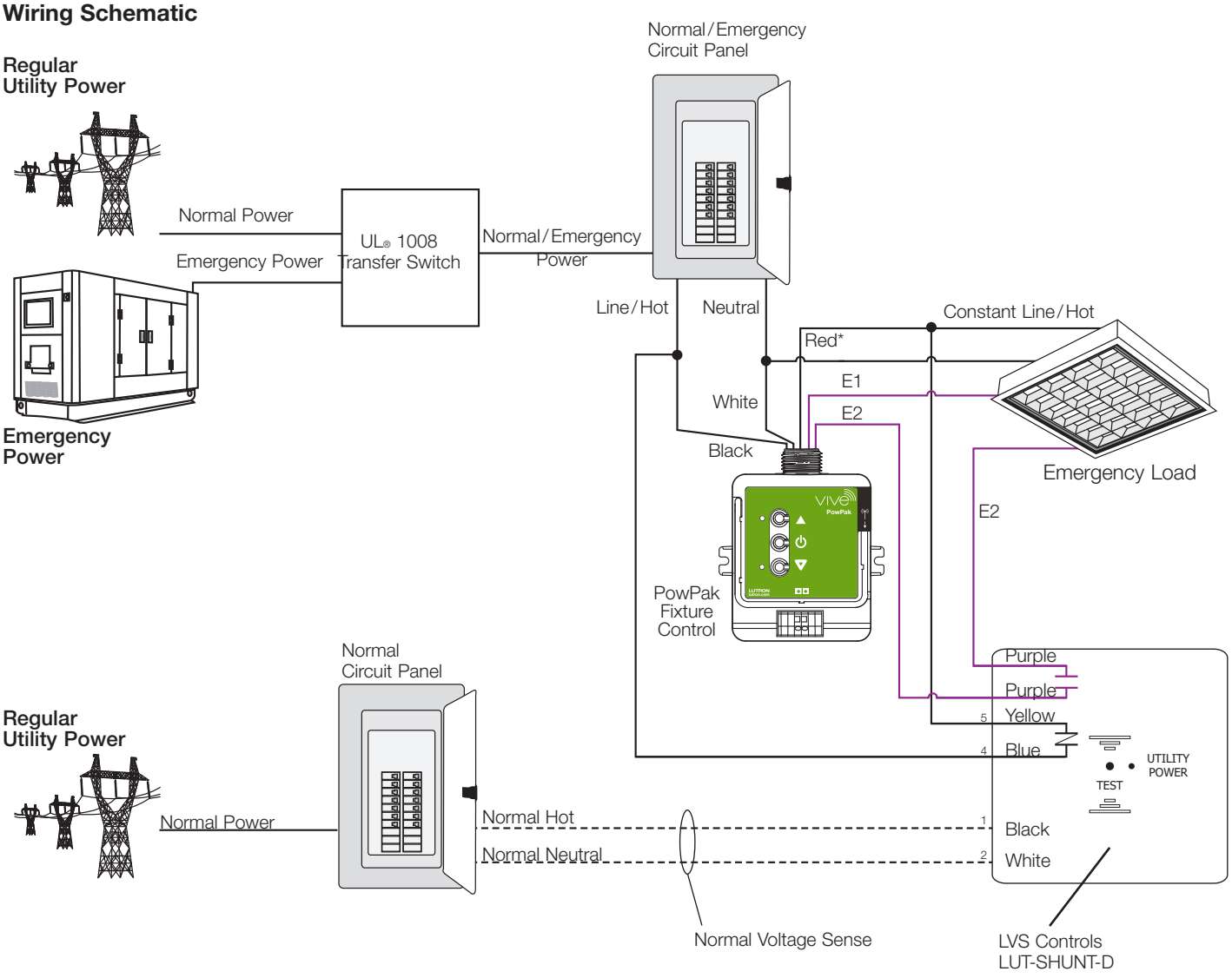
PowPak EcoSystem Fixture Control



Fixture Control is powered by normal and emergency power

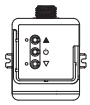
In an application where a PowPak Fixture Control is powered by emergency power and is controlling an emergency load, an ALCR is used with a normally open relay and a normally closed relay. During regular operation, the PowPak Fixture Control controls the loads directly. During emergency operation, the ALCR senses normal power is lost and the normally closed relay closes while the normally open relay opens. Doing this provides power to the load and interrupts the EcoSystem signal which causes the load go to high-end. An example of this type of ALCR is LUT-SHUNT-D from LVS Controls.
This applies to: **FCJS-ECO and RMJS-ECO32-SZ**.

Wiring Schematic



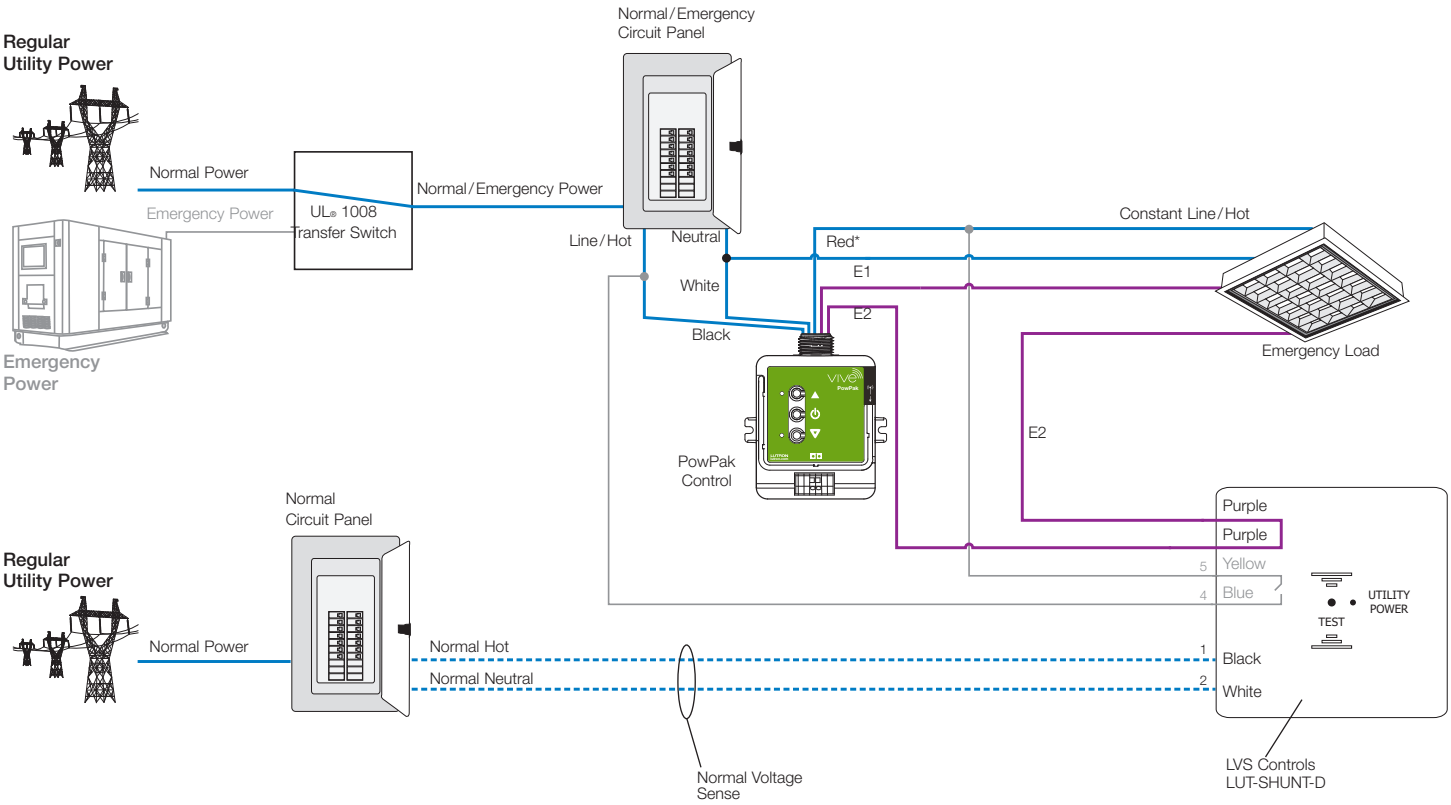
* Red switched hot wire present in FCJS-ECO only.

PowPak EcoSystem Fixture Control *(continued)*

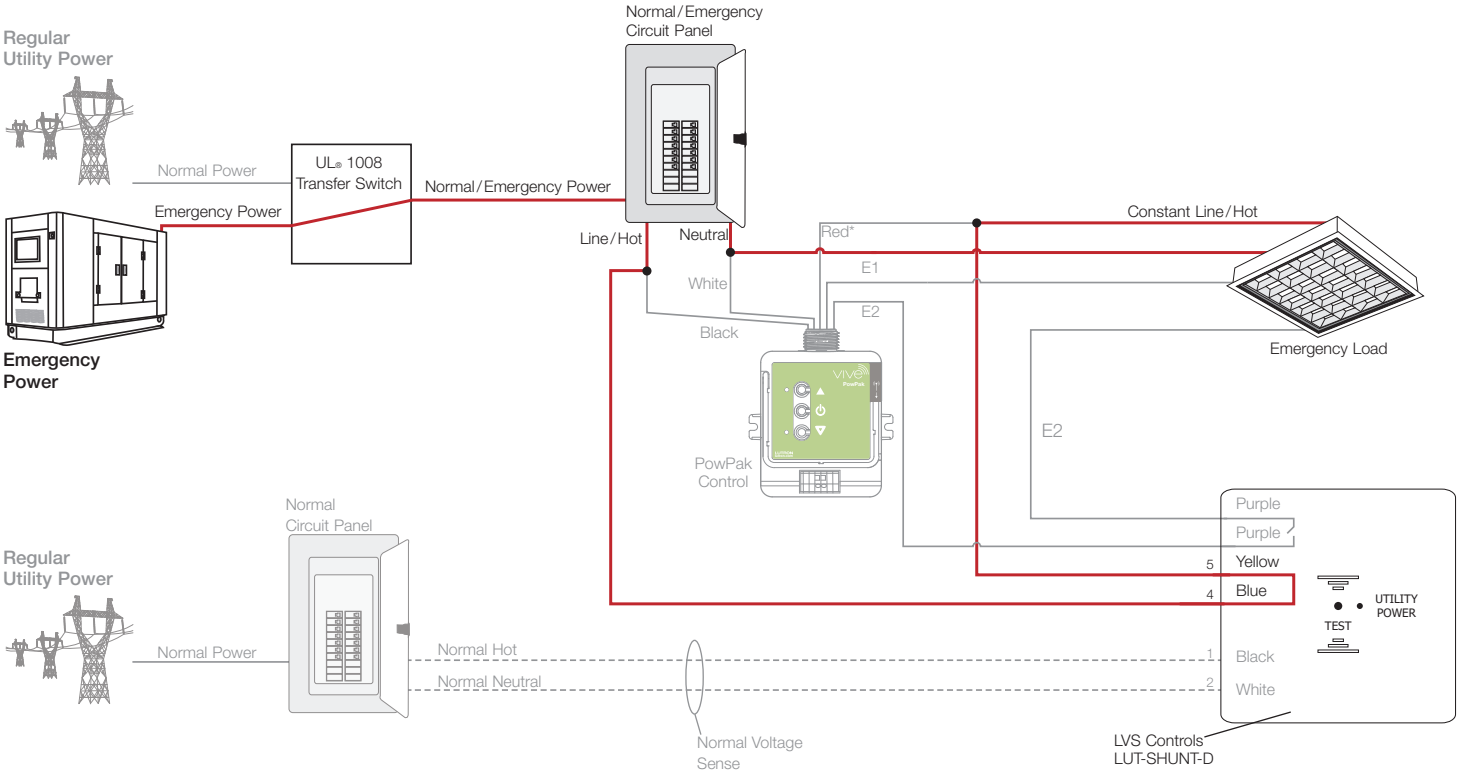


Fixture Control is powered by normal and emergency power *(continued)*

Regular Operation

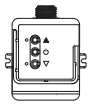


Emergency Operation



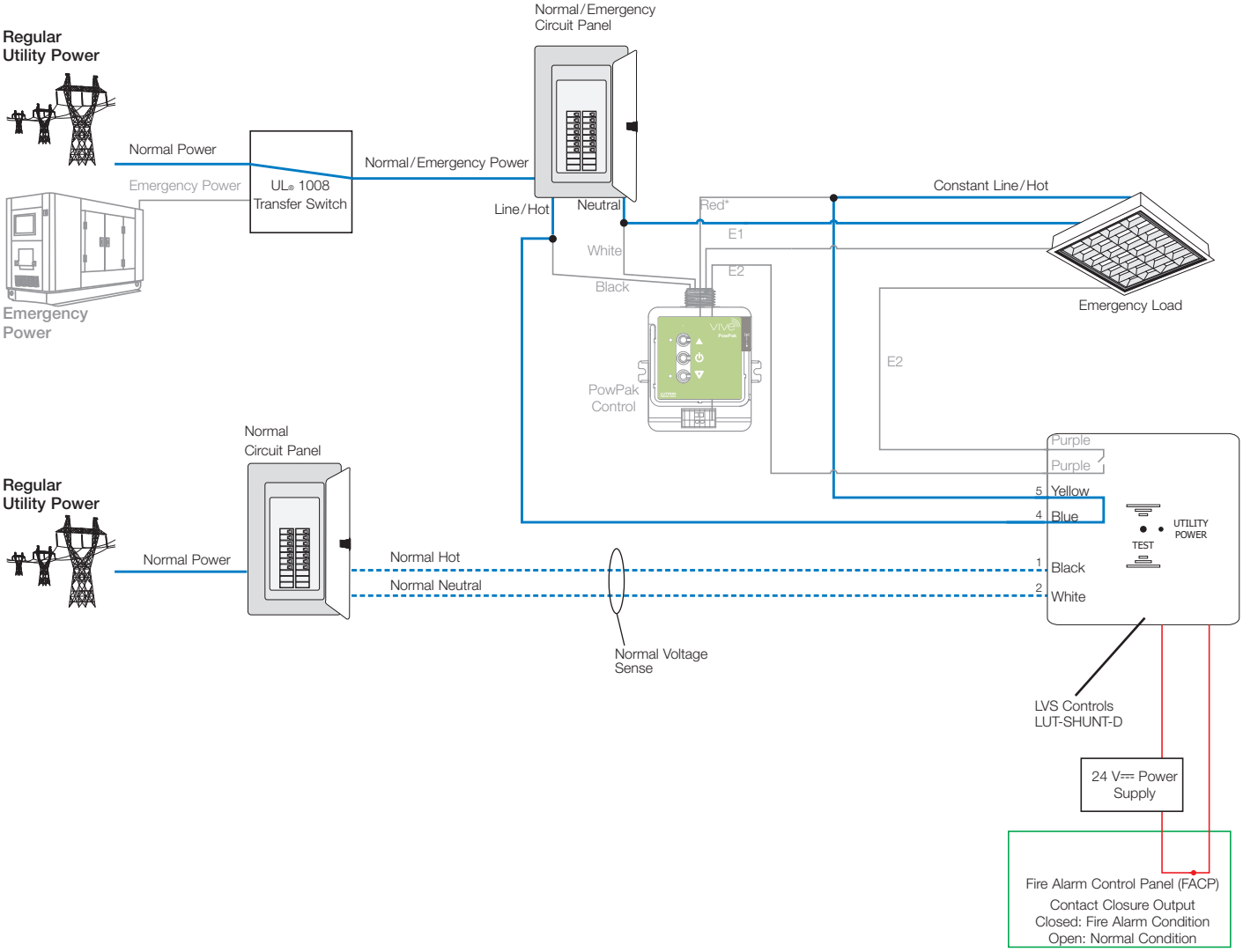
* Red switched hot wire present in FCJS-ECO only.

PowPak EcoSystem Fixture Control *(continued)*



Fixture Control is powered by normal and emergency power *(continued)*

Fire Alarm Operation



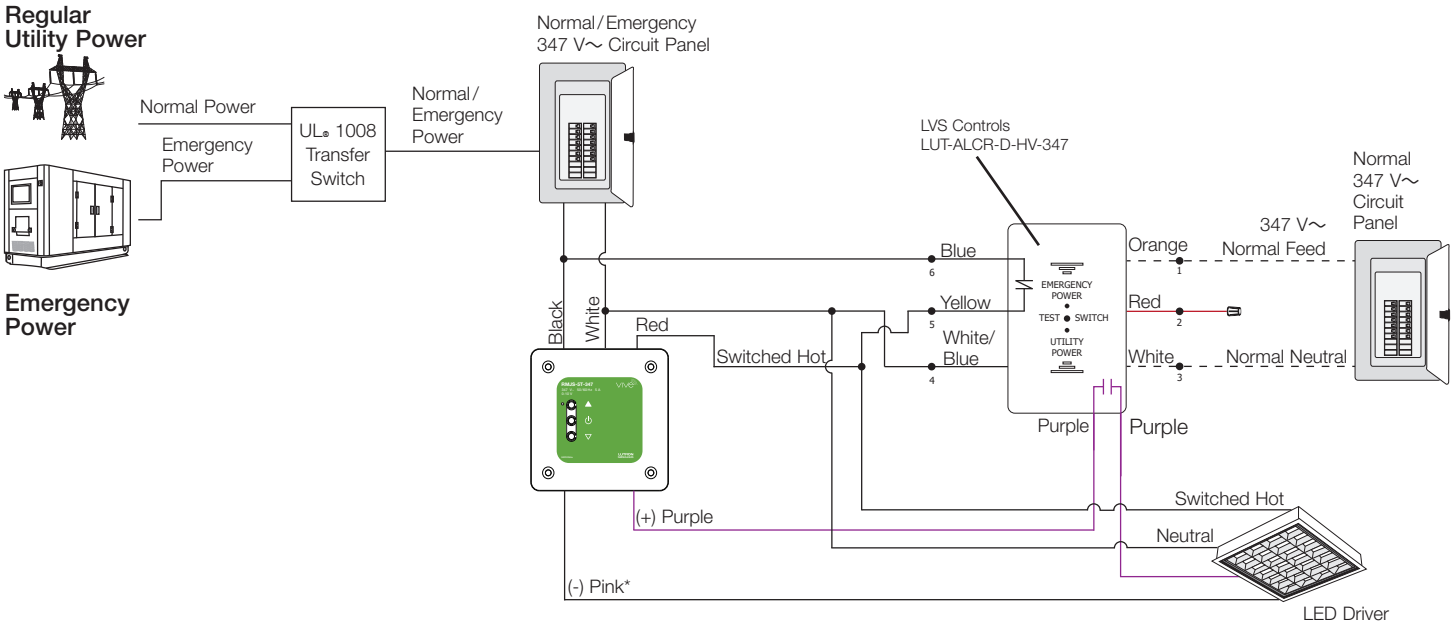
* Red switched hot wire present in FCJS-ECO only.

PowPak 347 V~ Dimming Module with 0–10 V⎓ Control

Module is powered by normal and emergency power

In an application where a dimming module with 0–10 V⎓ control is powered by normal and emergency power and controlling emergency loads, an ALCR with a normally open relay and a normally closed relay is used. During regular operation, the module controls the load directly. During emergency operation, the device senses normal power is lost and the normally closed relay closes while the normally open relay opens. Doing this provides power to the load and interrupts the 0–10 V⎓ signal which should cause the load to go to high-end if the ballast or driver complies with IEC 60929 Annex E. An example of this type of ALCR is the LUT-ALCR-D-HV-347 from LVS Controls. This applies to: **RMJS-5T-347**.

Wiring Schematic

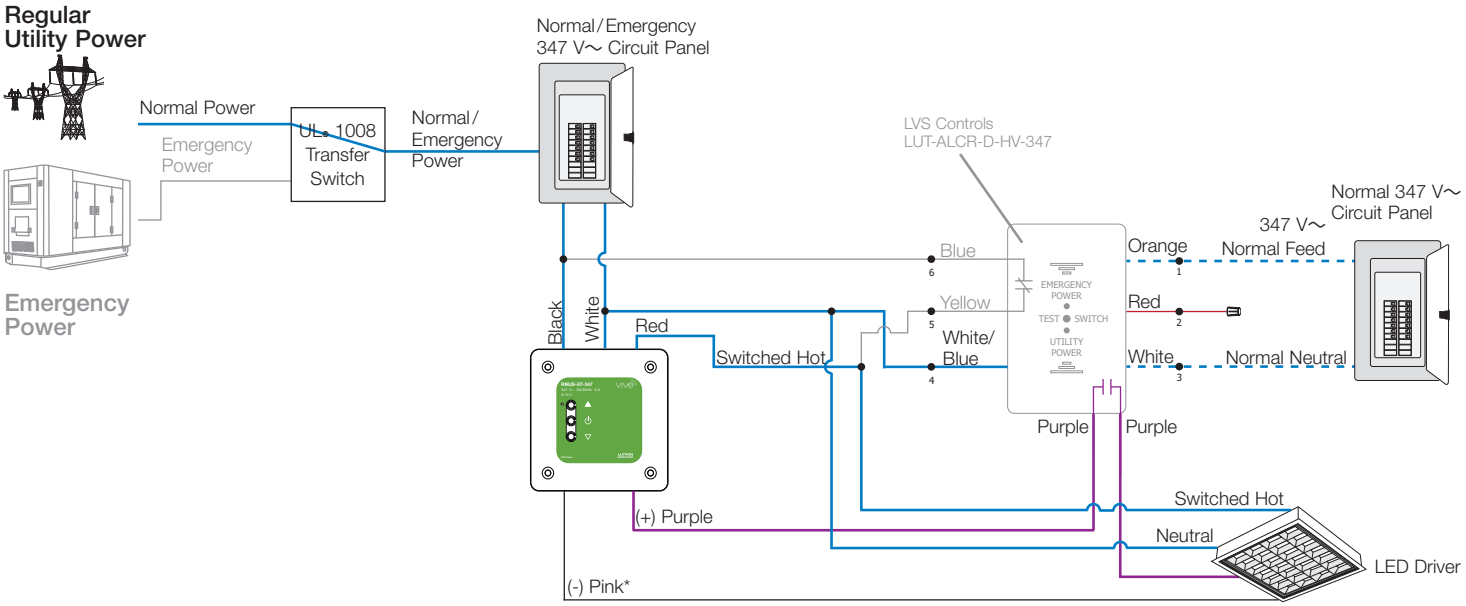


* This wire/terminal may be gray on older products or in retrofit applications.

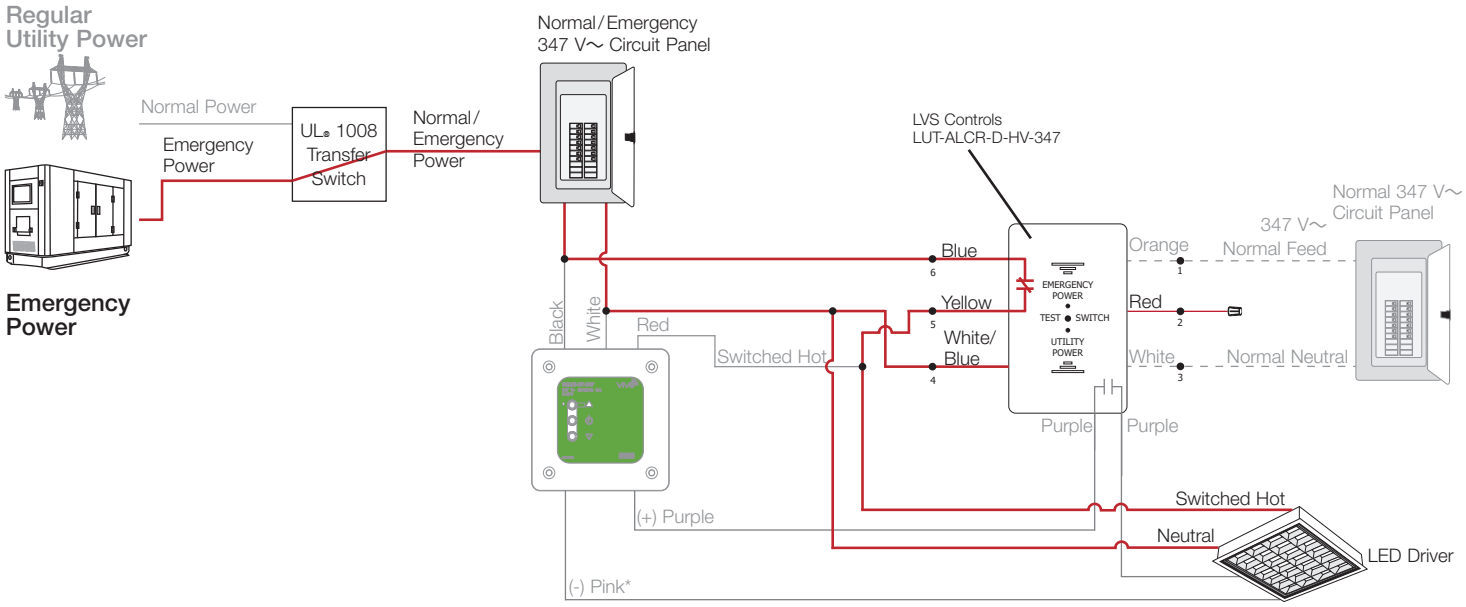
PowPak 347 V~ Dimming Module with 0 –10 V⎓ Control *(continued)*

Module is powered by normal and emergency power *(continued)*

Regular Operation



Emergency Operation

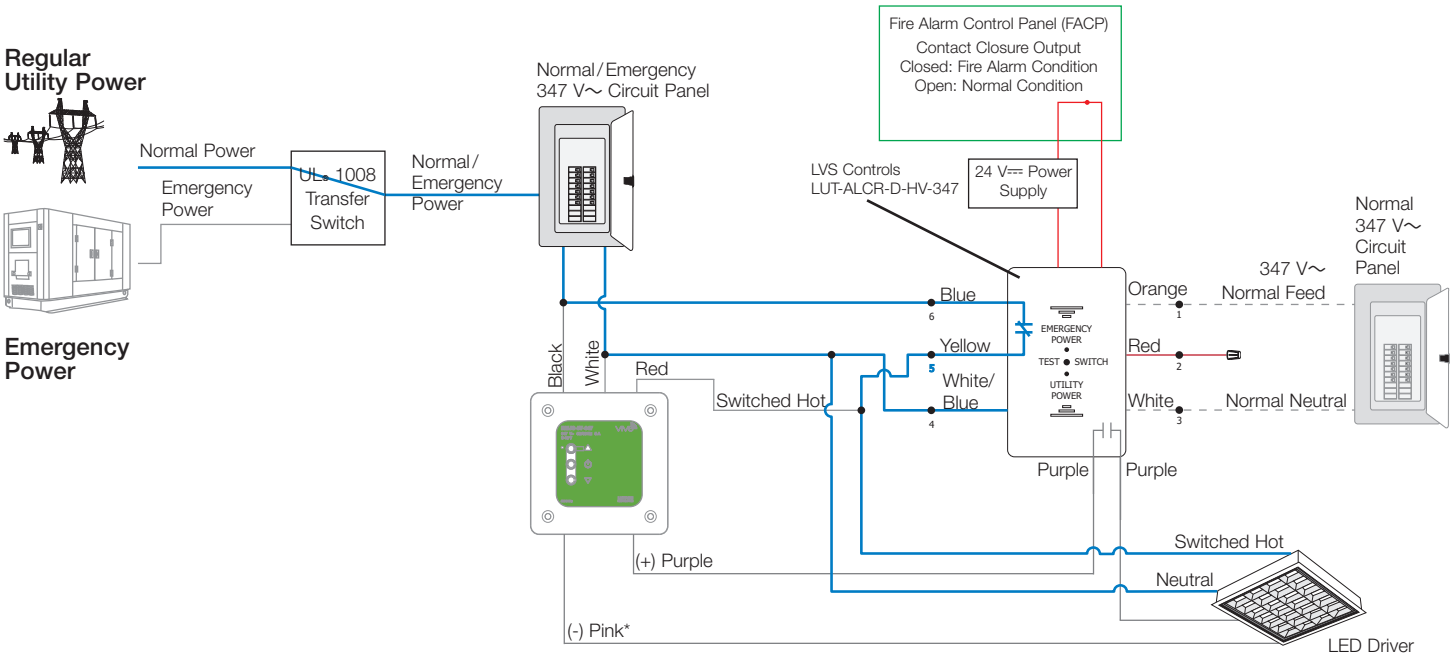


* This wire/terminal may be gray on older products or in retrofit applications.

PowPak 347 V~ Dimming Module with 0–10 V⎓ Control *(continued)*

Module is powered by normal and emergency power *(continued)*

Fire Alarm Operation



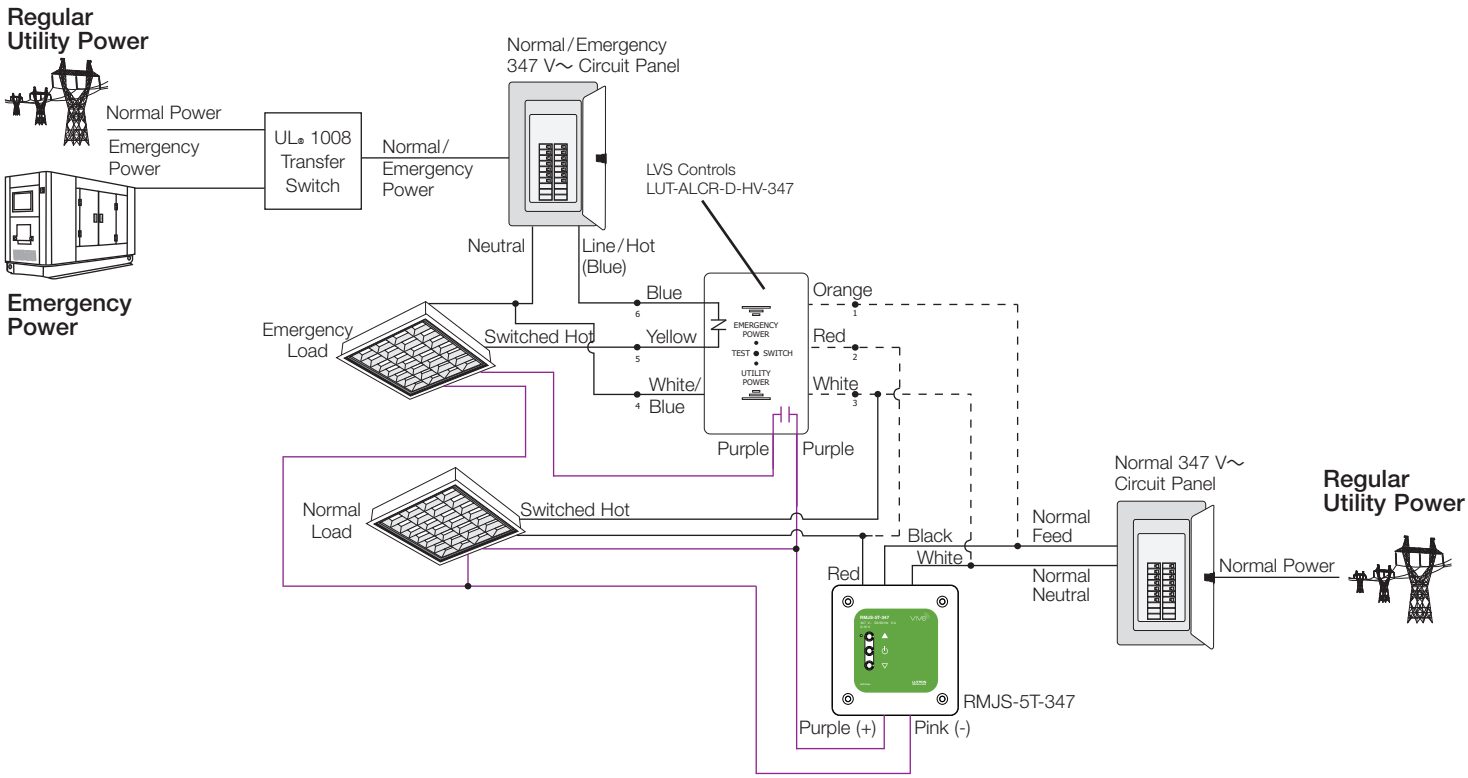
* This wire/terminal may be gray on older products or in retrofit applications.

PowPak 347 V~ Dimming Module with 0 –10 V⎓ Control *(continued)*

Module is powered by normal power

In an application where a Vive 347 V~ Dimming Module with 0–10 V⎓ Control is powered by normal power but controls an emergency load, an ALCR is used with a normally open relay and a normally closed relay that responds to a switched hot signal. During regular operation, the normally closed contact responds to the switched hot output of the module, while the normally open contact remains closed. During emergency operation, the device senses normal power is lost and the normally closed relay closes while the normally open relay opens. Doing this provides power to the load and interrupts the 0–10 V⎓ signal which should cause the load to go to high-end if the ballast or driver complies with IEC 60929 Annex E. An example of this type of ALCR is the LUT-ALCR-D-HV-347 from LVS Controls. This applies to: **RMJS-5T-347**.

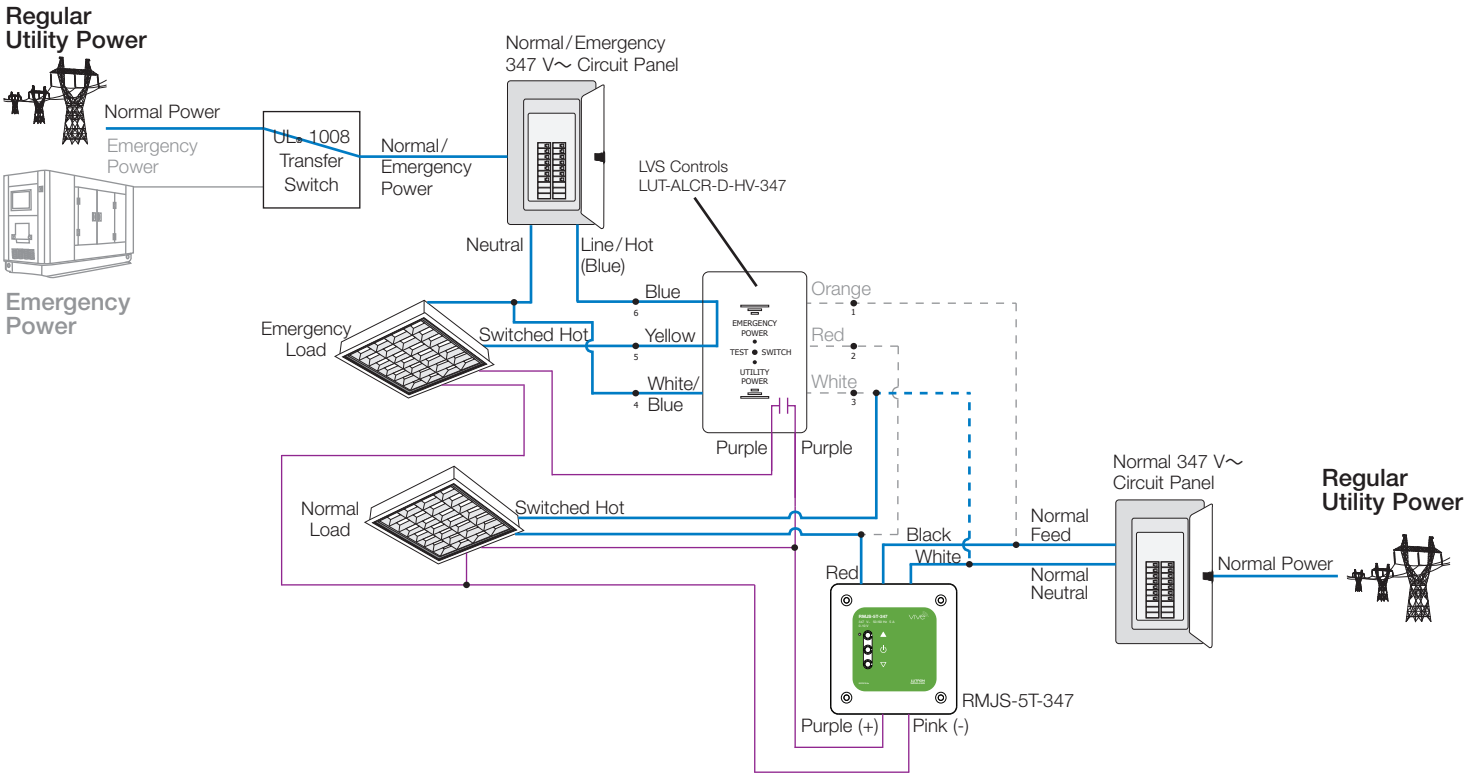
Wiring Schematic



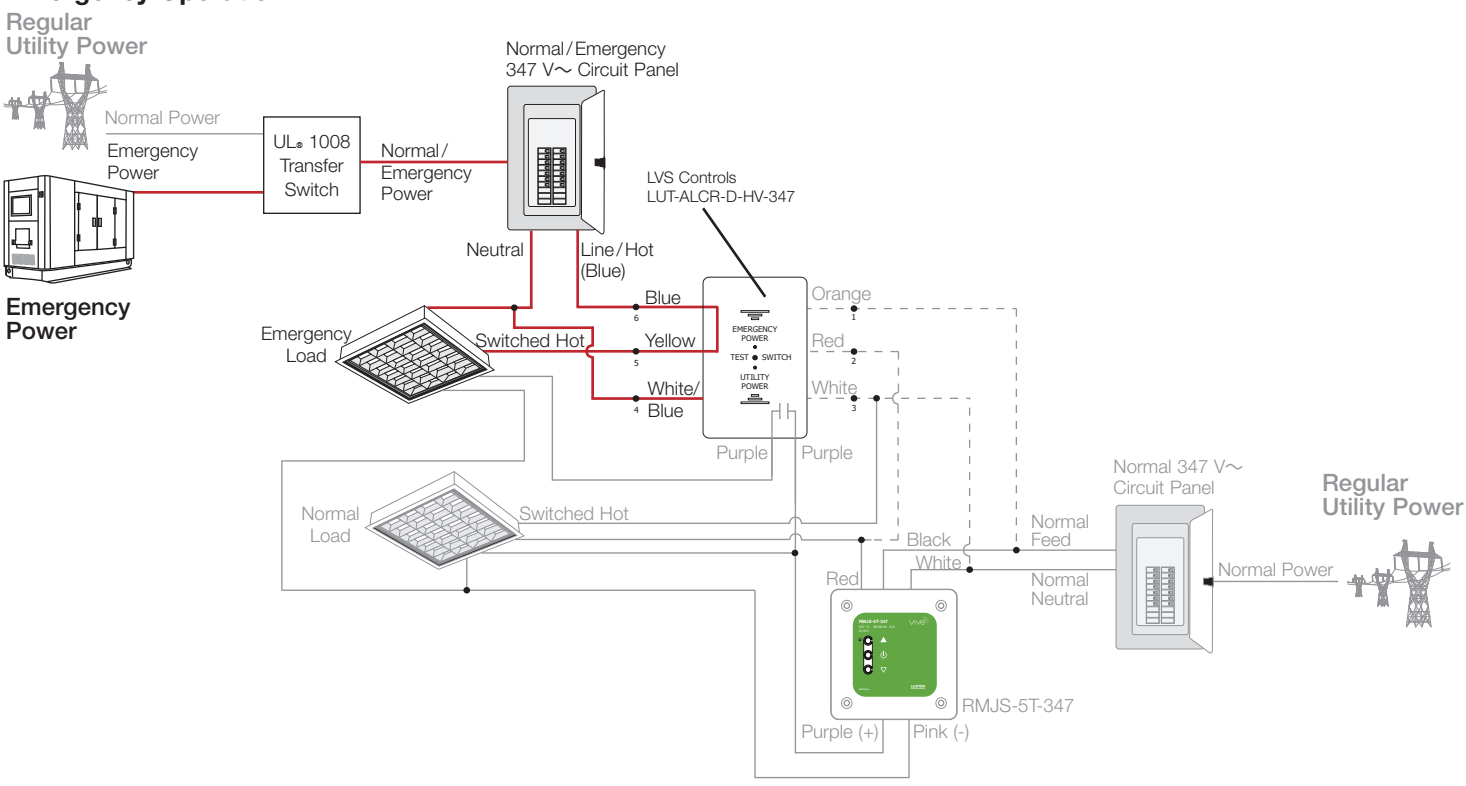
PowPak 347 V~ Dimming Module with 0 –10 V⎓ Control *(continued)*

