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. Consult local and national codes for emergency lighting requirements in other countries.
## What Lutron Product Do You Have?

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Description</th>
<th>Power Sources</th>
</tr>
</thead>
</table>
| Emergency PowPak 0–10 V Dimming Module - RMJS-8T-DV-B-EM | • Module is powered by normal and emergency power on a generator - Page 7  
• Module is powered by normal and emergency power on a UPS - Page 9 | |
| PowPak 0–10 V Dimming Module - RMJS-8T-DV-B and RMJS-8TN-DV-B | • Module is powered by emergency power - Page 12  
– Fire Alarm Operation - Page 14  
• Module is powered by normal power - Page 15  
– Fire Alarm Operation - Page 17 | |
| Emergency PowPak Relay Module With Softswitch - RMJS-16R-DV-B-EM | • Module is powered by normal and emergency power on a generator - Page 18  
• Module is powered by normal and emergency power on a UPS - Page 20 | |
| PowPak Relay Module With Softswitch - RMJS-16R-DV-B; RMJS-5R-DV-B; RMJS-16RCCO1DV-B; RMJS5RCCO1-DV-B; RMJS-20R-DV-B; RMJS-20RCCO1DV-B | • Module is powered by emergency power - Page 23  
– Fire Alarm Operation - Page 25  
• Module is powered by normal power - Page 26  
– Fire Alarm Operation - Page 28 | |
| Emergency PowPak 0–10 V Fixture Control - FCJS-010-EM | • Fixture Control is powered by normal and emergency power on a generator - Page 29  
• Module is powered by normal and emergency power on a UPS - Page 31 | |
| PowPak 0–10 V Fixture Control - FCJS-010 | • Fixture Control is powered by emergency power - Page 34  
– Fire Alarm Operation - Page 36 | |
| Emergency PowPak 0–10 V Fixture Control - FCJS-ECO-EM | • Module is powered by emergency power on a generator - Page 37  
• Module is powered by normal and emergency power on a UPS - Page 39 | |
| PowPak EcoSystem Fixture Control - FCJS-ECO; RMJS-ECO32-SZ | • Module is powered by emergency power - Page 42  
– Fire Alarm Operation - Page 44 | |
| Vive 347 V Dimming Module with 0–10 V Control - RMJS-5T-347; RMJS-5T-347-EM | • Module is powered by normal/emergency power on a generator - Page 45  
• Module is powered by emergency power - Page 48  
– Fire Alarm Operation - Page 50  
• Module is powered by normal power - Page 51  
– Fire Alarm Operation - Page 53 | |
What Lutron Product Do You Have? (continued)

Maestro Wireless Dimmers Not Requiring a Neutral Connection - MRF2S-6CL
- Dimmer is powered by emergency power - Page 54
  – Fire Alarm Operation - Page 56
- Dimmer is powered by normal power - Page 57
  – Fire Alarm Operation - Page 59

Maestro Wireless Dimmers Requiring a Neutral Connection - MRF2S-6ND
- Dimmer is powered by emergency power - Page 60
  – Fire Alarm Operation - Page 62
- Dimmer is powered by normal power - Page 63
  – Fire Alarm Operation - Page 65

Maestro Wireless Dimmers Requiring a Neutral Connection - MRF2S-6ELV120
- Dimmer is powered by normal power - Page 66
  – Fire Alarm Operation - Page 68

Maestro Wireless Switches Requiring a Neutral Connection - MRF2S-6ANS; MRF2S-8ANS120
- Switch is powered by emergency power - Page 69
  – Fire Alarm Operation - Page 71
- Switch is powered by normal power - Page 72
  – Fire Alarm Operation - Page 74

Maestro Wireless Switches Not Requiring a Neutral Connection - MRF2S-8S-DV
- Switch is powered by emergency power - Page 75
  – Fire Alarm Operation - Page 77
- Switch is powered by normal power - Page 78
  – Fire Alarm Operation - Page 80

Vive Integral Fixture Control with an EcoSystem Driver - DFCSJ-OEM-OCC/RF with DFC-OEM-DBI
- Fixture is powered by normal/emergency power and controlling an emergency load - Page 81
  – Fire Alarm Operation - Page 84

Vive Integral Fixture Control and Driver with Self-Powered DALI Link - DFCSJ-OEM-OCC/RF
- Fixture is powered by normal/emergency power and controlling an emergency load - Page 85
  – Fire Alarm Operation - Page 87

Vive Integral Fixture Control with EcoSystem Driver and Battery Backup
- Fixture is powered by normal power and controlling an emergency load - Page 88

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 90
Applications of Emergency Lighting with a Vive System

In this section, the text and wiring diagrams explain how various Vive load controllers work with emergency lighting applications 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 Emergency PowPak Devices

Emergency PowPak devices listed in this application note are intended for use in emergency power systems that provide a period of power interruption when transferring to the emergency power source (i.e. diesel generators). Power interruption during transfer time must be greater than a 250 ms for the Emergency PowPak devices to enter emergency mode. A list of these devices is provided below:

- Emergency PowPak 0–10 V Dimming Module (Model # RMJS-8T-DV-B-EM)
- Emergency PowPak Relay Module With Softswitch (Model # RMJS-16R-DV-B-EM)
- Emergency PowPak 0–10 V Fixture Control (Model # FCJS-010-EM)
- Emergency PowPak EcoSystem Fixture Control (Model # FCJS-ECO-EM)

