

Application Bulletin

Legrand Room Controllers and UL924 – Emergency Lighting and Power Equipment

Dec 2019

The UL-924 standard dictates the automatic illumination and/or powers critical areas/equipment in the event of an electrical failure event. Devices rated for UL-924 can be used in an emergency lighting equipment design to comply with local code. Code dictates that there be adequate illuminance in areas of egress (or paths towards the exit of the building).

Wattstopper offers options to comply with these standards through various lighting control devices including devices that are complimentary UL/cUL listed to UL-924 under UL-60730 (a new UL standard) and can be used in an emergency lighting application. Many Wattstopper LMRC room controllers have the ability for the 0-10v circuit to open upon power loss. This ability ensures the proper emergency fixture to go to full ON in the event of an electrical failure event provided the correct devices are wired in such a way to meet compliance.

There are generally 2 ways to meet emergency lighting requirements:

1. Using an ELCU-100 along with an LMRC room controller to switch from normal power to emergency power for a particular emergency fixture (using an approved emergency power source).
2. Using an LMRC that is cUL/UL complimentary listed to UL-924 under the UL-60730 standard and wiring the 0-10v lines directly to an emergency fixture that is constantly fed with emergency power.

Please be aware that sequence of operations differ when using one method over the other.

1. When using an ELCU-100 and an LMRC Room controller.

The ELCU-100 acts as a device that can switch from normal power to emergency power in the event of a failure of normal power. When normal power fails, the LMRC's 0-10v relay opens up and the ELCU switches from feeding normal power into the emergency fixture to supplying emergency circuit power (from an approved emergency power source). The combination ensures that the emergency power fixture goes to full output.

When used with an ELCU

Wattstopper recommends using an ELCU device. In this scenario, the LMRC-111-16M's 0-10VDC dimming circuit is connected to and alters the light level of both normally powered lighting loads and emergency powered lighting loads. The 0-10V signal is generated individually by each ballast or driver when they are powered.

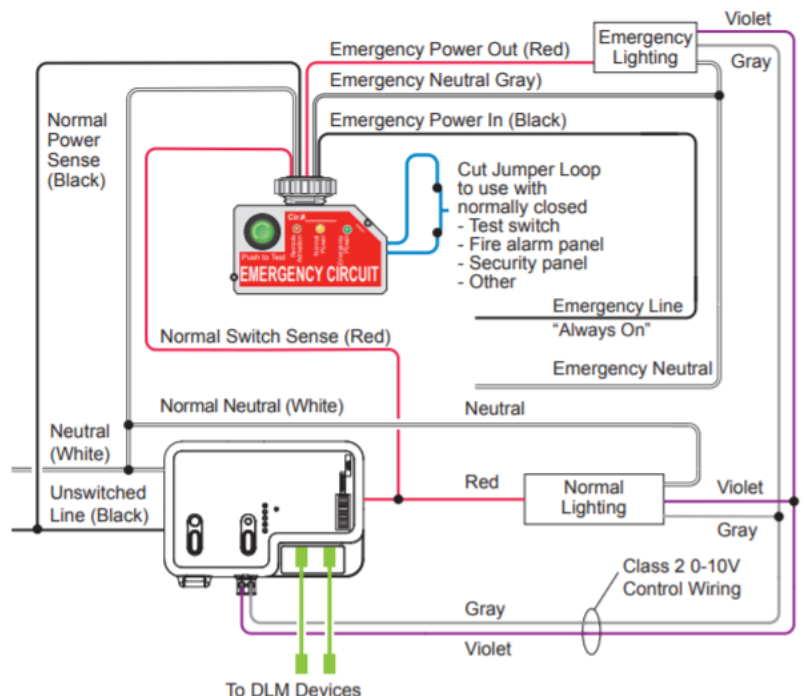
NOTE: Class 1 or class 2 dimming may be used. (Class 2 dimming shown in diagram.)

When Normal Power is available:

When Normal Power is available and the normal load has been turned off by any DLM device (OS, photocell, or dimmer switch, or LMRC override button), the ELCU will turn off the Emergency Load as well.

When Normal Power is unavailable:

When normal power to the room controller fails for any reason, the 0-10VDC dimming circuit in the LMRC-111-16M will revert to an open circuit. Since no device is controlling the 0-10V circuit, any fixture that is fed by emergency power will go full on. Fixtures fed by normal power will of course be off since there is no power available for their operation.



2. When no ELCU is used, the emergency fixture is constantly fed with an emergency circuit.

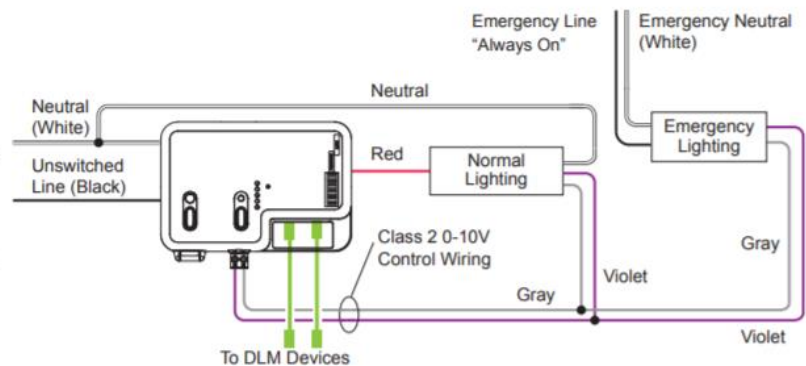
In this setup, the LMRC's 0-10v circuit is fed into the emergency fixture that is constantly fed from an emergency power source. Should an electrical failure event occur, the LMRC's 0-10v relay opens and the constantly fed emergency fixture opens to full output. *Please be aware that in this setup up, the constantly powered emergency fixture will never go fully off and will remain dim (below 1v) even with no occupancy detected with a Wattstopper sensor.*

- Designs must comply with local energy code that may require all lighting fixtures to go full OFF upon vacancy of the area (including the emergency fixture) and thus, and ELCU-100 emergency lighting control unit should be used in conjunction with the LMRC room controllers to allow the emergency fixture to go full off upon vacancy and also allow the emergency fixture to go to full output in the event of normal power failure.

When no ELCU is used:

In this scenario, emergency lighting cannot be turned on or off by a DLM device, only dimmed. The normal lighting load has full control. As in the example with the ELCU, if normal power fails, the emergency load will go full on. If any Emergency Circuits are fed or controlled from a panel, they must be located electrically where fed from a UPS, generator, or other guaranteed source of power during emergency and power outage situations.

NOTE: Class 1 or class 2 dimming may be used. (Class 2 dimming shown in diagram.)



LMRC Room Controllers that are cUL/UL complimentary listed under UL-60730 include:

- LMRC-11X series
- LMRC-21X series
- LMRC-611X series