UL 924 EMERGENCY LIGHTING

## OVERVIEW

The X-PoE system integrates seamlessly into UL 924 emergency lighting applications by combining a UL 924–listed lighting inverter with the X-PoE switch's emergency override input. In a UL 924 emergency lighting installation, the sequence of operation is straightforward:

1. Normal Power – During normal operation, the lighting inverter supplies AC power to power supplies, which powers the X-PoE system.
2. Power Loss – When utility power is lost, the inverter instantly (0 ms transfer) switches to its internal battery, maintaining continuous output power to the X-PoE system.
3. Emergency Signal – A UL 924–listed relay output sends a "loss of power" signal to the X-PoE switches.
4. Emergency Mode – Each X-PoE switch receiving this signal immediately enters emergency mode:
    1. All connected emergency loads turn on to a predefined brightness level.
    2. All external control inputs are disabled, ensuring emergency lights remain on and steady.
5. Return to Normal – When utility power is restored, the inverter resumes normal supply, the relay resets, and the X-PoE switches return to normal operation.

This sequence ensures compliance with UL 924 requirements: emergency lighting turns on automatically, stays on at the correct levels, and ignores user or control system overrides until normal power returns.

## UL 924 LIGHTING INVERTERS

When integrating the X-PoE system into a UL 924 emergency lighting installation, a UL 924–listed lighting inverter must be used to provide emergency backup power.

- The inverter must be online / double-conversion type with 0 ms transfer time, providing continuous AC output without interruption.
- The inverter continuously powers the system, with no switchover delay during utility loss.
- The inverter must be sized to sustain emergency lighting levels for at least 90 minutes, or longer if required by local code or project specifications.

> **ENGINEER'S NOTE**
>
> While the inverter only needs to be sized for the total emergency-mode load, it must also be rated to handle the maximum total load power in normal mode. This ensures the inverter can safely withstand the initial surge and potential overload during the transition into emergency mode without tripping or failing.

# EMERGENCY OVERRIDE BEHAVIOR

A “loss of power signal” must be provided by a UL 924-listed emergency lighting control device via a relay output to signal the loss of power. The relay output should be connected to the Programming Override Input Data Sheet on the rear panel of the X-PoE switch.

- The X-PoE switch can be configured to recognize either an “Open” or “Closed” state as an emergency condition.
- When the emergency condition is triggered, the X-PoE switch will:
  - Set all outputs to a predefined emergency brightness level.
  - Disable external control input until power is restored to maintain compliance with emergency lighting requirements.

Follow these instructions to configure the programming override input.

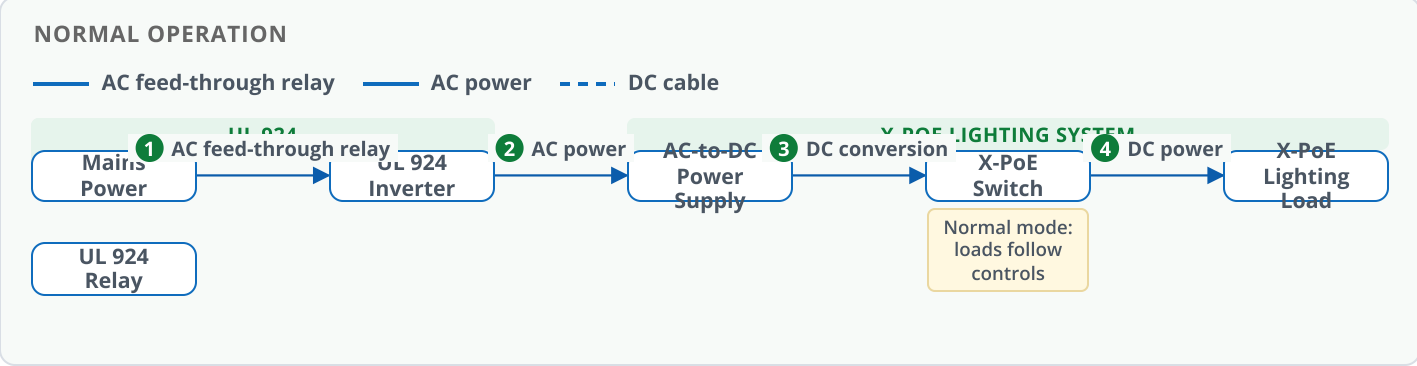
> **ENGINEER'S NOTE**
>
> When multiple emergency X-PoE switches are used, the loss-of-power signal must be distributed to each switch to ensure they all enter emergency mode simultaneously.