Emergency PowPak devices are NOT intended for use with the following types of emergency lighting systems:

- Fixtures containing integral inverters or battery backup drivers

Additional Notes

1. Fire alarm integration is not available with Emergency PowPak devices. For fire alarm integration in Vive, refer to all other emergency devices referenced within this document.
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.
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

<table>
<thead>
<tr>
<th>Product</th>
<th>Model Number</th>
<th>Vive Hub</th>
<th>Emergency Light Level</th>
<th>How to Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vive 0–10 V=== Emergency PowPak units</td>
<td>RMJS-8T-DV-B-EM, FCJS-010-EM</td>
<td>Without hub</td>
<td>100%</td>
<td>Not programmable</td>
</tr>
<tr>
<td>Vive 0–10 V=== Emergency PowPak units</td>
<td>RMJS-8T-DV-B-EM, FCJS-010-EM</td>
<td>With hub</td>
<td>0–100%</td>
<td>Vive app or web page</td>
</tr>
<tr>
<td>Vive Emergency EcoSystem PowPak units</td>
<td>FCJS-ECO-EM</td>
<td>Without hub</td>
<td>100%</td>
<td>Not programmable</td>
</tr>
<tr>
<td>Vive Emergency EcoSystem PowPak units</td>
<td>FCJS-ECO-EM</td>
<td>With hub</td>
<td>0–100%</td>
<td>Vive app or web page</td>
</tr>
</tbody>
</table>

### Vive Normal (non-emergency) Load Controllers

All load controllers shown below do not sense for loss of normal power, and cannot be sent to a configurable level during a normal power loss. 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 loads to 100% (not configurable). Since the controls would be powered down and bypassed, the emergency lighting level is not determined by the controls.

<table>
<thead>
<tr>
<th>Product</th>
<th>Model Number</th>
<th>Vive Hub</th>
<th>Emergency Light Level</th>
<th>How to Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vive 0–10 V=== PowPak units</td>
<td>RMJS-8T-DV-B, RMJS-8TN-DV-B, FCJS-010</td>
<td>With or without Vive hub</td>
<td>N/A</td>
<td>Not programmable</td>
</tr>
<tr>
<td>Vive EcoSystem PowPak units</td>
<td>FCJS-ECO, RMJS-ECO32-SZ</td>
<td>With or without Vive hub</td>
<td>N/A</td>
<td>Not programmable</td>
</tr>
<tr>
<td>Vive Integral Fixture Control</td>
<td>DFCSJ-OEM-RF, DFCSJ-OEM-OCC</td>
<td>With or without Vive hub</td>
<td>N/A</td>
<td>Not programmable</td>
</tr>
<tr>
<td>Vive Maestro Dimmers and Switches</td>
<td>MRF2S-6CL, MRF2S-6ND-120, MRF2S-6ELV120, MRF2S-6ANS, MRF2S-8ANS120, MRF2S-8S-DV</td>
<td>With or without Vive hub</td>
<td>N/A</td>
<td>Not programmable</td>
</tr>
</tbody>
</table>
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 (FACP). 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 the LVS 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 Contact Compatible LVS Devices

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Alarm interface required</td>
<td>LUT-SHUNT, LUT-SHUNT-FM</td>
</tr>
</tbody>
</table>

### 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 LVS 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 LVS devices can share one fire alarm dry contact. The 1 W minimum power supply must be provided for each LVS device regardless of the quantities of dry contacts being shared. LVS devices are polarity neutral for DC power supply inputs.

### Fire Alarm Dry Contact Details

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry Contact Type</td>
<td>Normally Open (Closed= Fire Alarm Condition, Open= Normal Condition)</td>
<td>Normally Closed (Closed= Normal Condition Open= Fire Alarm Condition)</td>
<td>Normally Closed (Closed= Normal Condition Open= Fire Alarm Condition)</td>
</tr>
<tr>
<td>Additional Requirements</td>
<td>DC Power Supply</td>
<td>DC Power Supply and Dipswitch Positions 0,0,1,0</td>
<td>LVS TR-A-2 Device</td>
</tr>
</tbody>
</table>
Emergency PowPak 0–10 V Dimming Module

Module is powered by normal and emergency power on a generator

In all applications, the Emergency PowPak 0–10 V Dimming Module is powered by normal and emergency power. During regular operation, the Automatic Transfer Switch is in the Normal position, allowing regular utility power to power the device. During emergency operation, the Automatic Transfer Switch is in the Emergency position, allowing emergency backup power to power the device. As a result, the device senses the power cycle and can no longer communicate with the Vive hub, thus entering emergency lighting mode until the Vive hub is re-energized. This applies to: RMJS-8T-DV-B-EM.

Note: When operating without a Vive hub, the Emergency PowPak 0–10 V Dimming Module senses a power cycle and enters emergency mode for 90 minutes.

IMPORTANT: This solution is not applicable for use with an Uninterruptable Power Supply (UPS) backup system. For solutions with an Uninterruptable Power Supply (UPS) backup system, please refer to page 7.

Wiring Schematic

* NOTE: Solution is not applicable for an Uninterruptable Power Supply (UPS) backup system. RMJS-8T-DV-B-EM must see a complete change-over of power from normal to emergency for the unit to go into emergency mode.