Module is powered by normal power *(continued)*

Regular Operation



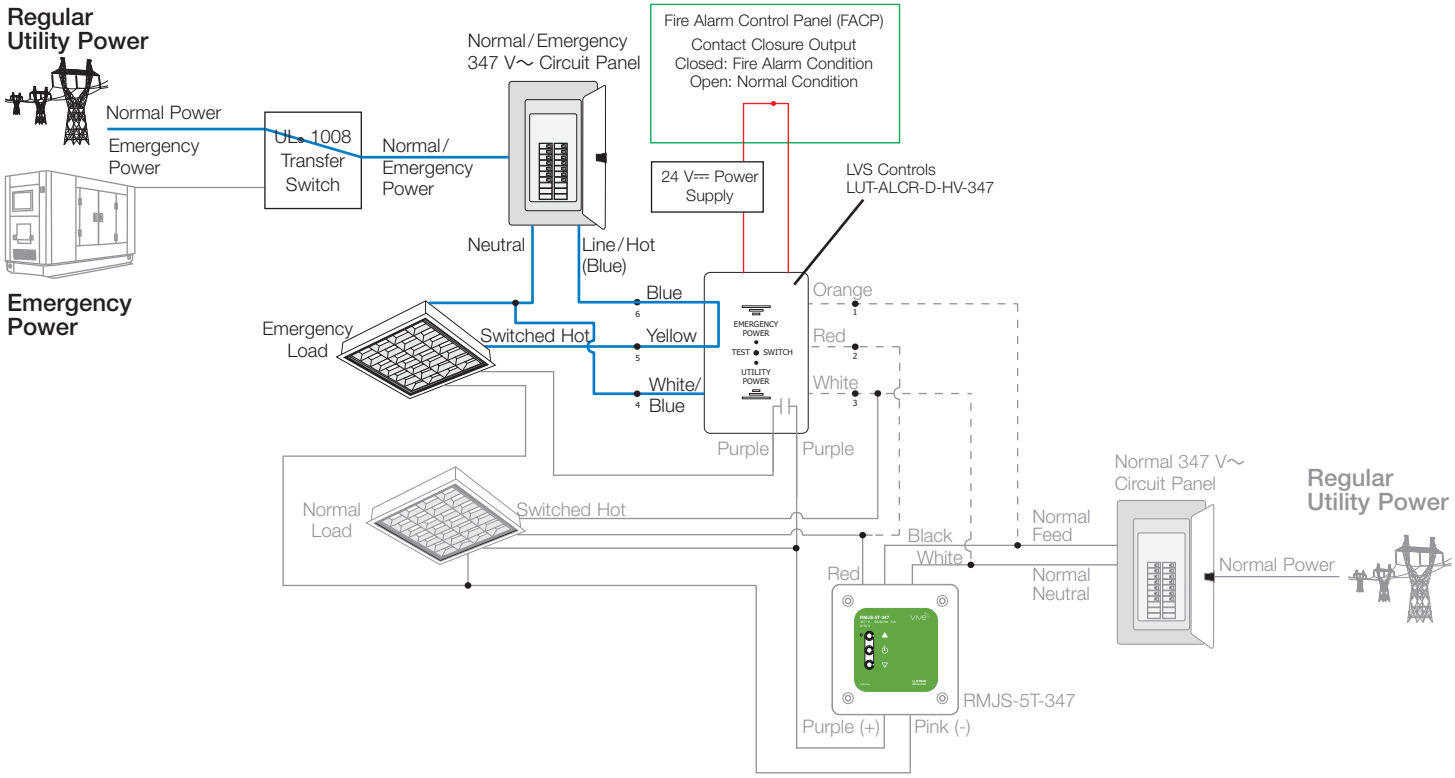
Emergency Operation



PowPak 347 V~ Dimming Module with 0 –10 V⎓ Control *(continued)*

Module is powered by normal power *(continued)*

Fire Alarm Operation

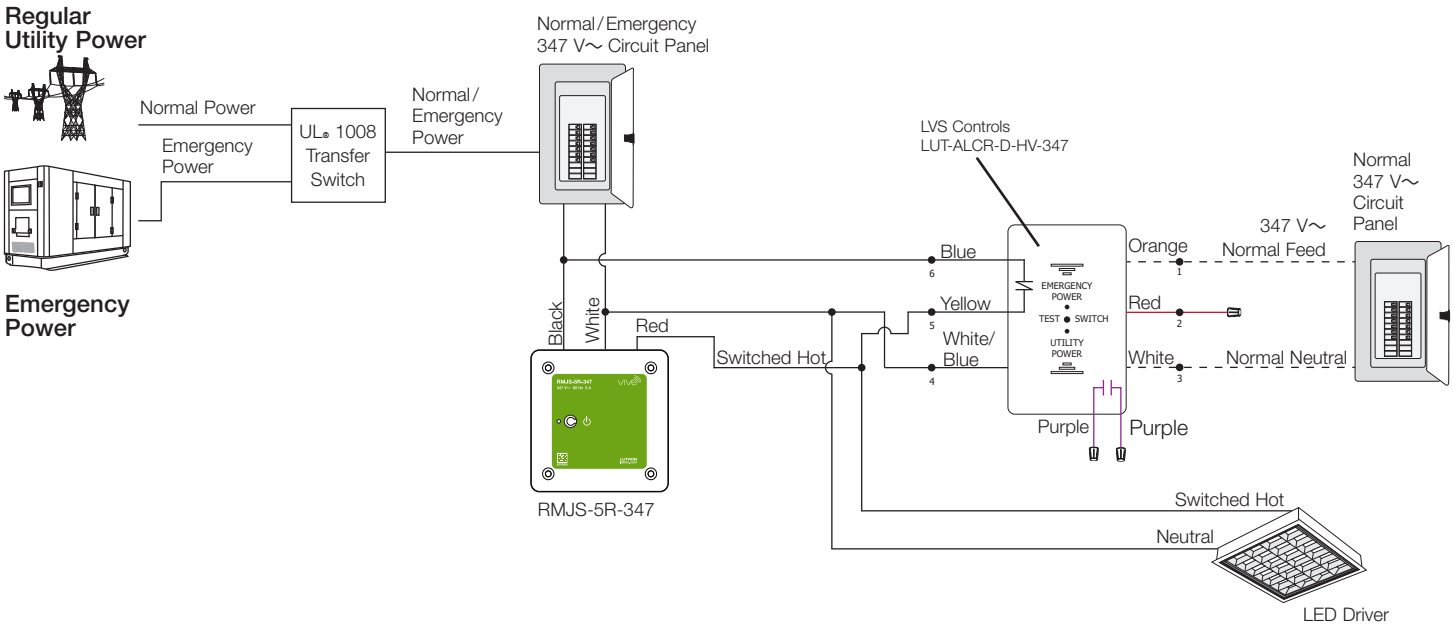


PowPak 347 V~ Relay Module

Module is powered by normal and emergency power

In an application where a Vive 347 V~ Relay Module is powered by normal and emergency power and controlling emergency loads, an ALCR with a normally open relay and a normally closed relay is used. During regular operation, the module controls the load directly. During emergency operation, the device senses normal power is lost and the normally closed relay closes while the normally open relay opens. Doing this provides power to the load and turns the load on. An example of this type of ALCR is the LUT-ALCR-D-HV-347 from LVS Controls. This applies to: **RMJS-5R-347**.

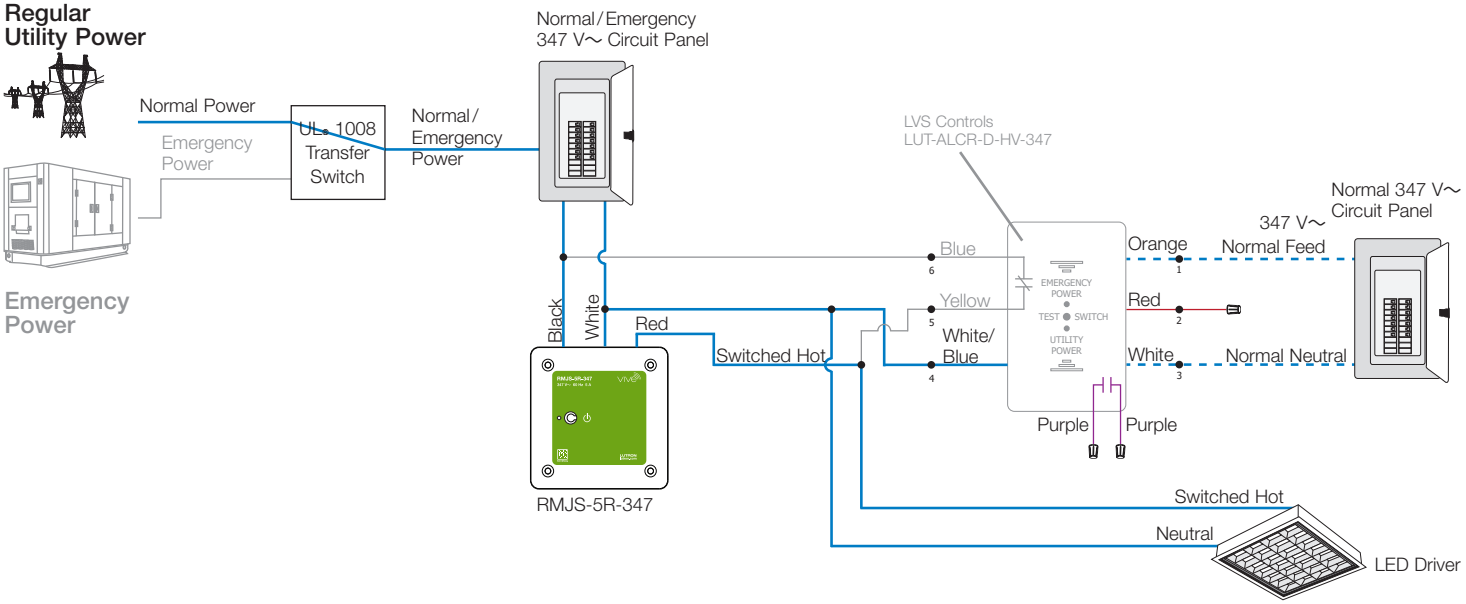
Wiring Schematic



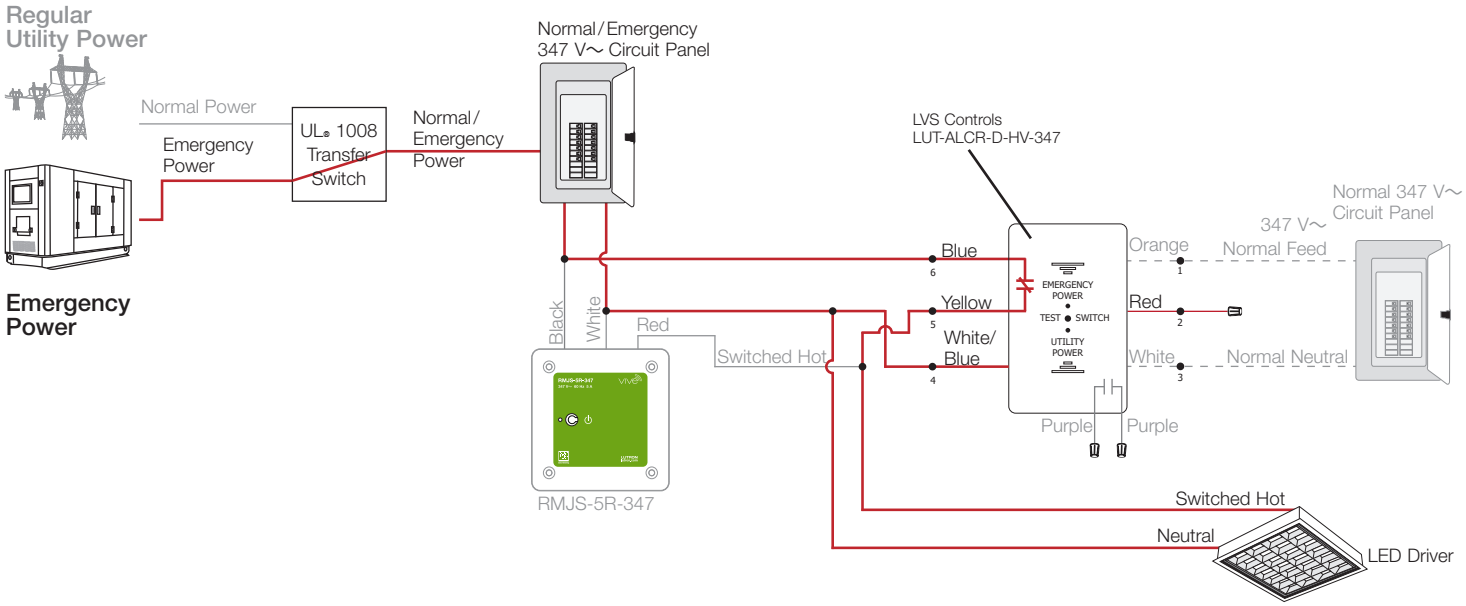
PowPak 347 V~ Relay Module *(continued)*

Module is powered by normal and emergency power *(continued)*

Regular Operation



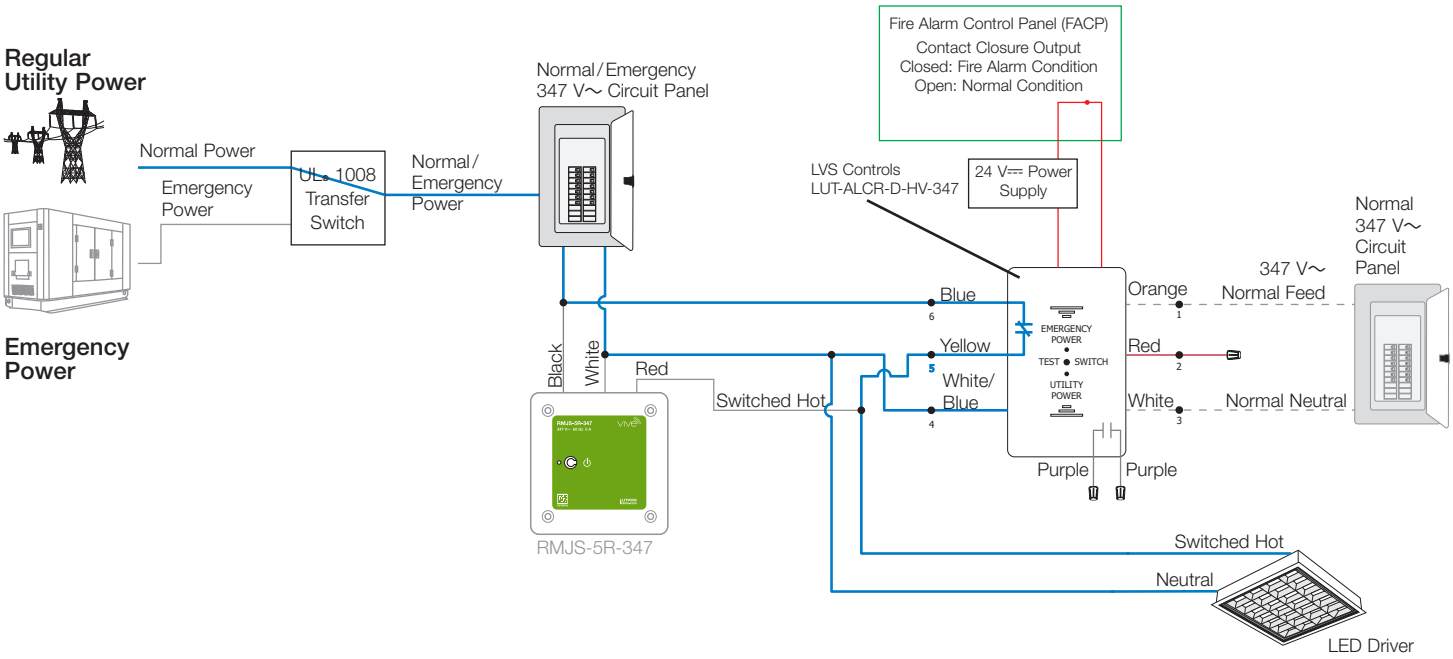
Emergency Operation



PowPak 347 V~ Relay Module *(continued)*

Module is powered by normal and emergency power *(continued)*

Fire Alarm Operation

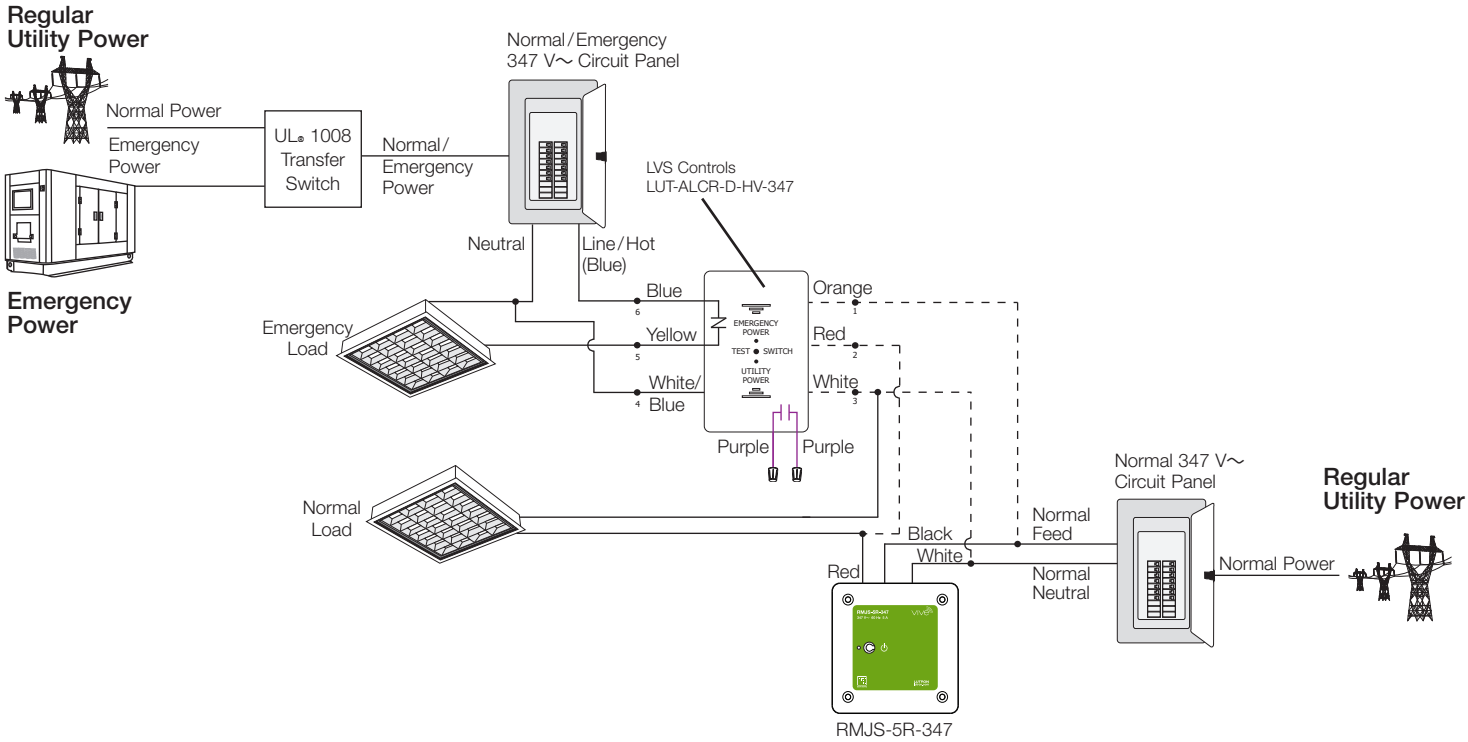


PowPak 347 V~ Relay Module *(continued)*

Module is powered by normal power

In an application where a Vive 347 V~ Relay Module is powered by normal power but controls an emergency load, an ALCR is used with a normally open relay and a normally closed relay that responds to a switched hot signal. During regular operation, the normally closed contact responds to the switched hot output of the module, while the normally open contact remains closed. During emergency operation, the device senses normal power is lost and the normally closed relay closes while the normally open relay opens. Doing this provides power to the load and turns the load on.
An example of this type of ALCR is the LUT-ALCR-D-HV-347 from LVS Controls. This applies to: **RMJS-5R-347**.

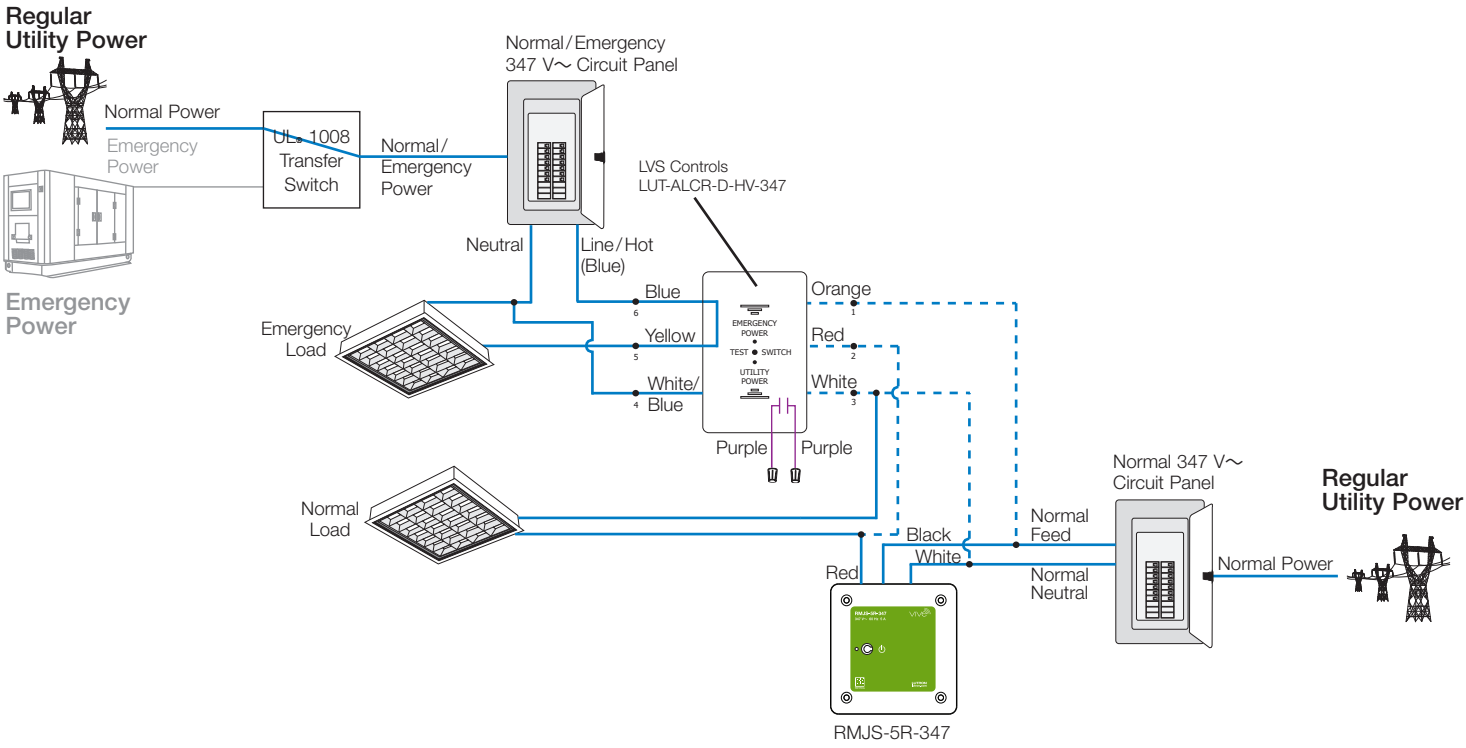
Wiring Schematic



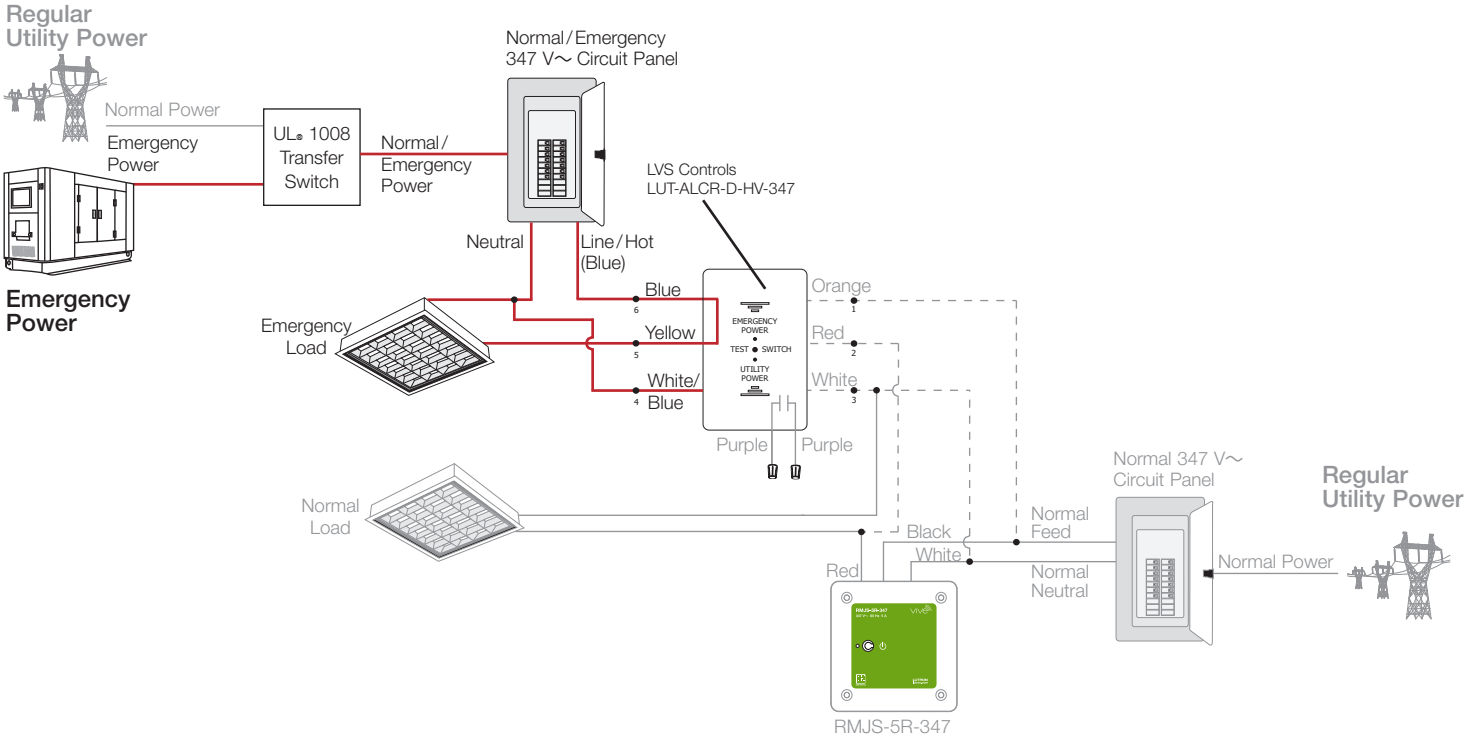
PowPak 347 V~ Relay Module *(continued)*

Module is powered by normal power *(continued)*

Regular Operation



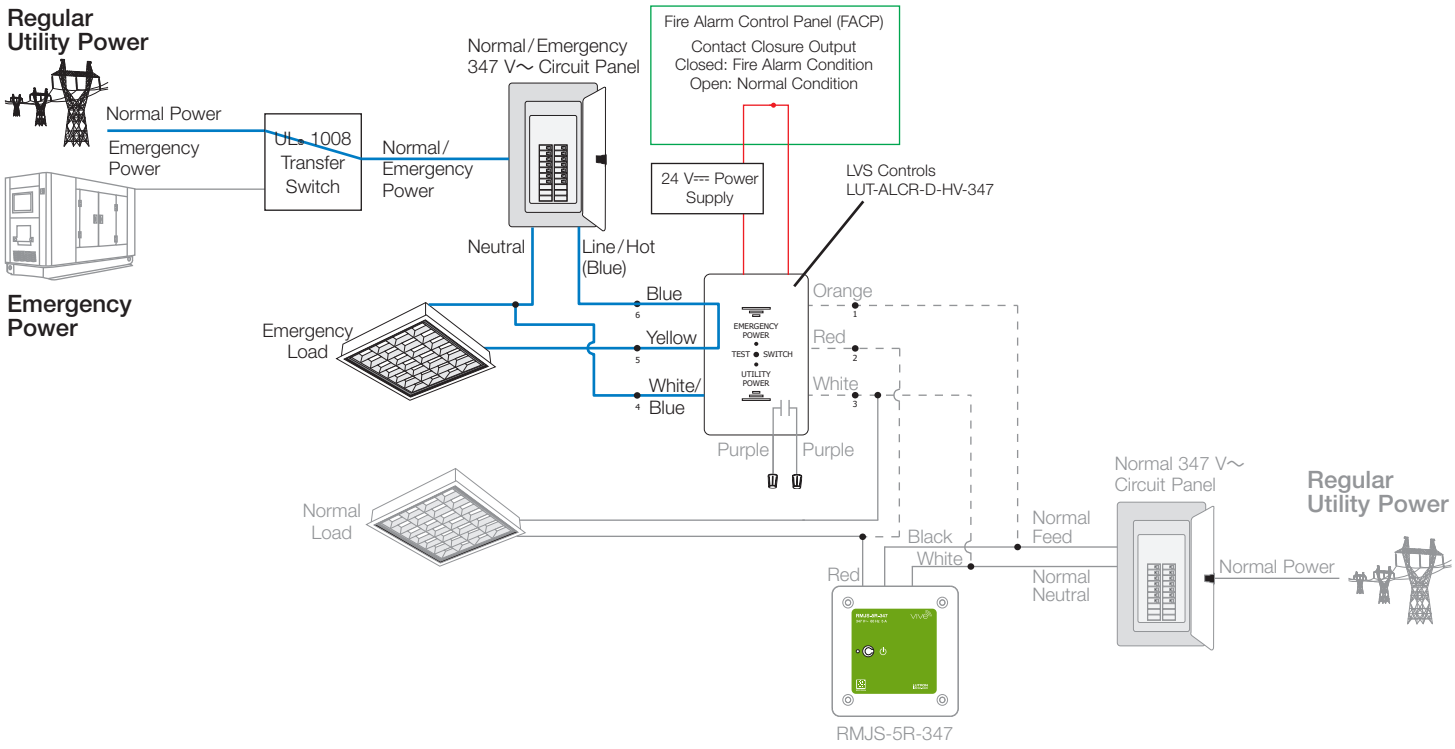
Emergency Operation



PowPak 347 V~ Relay Module *(continued)*

Module is powered by normal power *(continued)*

Fire Alarm Operation

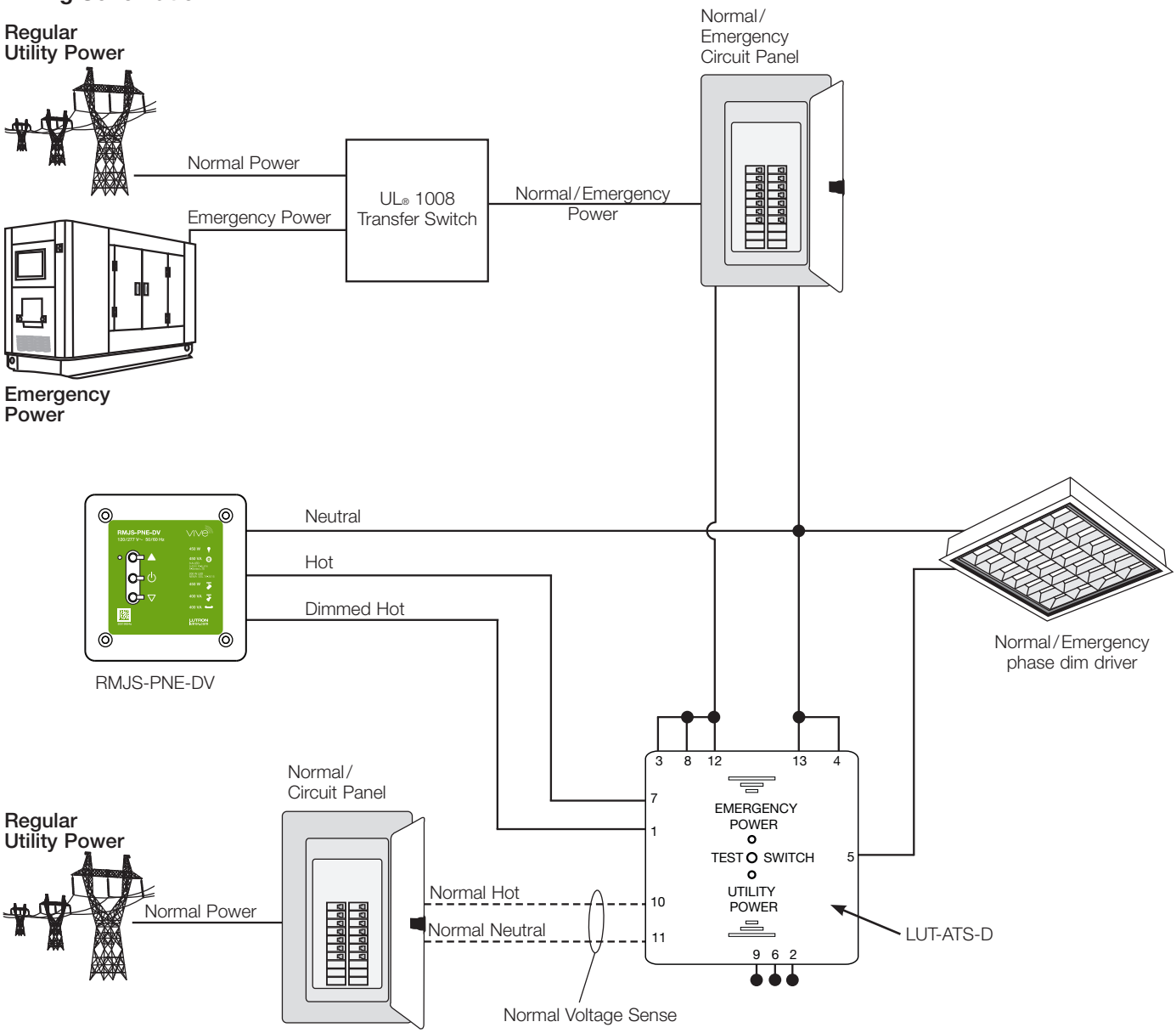


PowPak Phase Select Dimming Module

PowPak module is powered by normal and emergency power

In an application where a PowPak module has power during an emergency, an Automatic Transfer Switch (ATS) is used. During regular operation, normal power is present and the power is routed by the transfer switch to the PowPak, which allows the PowPak module to function. During regular operation, the PowPak module controls the load directly. During emergency operation, the ATS senses when normal power is lost and transfers from the PowPak module to emergency power, sending the load to high-end. This device is commonly called a load-side transfer switch. An example of a device like this is the LUT-ATS-D from LVS Controls. Simple shunt relays (LUT-SHUNT-D) are not recommended for use with reverse-phase or phase-selectable dimmers. This applies to: **RMJS-PNE-DV**.