# BEST PRACTICE - DEDICATED EMERGENCY X-POE SWITCHES

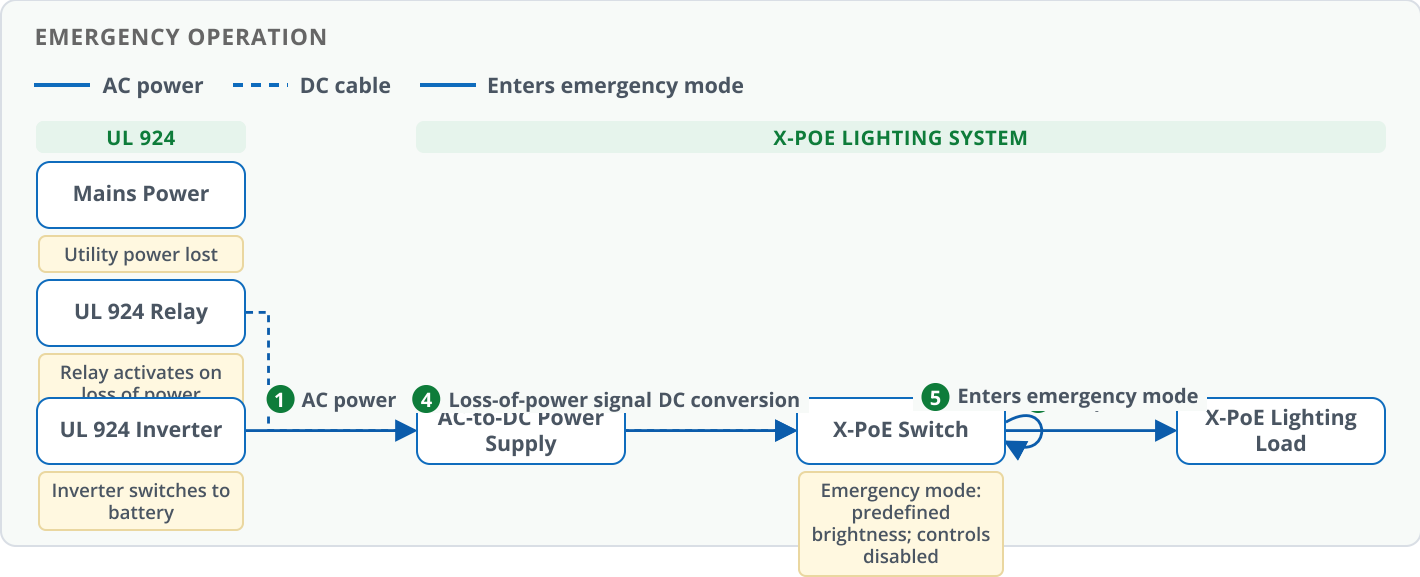
All emergency loads should be grouped on dedicated emergency X-PoE switches. Do not mix emergency and normal loads on the same switch wherever possible. This ensures consistent behavior during power loss and simplifies UL 924 compliance.

# WIRING DIAGRAM

## Normal Operation



### Emergency Operation




## KEY TAKEAWAYS

- Use only UL 924–listed lighting inverters (not UPSs or DC systems).
- Inverters must be 0 ms transfer (always on / online type).
- Size for total emergency load for 90 minutes runtime.
- Place all emergency loads on dedicated X-PoE switches.
- Emergency sequence: Power loss → Inverter holds power → X-PoE switches enter emergency mode → Lights on, controls off.

## RELATED INFORMATION

### Technical Support

Questions about UL 924 emergency lighting with X-PoE can be sent to support@luum.io.

### Document Feedback

While we have taken great care to ensure the accuracy and completeness of this document, we welcome your feedback and suggestions. If you notice any errors or omissions, or feel a topic could benefit from further explanation, please email your feedback to support@luum.io.

### Revision History

| Date | Revision | Notes |
|---|---|---|
| 11/3/2026 | A | Converted to the current guide format. |

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