NOTE: Some applications (in the U.S.A.) require the PowPak module to be installed inside an additional junction box. For information about how to perform this installation see Application Note #423 (P/N 048423) at www.lutron.com Please consult all local and national electric codes for proper installation methods.
Emergency PowPak 0–10 V Dimming Module (continued)

Module is powered by normal and emergency power on a generator (continued)

Regular Operation

Emergency Operation
Emergency PowPak 0–10 V Dimming Module (continued)

Module is powered by normal and emergency power on a UPS

In all applications, the Emergency PowPak 0–10 V Dimming Module is powered by normal and emergency power. During regular operation, the UL* 1008 Transfer Switch is in the Normal position, allowing regular utility power to power the device. During emergency operation, the LUT-ATS-D senses the loss of normal power and creates a power interrupt to the Emergency PowPak. As a result, the device senses the power cycle and can no longer communicate with the Vive hub, thus entering emergency lighting mode until the Vive hub is re-energized. This applies to: RMJS-8T-DV-B-EM.

Note: When operating without a Vive hub, the Emergency PowPak 0–10 V Dimming Module senses a power cycle and enters emergency mode for 90 minutes.

Wiring Schematic
Emergency PowPak 0–10 V– Dimming Module (continued)

Module is powered by normal and emergency power on a UPS (continued)

Normal Operation
Emergency PowPak 0–10 V== Dimming Module (continued)

Module is powered by normal and emergency power on a UPS (continued)

Emergency Operation
**PowPak 0–10 V Dimming Module**

**Module is powered by emergency power**

In an application where a 0–10 V PowPak dimming module is powered by 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 and RMJS-8TN-DV-B.

**Wiring Schematic**

![Wiring Schematic Diagram]

In an application where a 0–10 V PowPak dimming module is powered by 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 and RMJS-8TN-DV-B.
PowPak 0–10 V Dimming Module (continued)

Module is powered by emergency power (continued)

Regular Operation

Emergency Operation
PowPak 0–10 V Dimming Module (continued)

Module is powered by emergency power (continued)

Fire Alarm Operation

Regular Utility Power

Emergency Power

UL 1008 Transfer Switch

Normal Power

Normal Voltage Sense

Normal Hot

Normal Neutral

Regular Utility Power

Normal Power

UL 2043 Plenum Rated

FCJS-010 120 – 277 V ~ 50 / 60 Hz  1 A

Sensor | Détecteur 12 V - 25 mA

IEC SELV / NEC® Class 2

LVS Controls LUT-SHUNT-D

Violet

Yellow

Blue

Black

White

(-)

(+)

24 V Power Supply

Fire Alarm Control Panel (FACP) Contact Closure Output
Closed: Fire Alarm Condition Open: Normal Condition

Normal Hot

Emergency Load

Emergency Circuit Panel

Normal Power

Normal / Emergency Power

Line / Hot

Red

Black

White

(+)
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 and RMJS-8TN-DV-B.

Wiring Schematic

[Diagram showing the wiring schematic for the PowPak 0–10 V Dimming Module, including normal and emergency power connections, as well as the正常/应急电路板 and its various terminals.]
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
Emergency PowPak Relay Module with Softswitch

Module is powered by normal and emergency power on a generator

In all applications, the Emergency PowPak Relay Module with Softswitch is powered by normal and emergency power. During regular operation, the Automatic Transfer Switch is in the Normal position, allowing regular utility power to power the device. During emergency operation, the Automatic Transfer Switch is in the Emergency position, allowing emergency backup power to power the device. As a result, the device senses the power cycle and can no longer communicate with the Vive hub, thus entering emergency lighting mode until the Vive hub is re-energized. This applies to: RMJS-16R-DV-B-EM.

Note: When operating without a Vive hub, the Emergency PowPak Relay Module with Softswitch senses a power cycle and enters emergency mode for 90 minutes.

IMPORTANT: This solution is not applicable for use with an Uninterruptable Power Supply (UPS) backup system. For solutions with an Uninterruptable Power Supply (UPS) backup system, please refer to page 15.

Wiring Schematic

![Diagram of wiring schematic]

*NOTE: Solution is not applicable for an Uninterruptable Power Supply (UPS) backup system. RMJS-16R-DV-B-EM must see a complete change-over of power from normal to emergency for the unit to go into emergency mode.
Emergency PowPak Relay Module with Softswitch (continued)

Module is powered by normal and emergency power on a generator (continued)

Regular Operation

Emergency Operation
Emergency PowPak Relay Module with Softswitch (continued)

Module is powered by normal and emergency power on a UPS

In all applications, the Emergency PowPak Relay Module with Softswitch is powered by normal and emergency power. During regular operation, the UL R 1008 Transfer Switch is in the Normal position, allowing regular utility power to power the device. During emergency operation, the LUT-ATS-D senses the loss of normal power and creates a power interrupt to the Emergency PowPak. As a result, the device senses the power cycle and can no longer communicate with the Vive hub, thus entering emergency lighting mode until the Vive hub is re-energized. This applies to: RMJS-8T-DV-B-EM.

Note: When operating without a Vive hub, the Emergency PowPak Relay Module with Softswitch senses a power cycle and enters emergency mode for 90 minutes.