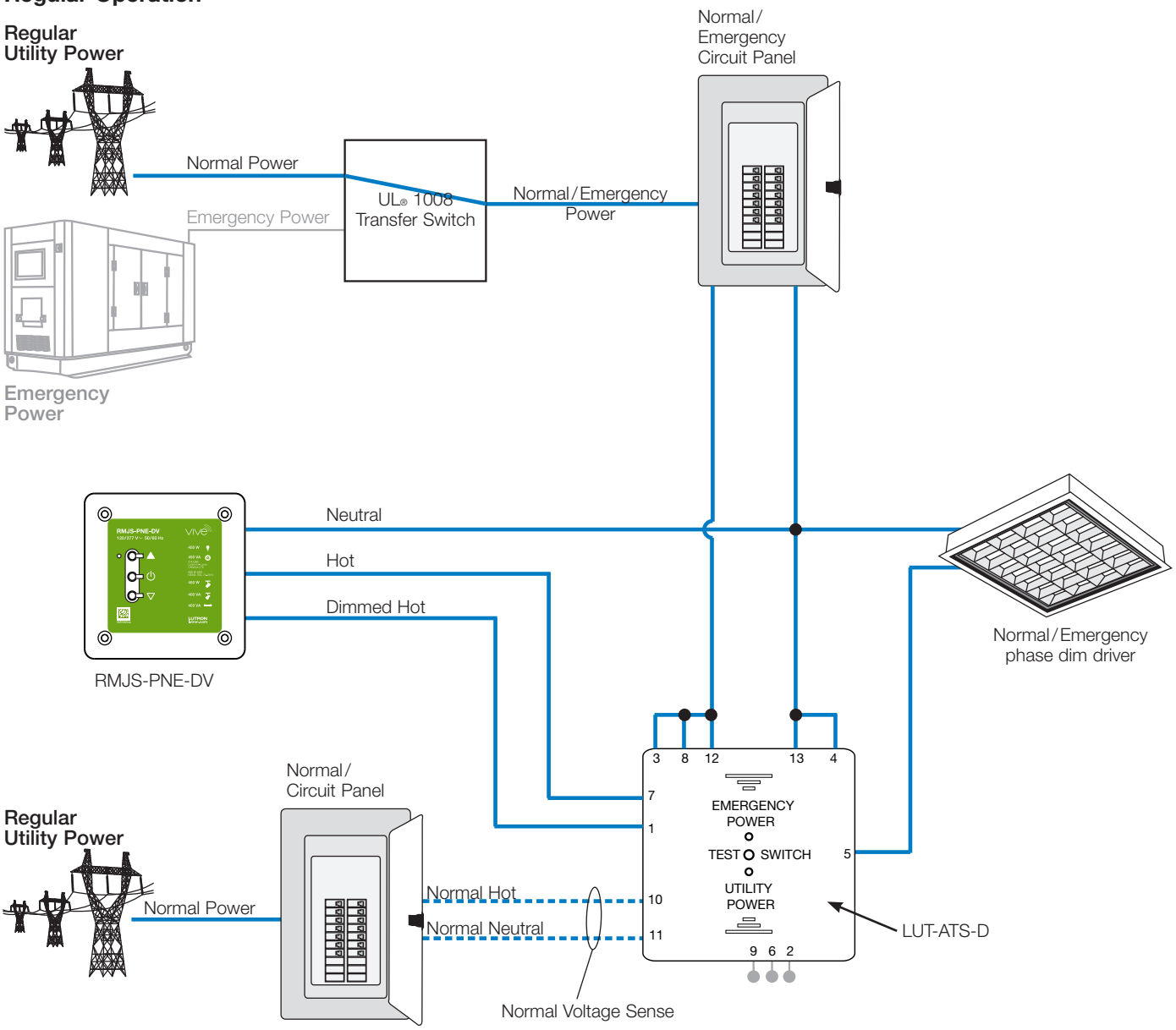
Wiring Schematic



PowPak Phase Select Dimming Module *(continued)*

PowPak module is powered by normal and emergency power *(continued)*

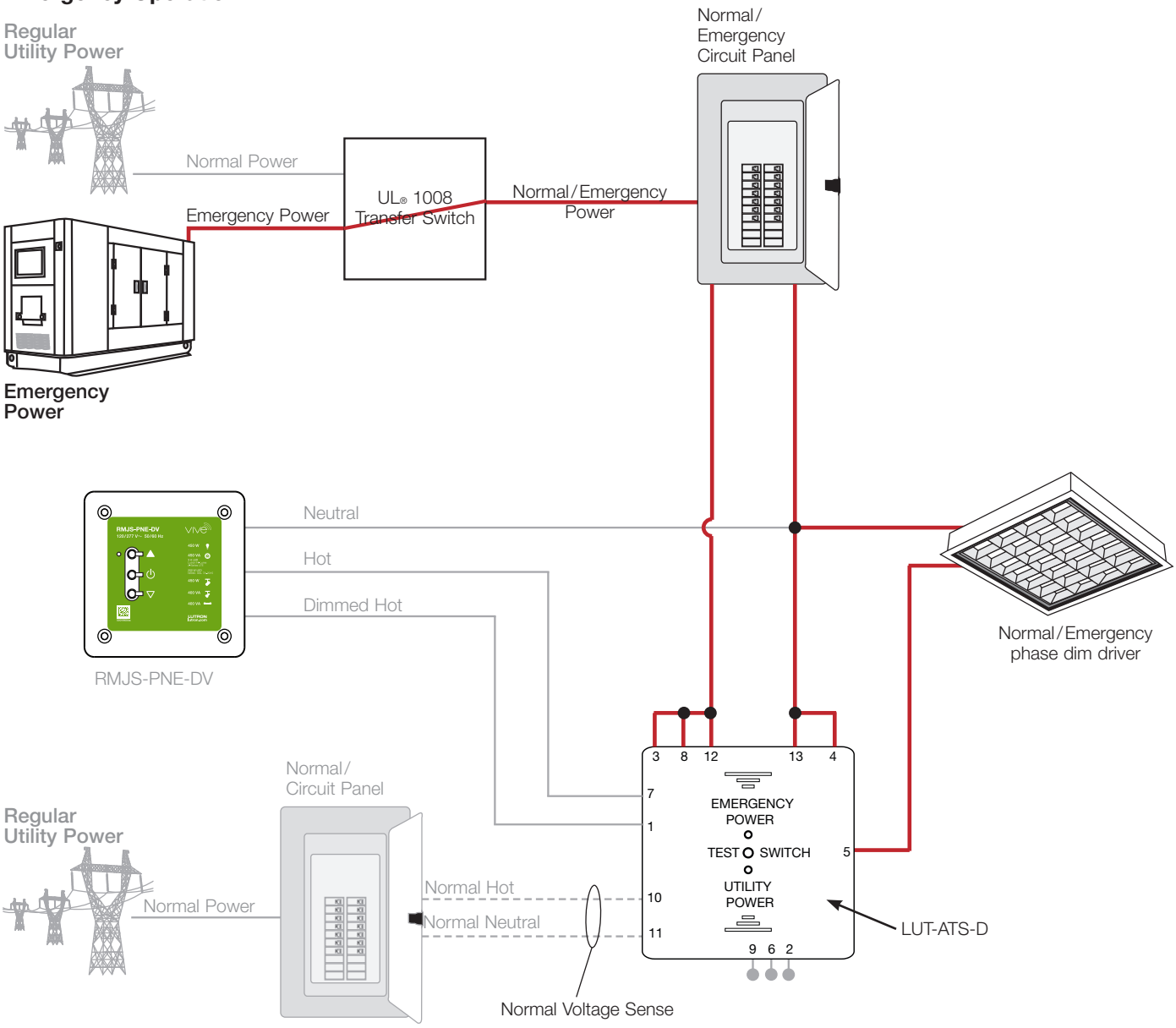
Regular Operation



PowPak Phase Select Dimming Module *(continued)*

PowPak module is powered by normal and emergency power *(continued)*

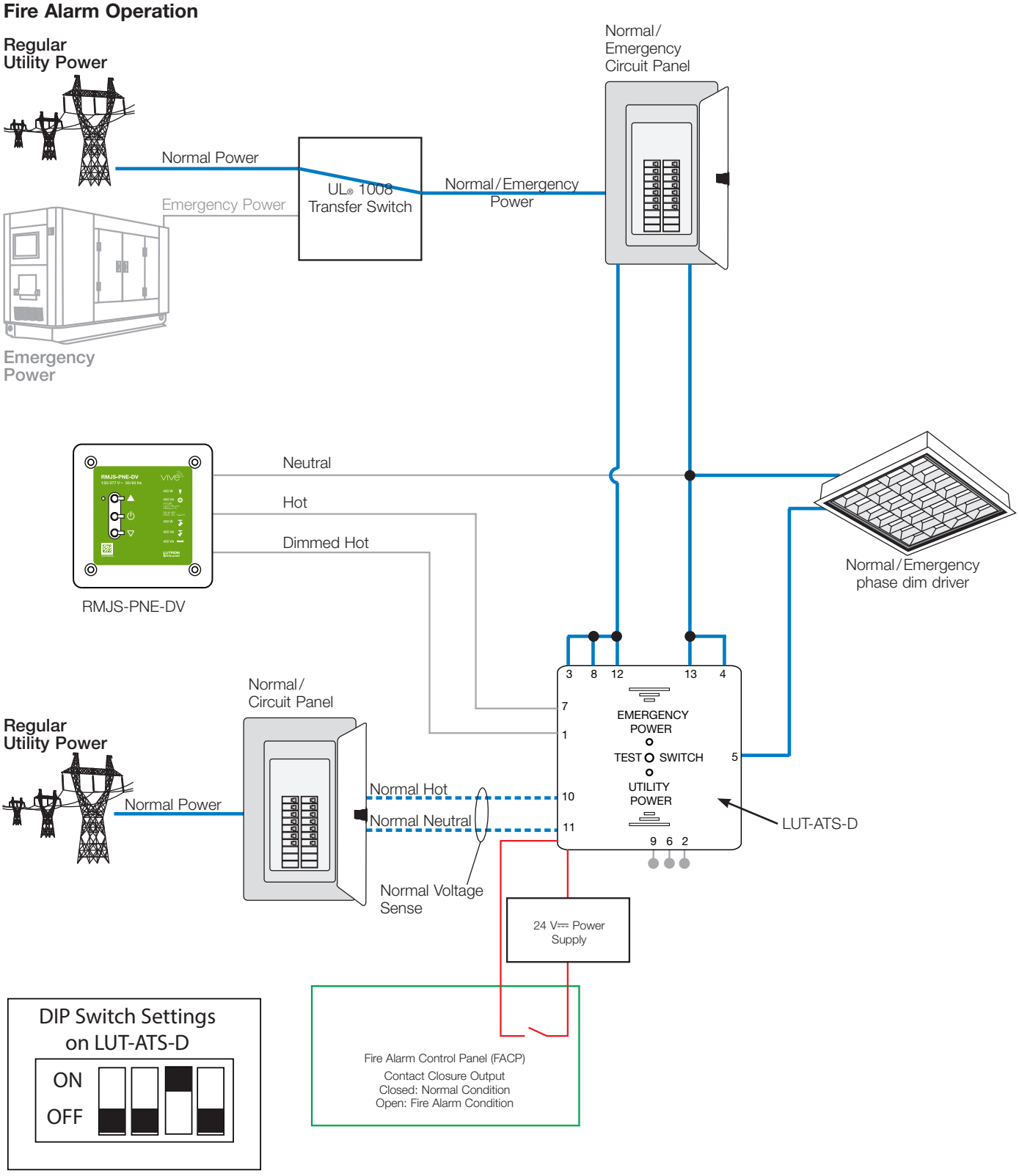
Emergency Operation



PowPak Phase Select Dimming Module *(continued)*

PowPak module is powered by normal and emergency power *(continued)*

Fire Alarm Operation

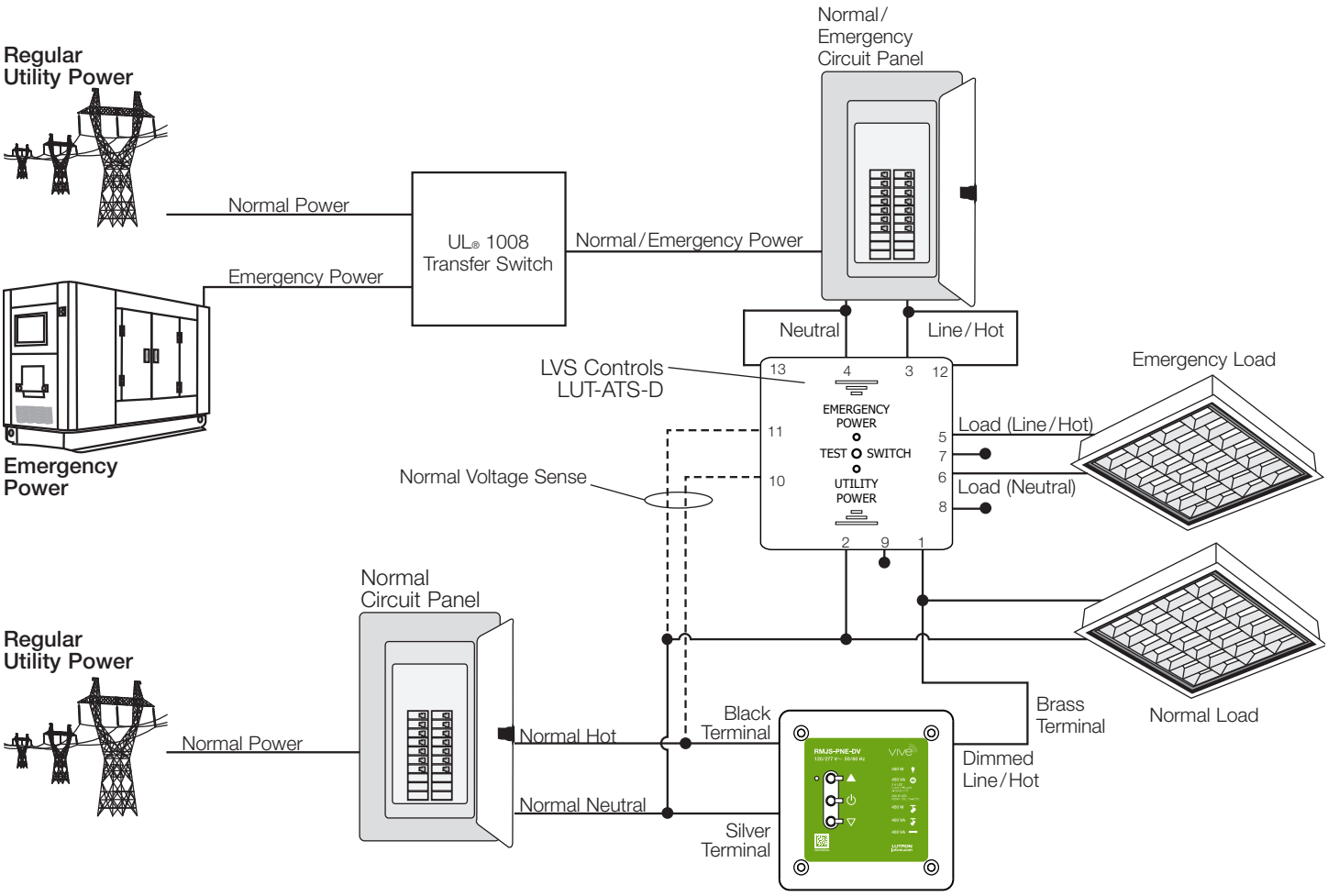


PowPak Phase Select Dimming Module

PowPak module is powered by normal power

In an application where a dimmer is powered by normal power and is controlling an emergency load, an Automatic Transfer Switch (ATS) with multiple normally open and multiple normally closed relays are used. During regular operation, the PowPak module controls the load directly. During emergency operation, the ATS senses when normal power is lost and transfers from the PowPak module to emergency power, sending the load to high-end. This device is commonly called a load-side transfer switch. An example of a device like this LUT-ATS-D from LVS Controls.
This applies to: **RMJS-PNE-DV**.

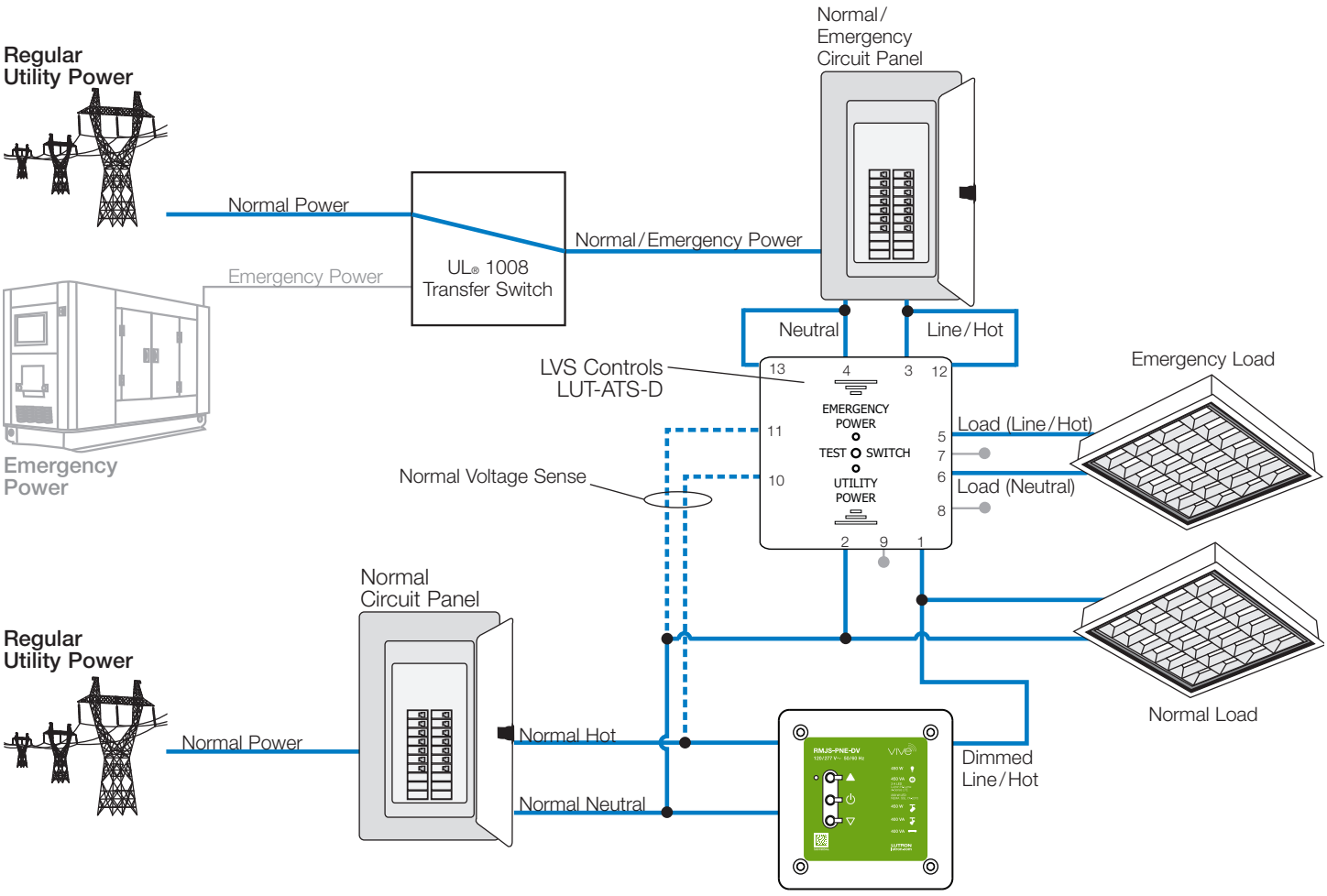
Wiring Schematic



PowPak Phase Select Dimming Module *(continued)*

PowPak module is powered by normal power *(continued)*

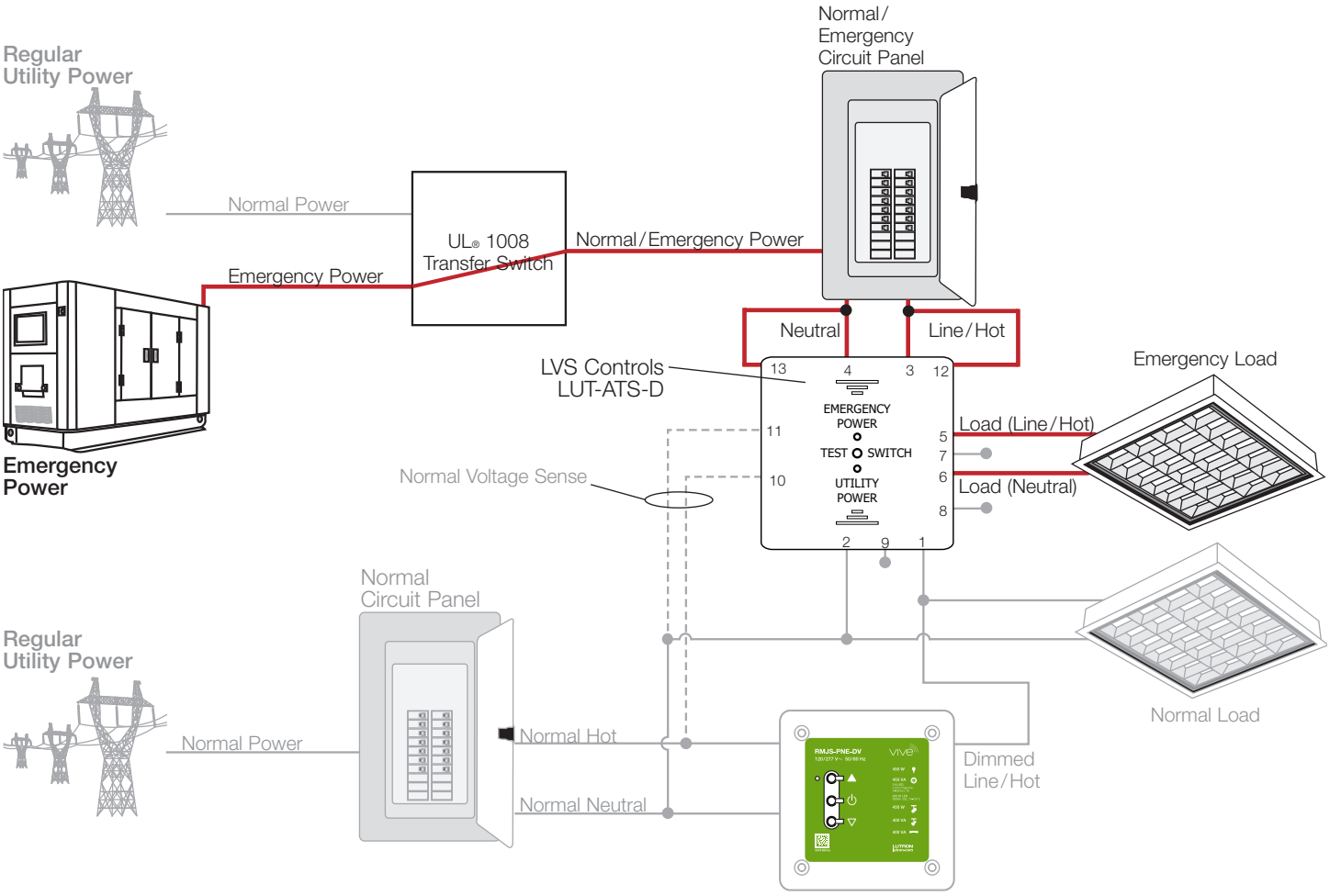
Regular Operation



PowPak Phase Select Dimming Module *(continued)*

PowPak module is powered by normal power *(continued)*

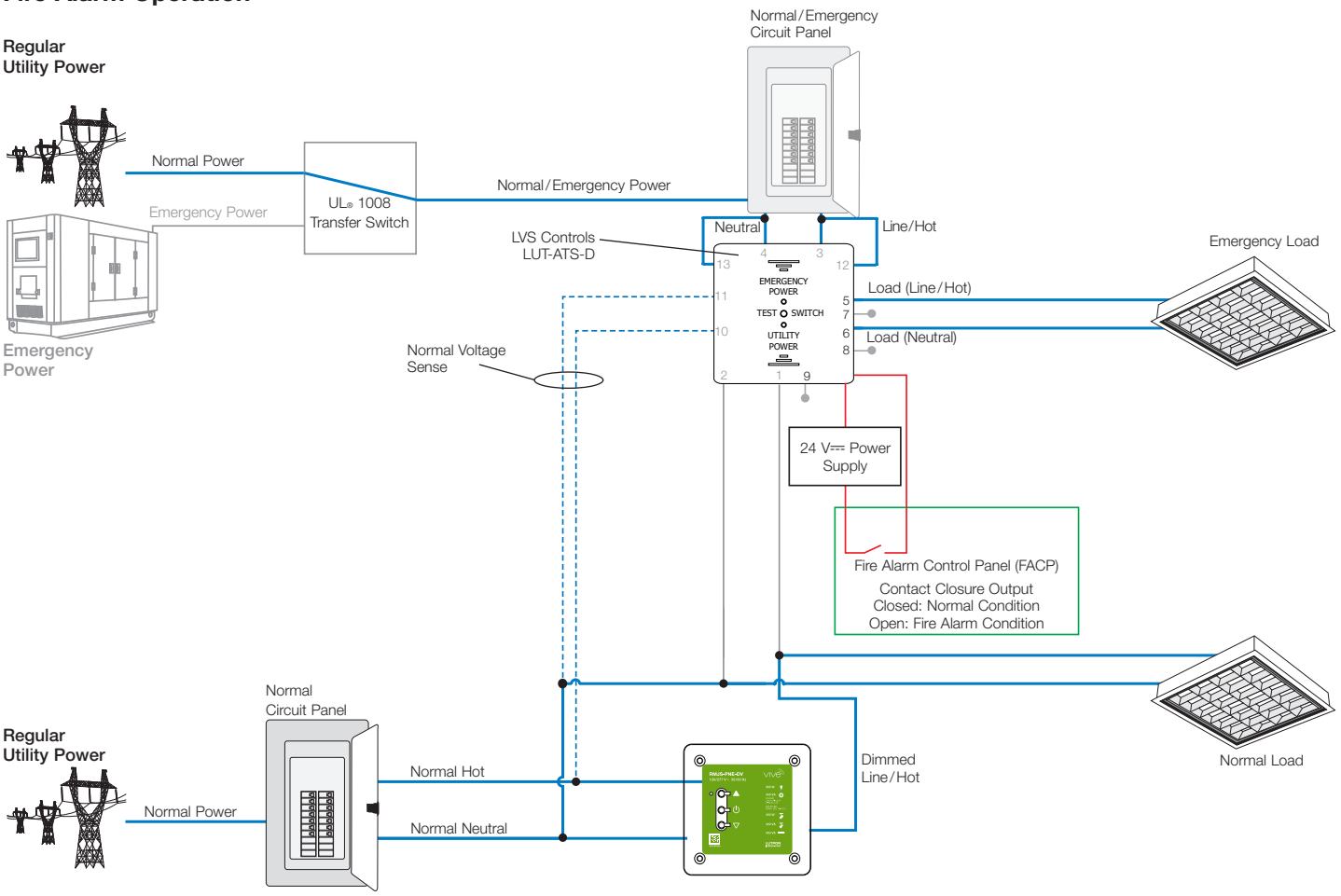
Emergency Operation

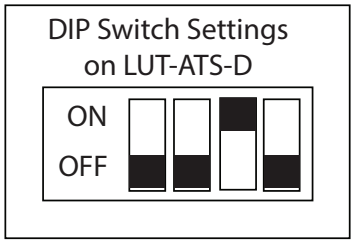


PowPak Phase Select Dimming Module *(continued)*

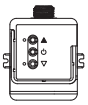
PowPak module is powered by normal power *(continued)*

Fire Alarm Operation





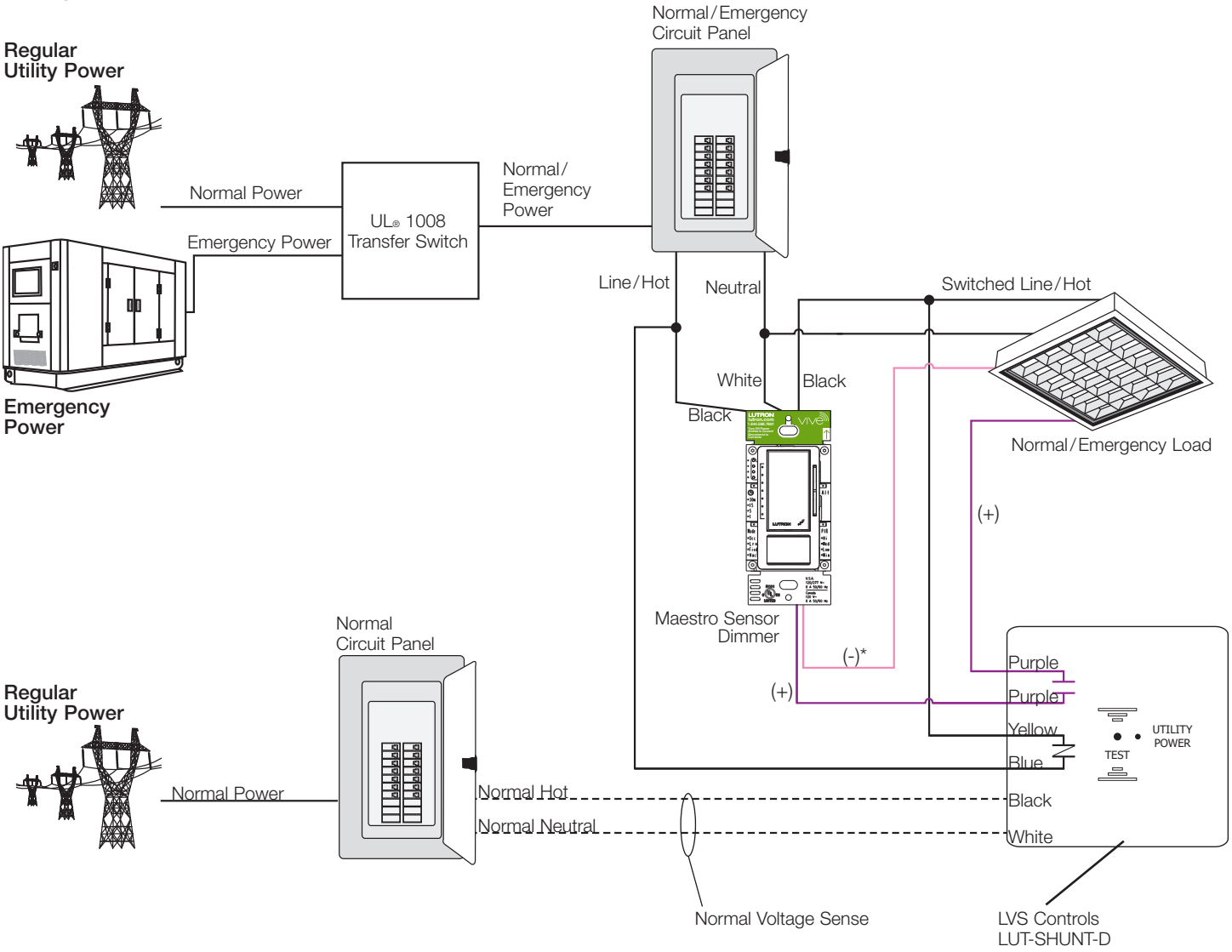
Maestro Wireless 0–10 V⎓ Dimmer



Dimmer is powered by normal and emergency power

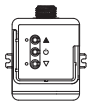
In an application where a 0–10 V⎓ sensor dimmer is powered by normal and emergency power and controlling emergency loads, an ALCR with a normally open relay and a normally closed relay is used. During regular operation, the dimmer controls the load directly. During emergency operation, the device senses normal power is lost and the normally closed relay closes while the normally open relay opens. Doing this provides power to the load and interrupts the 0–10 V⎓ signal which should cause the load to go to high-end if the ballast or driver complies with IEC 60929 Annex E. An example of this type of ALCR is the LUT-SHUNT-D from LVS Controls. This applies to: **MRF2S-8SD010 and MRF2S-8SVD010**.

Wiring Schematic



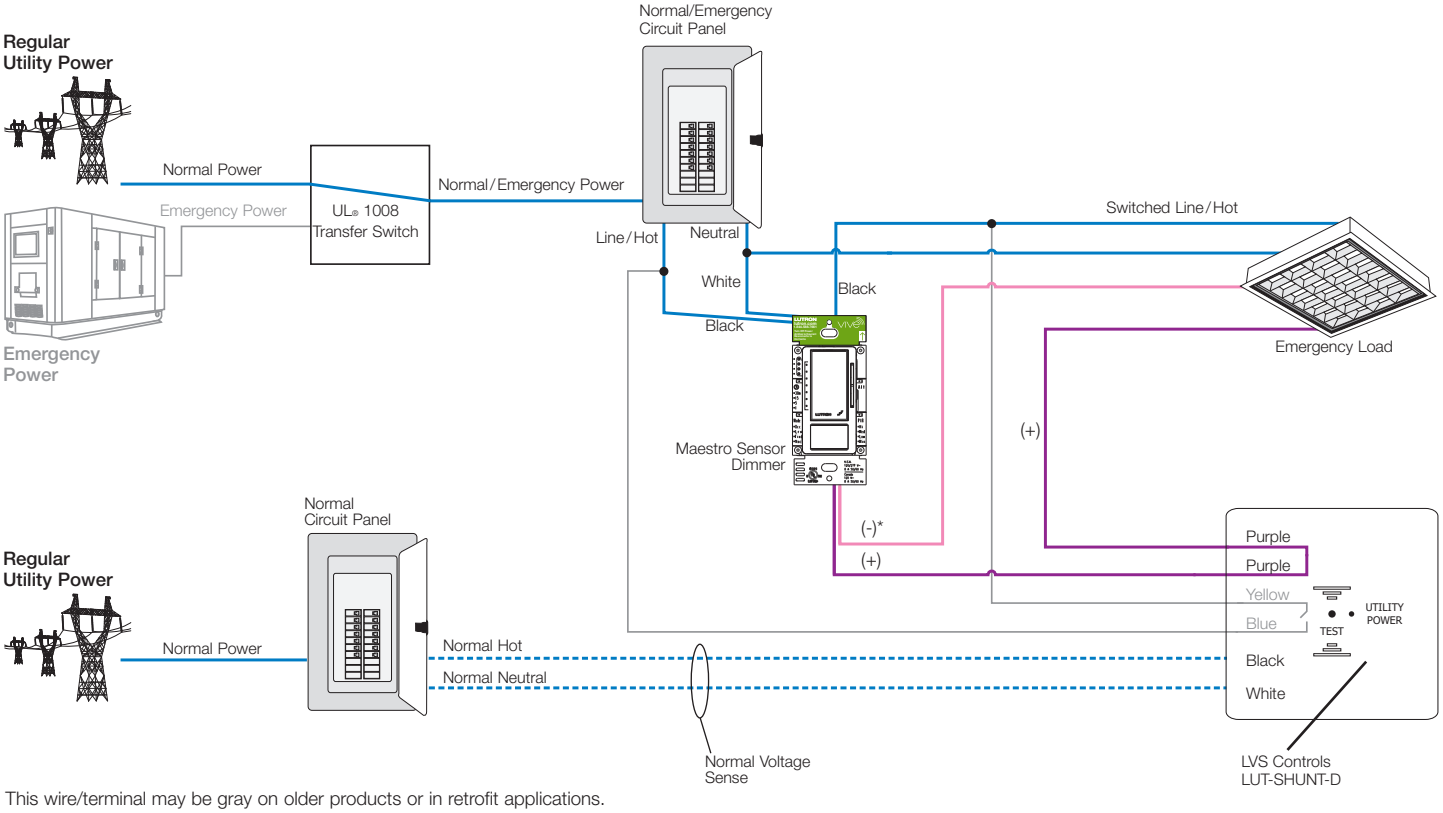
* This wire/terminal may be gray on older products or in retrofit applications.

Maestro Wireless 0–10 V⎓ Dimmer *(continued)*



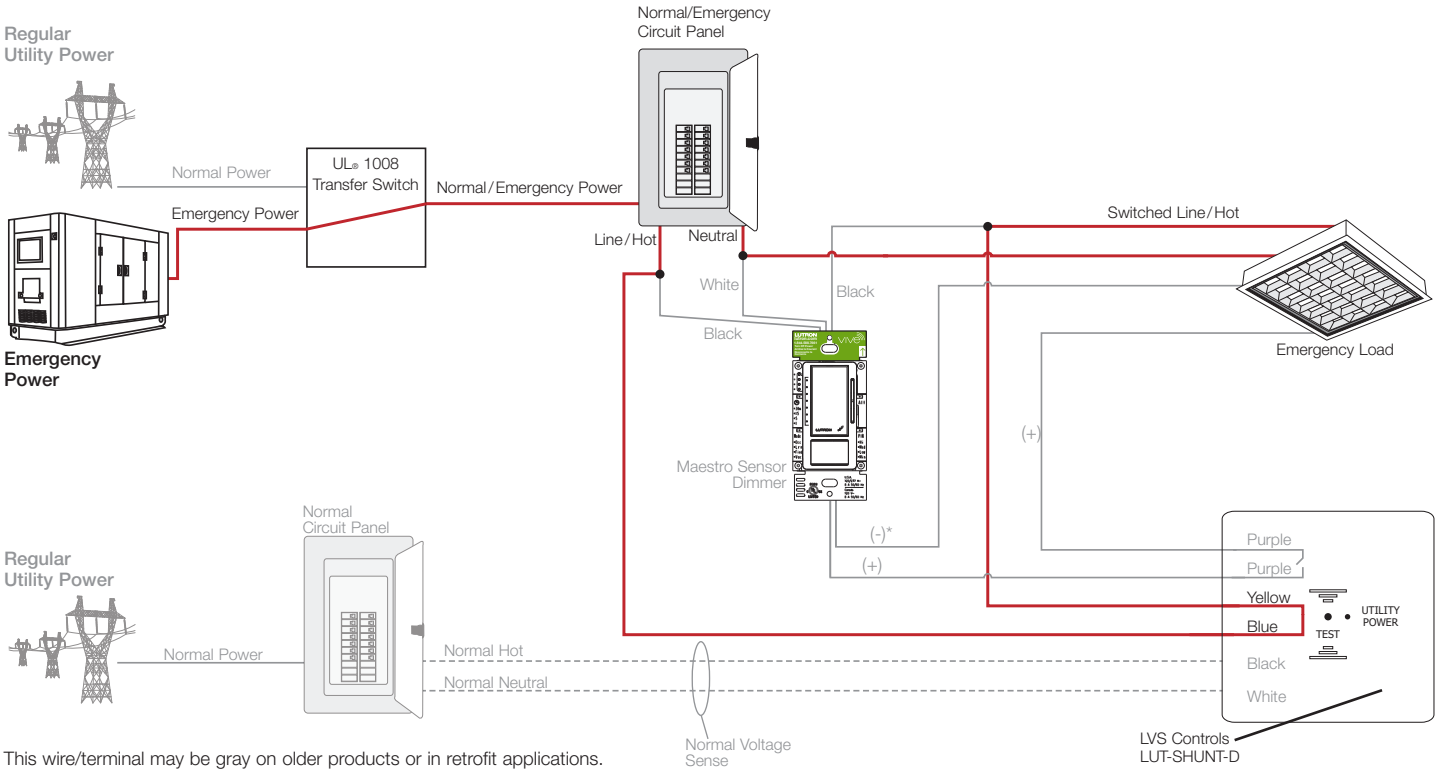
Module is powered by normal and emergency power *(continued)*

Regular Operation



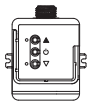
* This wire/terminal may be gray on older products or in retrofit applications.

Emergency Operation



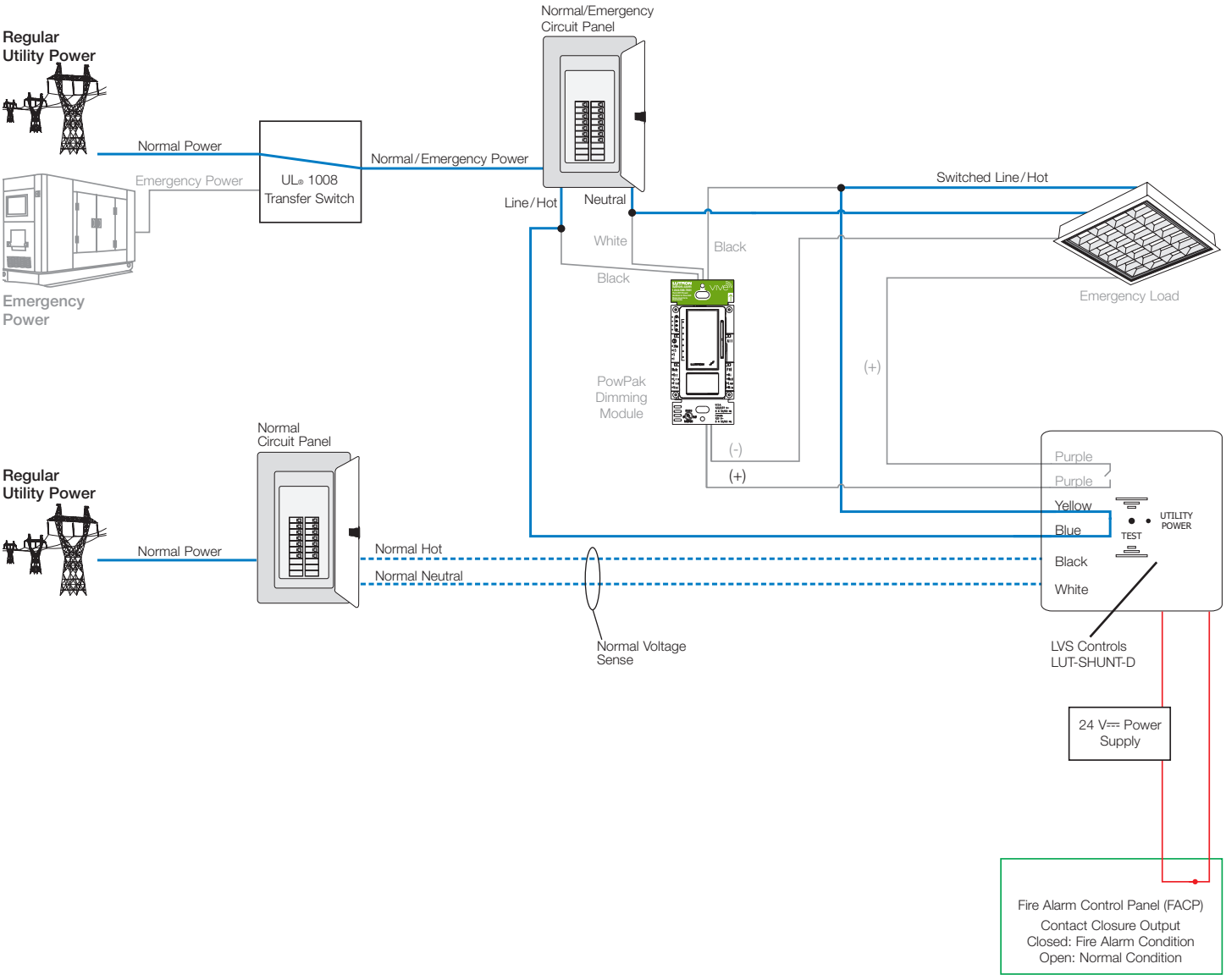
* This wire/terminal may be gray on older products or in retrofit applications.

Maestro Wireless 0–10 V⎓ Dimmer *(continued)*



Module is powered by normal and emergency power *(continued)*

Fire Alarm Operation

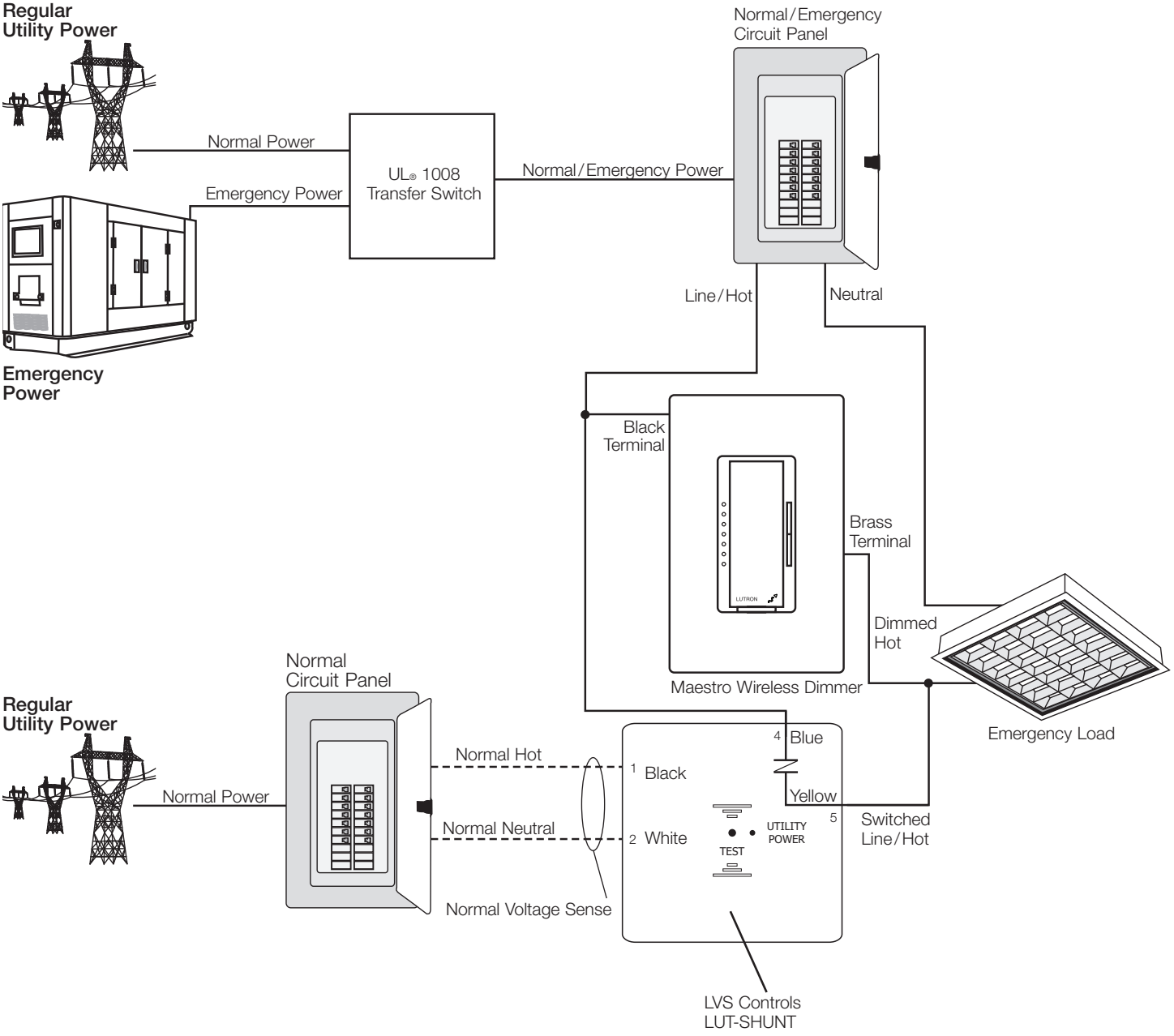


Maestro Wireless Dimmers Not Requiring a Neutral Connection

Dimmer is powered by normal and emergency power

In an application where a dimmer has power during an emergency, an ALCR with a normally closed relay (simple shunt relay) is used. During regular operation, normal power is present and the contact in the shunt relay is open, which allows the dimmer to function. When normal power is lost, the contact in the shunt relay closes and bypasses the dimmer by providing power to the load. Simple shunt relays are not recommended for use with reverse-phase dimmers. An example of an ALCR with a normally closed relay is the LUT-SHUNT from LVS Controls. This applies to: **MRF2S-6CL**.

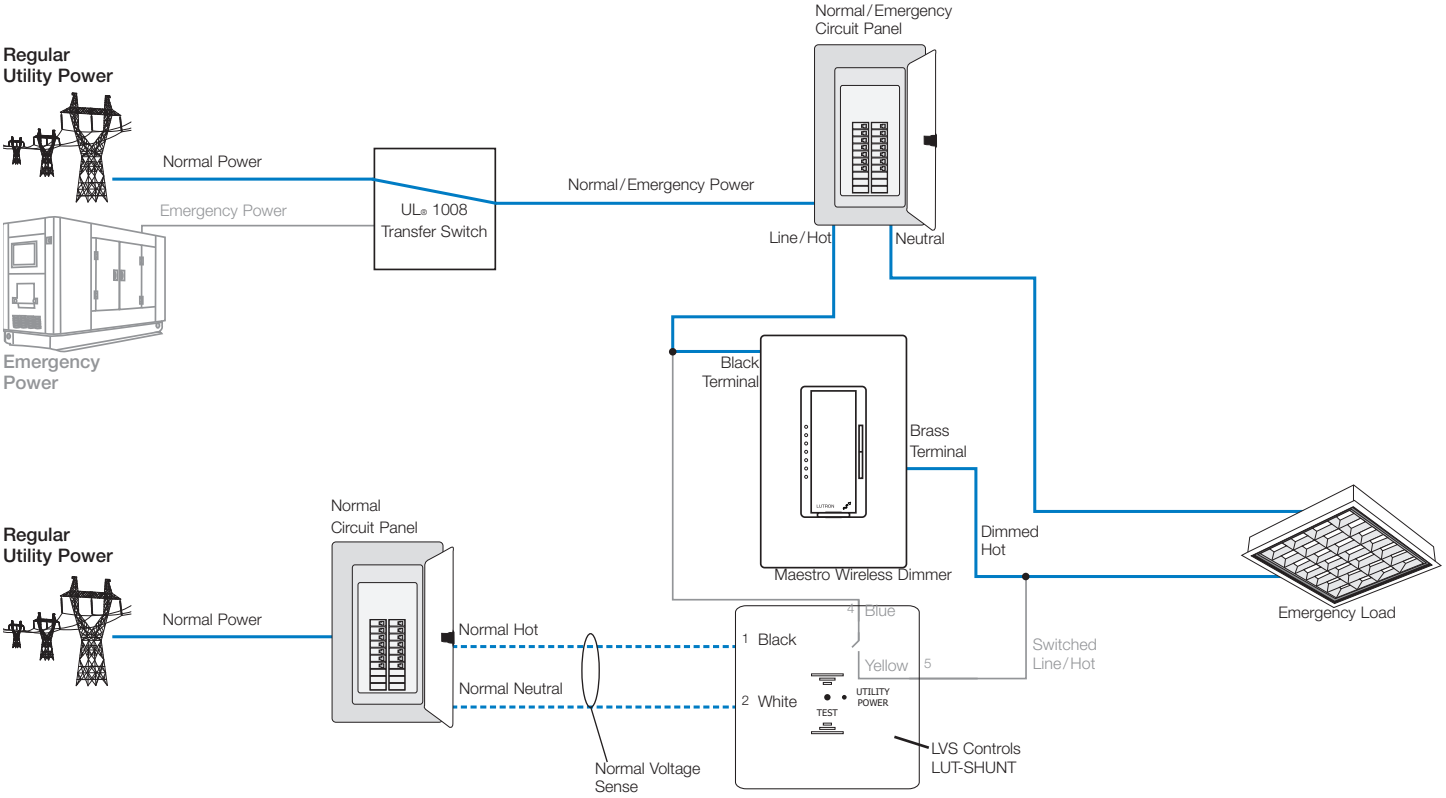
Wiring Schematic



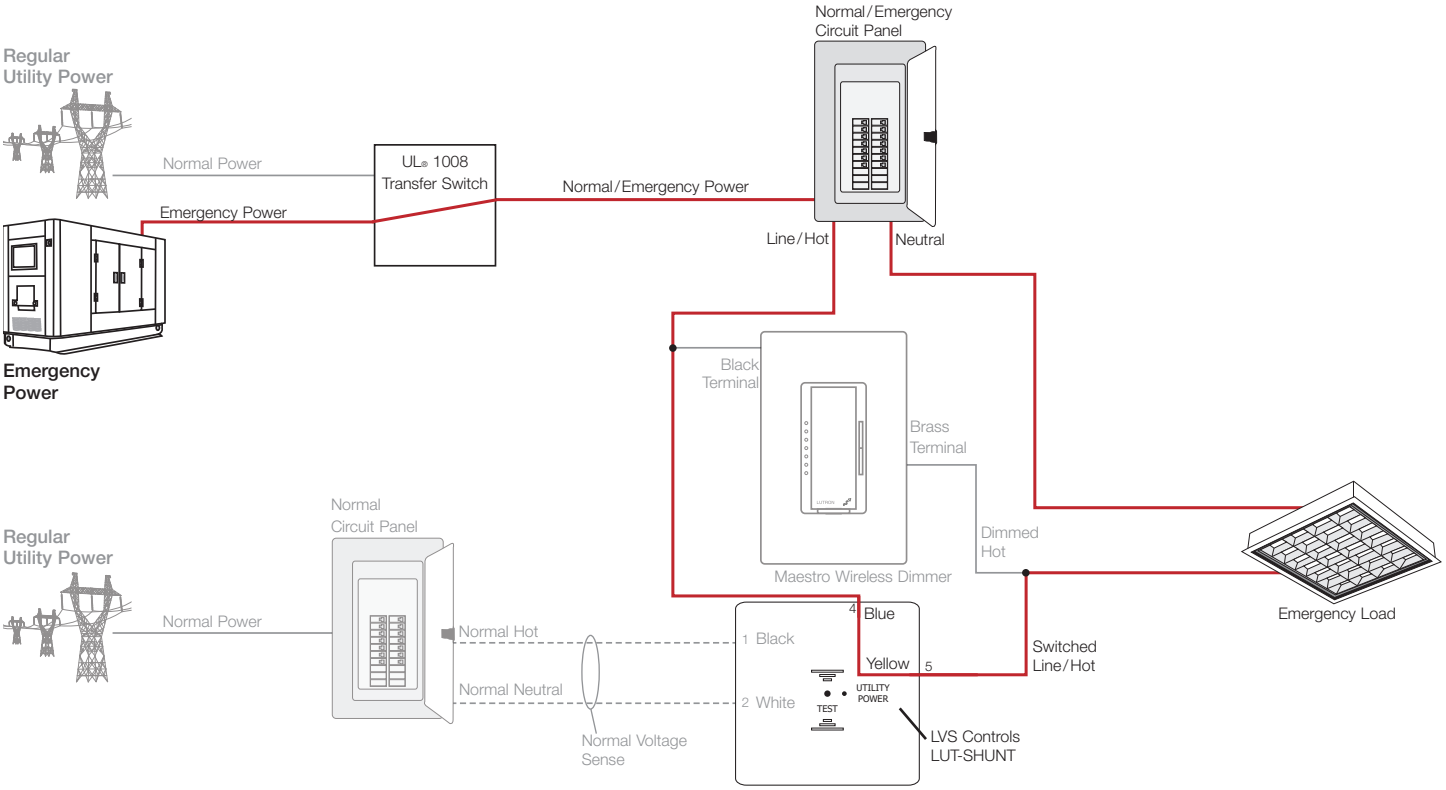
Maestro Wireless Dimmers Not Requiring a Neutral Connection *(continued)*

Dimmer is powered by normal and emergency power *(continued)*

Regular Operation



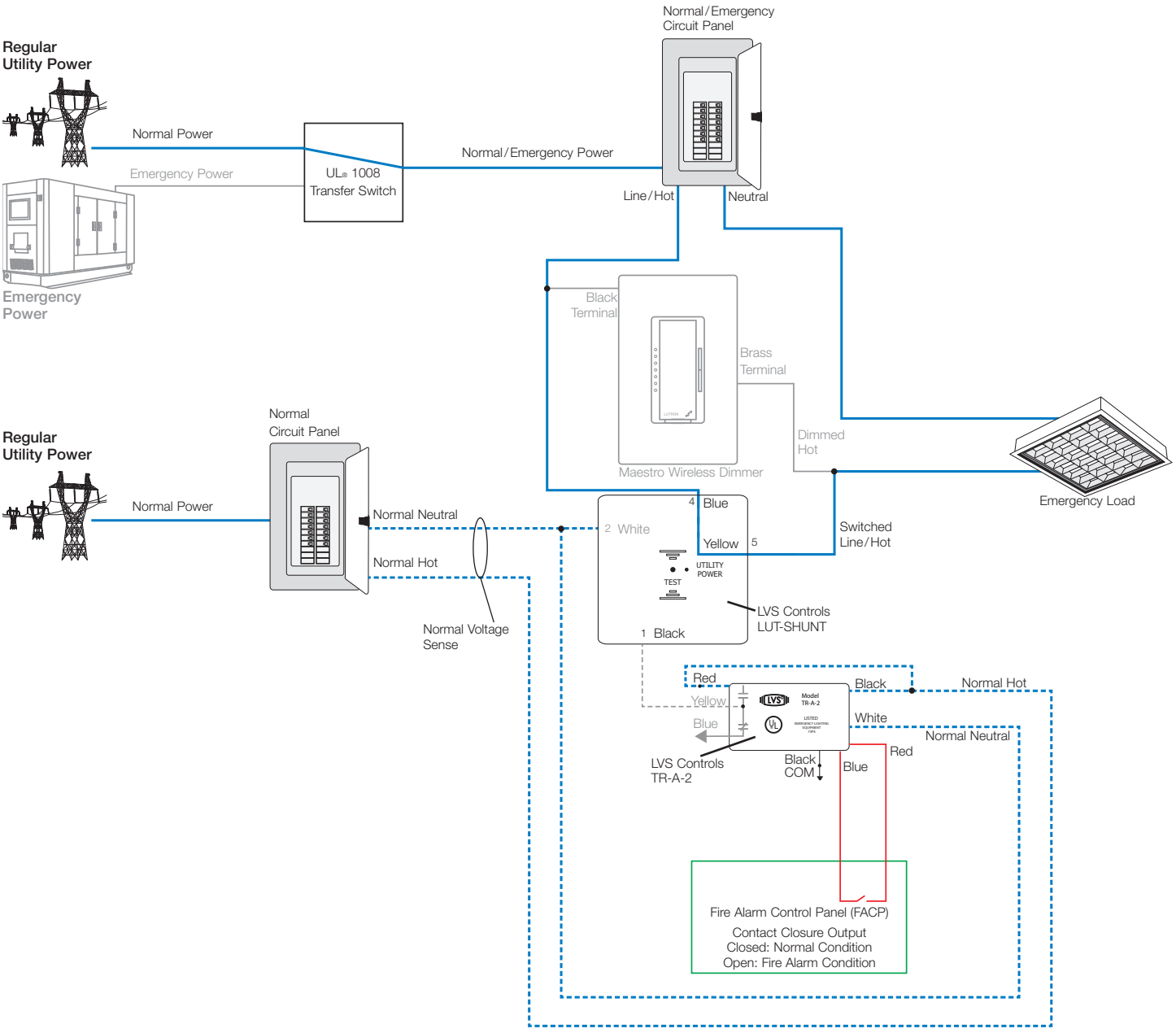
Emergency Operation



Maestro Wireless Dimmers Not Requiring a Neutral Connection *(continued)*

Dimmer is powered by normal and emergency power *(continued)*

Fire Alarm Operation

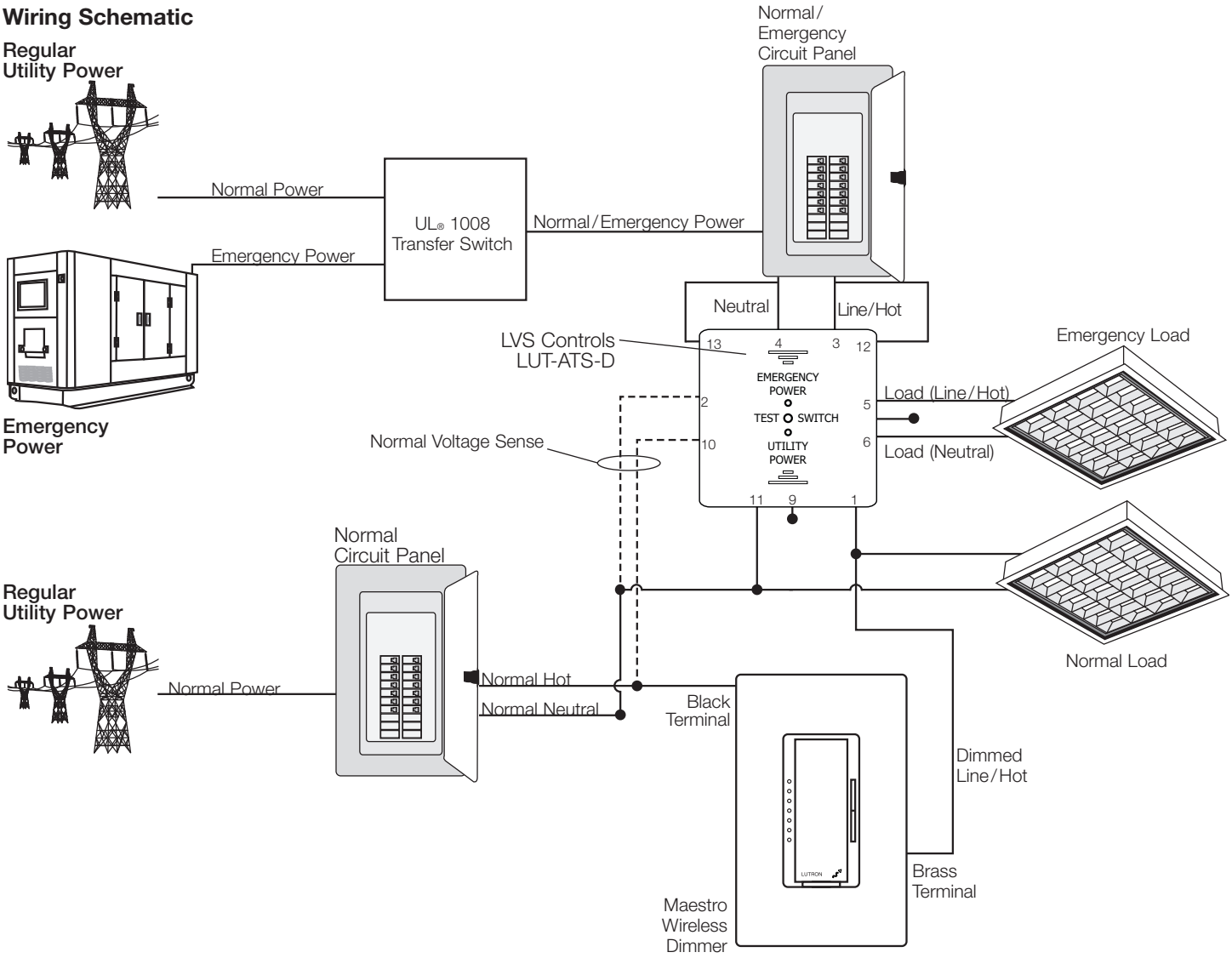


Maestro Wireless Dimmers Not Requiring a Neutral Connection *(continued)*

Dimmer is powered by normal power

In an application where a dimmer is powered by normal power and is controlling an emergency load, an Automatic Transfer Switch (ATS) with multiple normally open and multiple normally closed relays are used. During regular operation, the dimmer controls the load directly. During emergency operation, the ATS senses when normal power is lost and transfers from the dimmer to emergency power, sending the load to high-end. The device is commonly called a load-side transfer switch. An example of an ATS like this is LUT-ATS-D from LVS Controls. This applies to: **MRF2S-6CL**.

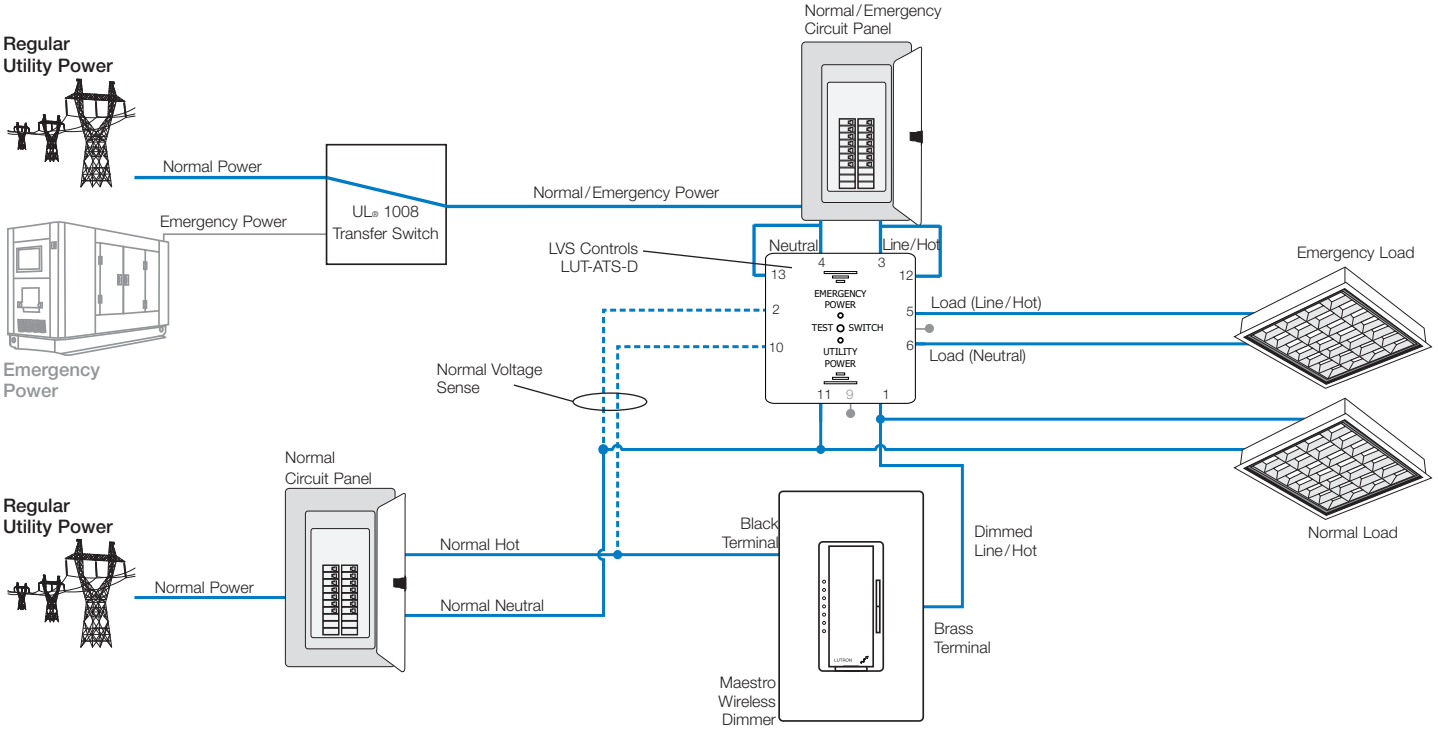
Wiring Schematic



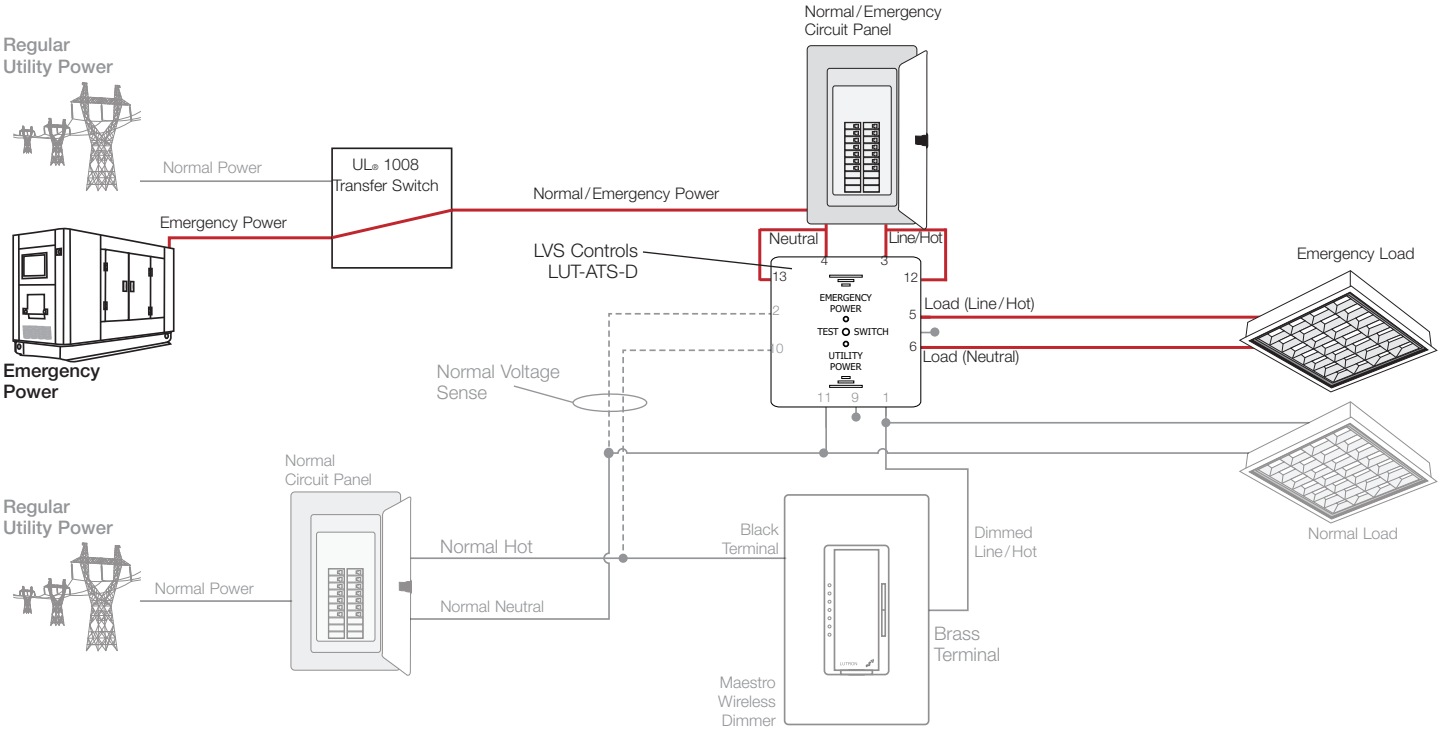
Maestro Wireless Dimmers Not Requiring a Neutral Connection *(continued)*

Dimmer is powered by normal power *(continued)*

Regular Operation



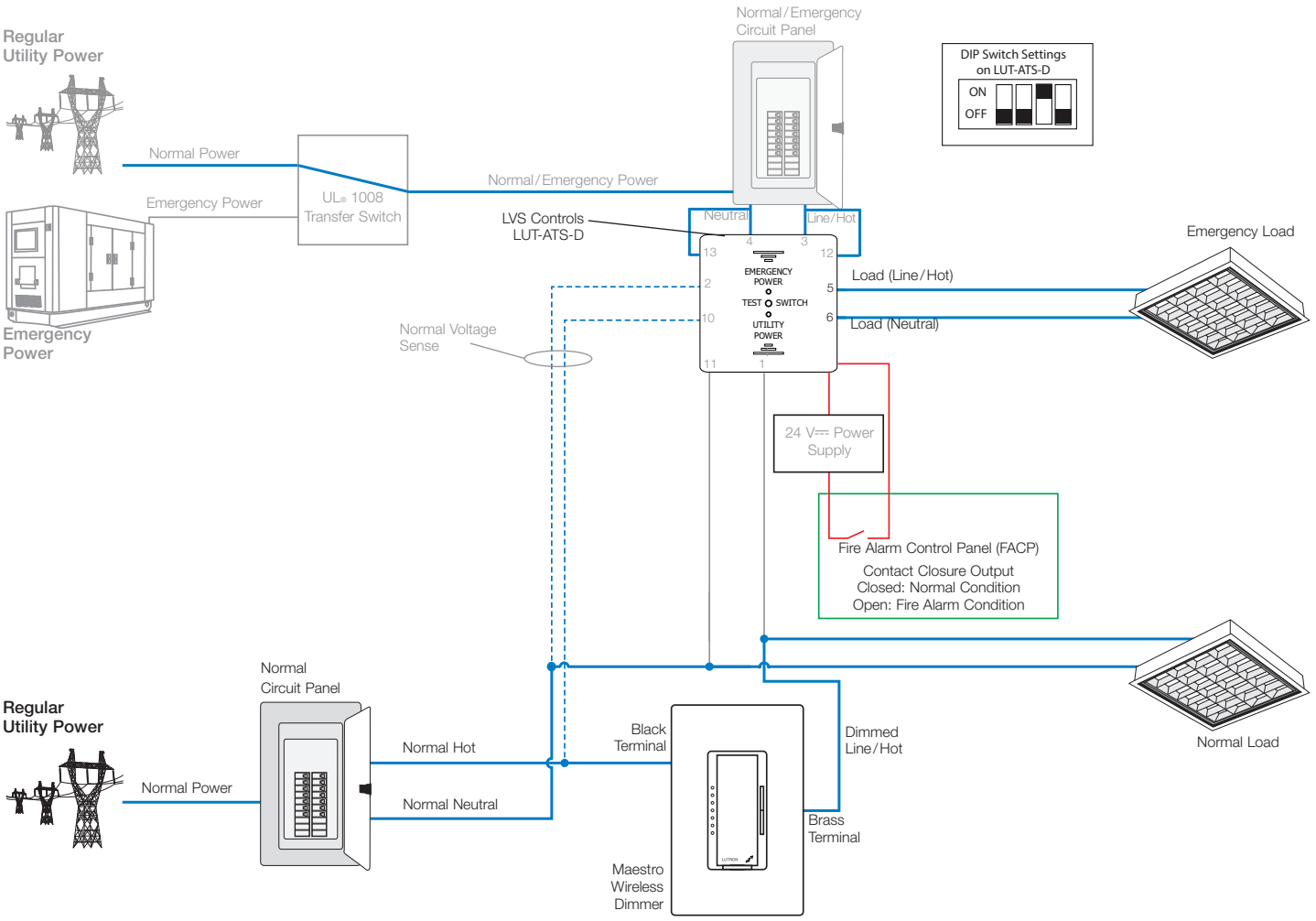
Emergency Operation



Maestro Wireless Dimmers Not Requiring a Neutral Connection *(continued)*

Dimmer is powered by normal power *(continued)*

Fire Alarm Operation

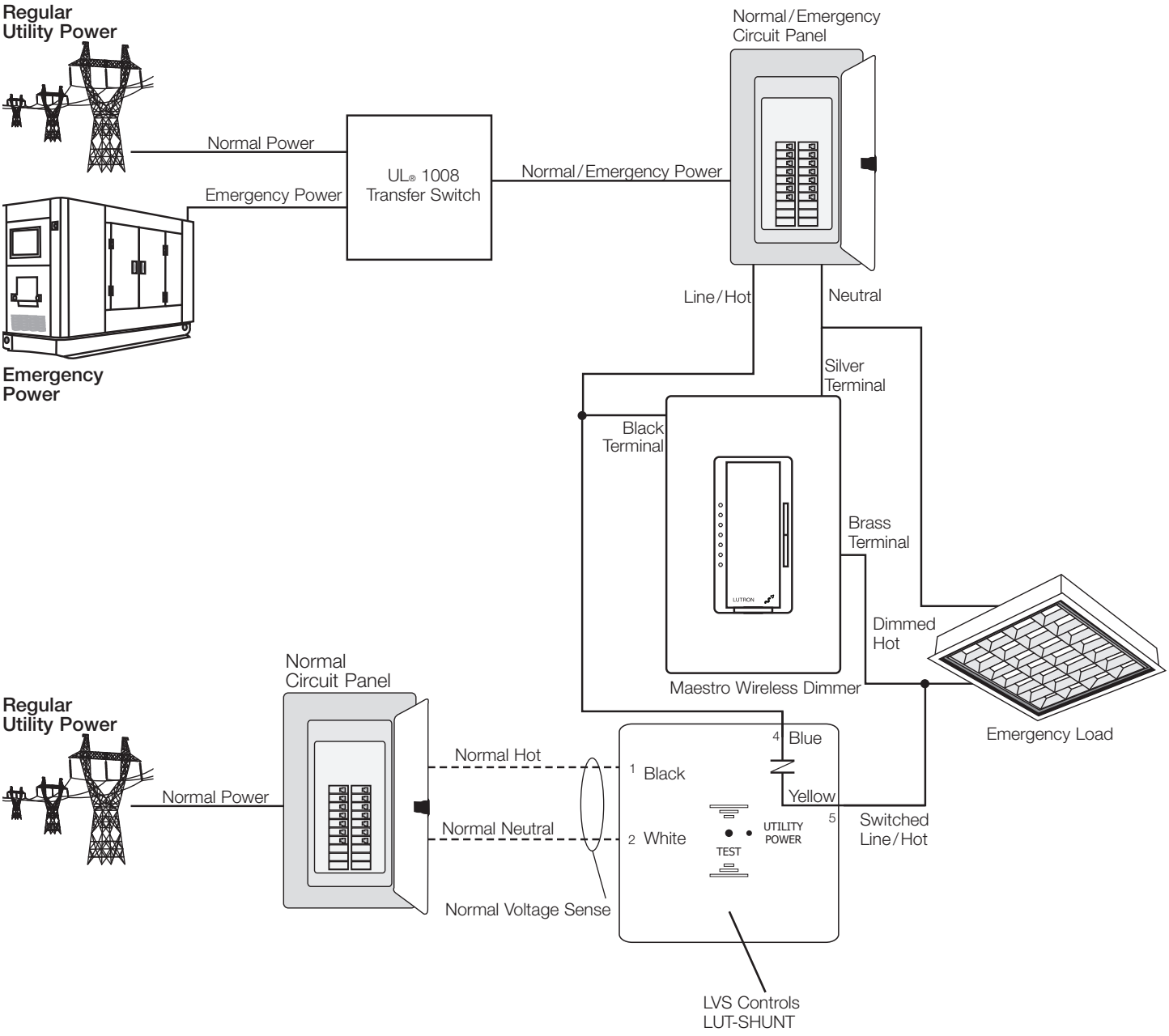


Maestro Wireless Dimmers Requiring a Neutral Connection

Dimmer is powered by normal and emergency power

In an application where a dimmer has power during an emergency, an ALCR with a normally closed relay (simple shunt relay) is used. During regular operation, normal power is present and the contact in the shunt relay is open, which allows the dimmer to function. When normal power is lost, the contact in the shunt relay closes and bypasses the dimmer by providing power to the load. Simple shunt relays are not recommended for use with reverse-phase dimmers. An example of an ALCR with a normally closed relay is the LUT-SHUNT from LVS Controls. This applies to: **MRF2S-6ND**.

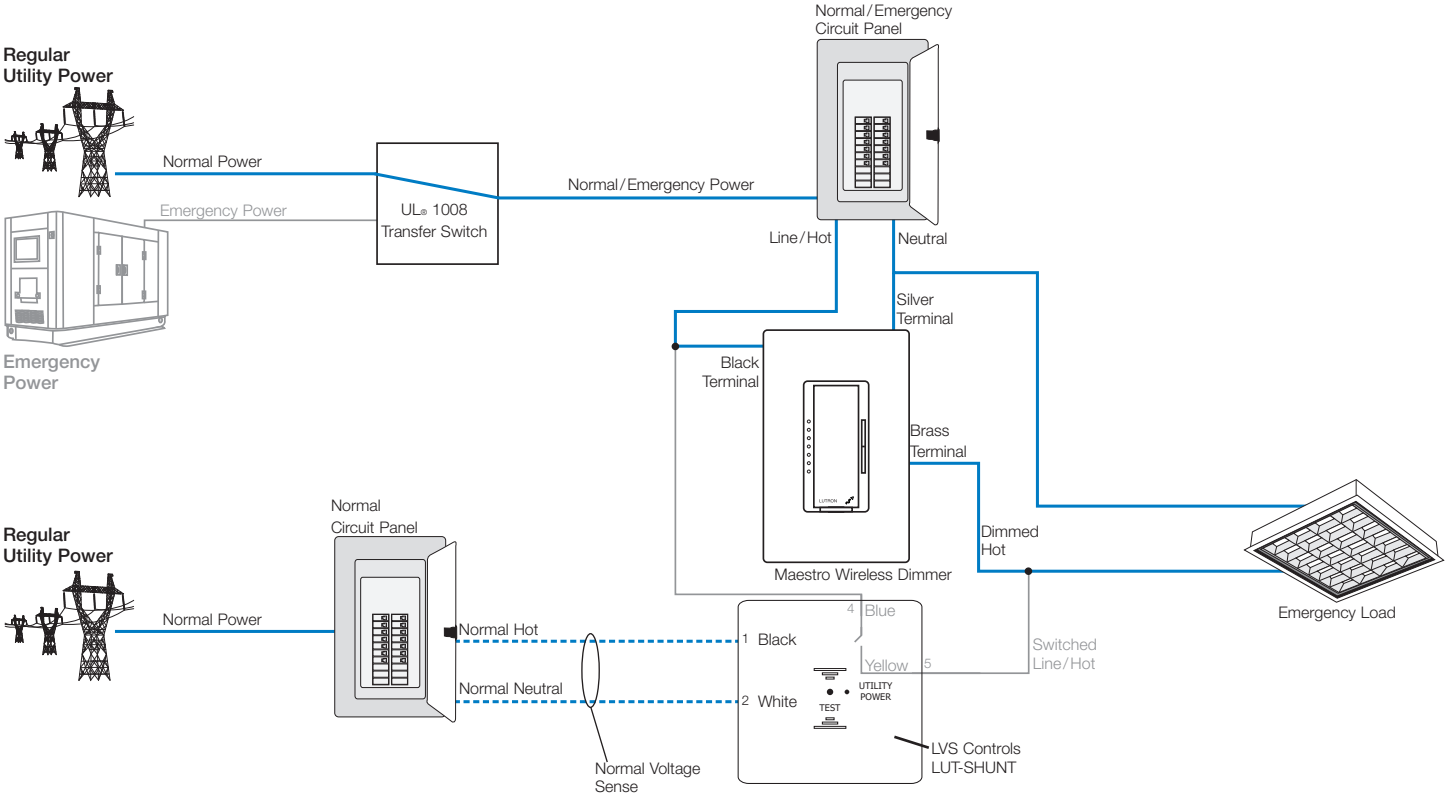
Wiring Schematic



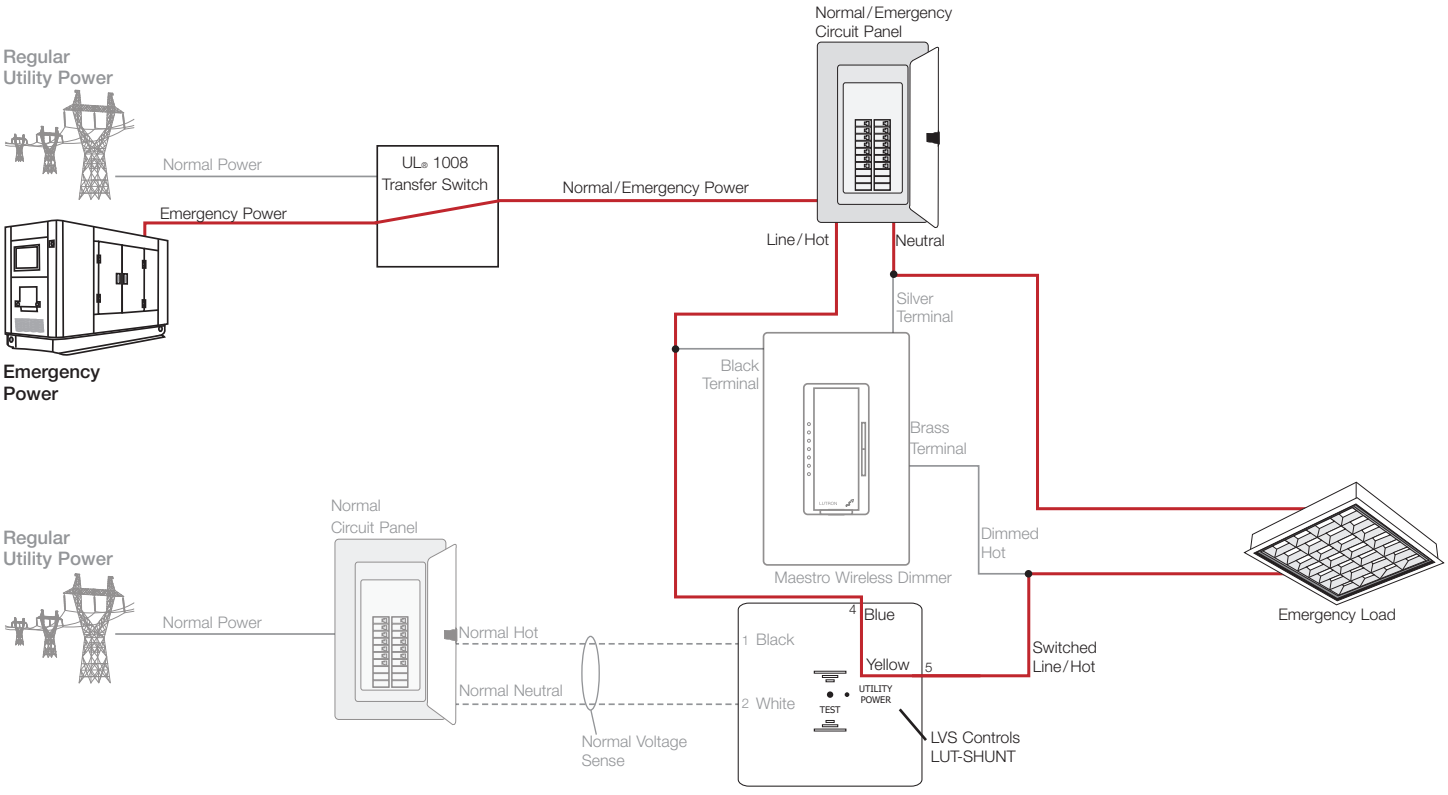
Maestro Wireless Dimmers Requiring a Neutral Connection *(continued)*