Wiring Schematic
Emergency PowPak Relay Module with Softswitch (continued)

Module is powered by normal and emergency power on a UPS (continued)

Normal Operation

![Diagram of Emergency PowPak Relay Module with Softswitch]

- Normal Power
- Emergency Power
- Regular Utility Power
- Emergency Power (UPS)
- LUT-ATS-D Transfer Switch
- LVS Controls
- Normal Voltage Sense
- Neutral (N)
- Line/Hot (L)
- 120/277 V~ Normal Feed
- 24 V~ Common
- Power Supply
- Hub
- Neutral (N)
- Switched Line/Hot
- Normal Neutral
- Normal Line/Hot
- Normal Load
- Normal/Emergency Load
- To additional RMJS-16R-DV-B-EM PowPak units
- To additional RMJS-16R-DV-B PowPak units
Emergency PowPak Relay Module with Softswitch (continued)

Module is powered by normal and emergency power on a UPS (continued)

Emergency Operation
PowPak Relay Module With Softswitch

Module is powered by 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

Wiring Schematic
PowPak Relay Module With Softswitch (continued)

Module is powered by emergency power (continued)

Regular Operation

Emergency Operation
PowPak Relay Module With Softswitch (continued)

Module is powered by emergency power (continued)

Fire Alarm Operation

Regular Utility Power

Emergency Power

Normal Power

Emergency Power

UL® 1008
Transfer Switch

Normal/Emergency Power

Line/Hot

White

Black

Red

Blue

Yellow

Normal Voltage Sense

Fire Alarm Control Panel (FACP)

Contact Closure Output

Closed: Normal Condition

Open: Fire Alarm Condition

LVS Controls TR-A-2

PowPak Relay Module

Emergency Panel

Normal Neutral

Normal Hot

Normal Power

Regular Utility Power

Normal Power

Normal Neutral

Normal Hot
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 with a normally closed relay that responds to the switched hot output of the module is used. 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

Wiring Schematic
PowPak Relay Module With Softswitch (continued)

Module is powered by normal power (continued)

Regular Operation

Emergency Operation

LUTRON

27
Customer Assistance — 1.844.LUTRON1
PowPak Relay Module With Softswitch *(continued)*

Module is powered by normal power *(continued)*

Fire Alarm Operation

Regular Utility Power

Emergency Power

UL 1008 Transfer Switch

Normal Power

Emergency Power

Normal Circuit Panel

Normal Voltage Sense

Control State Sense

PowerPak Relay Module

Normal Hot

Normal Neutral

Black

Red

White

Blue/White

Switched Line/Hot

(Blue)

Neutral

Line/Hot

Neutral

Line/Hot

Neutral

24 V AC Power Supply

Fire Alarm Control Panel (FACP)

Contact Closure Output

Closed: Fire Alarm Condition

Open: Normal Condition

LVS Controls LUT-ALCR

Normal Load

Emergency Load

Emergency Circuit Panel

28
Emergency PowPak 0–10 V Fixture Control

Fixture Control is powered by normal and emergency power on a generator

In all applications, the Emergency PowPak 0–10 V Fixture Control is powered by normal and emergency power. During regular operation, the Automatic Transfer Switch is in the Normal position, allowing regular utility power to power the device. During emergency operation, the Automatic Transfer Switch is in the Emergency position, allowing emergency backup power to power the device. As a result, the device senses the power cycle and can no longer communicate with the Vive hub, thus entering emergency lighting mode until the Vive hub is re-energized. This applies to: FCJS-010-EM.

**Note:** When operating without a Vive hub, the Emergency PowPak 0–10 V Fixture Control senses a power cycle and enters emergency mode for 90 minutes.

**IMPORTANT:** This solution is not applicable for use with an Uninterruptable Power Supply (UPS) backup system. For solutions with an Uninterruptable Power Supply (UPS) backup system, please refer to page 23.

**Wiring Schematic**

- **Regular Utility Power**
  - 120/277 V~ Normal Feed
  - Neutral (N)
  - Line/Hot (L)
  - Junction Box

- **Emergency Power**
  - 120/277 V~ Generator/Emergency Feed
  - Neutral (N)
  - Automatic Transfer Switch

- **Common**
  - 24 V

- **Switched Line/Hot**
  - (+)
  - (-)

- **To additional FCJS-010 PowPak units**

- **To additional FCJS-010-EM PowPak units**

**NOTE:** Solution is not applicable for an Uninterruptable Power Supply (UPS) backup system. FCJS-010-EM must see a complete change-over of power from normal to emergency for the unit to go into emergency mode.
Emergency PowPak 0–10 V Fixture Control (continued)

Fixture Control is powered by normal and emergency power on a generator (continued)

Regular Operation

Emergency Operation
Emergency PowPak 0–10 V™ Fixture Control (continued)

Fixture Control is powered by normal and emergency power on a UPS

In all applications, the Emergency PowPak Fixture Control is powered by normal and emergency power. During regular operation, the UL® 1008 Transfer Switch is in the Normal position, allowing regular utility power to power the device. During emergency operation, the LUT-ATS-D senses the loss of normal power and creates a power interrupt to the Emergency PowPak. As a result, the device senses the power cycle and can no longer communicate with the Vive hub, thus entering emergency lighting mode until the Vive hub is re-energized. This applies to: FCJS-010-EM.

Note: When operating without a Vive hub, the Emergency PowPak Fixture Control senses a power cycle and enters emergency mode for 90 minutes.

Wiring Schematic
Emergency PowPak 0–10 V Fixture Control (continued)

Fixture Control is powered by normal and emergency power on a UPS (continued)

Normal Operation
Emergency PowPak 0–10 V≈ Fixture Control (continued)

Fixture Control is powered by normal and emergency power on a UPS (continued)

Emergency Operation
PowPak 0–10 V Fixture Control

Fixture Control is powered by 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 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 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 LUT-SHUNT-D from LVS Controls. This applies to: FCJS-010.

Wiring Schematic
PowPak 0–10 V Fixture Control (continued)

Fixture Control is powered by emergency power (continued)

Regular Operation

Emergency Operation
PowPak 0–10 V Fixture Control (continued)

Fixture Control is powered by emergency power (continued)

Fire Alarm Operation
Emergency PowPak EcoSystem Fixture Control

Fixture Control is powered by normal and emergency power on a generator

In all applications, the Emergency PowPak is powered by normal and emergency power. During regular operation, the Automatic Transfer Switch is in the Normal position, allowing regular utility power to power the device. During emergency operation, the Automatic Transfer Switch is in the Emergency position, allowing emergency backup power to power the device. As a result, the device senses the power cycle and can no longer communicate with the Vive hub, thus entering emergency lighting mode until the Vive hub is re-energized. This applies to: FCJS-ECO-EM.

Note: When operating without a Vive hub, the Emergency PowPak senses a power cycle and enters emergency mode for 90 minutes.

IMPORTANT: This solution is not applicable for use with an Uninterruptable Power Supply (UPS) backup system. For solutions with an Uninterruptable Power Supply (UPS) backup system, please refer to page 30.

Wiring Schematic
Emergency PowPak EcoSystem Fixture Control (continued)

Fixture Control is powered by normal and emergency power on a generator (continued)

Regular Operation

Emergency Operation
Emergency PowPak EcoSystem Fixture Control *(continued)*

Fixture Control is powered by normal and emergency power on a UPS

In all applications, the Emergency PowPak EcoSystem Fixture Control is powered by normal and emergency power. During regular operation, the UL 1008 Transfer Switch is in the Normal position, allowing regular utility power to power the device. During emergency operation, the LUT-ATS-D senses the loss of normal power and creates a power interrupt to the Emergency PowPak. As a result, the device senses the power cycle and can no longer communicate with the Vive hub, thus entering emergency lighting mode until the Vive hub is re-energized. This applies to: FCJS-ECO-EM.

Note: When operating without a Vive hub, the Emergency PowPak EcoSystem Fixture Control senses a power cycle and enters emergency mode for 90 minutes.

Wiring Schematic
Emergency PowPak EcoSystem Fixture Control

Fixture Control is powered by normal and emergency power on a UPS (continued)

Normal Operation
Emergency PowPak EcoSystem Fixture Control (continued)

Fixture Control is powered by normal and emergency power on a UPS (continued)

Emergency Operation

DIP Switch Settings on LUT-ATS-D

ON

OFF
PowPak EcoSystem Fixture Control

**Fixture Control is powered by 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 to 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**

![Wiring Schematic Diagram]

Diagram showing the connection between regular utility power, emergency power, and the emergency load, with the PowPak Fixture Control and related components.
PowPak EcoSystem Fixture Control (continued)

Fixture Control is powered by emergency power (continued)

Regular Operation

Emergency Operation
Fixture Control is powered by emergency power (continued)

Fire Alarm Operation
**Vive 347 V~ Dimming Module with 0–10 V Control**

**Module is powered by normal/emergency power on a generator**

In all applications, the Emergency Vive 347 V~ Dimming Module with 0–10 V Control is powered by normal/emergency power. During regular operation, the Automatic Transfer Switch is in the Normal position, allowing regular utility power to power the device. During emergency operation, the Automatic Transfer Switch is in the Emergency position, allowing emergency backup power to power the device. As a result, the device senses the power cycle and can no longer communicate with the Vive hub, thus entering emergency lighting mode until the Vive hub is re-energized. This applies to: **RMJS-5T-347-EM**.

**Note:** When operating without a Vive hub, the Emergency Vive 347 V~ Dimming Module with 0–10 V Control senses a power cycle and enters emergency mode for 120 minutes.

**IMPORTANT:** This solution is not applicable for use with an Uninterruptable Power Supply (UPS) backup system. For solutions with an Uninterruptable Power Supply (UPS) backup system, please refer to page 7.

**Wiring Schematic**

![Wiring Diagram](image-url)

* **NOTE:** Solution is not applicable for an Uninterruptable Power Supply (UPS) backup system. RMJS-5T-347-EM must see a complete change-over of power from normal to emergency for the unit to go into emergency mode.
Vive 347 V~ Dimming Module with 0–10 V Control *(continued)*

Module is powered by normal/emergency power on a generator *(continued)*

Regular Operation

```
120/277 V~
Normal Feed

347 V~
Normal Feed

Neutral (N)

Junction Box

347 V~ Generator/
Emergency Feed

Neutral (N)

Automatic
Transfer
Switch

347 V~
Emergency Feed

Neutral (N)

Junction Box

Switched Line/Hot
(+)
(–)

Normal 0–10 V=
Driver

Normal 0–10 V=
Driver

To additional
RMJS-ST-347 units

To additional
RMJS-ST-347-EM units

Switched Line/Hot
(+)
(–)

Normal/Emergency
0–10 V=
Driver

Neutral (N)

Junction Box

Switched Line/Hot
(+)
(–)

To additional
RMJS-ST-347 units

Neutral (N)

Junction Box

Switched Line/Hot
(+)
(–)

To additional
RMJS-ST-347-EM units

Neutral (N)

Junction Box

Switched Line/Hot
(+)
(–)

To additional
RMJS-ST-347 units
```