Dimmer is powered by normal and emergency power *(continued)*

Regular Operation



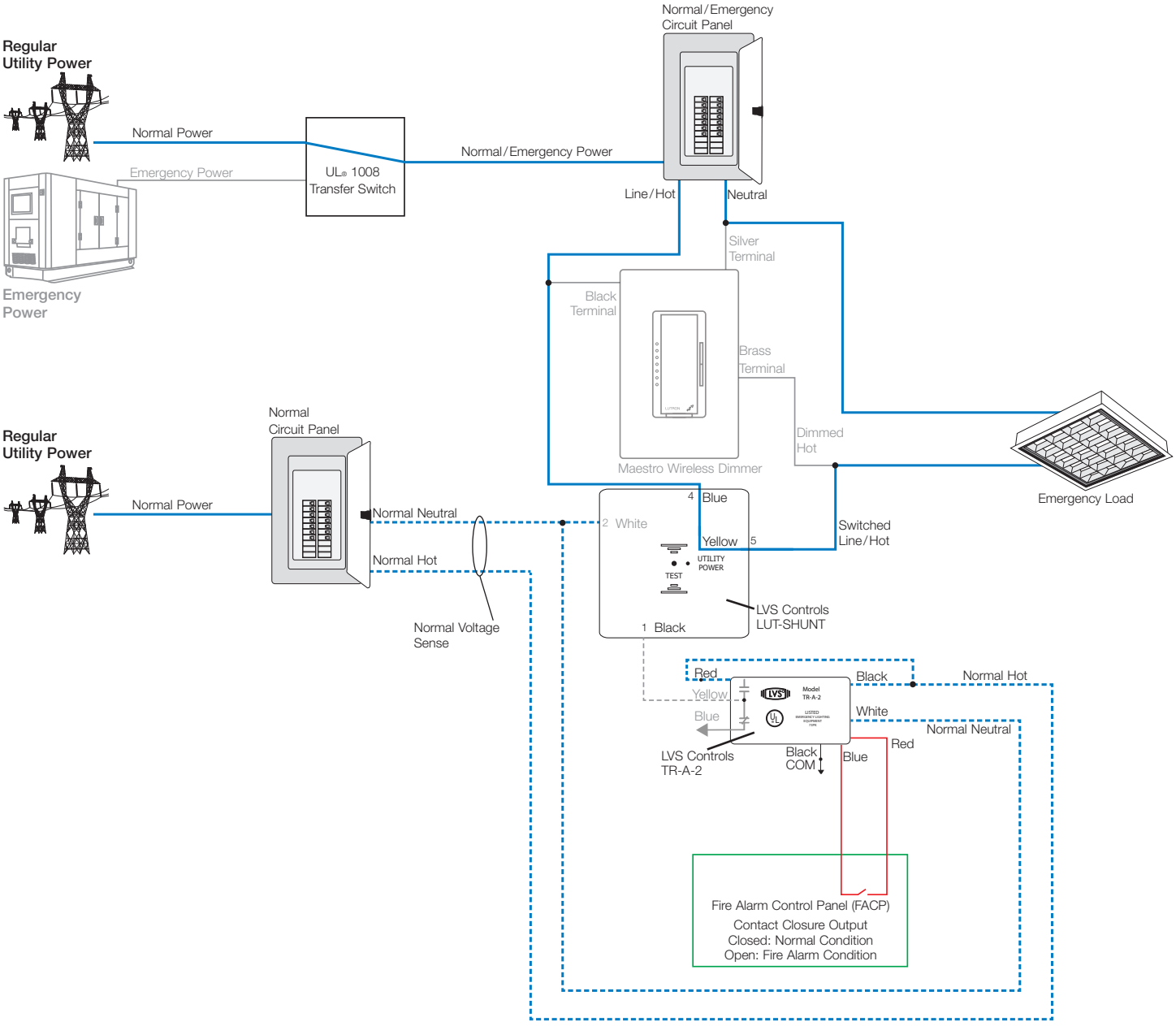
Emergency Operation



Maestro Wireless Dimmers Requiring a Neutral Connection *(continued)*

Dimmer is powered by normal and emergency power *(continued)*

Fire Alarm Operation

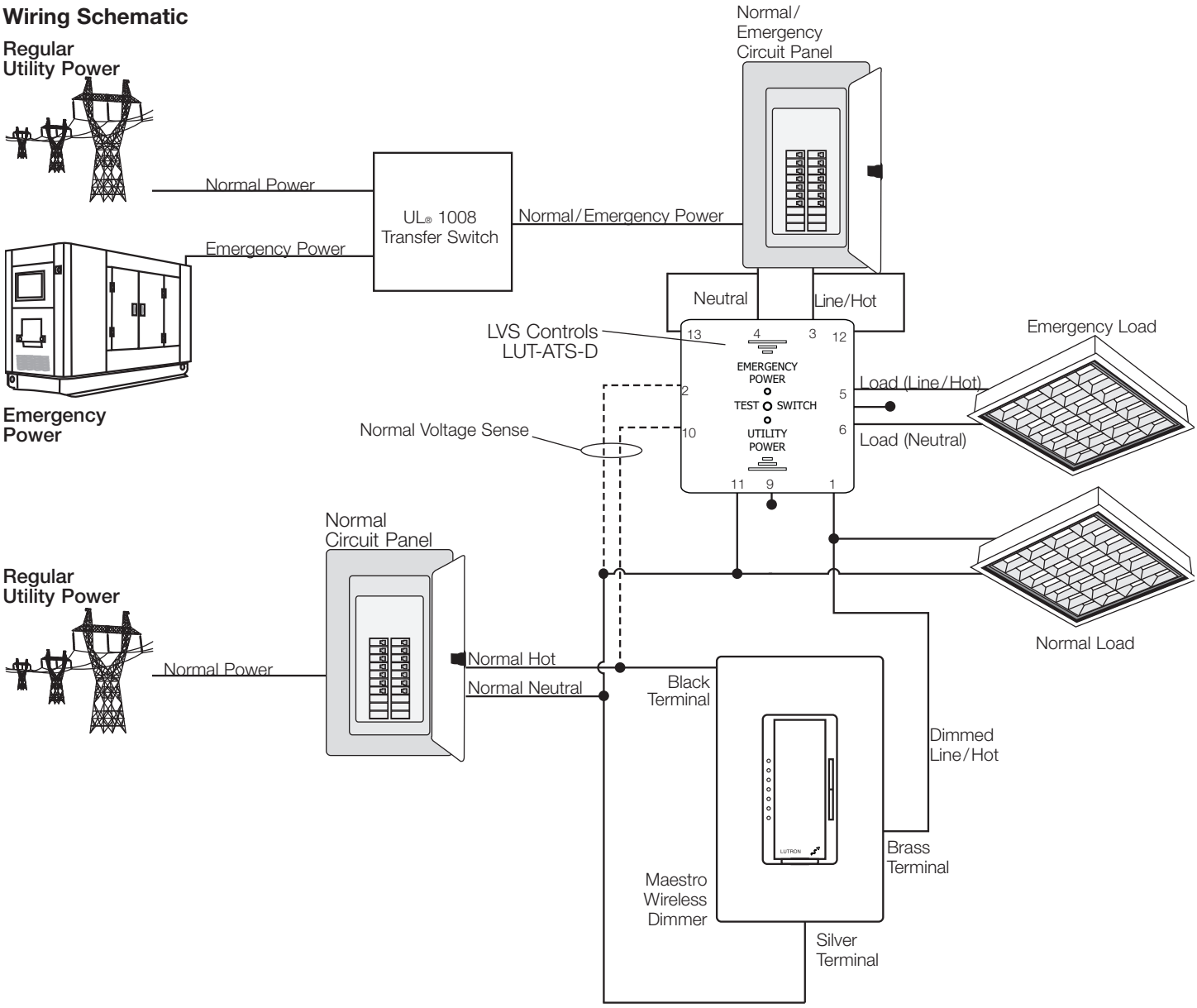


Maestro Wireless Dimmers Requiring a Neutral Connection *(continued)*

Dimmer is powered by normal power

In an application where a dimmer is powered by normal power and is controlling an emergency load, an Automatic Transfer Switch (ATS) with multiple normally open and multiple normally closed relays are used. During regular operation, the dimmer controls the load directly. During emergency operation, the ATS senses when normal power is lost and transfers from the dimmer to emergency power, sending the load to high-end. The device is commonly called a load-side transfer switch. An example of an ATS like this is LUT-ATS-D from LVS Controls. This applies to: **MRF2S-6ND**.

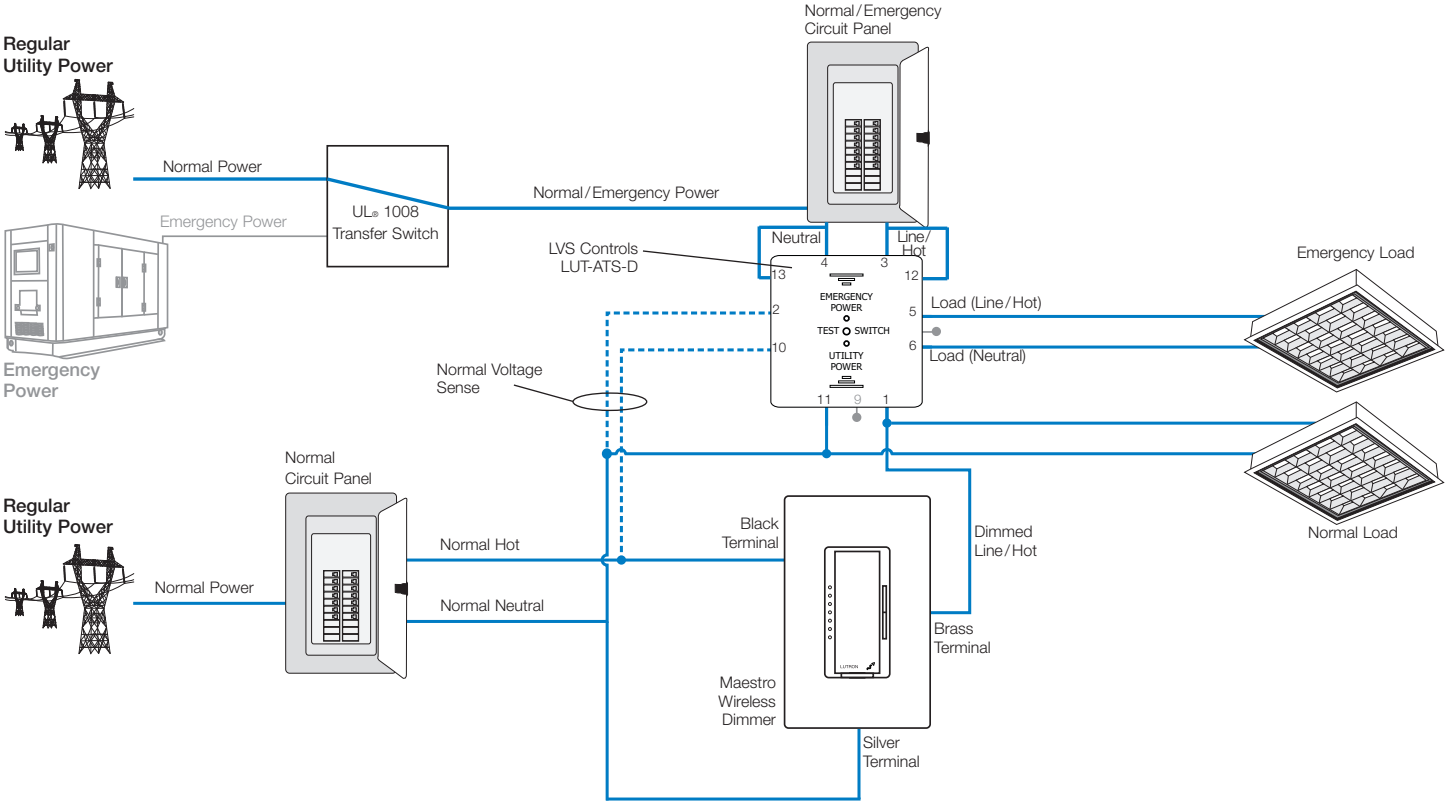
Wiring Schematic



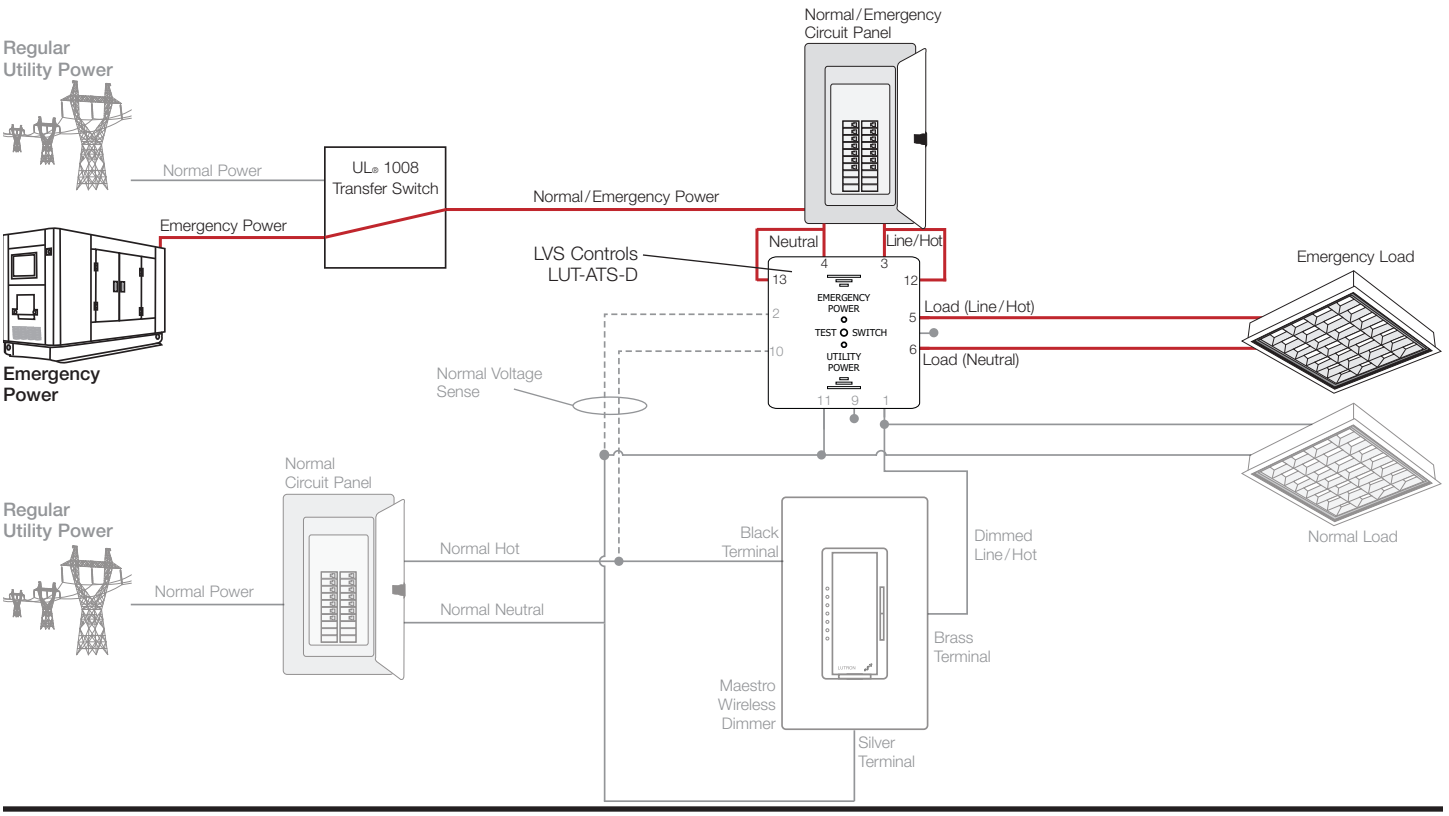
Maestro Wireless Dimmers Requiring a Neutral Connection *(continued)*

Dimmer is powered by normal power *(continued)*

Regular Operation



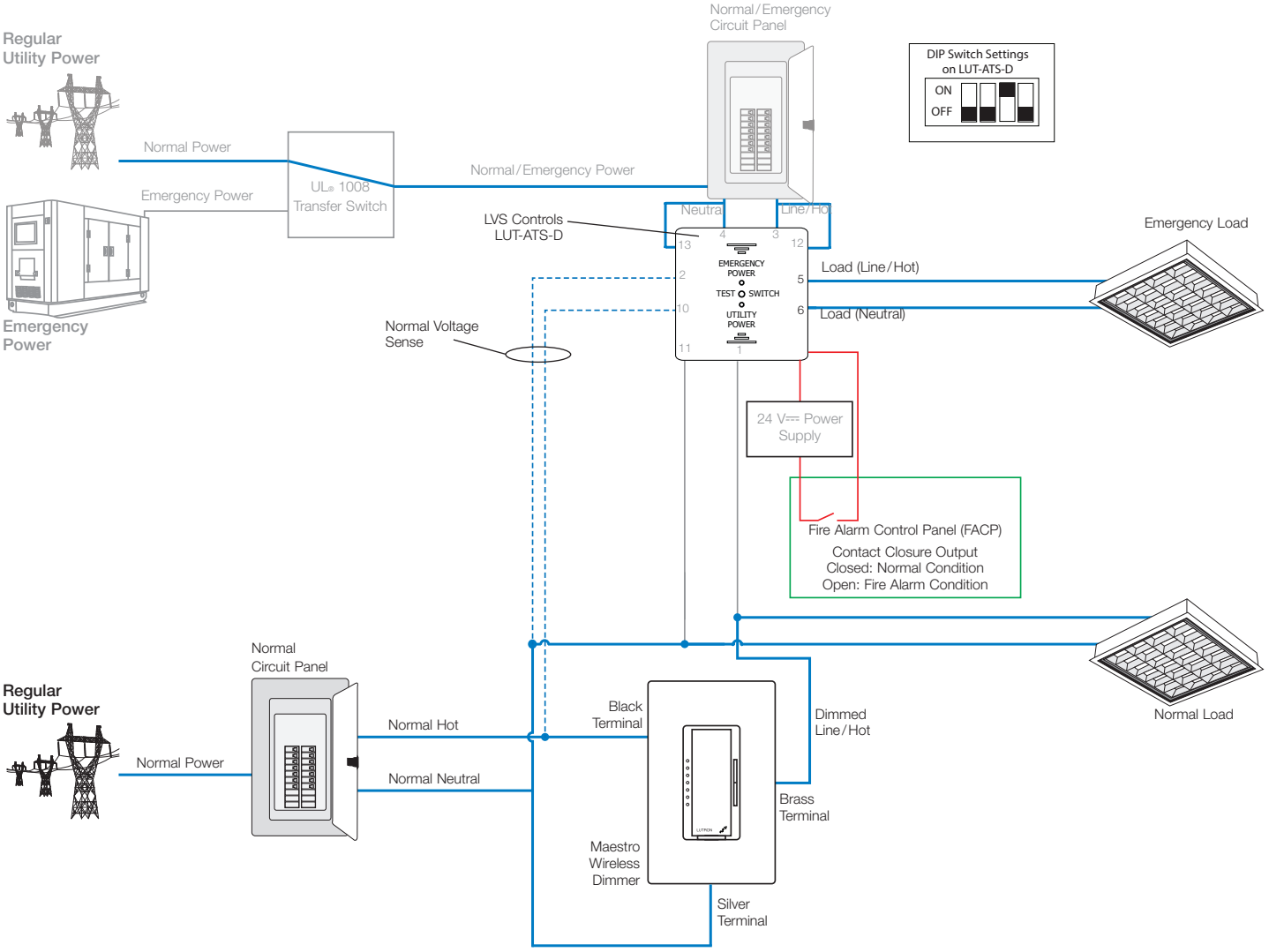
Emergency Operation



Maestro Wireless Dimmers Requiring a Neutral Connection *(continued)*

Dimmer is powered by normal power *(continued)*

Fire Alarm Operation

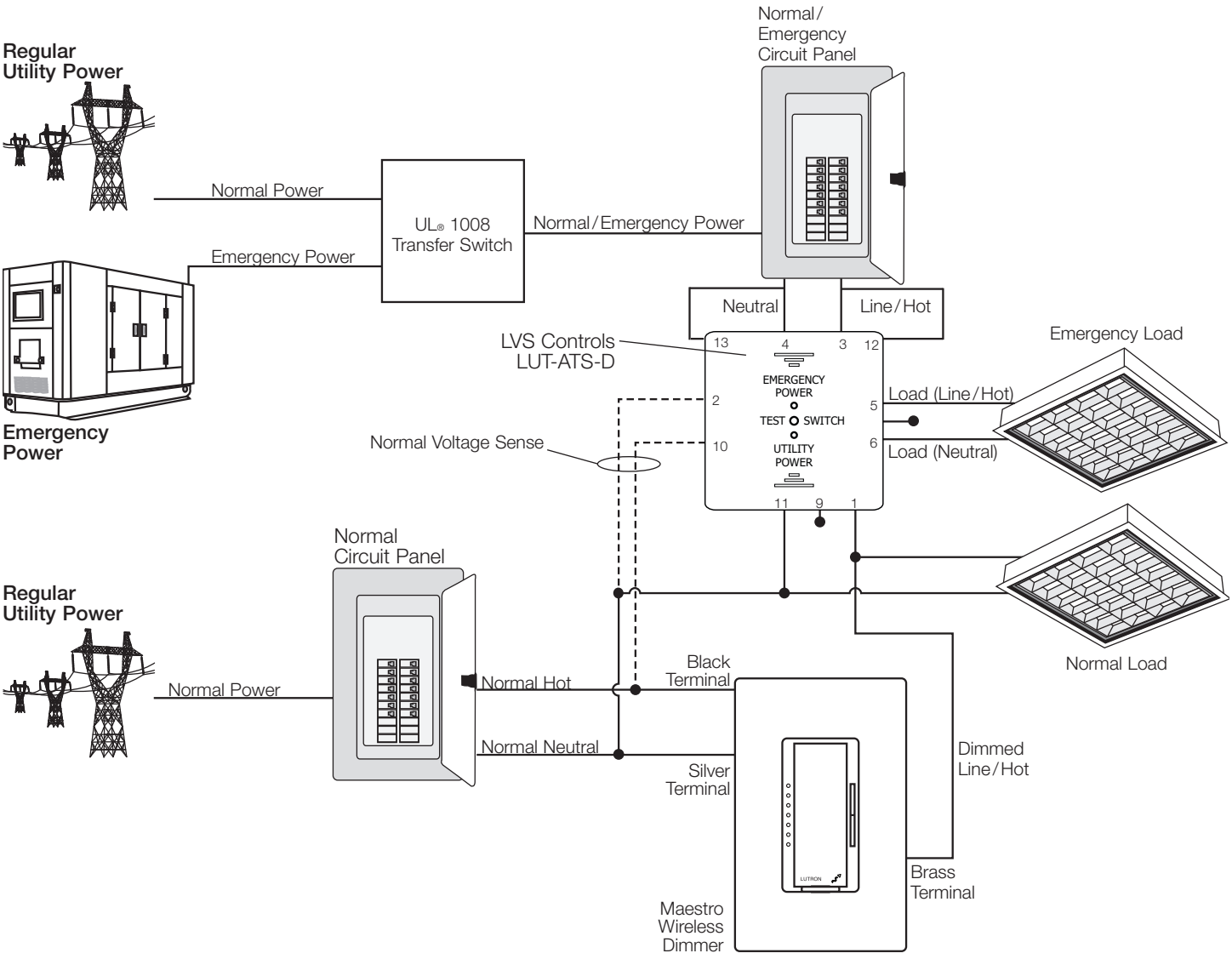


Maestro Wireless Dimmers Requiring a Neutral Connection

Dimmer is powered by normal power

In an application where a reverse-phase dimmer is powered by normal power and is controlling an emergency load, an Automatic Transfer Switch (ATS) with multiple normally open and multiple normally closed relays are used. During regular operation, the dimmer controls the load directly. During emergency operation, the ATS senses when normal power is lost and transfers from the dimmer to emergency power, sending the load to high-end. This device is commonly called a load-side transfer switch. An example of a device like this LUT-ATS-D from LVS Controls. This applies to: **MRF2S-6ELV120**.

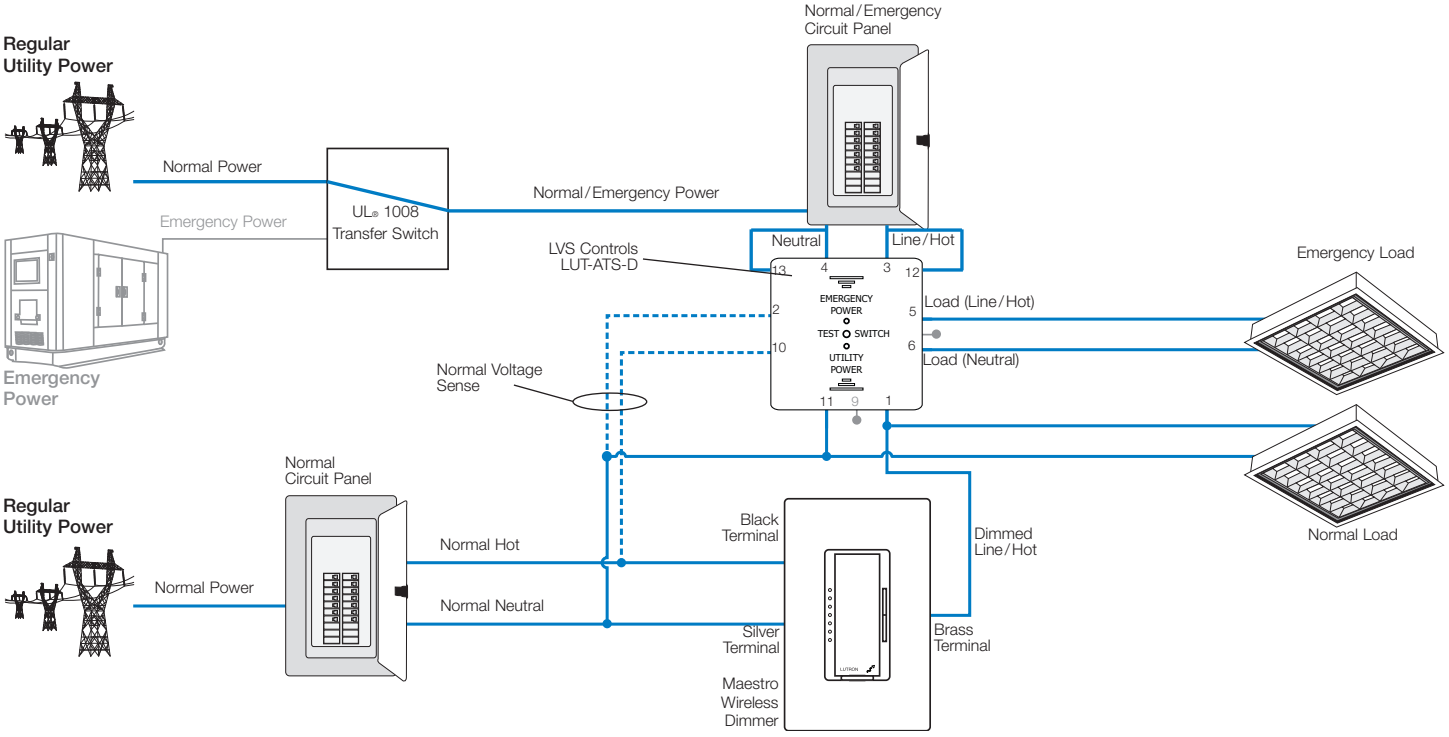
Wiring Schematic



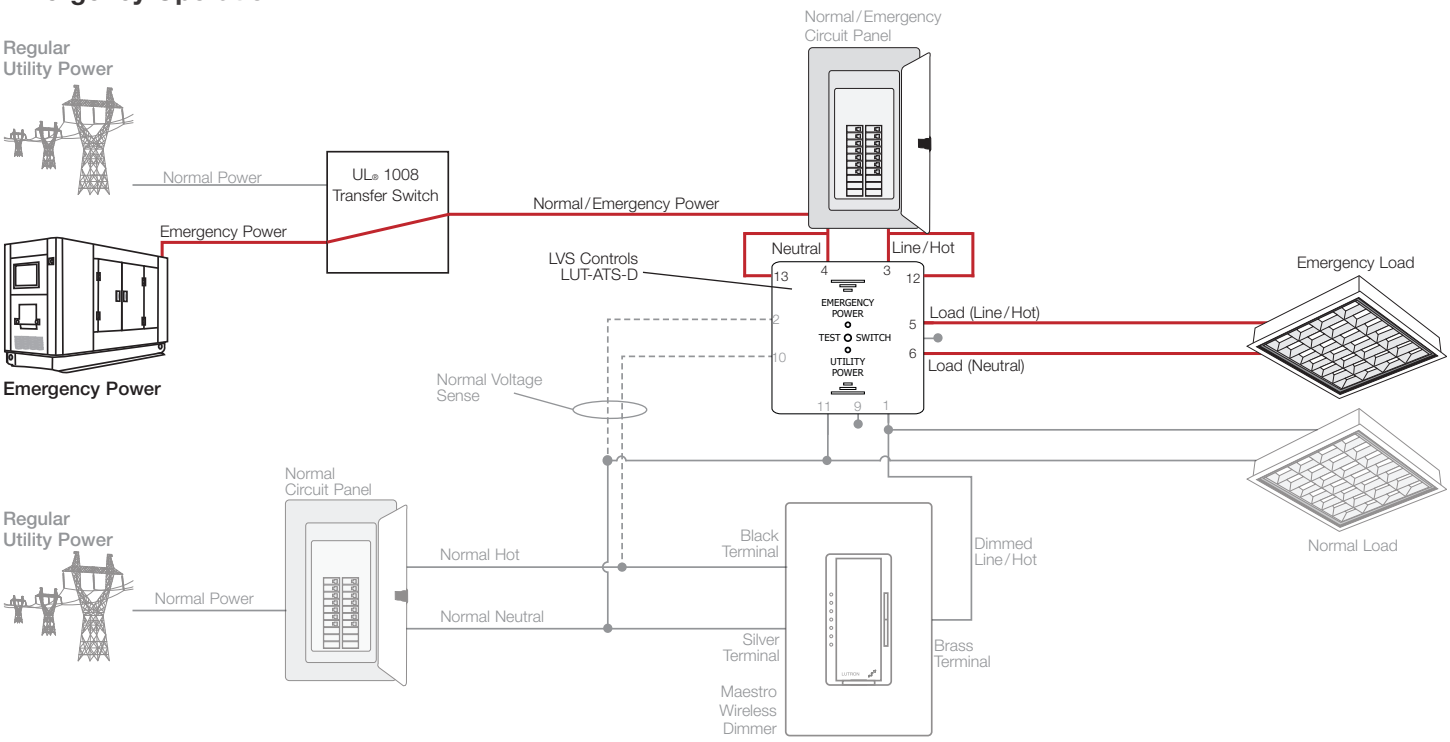
Maestro Wireless Dimmers Requiring a Neutral Connection *(continued)*

Dimmer is powered by normal power *(continued)*

Regular Operation



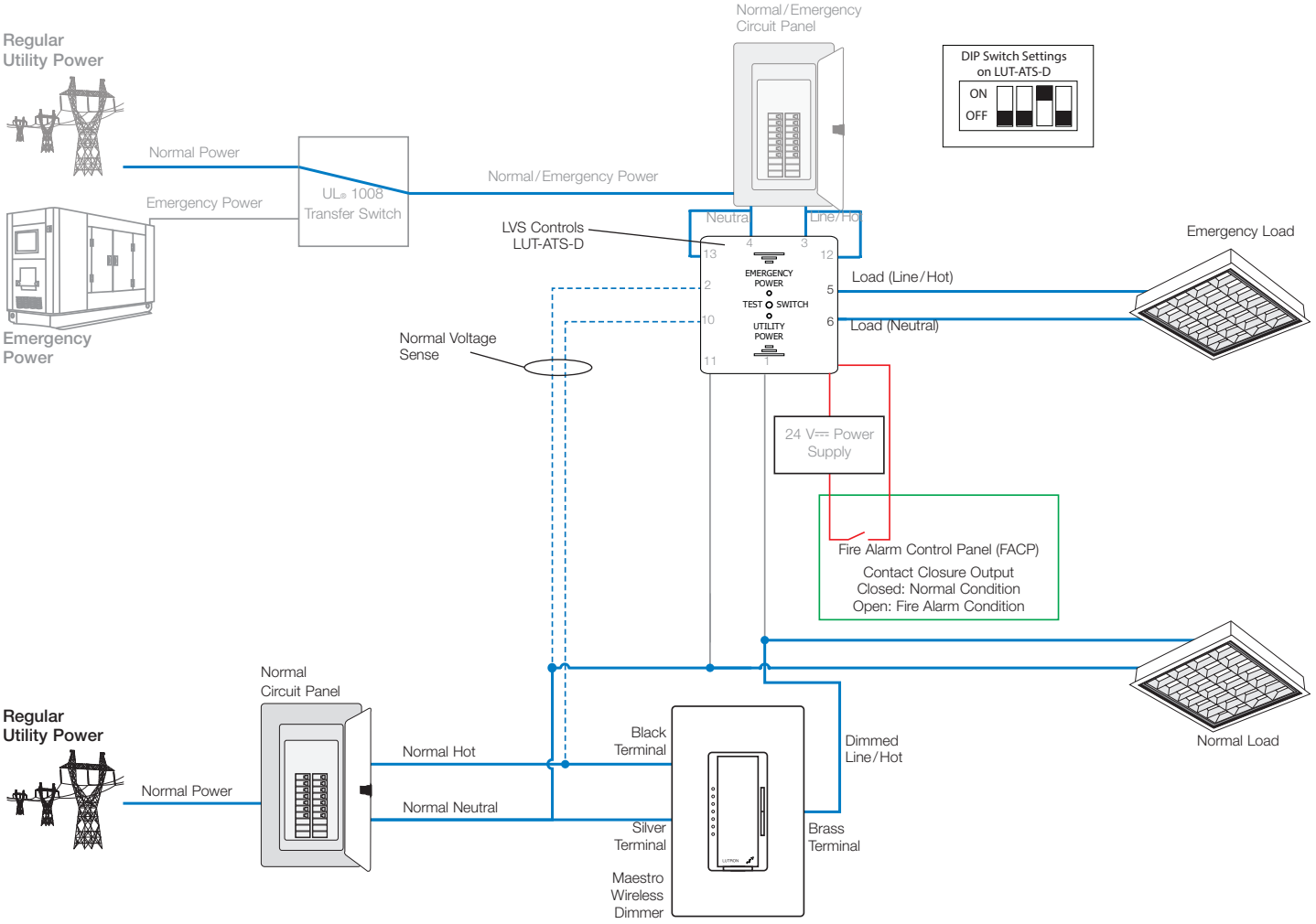
Emergency Operation



Maestro Wireless Dimmers Requiring a Neutral Connection *(continued)*

Dimmer is powered by normal power *(continued)*

Fire Alarm Operation



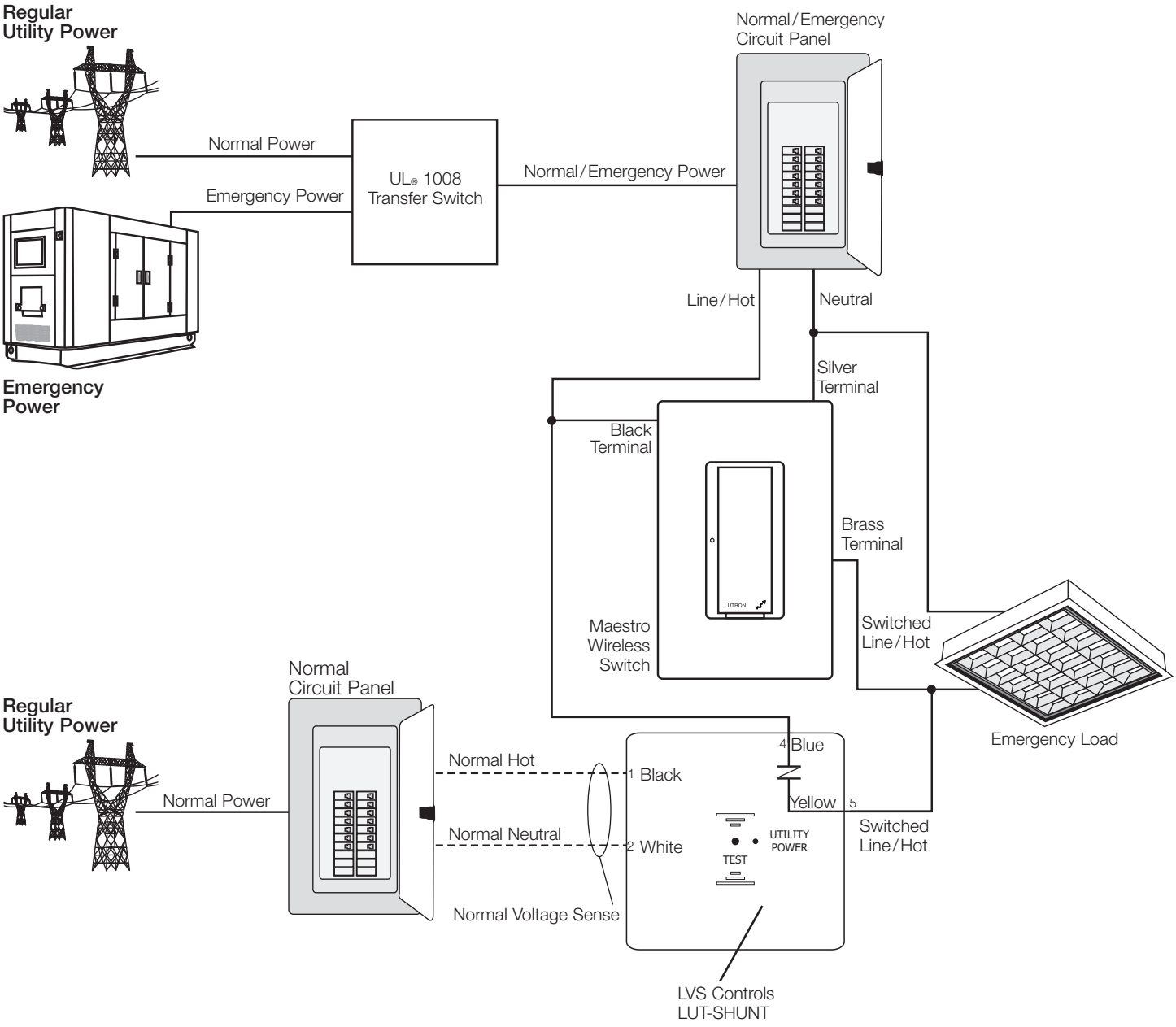
Maestro Wireless Switches Requiring a Neutral Connection

Switch is powered by normal and emergency power

In an application where a switch has power during an emergency, an ALCR with a normally closed relay (simple shunt relay) is used. During regular operation, normal power is present and the contact in the shunt relay is open, which allows the switch to function. When normal power is lost, the contact in the shunt relay closes and bypasses the switch by providing power to the load. An example of an ALCR with a normally closed relay is the LUT-SHUNT from LVS Controls. This shunt relay can be used with Maestro Wireless switches, which include:

- **MRF2S-6ANS**
- **MRF2S-8ANS-120**
- **UMRF2S-8ANS-120**

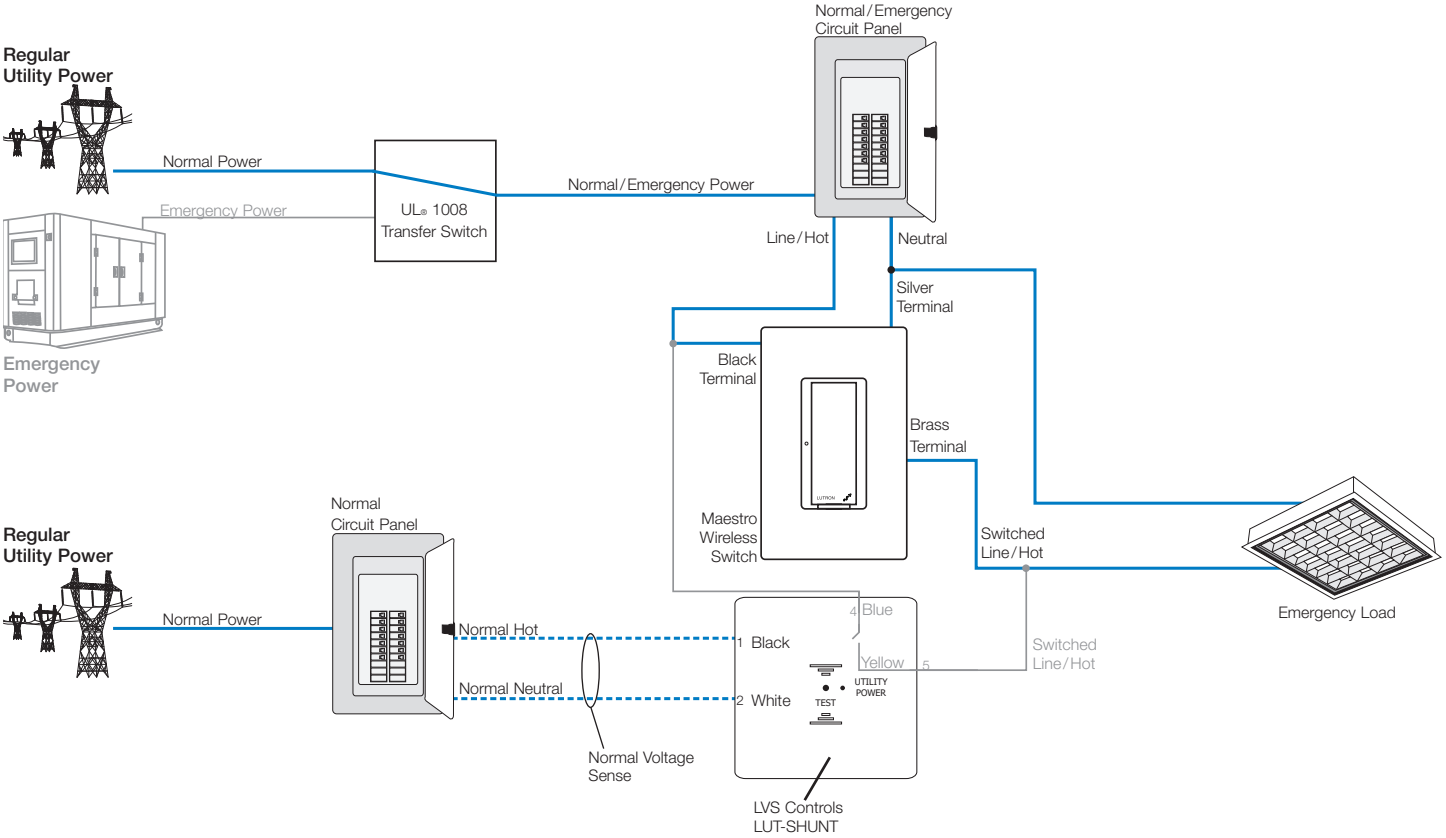
Wiring Schematic



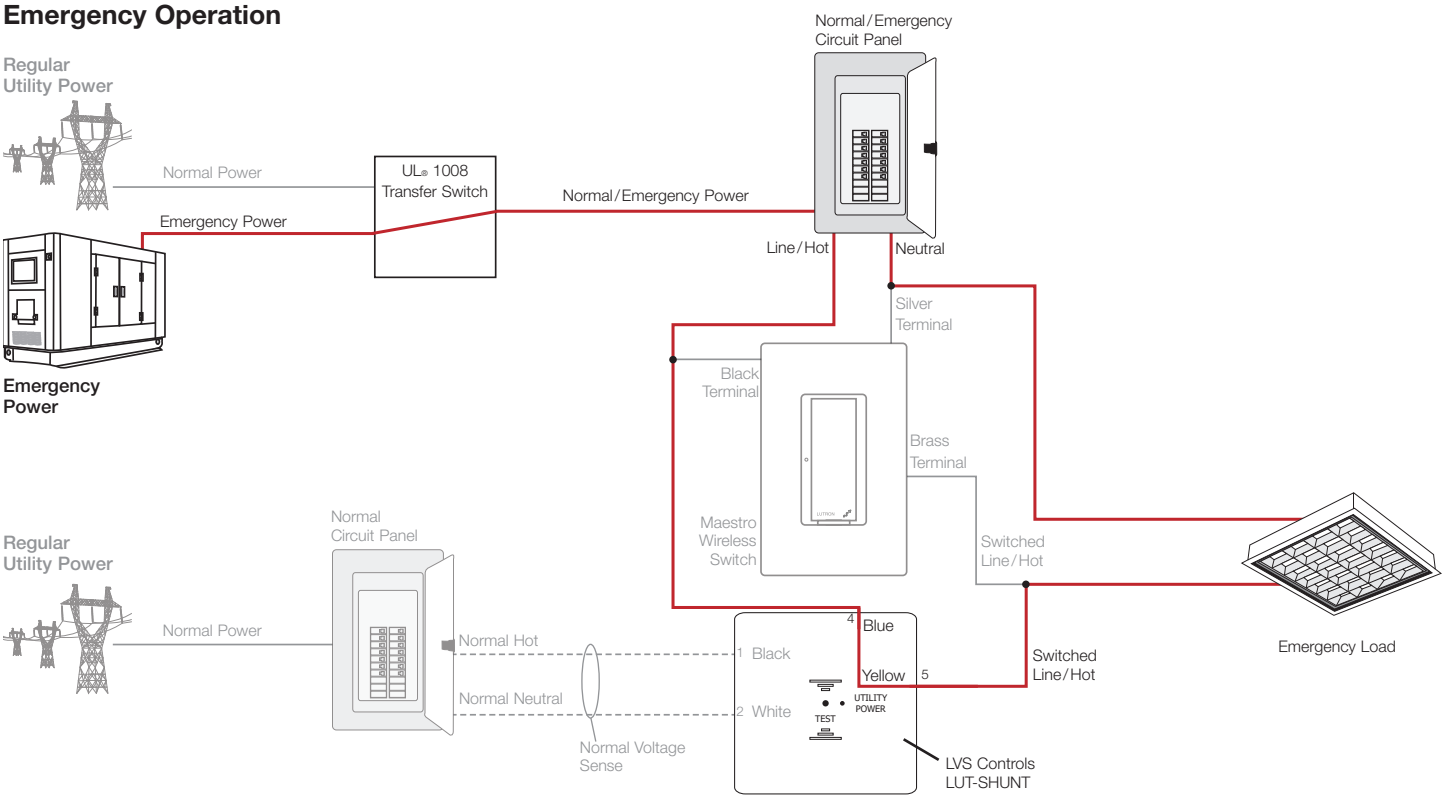
Maestro Wireless Switches Requiring a Neutral Connection *(continued)*

Switch is powered by normal and emergency power *(continued)*

Regular Operation



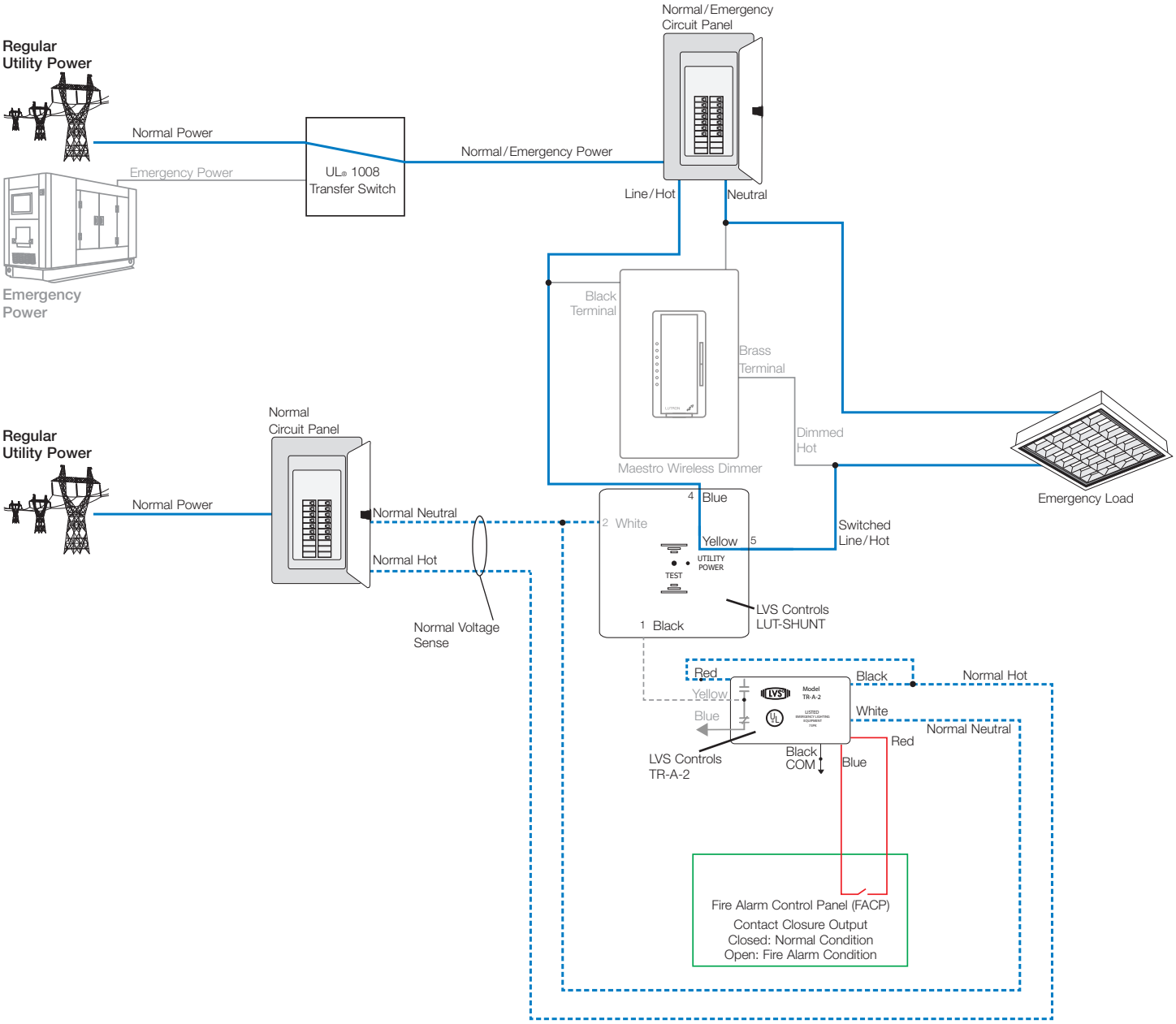
Emergency Operation



Maestro Wireless Dimmers Requiring a Neutral Connection *(continued)*

Switch is powered by normal and emergency power *(continued)*

Fire Alarm Operation



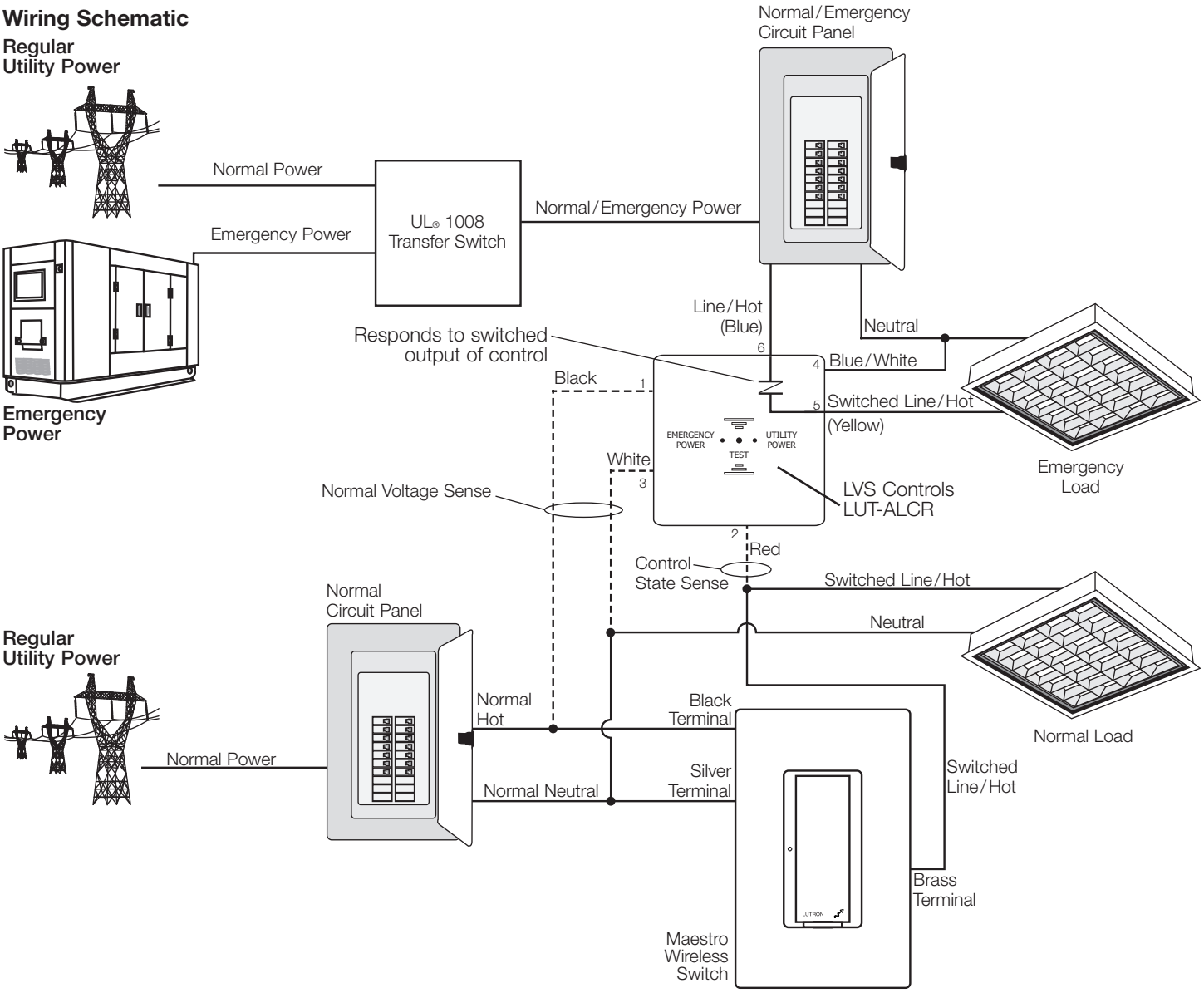
Maestro Wireless Switches Requiring a Neutral Connection *(continued)*

Switch is powered by normal power

In an application where a switch does not have power during an emergency, but is controlling emergency loads during regular operation, an ALCR with a normally closed relay that responds to the switched hot output of the switch is used. During regular operation, normal power is present and the relay in the ALCR will respond to switched hot output of the switch. When normal power is lost, the contact in the ALCR will close and provide power to the emergency load. An example of an ALCR like this is LUT-ALCR from LVS controls. This relay can be used with Maestro Wireless switches, which include:

- **MRF2S-6ANS**
- **MRF2S-8ANS-120**
- **UMRF2S-8ANS-120**

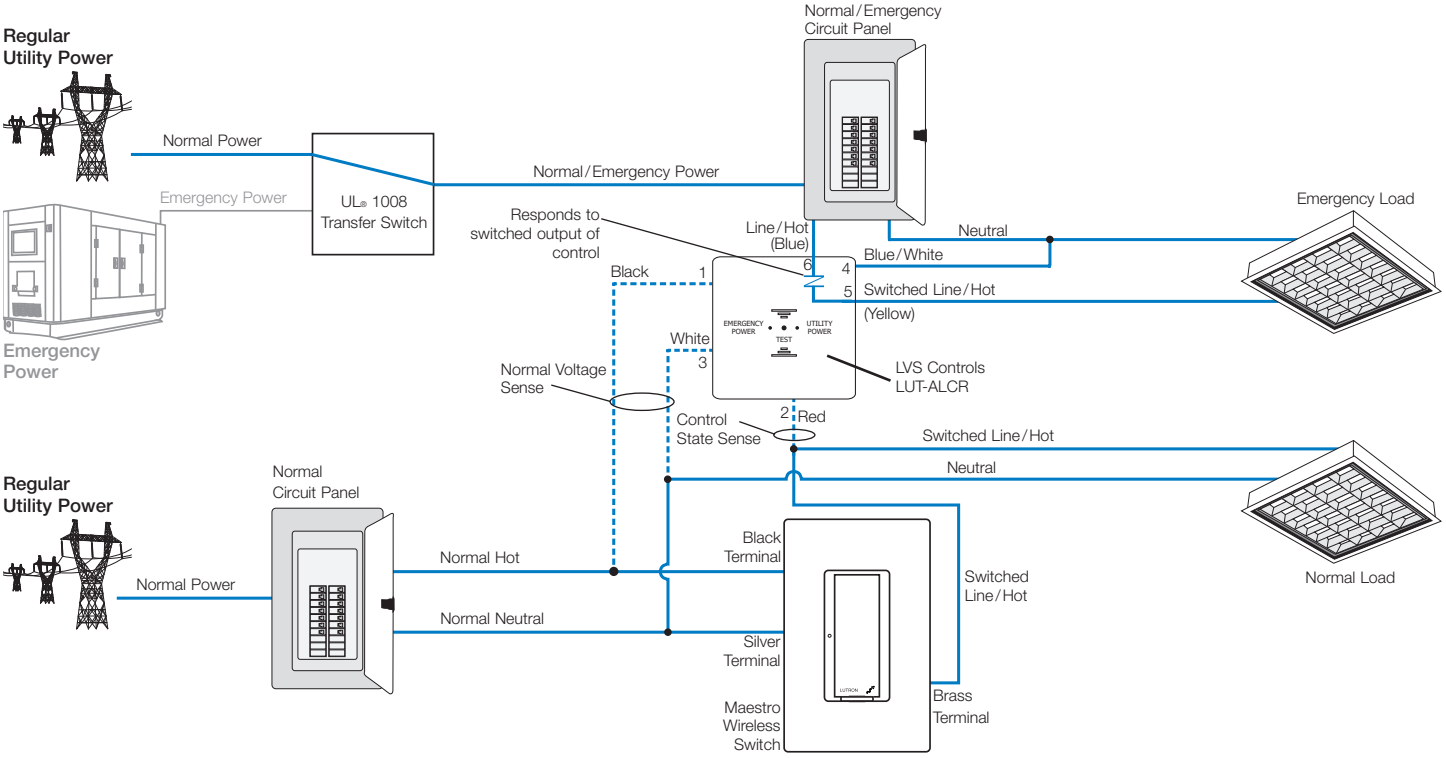
Wiring Schematic



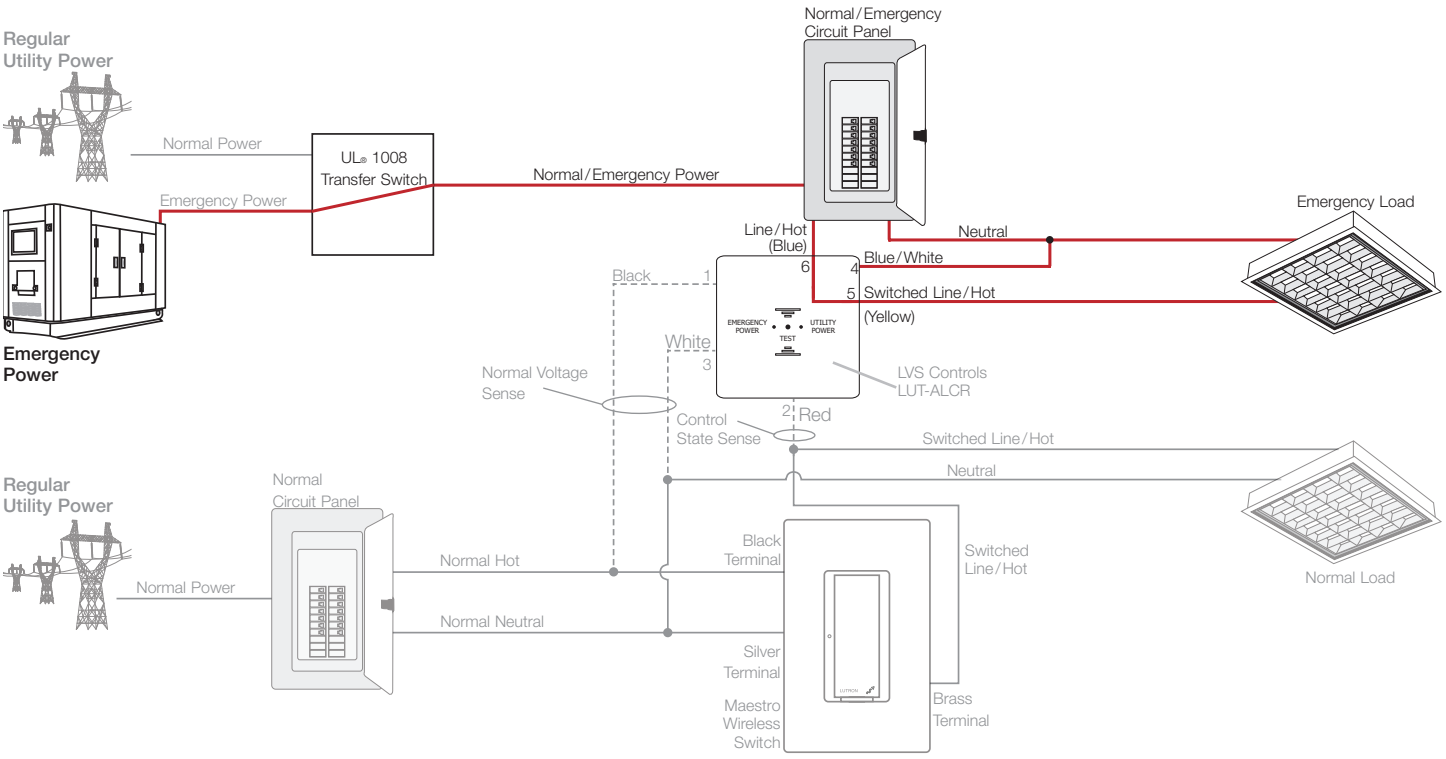
Maestro Wireless Switches Requiring a Neutral Connection *(continued)*

Switch is powered by normal power *(continued)*

Regular Operation



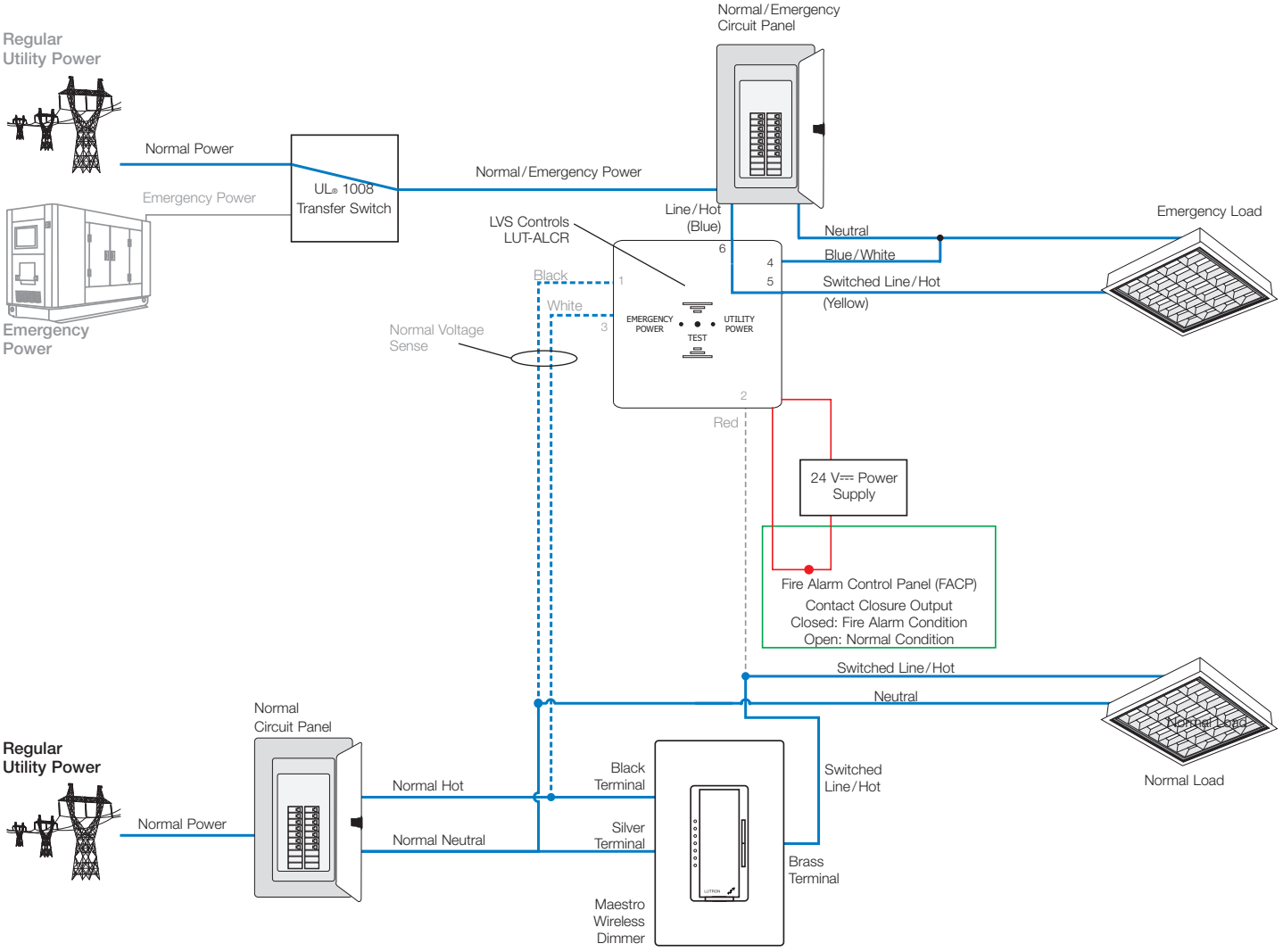
Emergency Operation



Maestro Wireless Switches Requiring a Neutral Connection *(continued)*

Switch is powered by normal power *(continued)*

Fire Alarm Operation



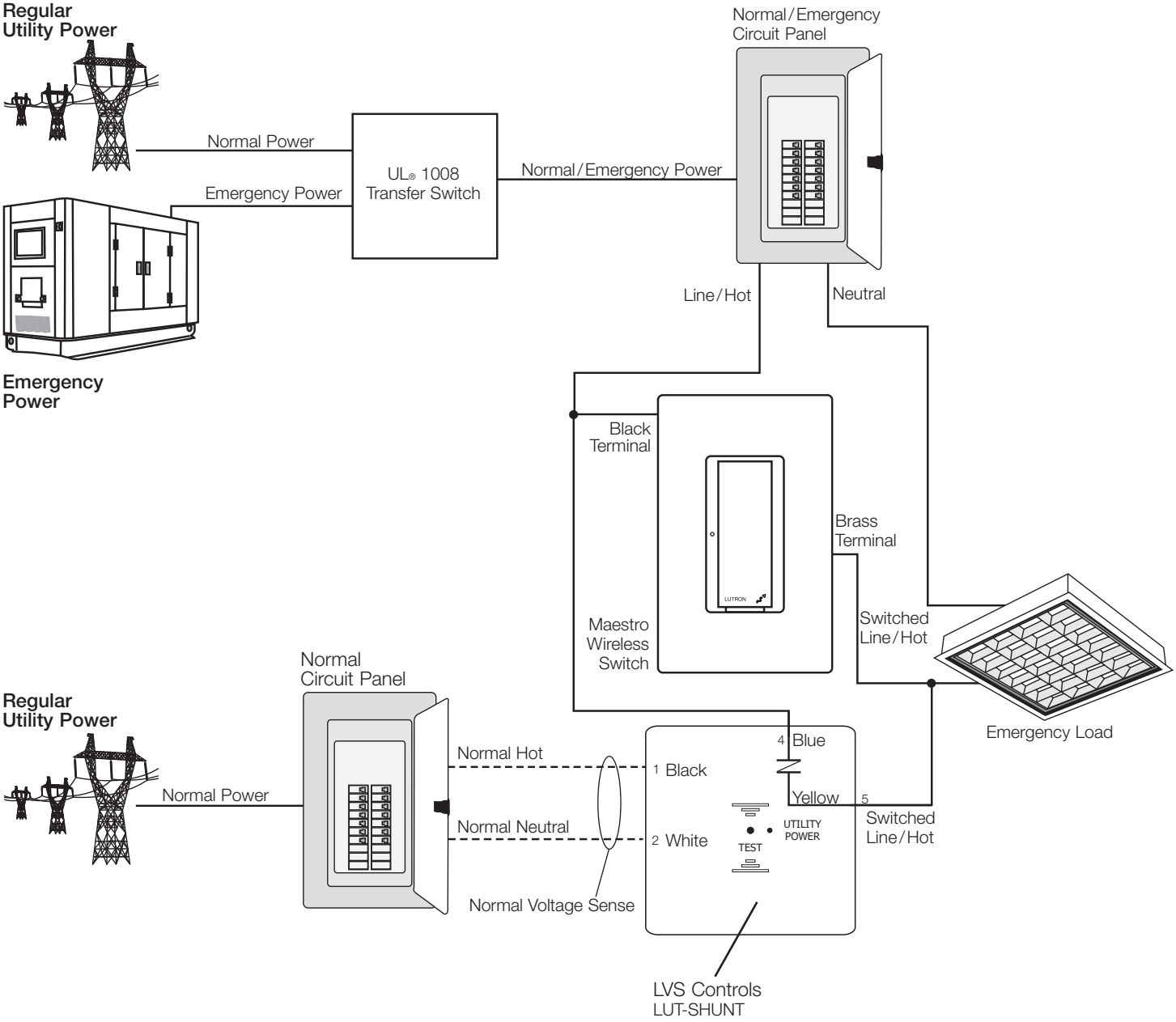
Maestro Wireless Switches Not Requiring a Neutral Connection

Switch is powered by normal and emergency power

In an application where a switch has power during an emergency, an ALCR with a normally closed relay (simple shunt relay) is used. During regular operation, normal power is present and the contact in the shunt relay is open, which allows the switch to function. When normal power is lost, the contact in the shunt relay closes and bypasses the switch by providing power to the load. An example of an ALCR with a normally closed relay is LUT-SHUNT from LVS Controls.
This applies to:

- **MRF2S-8S-DV**
- **MRF2S-8SS**
- **MRF2S-8SSV**
- **UMRF2S-8S**

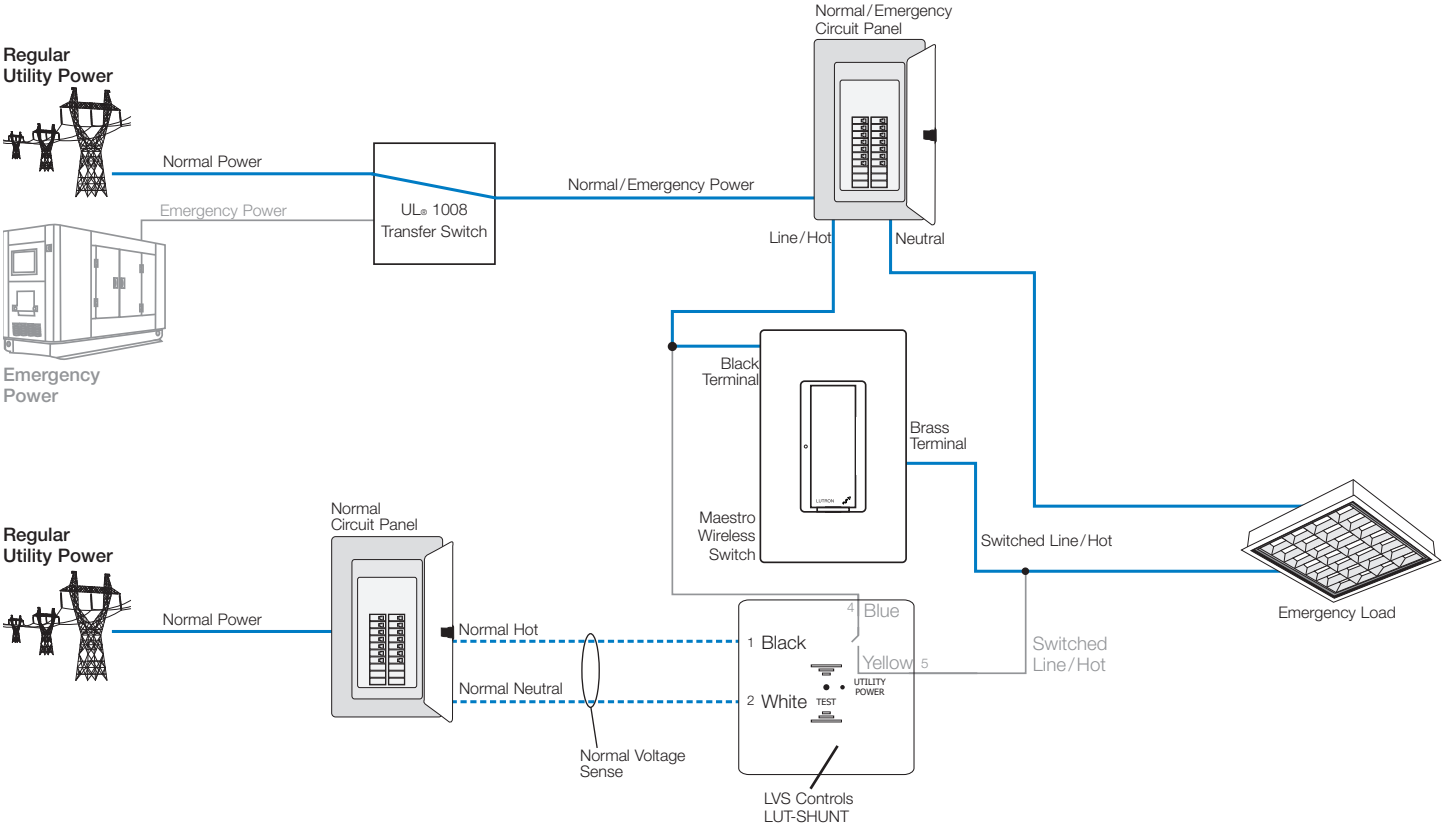
Wiring Schematic



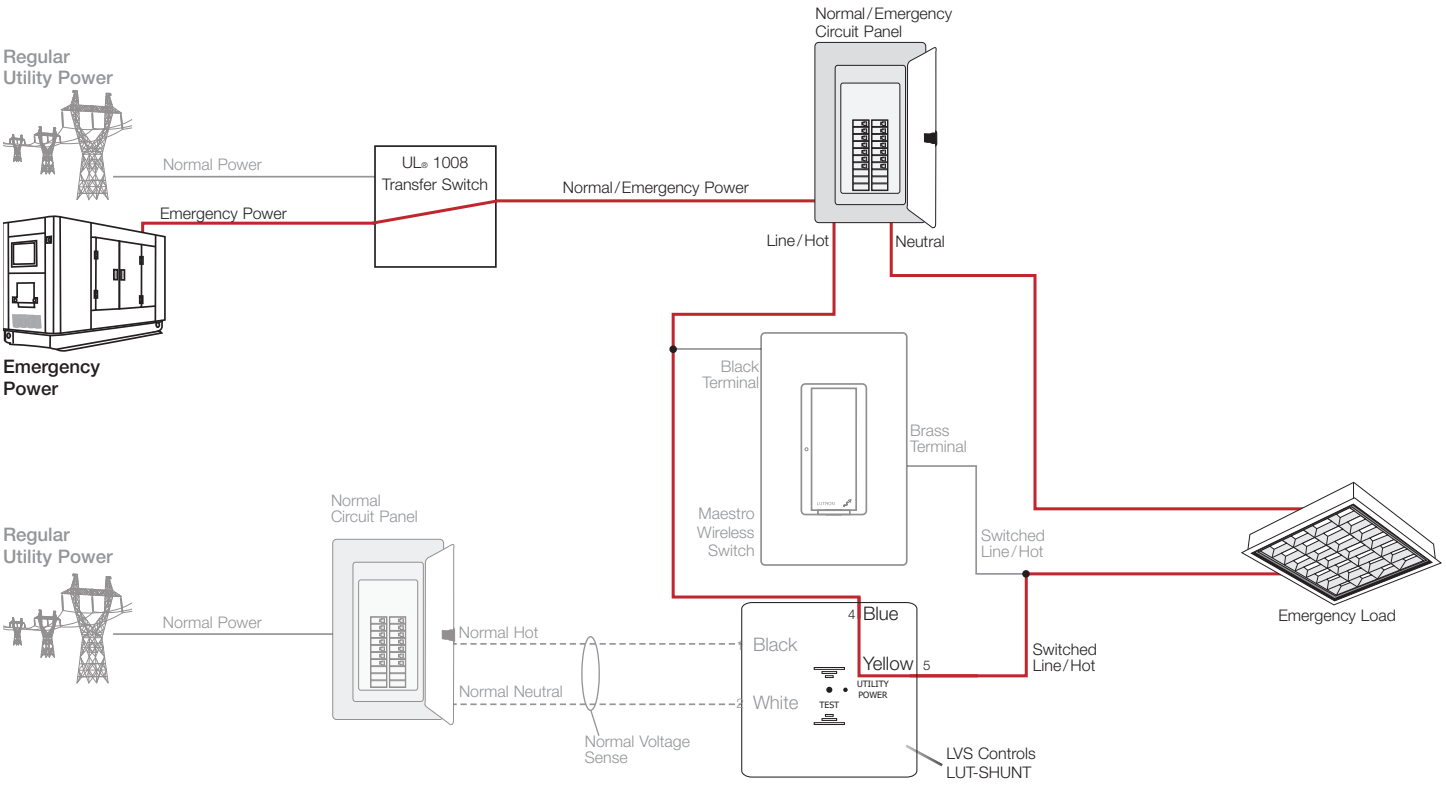
Maestro Wireless Switches Not Requiring a Neutral Connection *(continued)*

Switch is powered by normal and emergency power *(continued)*

Regular Operation



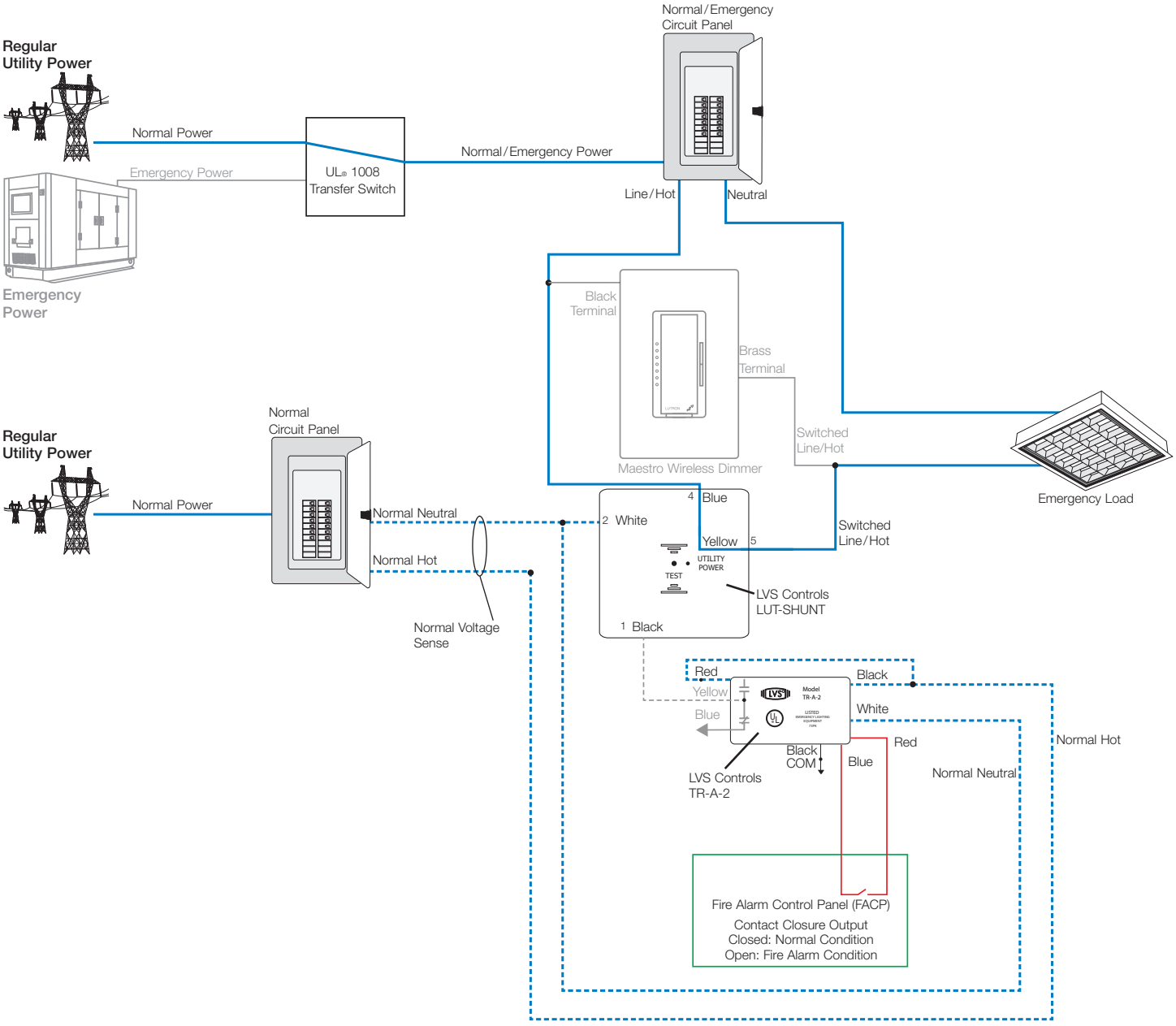
Emergency Operation



Maestro Wireless Switches Not Requiring a Neutral Connection *(continued)*

Switch is powered by normal and emergency power *(continued)*

Fire Alarm Operation



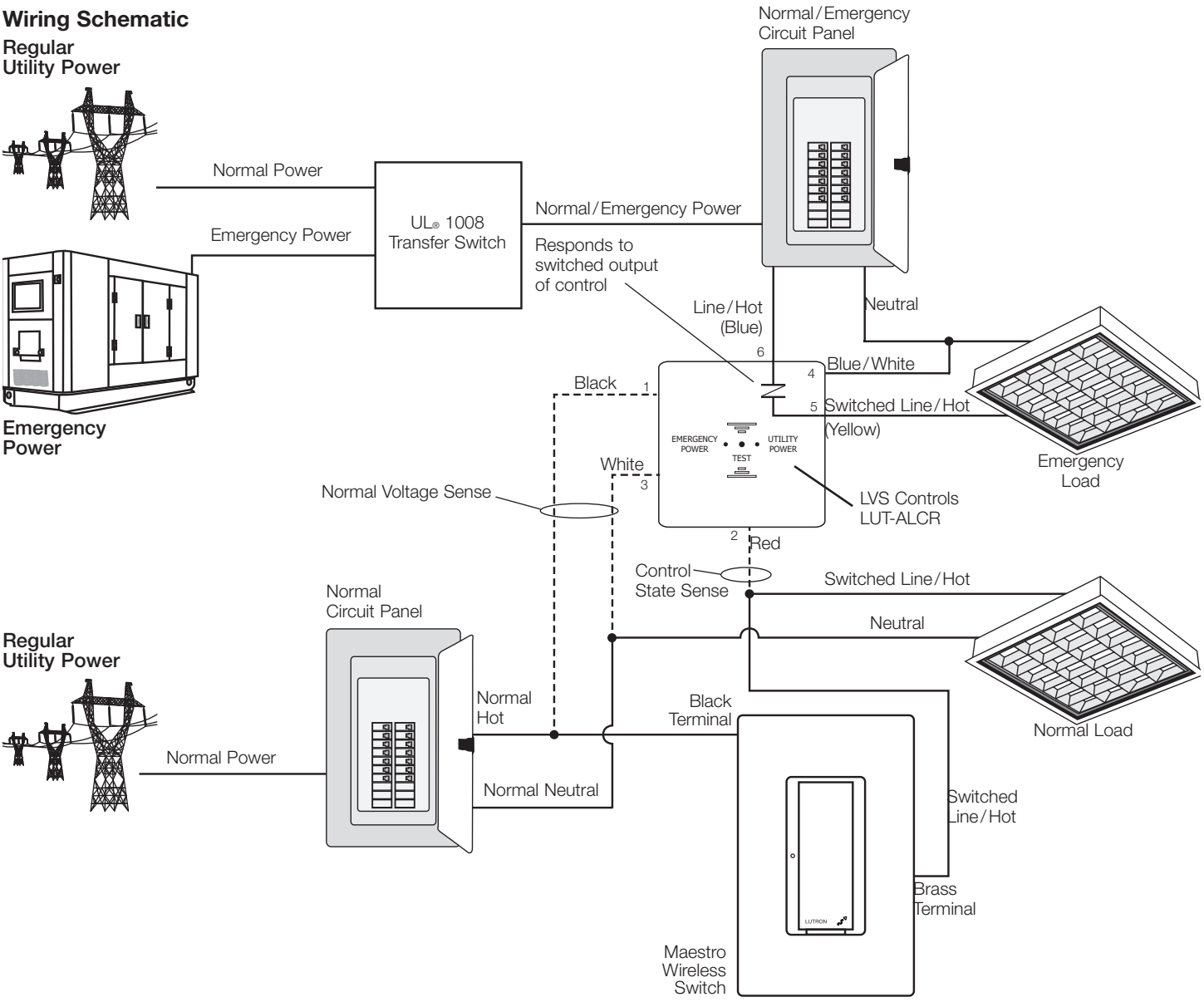
Maestro Wireless Switches Not Requiring a Neutral Connection *(continued)*

Switch is powered by normal power

In an application where a switch does not have power during an emergency, but is controlling emergency loads during regular operation, an ALCR with a normally closed relay that responds to the switched hot output of the switch is used. During regular operation, normal power is present and the relay in the ALCR will respond to switched hot output of the switch. When normal power is lost, the contact in the ALCR will close and provide power to the emergency load. An example of an ALCR like this is LUT-ALCR from LVS controls. This applies to:

- **MRF2S-8S-DV**
- **MRF2S-8SS**
- **MRF2S-8SSV**
- **UMRF2S-8S**

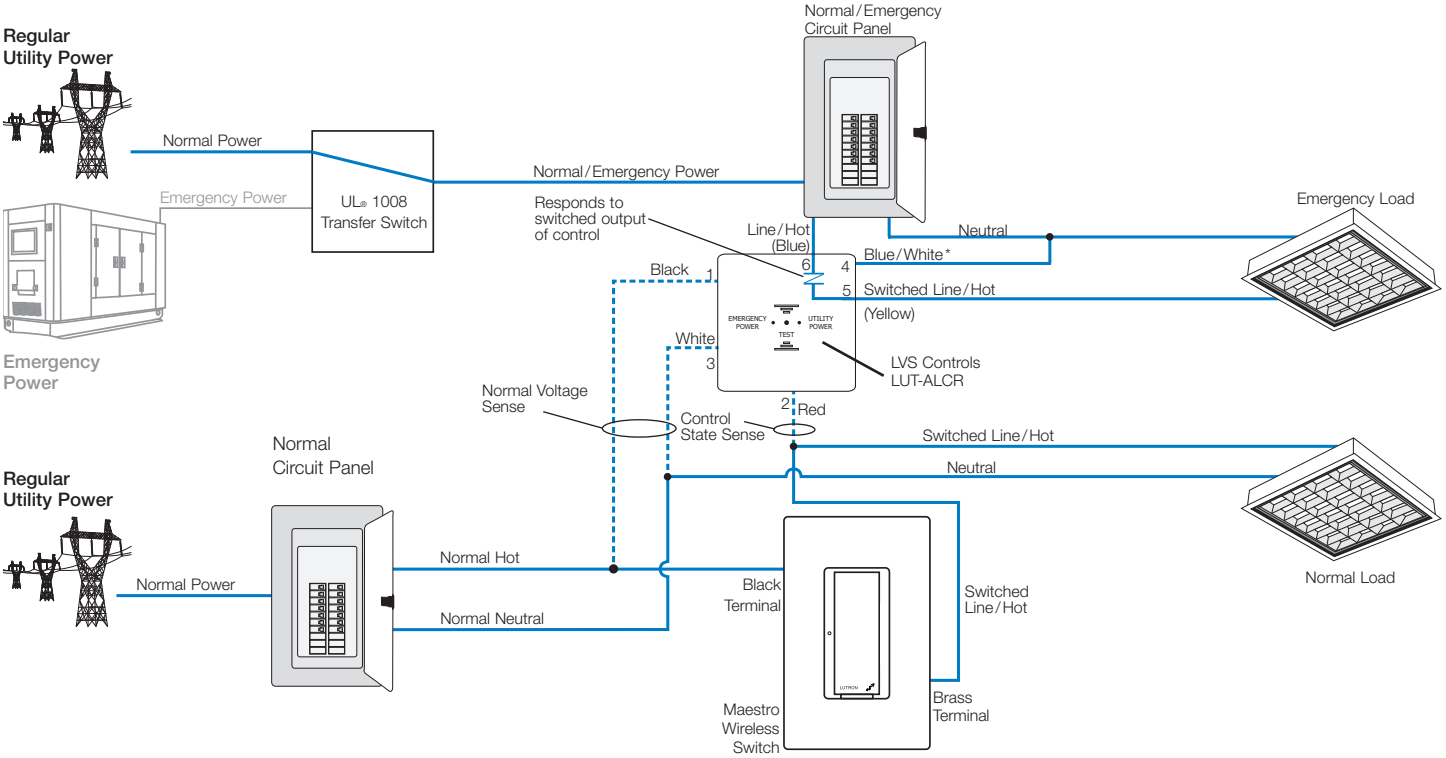
Wiring Schematic



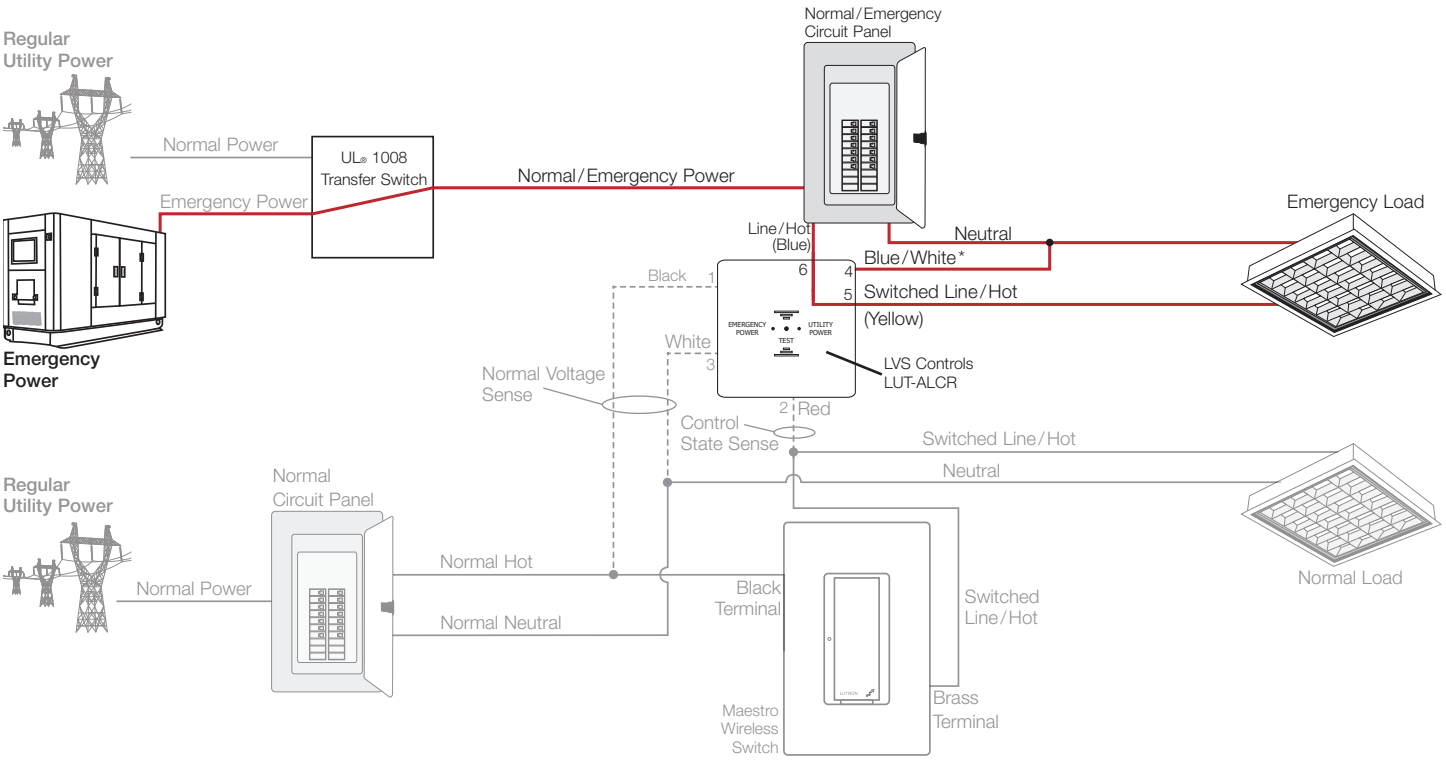
Maestro Wireless Switches Not Requiring a Neutral Connection *(continued)*

Switch is powered by normal power *(continued)*

Regular Operation



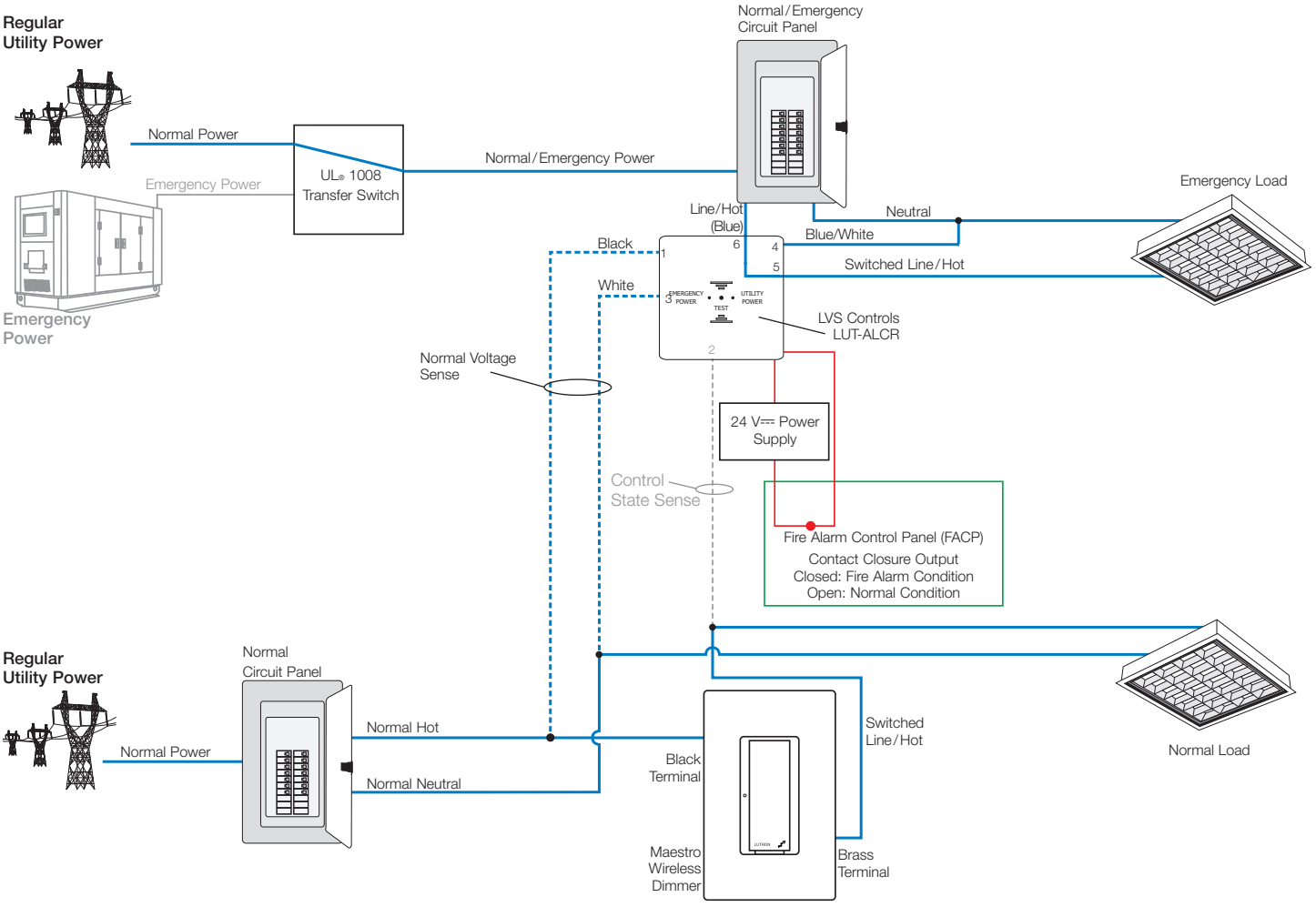
Emergency Operation



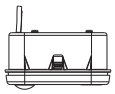
Maestro Wireless Switches Not Requiring a Neutral Connection *(continued)*

Switch is powered by normal power *(continued)*

Fire Alarm Operation



Vive Integral Fixture Control with an EcoSystem Driver

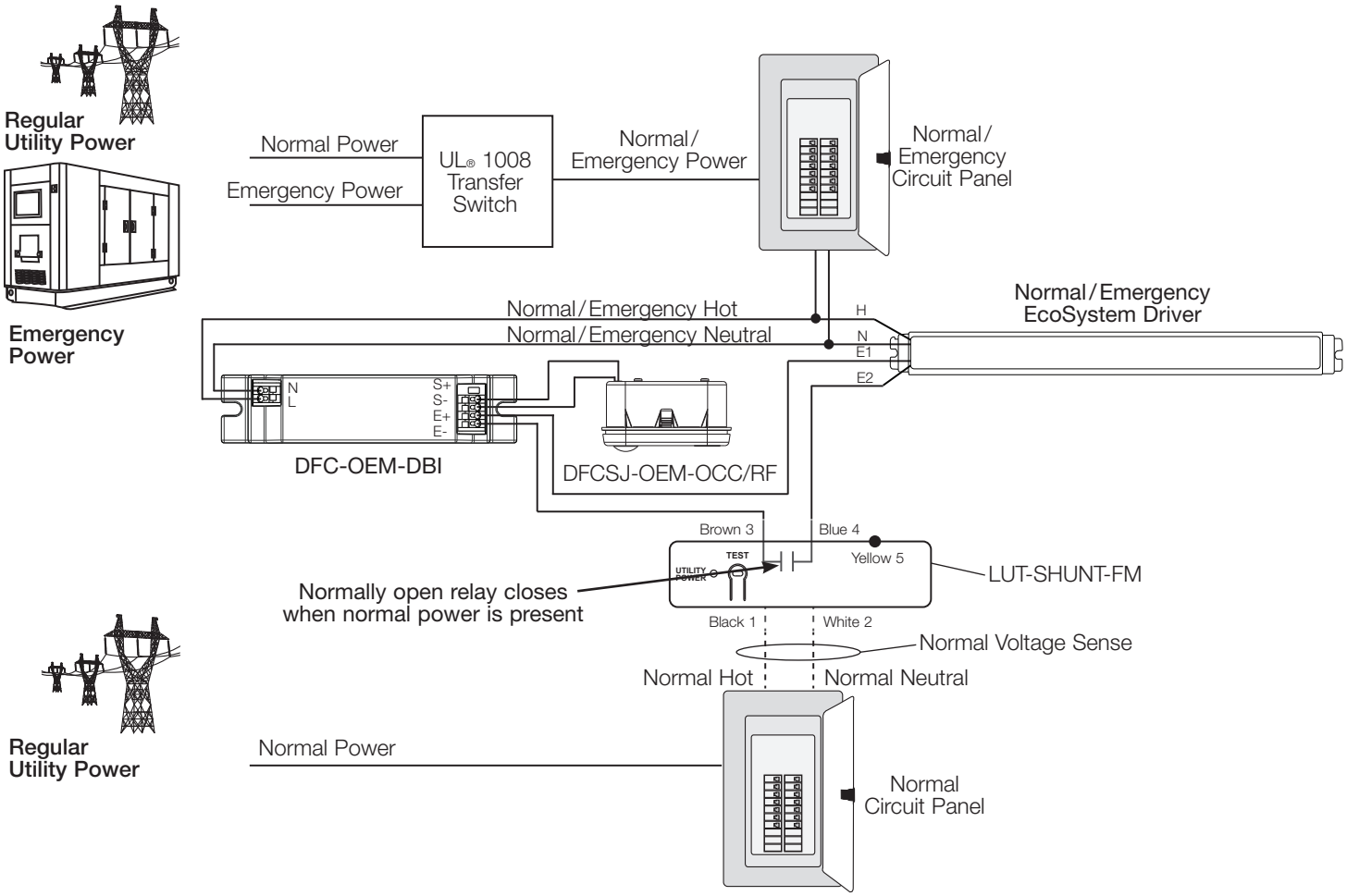


Powered by normal and emergency power and controlling an emergency load

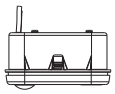
In the application where the Vive integral fixture control is being used, an ALCR is used with a normally open relay. During regular operation the normally open relay is closed allowing the Vive integral fixture control to control the load. During emergency operation, the normally open relay opens, breaking the communication to the load, resulting in the load going to high-end. An example of an ALCR like this is LUT-SHUNT-FM from LVS Controls. This applies to **DFCSJ-OEM-OCC/RF with DFC-OEM-DBI**.

Note: LUT-SHUNT-FM is intended to be installed at the factory of an OEM fixture manufacturer and not for field installation.

Wiring Schematic

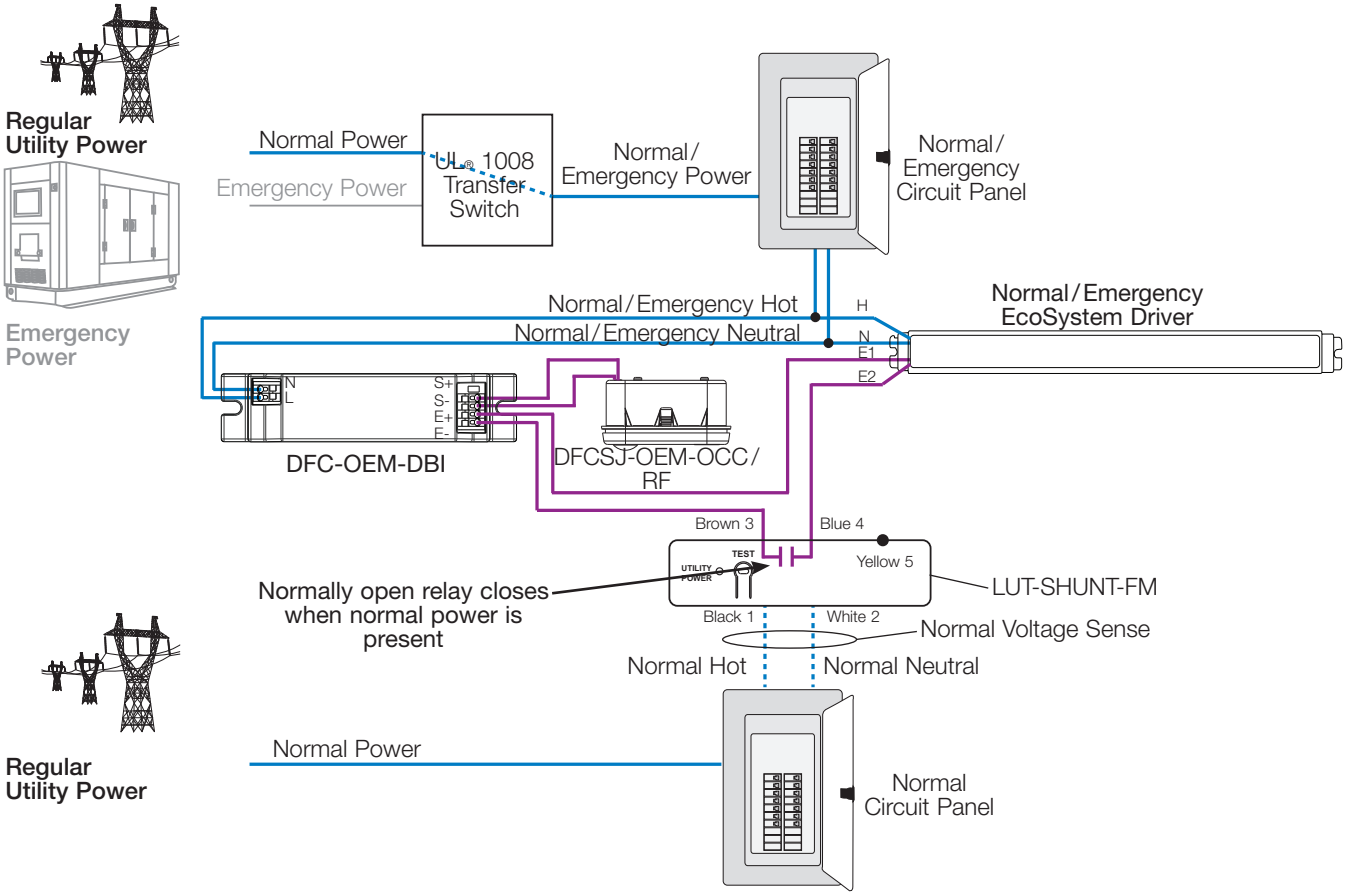


Vive Integral Fixture Control with an EcoSystem Driver (continued)

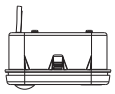


Powered by normal and emergency power and controlling an emergency load (continued)

Regular Operation

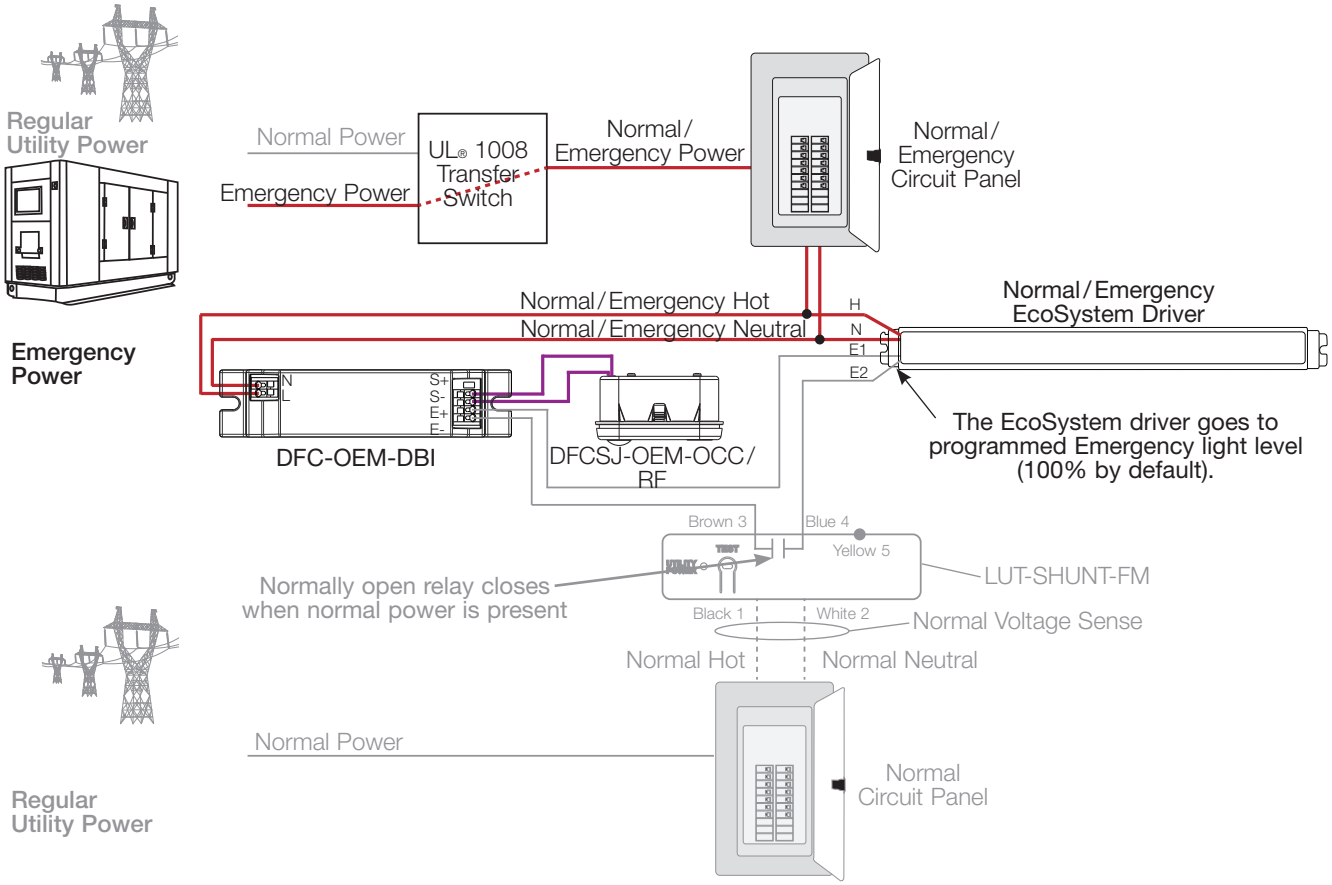


Vive Integral Fixture Control with an EcoSystem Driver (continued)

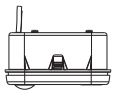


Powered by normal and emergency power and controlling an emergency load (continued)

Emergency Operation

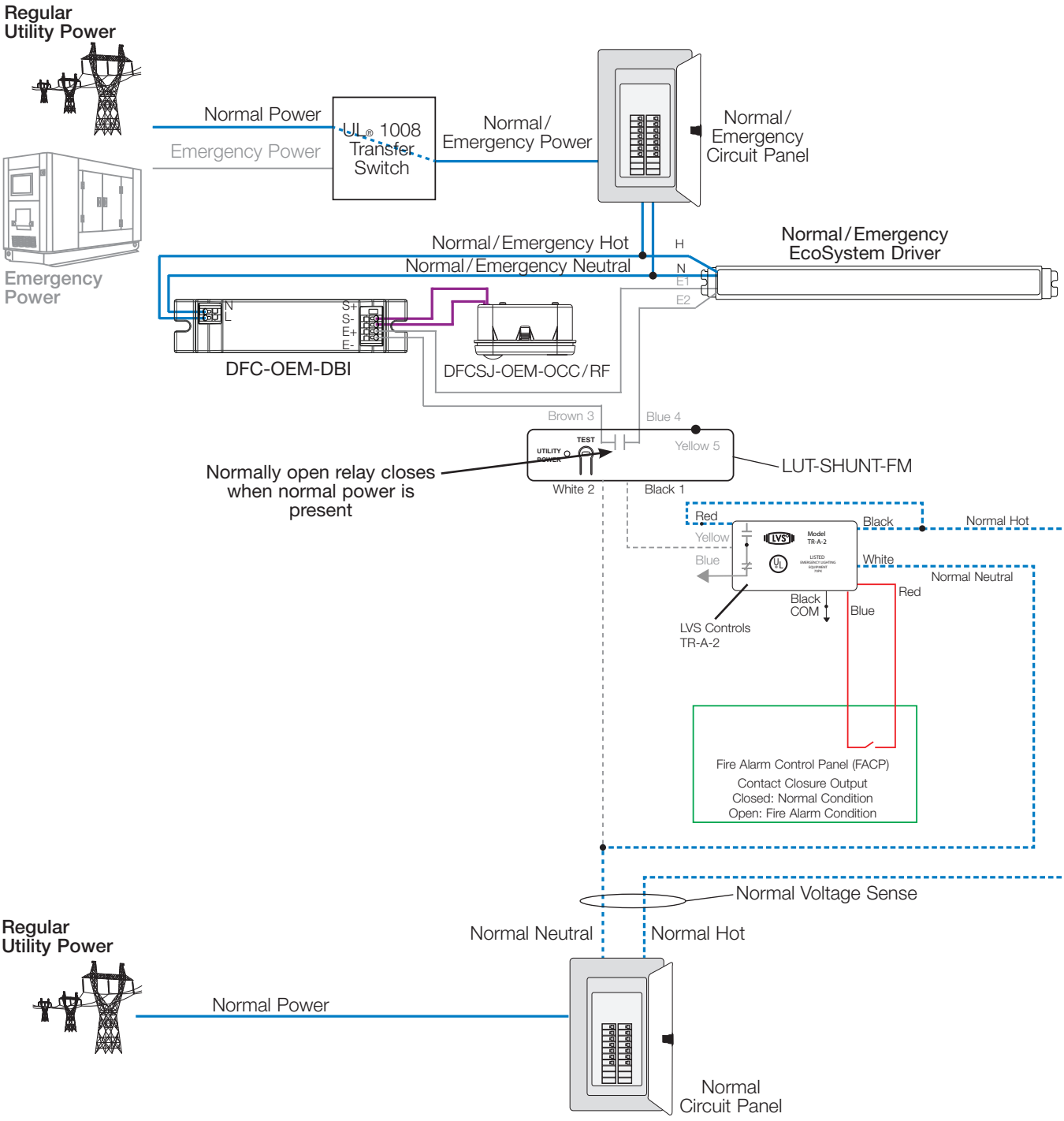


Vive Integral Fixture Control with an EcoSystem Driver (continued)

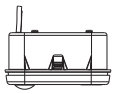


Powered by normal and emergency power and controlling an emergency load (continued)

Fire Alarm Operation



Vive Integral Fixture Control and Driver with Self-Powered DALI Link*

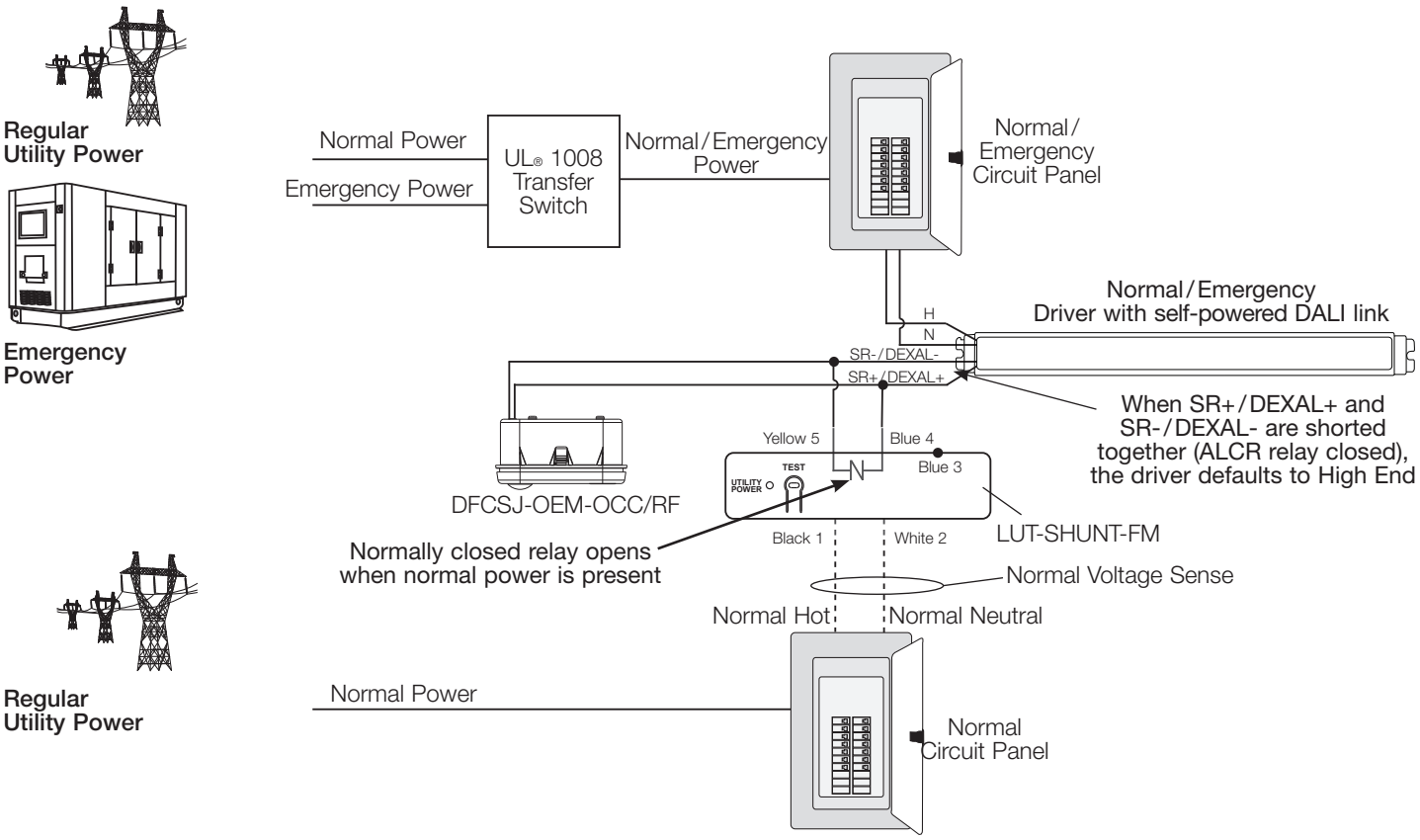


Powered by normal and emergency power and controlling an emergency load

In the application where the Vive integral fixture control is being used, an ALCR is used with a normally closed relay. During regular operation the normally closed relay is held open allowing the Vive integral fixture control to control the load. During emergency operation, the normally closed relay closes and shorts the SR+/DEXAL+ and SR-/DEXAL- terminals, resulting in the load going to high-end. An example of an ALCR like this is LUT-SHUNT-FM from LVS Controls. This applies to **DFCSJ-OEM-OCC/RF**.

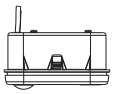
Note: LUT-SHUNT-FM is intended to be installed at the factory of an OEM fixture manufacturer and not for field installation.

Wiring Schematic



* LUT-SHUNT-FM is not required if the Vive integral fixture control is used in a system with a Vive hub connected to a LUT-ELI-3PH (see page 10 for details).