Regular Utility Power

```
Vive 347 V~ Dimming Module with 0–10 V Control (continued)

Module is powered by normal/emergency power on a generator (continued)

Emergency Operation

120/277 V~ Normal Feed
Neutral (N)
Line / Hot (L)
Junction Box
Switched Line / Hot
Normal 0–10 V~ Driver
To additional RMJS-ST-347 units

RMJS-ST-347
347 V~ Normal Feed
Neutral (N)

Emergency Power
Neutral (N)
Automatic Transfer Switch
347 V~ Emergency Feed
Neutral (N)
Junction Box
Switched Line / Hot
Normal / Emergency 0–10 V~ Driver
To additional RMJS-ST-347-EM units

RMJS-ST-347-EM
24 V~ Common
347 V~ Generator / Emergency Feed
Neutral (N)
Junction Box
Switched Line / Hot
Normal 0–10 V~ Driver
To additional RMJS-ST-347 units

Regular Utility Power
Neutral (N)
Junction Box
Switched Line / Hot
Normal 0–10 V~ Driver
To additional RMJS-ST-347 units

RMJS-ST-347
347 V~ Normal Feed
Neutral (N)

Not Provided by Lutron
Neutral (N)
Vive 347 V~ Dimming Module with 0–10 V---Control

Module is powered by emergency power

In an application where a dimming module with 0–10 V---control is powered by 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
Vive 347 V~ Dimming Module with 0 –10 V Control (continued)

Module is powered by emergency power (continued)

Regular Operation

Emergency Operation

LUTRON

Customer Assistance — 1.844.LUTRON1
Vive 347 V~ Dimming Module with 0–10 V-- Control (continued)

Module is powered by emergency power (continued)

Fire Alarm Operation

Regular Utility Power

Emergency Power
Vive 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

[Diagram of wiring schematic]

Regular Utility Power

- Normal Power
- Emergency Power
- UL 1008 Transfer Switch

Normal / Emergency Circuit Panel

- Normal Circuit Panel
- Normal Feed
- Normal Neutral

LVS Controls LUT-ALCR-D-HV-347

Emergency Load

- Normal Load
- Emergency Load

Line/Hot (Blue)

- Orange
- Red
- Yellow
- White
- Violet

Neutral

- Black
- White
- Red
- Violet (+)
- Pink (-)

RMJS-5T-347
Vive 347 V~ Dimming Module with 0 -10 V Control (continued)

Module is powered by normal power (continued)

Regular Operation

Regular Utility Power

Emergency Operation

Emergency Power
Vive 347 V~ Dimming Module with 0–10 V Control (continued)

Module is powered by normal power (continued)

Fire Alarm Operation

Regular Utility Power

Emergency Power

Fire Alarm Control Panel (FACP)
Contact Closure Output
Closed: Fire Alarm Condition
Open: Normal Condition

LVS Controls
LUT-ALCR-D-HV-347

24 VDC Power Supply

Normal Circuit Panel

Normal Power

Emergency Power

Normal Load

Emergency Load

Line/Hot (Blue)

Neutral

Normal / Emergency Circuit Panel

Normal Power

Emergency Power

2008 Transfer Switch

RMJS-5T-347

24 VDC Power Supply

LVS Controls
LUT-ALCR-D-HV-347

Regular Utility Power

Normal Power

Fire Alarm Control Panel (FACP)
Contact Closure Output
Closed: Fire Alarm Condition
Open: Normal Condition
Maestro Wireless Dimmers Not Requiring a Neutral Connection

Dimmer is powered by 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

[Diagram showing wiring schematic with labels for regular utility power, normal power, emergency power, and connections for Maestro Wireless Dimmer and LVS Controls LUT-SHUNT.]
Maestro Wireless Dimmers Not Requiring a Neutral Connection (continued)

Dimmer is powered by emergency power (continued)

Regular Operation

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

Dimmer is powered by emergency power *(continued)*

Fire Alarm Operation

Regular Utility Power

Emergency Power

Normal Power

Emergency Power

UL® LISTED EMERGENCY LIGHTING EQUIPMENT

73PK

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

Dimmer is powered by 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

Regular Utility Power

Regular Utility Power

Normal Power

Normal Power

Emergency Power

Emergency Power

Normal Voltage Sense

Normal Voltage Sense

Normal Circuit Panel

Normal Circuit Panel

Maestro Wireless Dimmer

Maestro Wireless Dimmer

LVS Controls LUT-ATS-D

LVS Controls LUT-ATS-D

UL® 1008 Transfer Switch

UL® 1008 Transfer Switch

UL® 1008 Transfer Switch

UL® 1008 Transfer Switch

Normal / Emergency Circuit Panel

Normal / Emergency Circuit Panel

Normal / Emergency Circuit Panel

Normal / Emergency Circuit Panel

Load (Line / Hot)

Load (Line / Hot)

Load (Line / Hot)

Load (Line / Hot)

Load (Neutral)

Load (Neutral)

Load (Neutral)

Load (Neutral)

Normal Hot

Normal Hot

Normal Hot

Normal Hot

Normal Neutral

Normal Neutral

Normal Neutral

Normal Neutral

Brass Terminal

Brass Terminal

Brass Terminal

Brass Terminal

Black Terminal

Black Terminal

Black Terminal

Black Terminal

Dimmed Line / Hot

Dimmed Line / Hot

Dimmed Line / Hot

Dimmed Line / Hot

Normal Load

Normal Load

Normal Load

Normal Load

Emergency Load

Emergency Load

Emergency Load

Emergency Load

Regular

Regular

Regular

Regular
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 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 emergency power (continued)

Regular Operation

Emergency Operation
Maestro Wireless Dimmers Requiring a Neutral Connection (continued)

Dimmer is powered by emergency power (continued)

Fire Alarm Operation

![Fire Alarm Control Panel (FACP) diagram]

- **Fire Alarm Control Panel (FACP)**
  - **Contact Closure Output**
  - **Closed**: Normal Condition
  - **Open**: Fire Alarm Condition

**Regular Utility Power**

- Normal Power
- Emergency Power

**Emergency Circuit Panel**

- Line/Hot
- Neutral

**Maestro Wireless Dimmer**

- **Dimmed**
- **Hot**
- **Switched**

**LVS Controls TR-A-2**

- **Black**
- **Blue**
- **Yellow**
- **Red**

**Emergency Load**

- Normal Hot
- Normal Neutral

**UL® Listed**

- **EMERGENCY LIGHTING EQUIPMENT**
- **Model TR-A-2**
- **UL® LISTED**
- **FIRE ALARM OPERATION**

**Normal Voltage Sense**

- **Black Terminal**
- **Brass Terminal**

**Normal Power**

- **Black**
- **Neutral**

- **120 V~240V/277 V~**
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-6ND**.

---

**Wiring Schematic**

Regular Utility Power

Emergency Power

Regular Circuit Panel

Normal Circuit Panel

Maestro Wireless Dimmer

LVS Controls LUT-ATS-D

Normal Voltage Sense

Normal Hot
Normal Neutral

Brass Terminal

Black Terminal

Dimmed Line/Hot

Normal Load

Emergency Load

LOAD (Line/Hot)

LOAD (Neutral)

Normal Voltage Sense

Normal/ Emergency Circuit Panel

Normal Power

Emergency Power

UL® 1008 Transfer Switch

Normal/ Emergency Power

Normal Hot

Normal Neutral

Black Terminal

Brass Terminal

Dimmed Line/Hot

Normal Load

Emergency Load

LOAD (Line/Hot)

LOAD (Neutral)
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 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-ELV120.

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 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-8ANS120

Wiring Schematic

[Diagram of wiring schematic showing regular utility power, emergency power, normal power, emergency power, transfer switch, circuit panel, Maestro Wireless switch, LUT-SHUNT, and connections for normal hot, normal neutral, test, and switched line/hot.]
Maestro Wireless Switches Requiring a Neutral Connection (continued)

Switch is powered by emergency power (continued)

Regular Operation

Emergency Operation
Maestro Wireless Dimmers Requiring a Neutral Connection (continued)

Switch is powered by emergency power (continued)

Fire Alarm Operation

![Diagram of Fire Alarm Control Panel (FACP) with emergency light connections]
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-8ANS120

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 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**

---

**Wiring Schematic**

*Regular Utility Power*  

*Emergency Power*  

*Transfer Switch*  

*Normal Power*  

*Emergency Power*  

*Normal/Emergency Power*  

*Line/Hot*  

*Neutral*  

*Black Terminal*  

*Brass Terminal*  

*Switched Line/Hot*  

*Emergency Load*  

*Normal Hot*  

*Normal Neutral*  

*Normal Voltage Sense*  

*LVS Controls LUT-SHUNT*
Maestro Wireless Switches Not Requiring a Neutral Connection (continued)

Switch is powered by emergency power (continued)

Regular Operation

<table>
<thead>
<tr>
<th>Regular Utility Power</th>
<th>Normal Power</th>
<th>Normal Power</th>
<th>Normal Voltage Sense</th>
<th>LVS Controls LUT-SHUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>UL1008 Transfer Switch</td>
<td>Normal/Emergency Power</td>
<td>Line/Hot</td>
<td>Black Terminal</td>
<td>Blue Terminal</td>
</tr>
<tr>
<td>Emergency Circuit Panel</td>
<td>Emergency Load</td>
<td>Switched Line/Hot</td>
<td>Emergency Operation</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Emergency Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Power</td>
</tr>
<tr>
<td>LVS Controls LUT-SHUNT</td>
</tr>
<tr>
<td>Emergency Load</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Regular Utility Power</th>
<th>Normal Power</th>
<th>Normal Power</th>
<th>Normal Voltage Sense</th>
<th>LVS Controls LUT-SHUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>UL1008 Transfer Switch</td>
<td>Normal/Emergency Power</td>
<td>Line/Hot</td>
<td>Black Terminal</td>
<td>Blue Terminal</td>
</tr>
<tr>
<td>Emergency Circuit Panel</td>
<td>Emergency Load</td>
<td>Switched Line/Hot</td>
<td>Emergency Operation</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Emergency Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Power</td>
</tr>
<tr>
<td>LVS Controls LUT-SHUNT</td>
</tr>
<tr>
<td>Emergency Load</td>
</tr>
</tbody>
</table>

Maestro Wireless Switches Not Requiring a Neutral Connection (continued)

Switch is powered by 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. These apply to: **MRF2S-8S-DV**