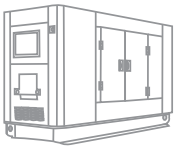
Vive Integral Fixture Control and Driver with Self-Powered DALI Link (continued)



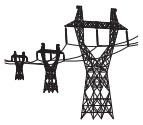
Powered by normal and emergency power and controlling an emergency load (continued)

Regular Operation

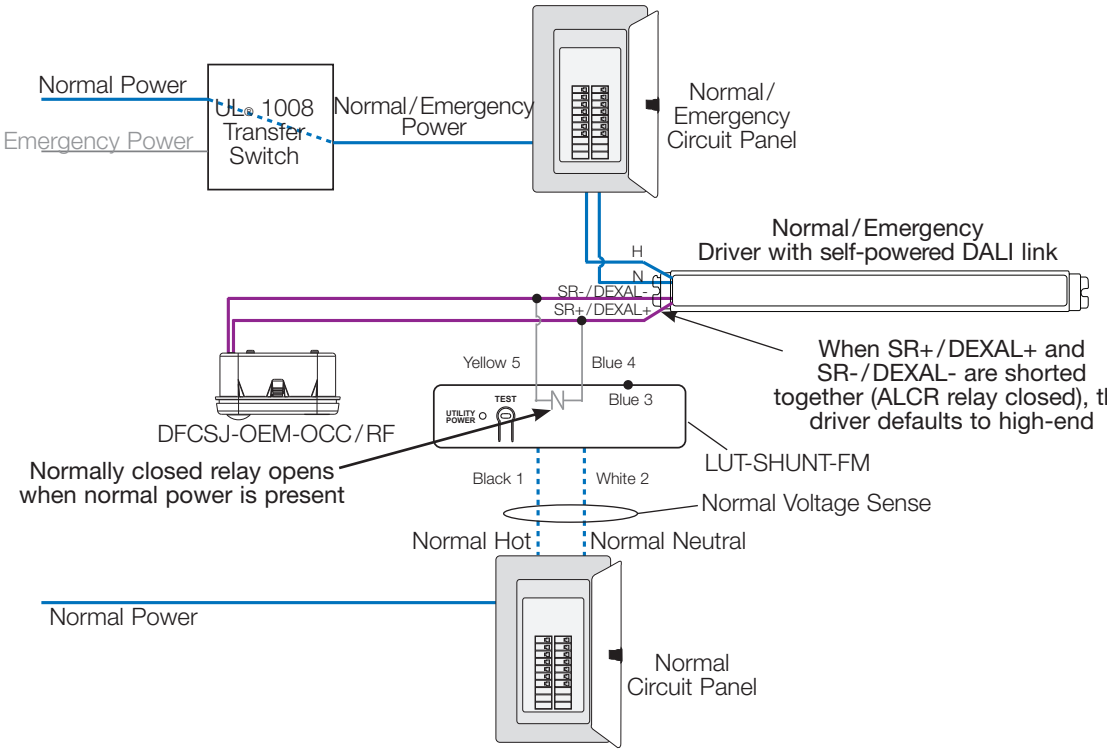
Regular
Utility Power



Emergency
Power

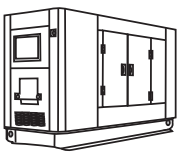


Regular
Utility Power



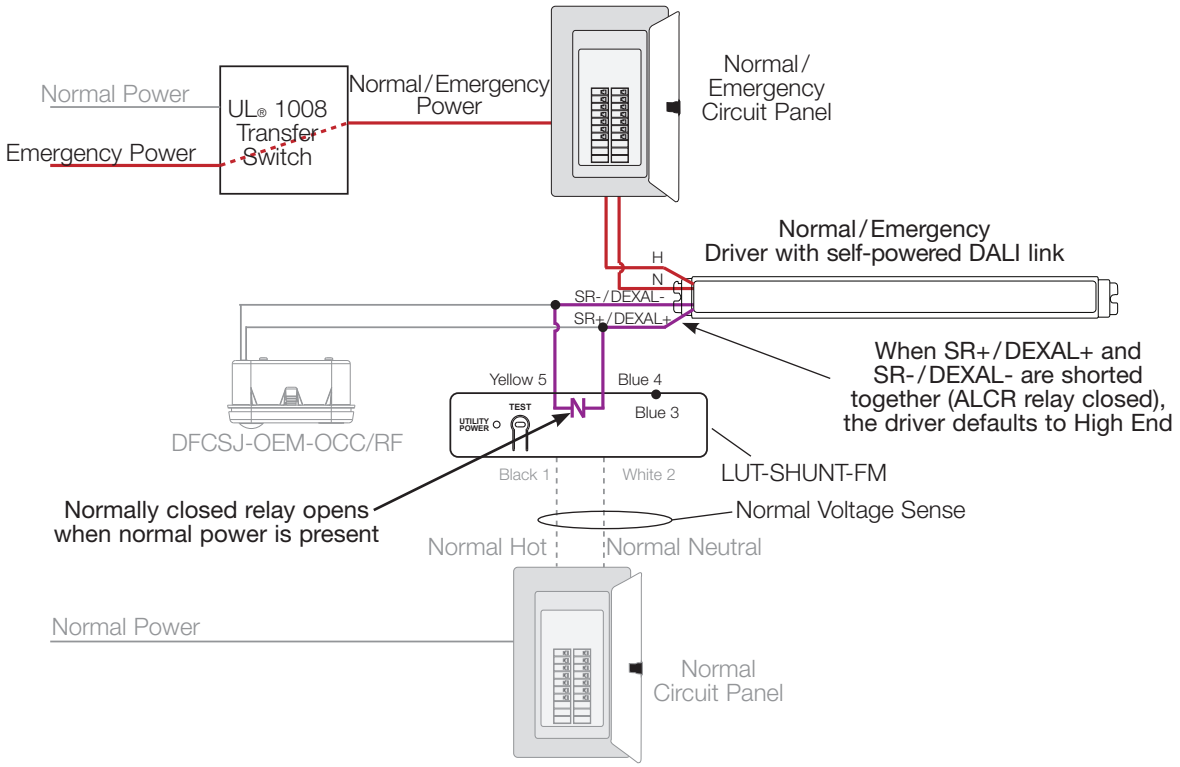
Emergency Operation

Regular
Utility Power



Emergency
Power

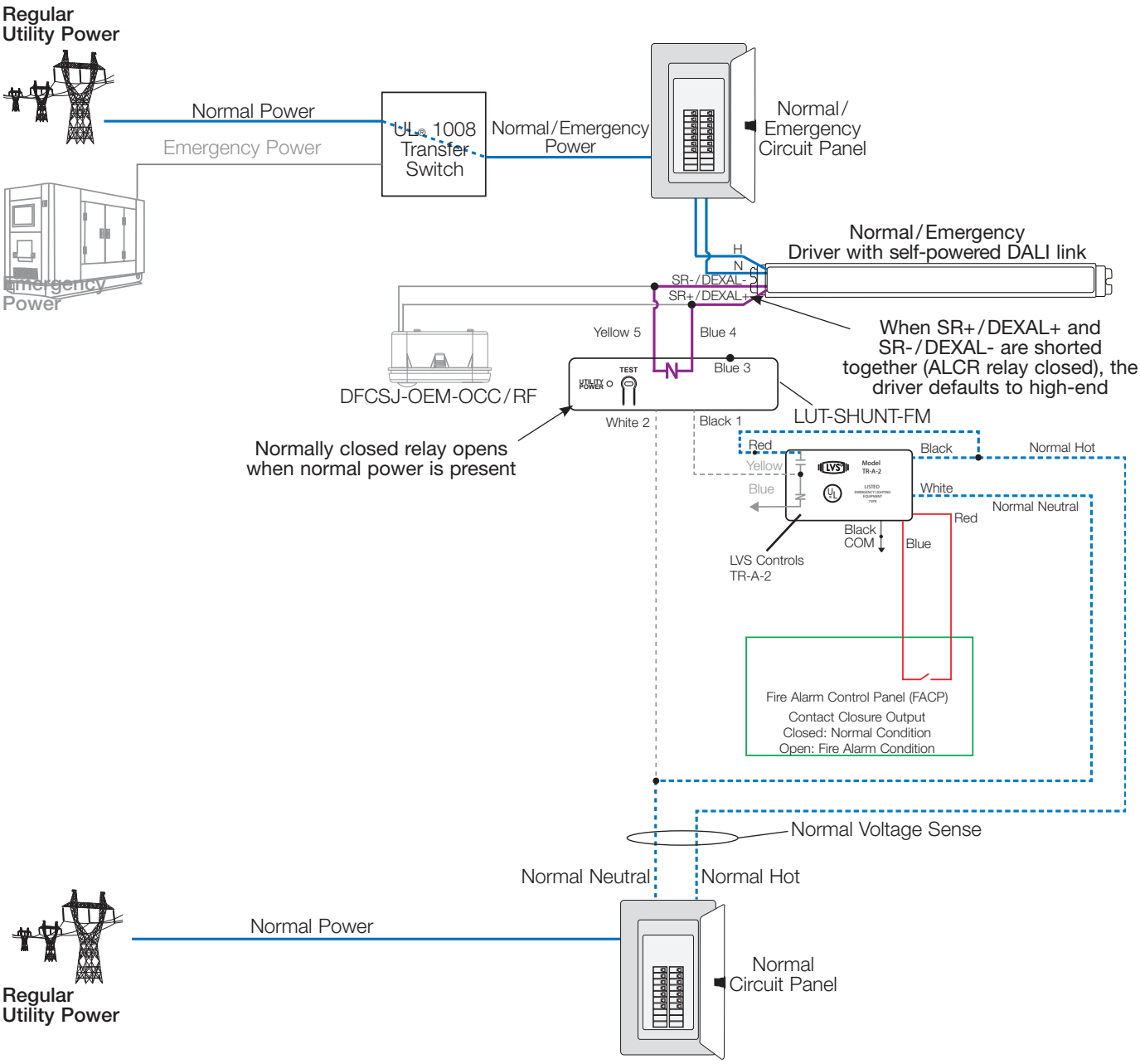
Regular
Utility Power



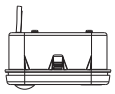
Vive Integral Fixture Control and Driver with Self-Powered DALI Link (continued)

Powered by normal and emergency power and controlling an emergency load (continued)

Fire Alarm Operation



Vive Integral Fixture Control with EcoSystem Driver and Battery Backup

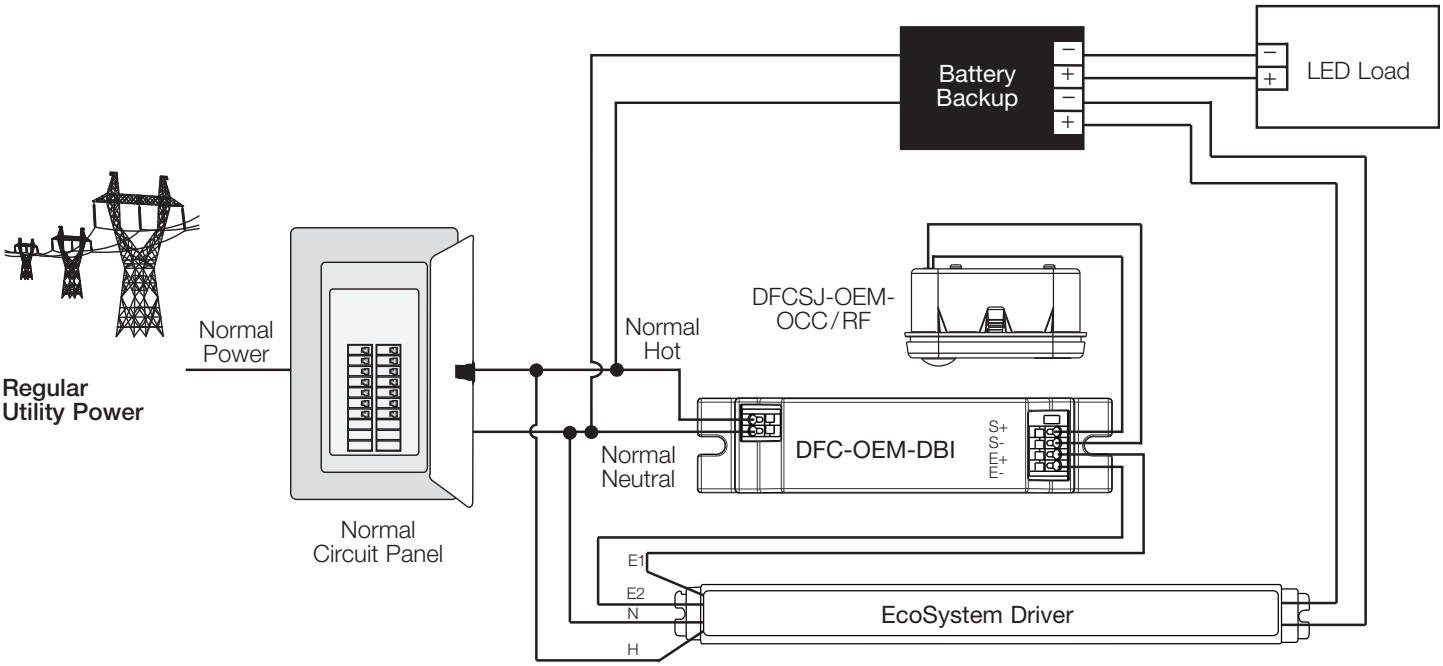


Powered by normal power and controlling an emergency load

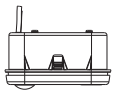
Using a battery backup

In the application where the Vive integral fixture control is being used with a battery backup, no ALCR is used. When normal power is lost, the battery will provide power to the LED to provide light to the space. For additional information, please se Application Note #106; page 13 at www.lutron.com.

Wiring Schematic



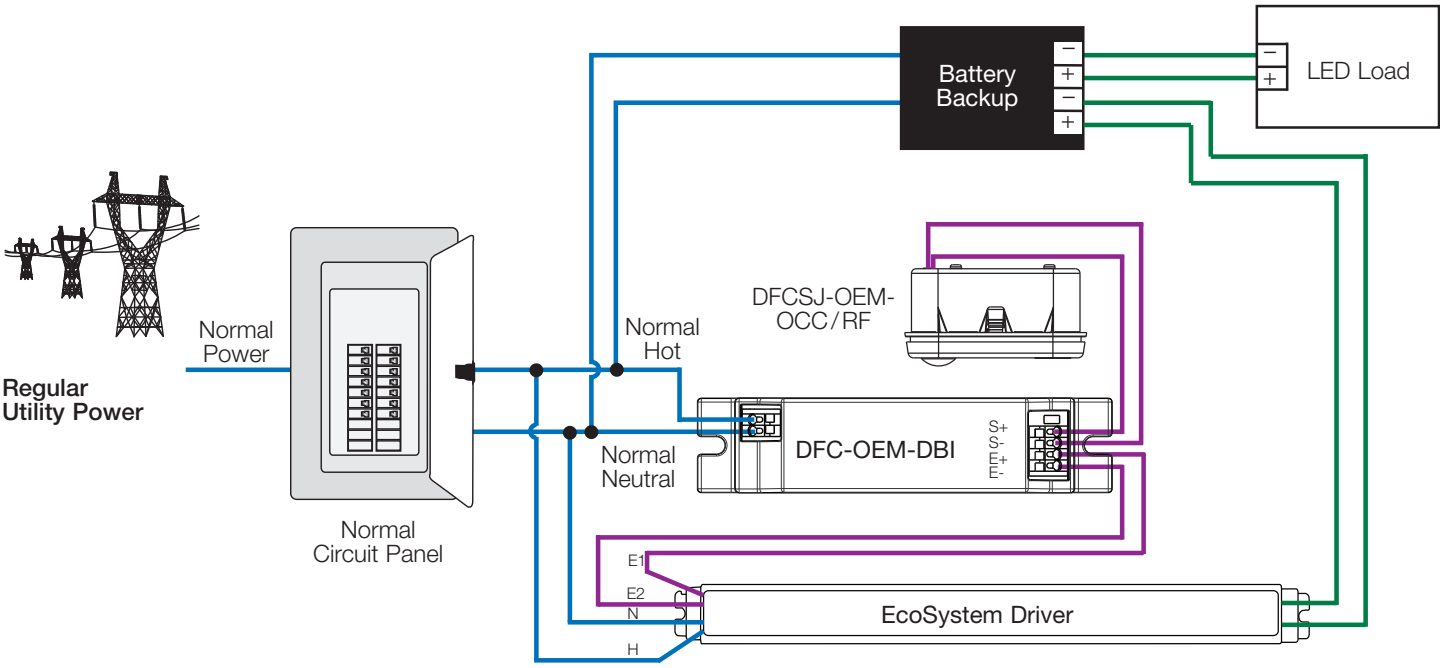
Vive Integral Fixture Control with EcoSystem Driver and Battery Backup (continued)



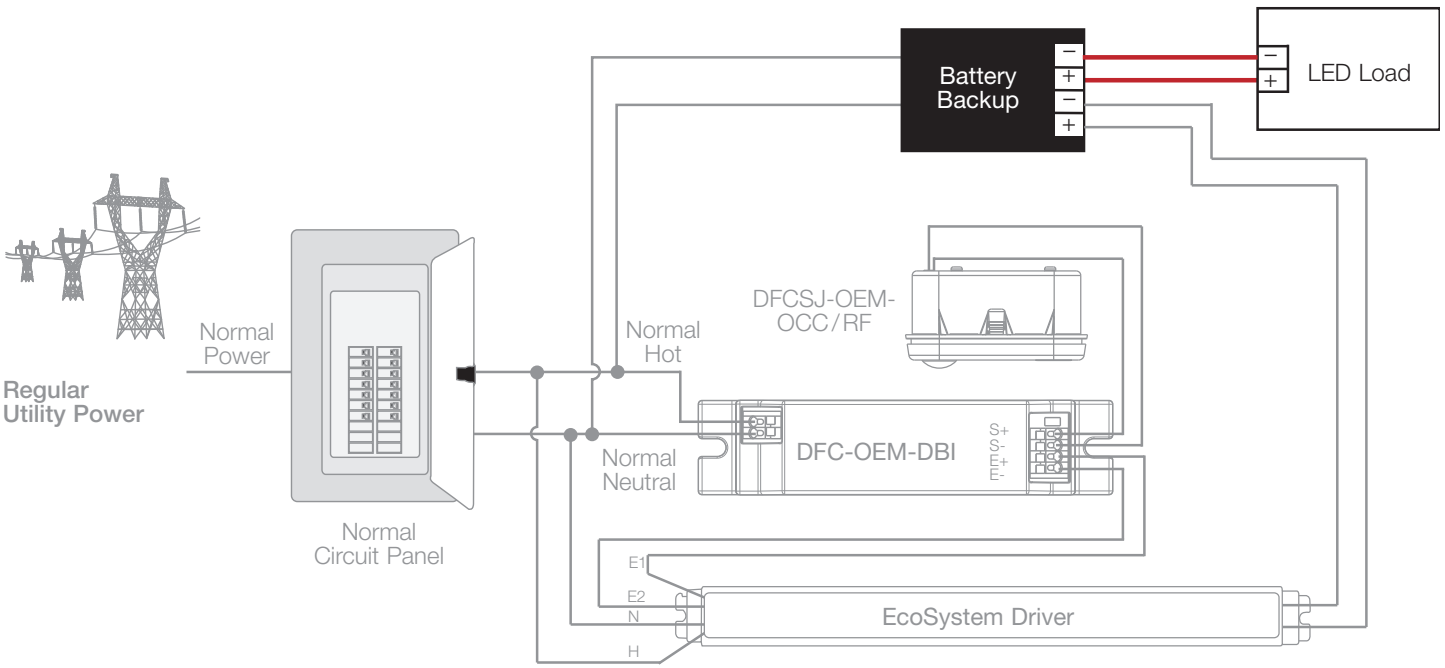
Powered by normal power and controlling an emergency load (continued)

Using a battery backup (continued)

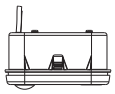
Regular Operation



Emergency Operation



Vive Integral Fixture Control and Driver with Self-Powered DALI Link and Battery Backup

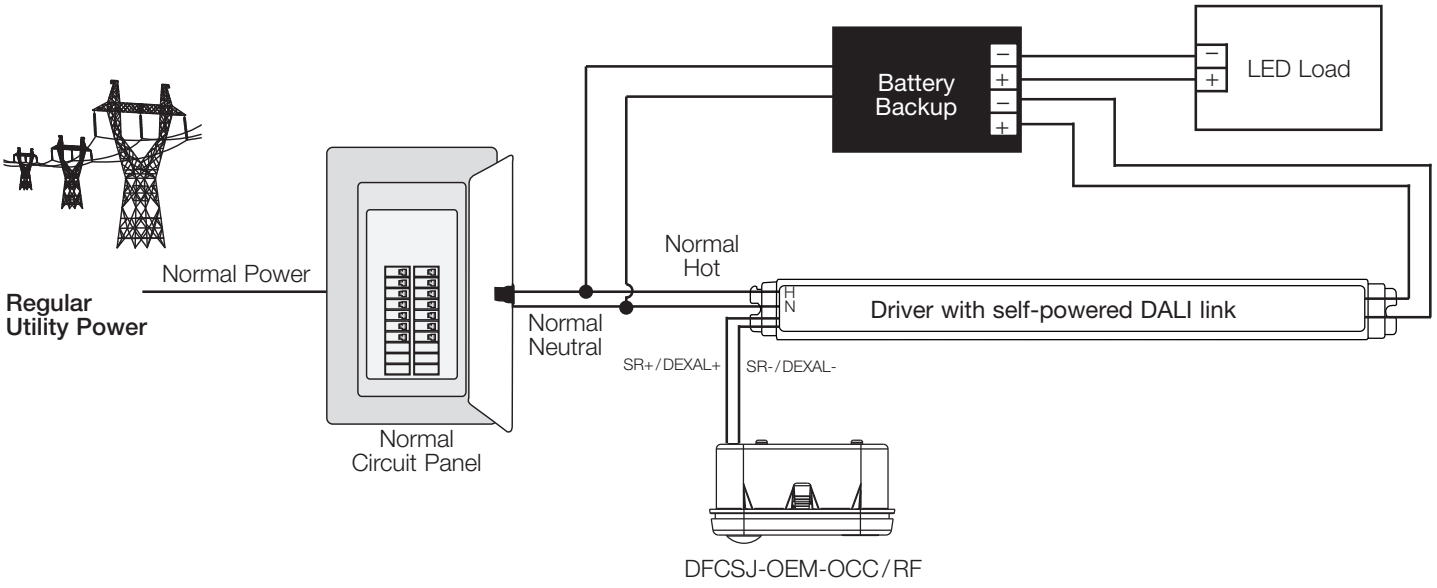


Powered by normal power and controlling an emergency load

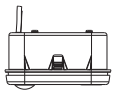
Using a battery backup

In the application where the Vive integral fixture control is being used with a battery backup, no ALCR is used. When normal power is lost, the battery will provide power to the LED to provide light to the space. For additional information, please se Application Note #106; page 13 at www.lutron.com.

Wiring Schematic



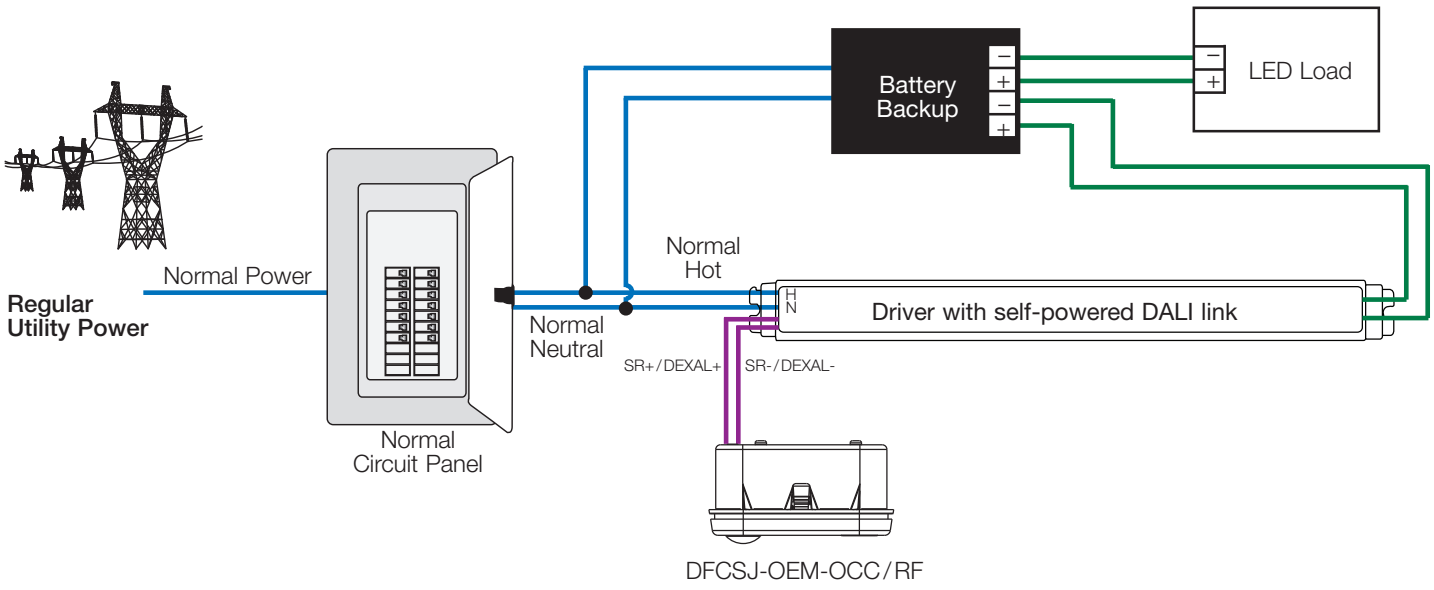
Vive Integral Fixture Control and Driver with Self-Powered DALI Link and Battery Backup (continued)



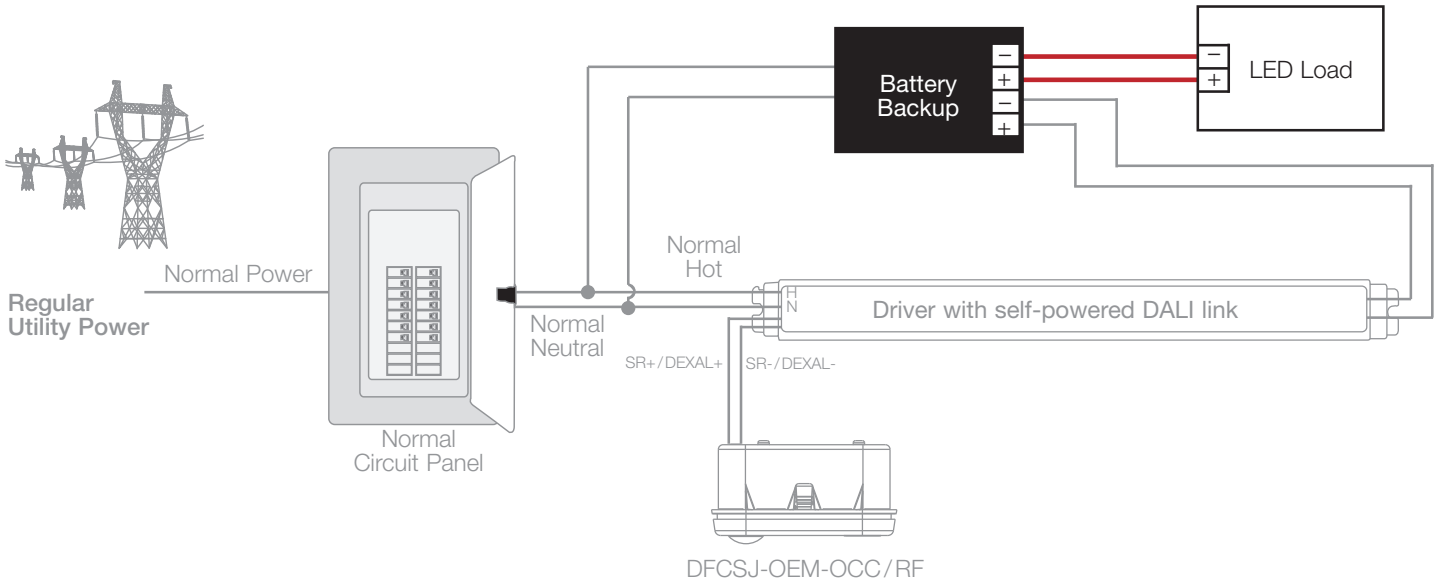
Powered by normal power and controlling an emergency load (continued)

Using a battery backup (continued)

Regular Operation



Emergency Operation



Frequently Asked Questions (FAQs)

FAQ 1: How many LUT-ELI-3PH devices will I need?

The LUT-ELI-3PH is used to sense the presence of normal power and signal connected Lutron equipment when normal power has been lost. The number of LUT-ELI-3PH devices required depends on the number of different sources of power or distribution panels that need to be monitored. For example, 120/277 V~ load controls on the same floor may have one distribution panel for power panel loads and a separate panel for EcoSystem loads, both of which need to be individually monitored. One LUT-ELI-3PH per monitored source is recommended.

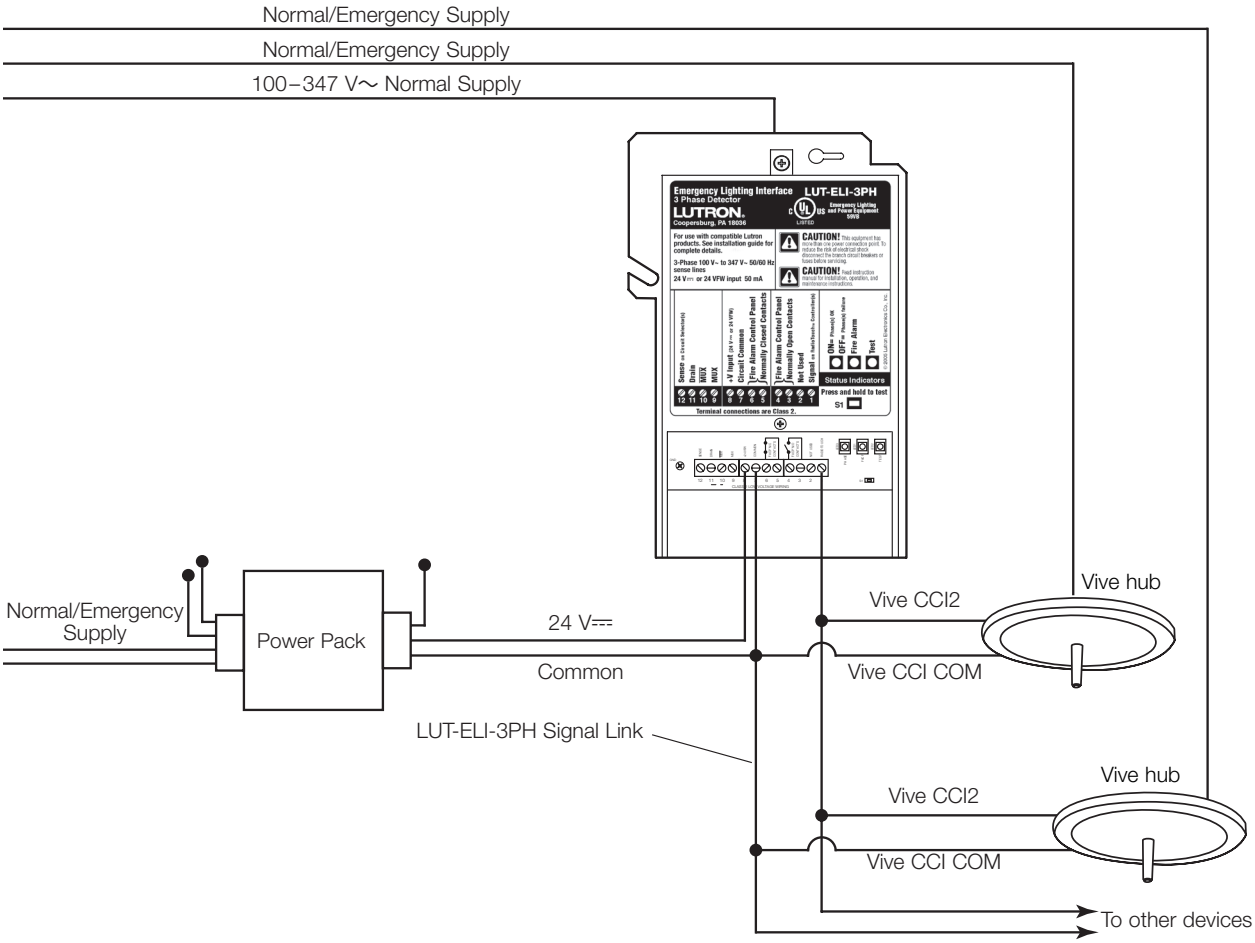
Another consideration is the sequence of operations for emergency lighting. In a multi-story or multi-tenant building, it may be desirable to monitor normal power floor-by-floor or area-by-area instead of monitoring the entire building as a single area. A common application for this scenario is to install one LUT-ELI-3PH per floor. Although this will require more LUT-ELI-3PHs, it will ensure a more focused power sensing approach.

FAQ 2: Can I share the LUT-ELI-3PH with multiple devices? How many?

The LUT-ELI-3PH signal can be shared with any combination of up to 32 Vive hubs. When sharing the LUT-ELI-3PH signal, keep these points in mind:

It is recommended that one LUT-ELI-3PH be used for every source of power or distribution panel that needs to be monitored. If the LUT-ELI-3PH is shared among multiple devices being fed from different power sources, then proper emergency lighting requirements may not be satisfied. For example, an area that contains both 120 V~ and 277 V~ emergency lighting should use two LUT-ELI-3PHs, one to monitor each source. Sharing one LUT-ELI-3PH between the 120 V~ and 277 V~ devices may not satisfy emergency lighting requirements.

FAQ 3: I'm sharing a LUT-ELI-3PH with multiple devices. How does this wire together?



Frequently Asked Questions (FAQs) (continued)

FAQ 4: I want only certain load controllers to go to into emergency override and lockout, while still being able to control other load controllers. How do I achieve this?

Emergency PowPak units can be commanded to override and lockout from the hub, and their override levels are programmable. If normal power is not lost, the non-Emergency load controllers will not be locked out from control.

Emergency PowPak units:

RMJS-8T-DV-B-EM	RMJS-PNE-DV-EM
FCJS-010-EM	RMJS-5R-347-EM
RMJS-5T-347-EM	DFCSJ-OEM-OCC
RMJS-16R-DV-B-EM	DFCSJ-OEM-RF
FCJS-ECO-EM	

FAQ 5: Since Emergency PowPak units automatically go to full on when normal power is lost without using a LUT-ELI-3PH, what is the benefit of using a LUT-ELI-3PH for these devices?

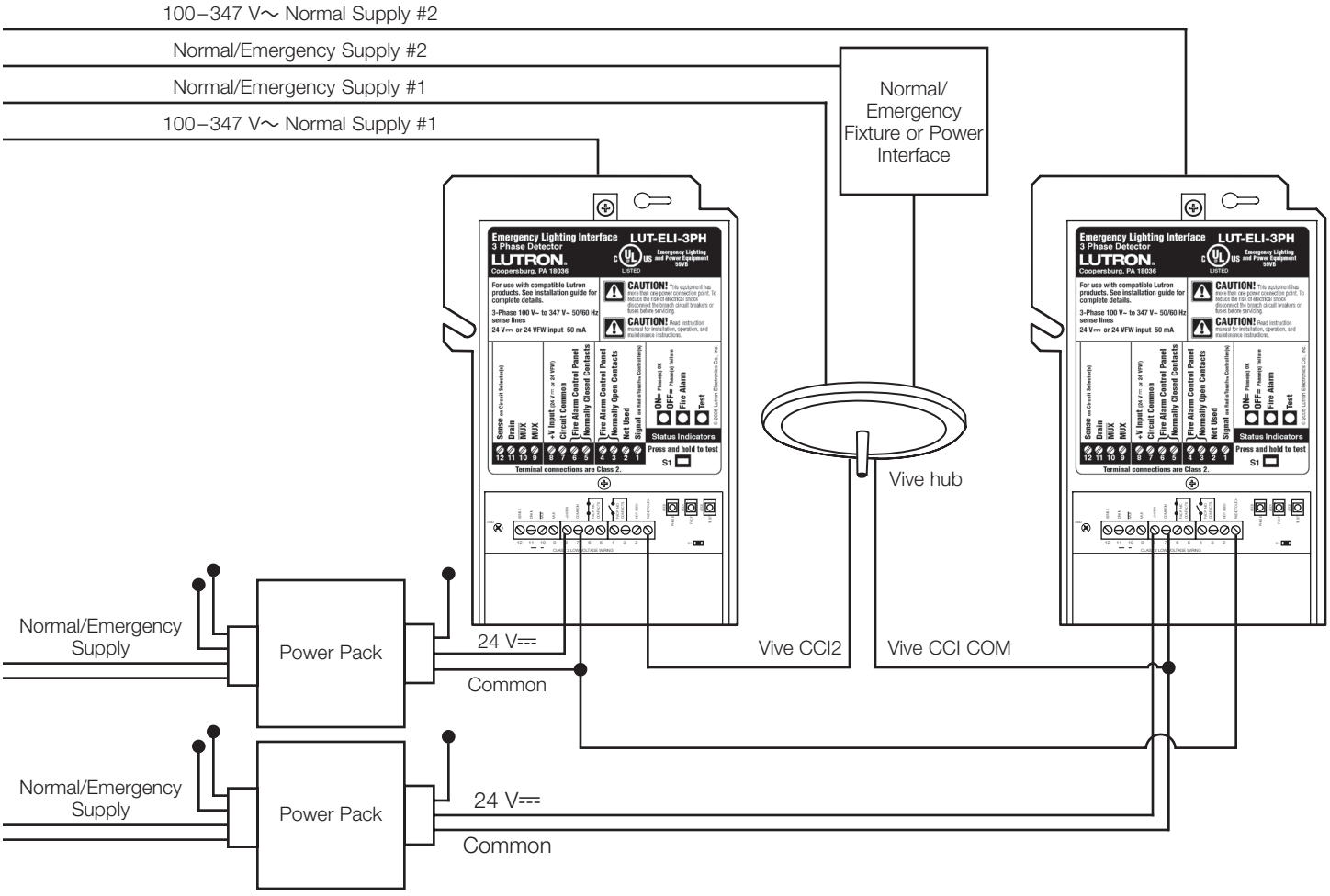
Even though Emergency PowPak units do have this functionality, there are several benefits to using a LUT-ELI-3PH with those products:

- When a LUT-ELI-3PH is used, the lighting control system becomes listed under UL® 924. This listing cannot be achieved without using the LUT-ELI-3PH.
- The LUT-ELI-3PH can sense all three phases of power and then signal a Lutron device when any phase has been lost. When a LUT-ELI-3PH is not used with Emergency PowPak units, only one phase of power can be monitored.

Frequently Asked Questions (FAQs) (continued)

FAQ 6: I have a Lutron device that is powered by one voltage source, but it needs to control emergency fixtures on a different source. How do I use the LUT-ELI in this situation?

It is not uncommon for buildings to have multiple power sources, including 120, 277, and 347 V~. In this situation, Lutron recommends using two LUT-ELI devices – one to monitor each source – to guarantee that if either source is lost, the system will go into emergency mode. Note that this setup requires that both the controller and the loads be supplied with normal/emergency power. When this is difficult to accommodate, an ALCR may be a more workable solution because it requires only one normal/emergency feed.



Notes

1. As many as 16 LUT-ELI units may be wired in series; continue to wire the signal and common in one continuous loop if more LUT-ELI units are required. The LUT-ELI signal can then be shared with up to 4 devices as illustrated in FAQ 3.
2. The LUT-ELI cannot be shared with power panels in this application.
3. A separate power pack must be used for each LUT-ELI in all series wiring applications.

Frequently Asked Questions (FAQs) (continued)

FAQ 7: I have multiple areas which are fed from different sources of power. I have a separate LUT-ELI for each source, but I want all of my devices controlling emergency loads in each area to go into emergency mode when any source of power is lost. How do I use the LUT-ELI?

Refer to FAQ 6 for series wiring with multiple LUT-ELIs.

FAQ 8: How far can I run the LUT-ELI signal or sense wire?

When the LUT-ELI is used with a Vive hub, the signal line can be run up to 2000 ft (600 m) with 18 AWG (1.0 mm^2) wire.

FAQ 9: Do I need to use the LUT-ELI if I want to interface with a fire alarm system?

If your project has a Vive hub, only one input can be connected to CCI2. Using the LUT-ELI-3PH to provide a system that meets UL® 924 will also accept a contact closure from the Fire Alarm Control Panel as well as monitor normal power. If emergency lighting is not handled through the Vive hub, the Fire Alarm Control Panel can connect to CCI2 on the Vive hub directly.

If your system does not have a Vive hub, the LVS devices must be used to interface with a fire alarm system.

FAQ 10: How many LUT-ELI can be wired in parallel on one fire alarm input and how far can I run the fire input wire?

When using either the normally open or normally closed contact closure input on the LUT-ELI with a fire alarm output, the number of LUT-ELI and distance may vary based on the installation. The contact closure capability of the fire alarm needs to be considered. The LUT-ELI provides a maximum current of 20 mA that needs to be carried by the contacts. Therefore, a contact rated for 100 mA can only be used with a maximum of 5 LUT-ELI. The following table gives the wiring limitations of multiple LUT-ELI connected to a single fire alarm input. If the application exceeds 10 devices, please contact Lutron for more information.

	Number of LUT-ELI									
	1	2	3	4	5	6	7	8	9	10
Wire Size Limitations										
16 AWG (1.5 mm^2)	4000 ft (1220 m)	4000 ft (1220 m)	4000 ft (1220 m)	4000 ft (1220 m)	4000 ft (1220 m)	4000 ft (1220 m)	4000 ft (1220 m)	4000 ft (1220 m)	4000 ft (1220 m)	4000 ft (1220 m)
18 AWG (1.0 mm^2)	4000 ft (1220 m)	4000 ft (1220 m)	4000 ft (1220 m)	4000 ft (1220 m)	4000 ft (1220 m)	4000 ft (1220 m)	4000 ft (1220 m)	4000 ft (1220 m)	4000 ft (1220 m)	3800 ft (1158 m)
20 AWG (0.75 mm^2)	4000 ft (1220 m)	4000 ft (1220 m)	4000 ft (1220 m)	4000 ft (1220 m)	4000 ft (1220 m)	4000 ft (1220 m)	3400 ft (1036 m)	3000 ft (915 m)	2600 ft (793 m)	2400 ft (732 m)
22 AWG (0.50 mm^2)	4000 ft (1220 m)	4000 ft (1220 m)	4000 ft (1220 m)	3700 ft (1128 m)	3000 ft (915 m)	2500 ft (762 m)	2100 ft (640 m)	1800 ft (549 m)	1600 ft (488 m)	1500 ft (457 m)
24 AWG (0.25 mm^2)	4000 ft (1220 m)	4000 ft (1220 m)	3000 ft (915 m)	2400 ft (732 m)	1800 ft (549 m)	1500 ft (457 m)	1200 ft (366 m)	1200 ft (366 m)	1000 ft (305 m)	900 ft (275 m)
26 AWG (0.20 mm^2)	4000 ft (1220 m)	3000 ft (915 m)	2000 ft (610 m)	1500 ft (457 m)	1200 ft (366 m)	1000 ft (305 m)	800 ft (244 m)	700 ft (214 m)	650 ft (198 m)	580 ft (177 m)

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