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/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 Lutron. 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.
Vive Integral Fixture Control with an EcoSystem Driver (continued)

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

Regular Operation

Regular Utility Power

Normal Power

Emergency Power

Normal / Emergency Power

Normal / Emergency Neutral

Normal / Emergency Hot

Normal / Emergency EcoSystem Driver

DFC-OEM-DBI

DFCSJ-OEM-OCC / RF

LUT-SHUNT-FM

Utility Power

Normal Power

Normally open relay closes when normal power is present

Normal Voltage Sense

Normal Hot

Normal Neutral

Regular Utility Power
Vive Integral Fixture Control with an EcoSystem Driver (continued)

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

Emergency Operation

![Diagram of emergency power operation](image_url)
Vive Integral Fixture Control with an EcoSystem Driver (continued)

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

Fire Alarm Operation

Regular Utility Power

Emergency Power

DFC-OEM-DBI

DFCSJ-OEM-OCC/RF

LUT-SHUNT-FM

Normally open relay closes when normal power is present

Lighting Power Neutral

LVS Controls TR-A-2

Fire Alarm Control Panel (FACP)
Contact Closure Output
Closed: Normal Condition
Open: Fire Alarm Condition

Normal Voltage Sense

Normal Hot

Normal Neutral

Normal Power

Normal Neutral

Normal Hot

Lutron

www.lutron.com/support
Vive Integral Fixture Control and Driver with Self-Powered DALI Link

Powered by normal/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 Lutron. 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
Vive Integral Fixture Control and Driver with Self-Powered DALI Link (continued)

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

Regular Operation

When SR+/DEXAL+ and SR-/DEXAL- are shorted together (ALCR relay closed), the driver defaults to high-end

Normally closed relay opens when normal power is present

Emergency Operation

When SR+/DEXAL+ and SR-/DEXAL- are shorted together (ALCR relay closed), the driver defaults to High End

Normally closed relay opens when normal power is present
Vive Integral Fixture Control and Driver with Self-Powered DALI Link (continued)

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

Fire Alarm Operation

Regular Utility Power

Normal Power

UL® 1008 Transfer Switch

Normal/Emergency Power

Normal/Emergency Circuit Panel

SR+/DEXAL+ and SR-/DEXAL- are shorted together (ALCR relay closed), the driver defaults to high-end

When SR+/DEXAL+ and SR-/DEXAL- are shorted together (ALCR relay closed), the driver defaults to high-end

LUT-SHUNT-FM

Normally closed relay opens when normal power is present

Contact Closure Output

Closed: Normal Condition
Open: Fire Alarm Condition

Fire Alarm Control Panel (FACP)

Yellow 5
Blue 4
White 2
Black 1

LVS Controls TR-A-2

Normal Hot
Normal Neutral

Normal Voltage Sense

Fire Alarm Operation

Regular Utility Power

Normal Power

Normal Neutral
Normal Hot

Normal Power

Normal Neutral

Normal Hot

DFCSJ-OEM-OCC/RF

Normal Power

Emergency Power

Emergency Power
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 is desired, 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 see 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

![Regular Operation Diagram]

Emergency Operation

![Emergency Operation Diagram]
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 see 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

![Diagram of regular operation setup]

Emergency Operation

![Diagram of emergency operation setup]
Lutron, EcoSystem, Maestro, Maestro Wireless, PowPak, Softswitch, and Vive are trademarks or registered trademarks of Lutron Electronics Co., Inc. in the US and/or other countries.

All product names, logos, and brands are property of their respective owners.

Lutron Contact Numbers

WORLD HEADQUARTERS:
USA
Lutron Electronics Co., Inc.
7200 Suter Road
Coopersburg, PA 18036-1299
TEL: +1.610.282.3800
FAX: +1.610.282.1243
Customer Assistance:
1.844.LUTRON1
support@lutron.com
www.lutron.com/support

North & South America
Customer Assistance
USA, Canada, Caribbean:
1.844.LUTRON1 (1.844.588.7661)
Mexico:
+1.888.235.2910
Central/South America:
+1.610.282.6701

UK AND EUROPE:
United Kingdom
Lutron EA Limited
125 Finsbury Pavement
4th floor, London EC2A 1NQ
United Kingdom
TEL: +44.(0)20.7702.0657
FAX: +44.(0)20.7480.6899
FREEPHONE (UK): 0800.282.107
Technical Support: +44.(0)20.7680.4481
lutronlondon@lutron.com

ASIA:
Singapore
Lutron GL Ltd.
390 Havelock Road
#07-04 King’s Centre
Singapore 169662
TEL: +65.6220.4666
FAX: +65.6220.4333
Technical Support: 800.120.4491
lutronsea@lutron.com

Asia Technical Hotlines
Northern China: 10.800.712.1536
Southern China: 10.800.120.1536
Hong Kong: 800.901.849
Indonesia: 001.803.011.3994
Japan: +81.3.5575.8411
Macau: 0800.401
Taiwan: 00.801.137.737
Thailand: 001.800.120.665853
Other Countries: +65.6220.4666