EMERGENCY LIGHTING SYSTEM

Ketra offers a cohesive system of lighting fixtures, controls and software that allows for easy deployment of natural light. Our lighting products can operate individually or as part of a larger lighting control solution. The Ketra system can be standalone or integrated with other lighting controls and building automation products. This note will address how to use a Ketra system for emergency lighting.

Overview

1. The spacing, quantity, and emergency state (intensity and color) of the Ketra products intended to be used as emergency light sources should be specified in order to maintain the required light levels.

2. All Ketra devices must have a mechanism to prevent unauthorized users or time-clock events from changing the lighting state in the event of an emergency.

   A. **For wired G2 Linear fixtures, this can be achieved via a contact closure wired into the N3 powering the G2 Linear run thus providing for a wired solution.**

   B. **For KetraNet Mesh devices, a two second transfer delay upon loss of utility power is required before switching over to the backup supply. A contact closure input to an N3 is also needed to let the mesh devices know when it is safe to exit emergency mode.**

3. A sinusoidal backup AC power source is required. If a battery inverter system is employed, it should be noted that some inverters produce a square wave power source. It is important to ensure that a sinusoidal AC power source is specified.

1. Emergency State

Each lighting product can be programmed in Ketra's Design Studio software to have a default power on state, at which both intensity and color point may be specified; this is the state that will take effect in the event of an emergency. When a device configured for emergency mode is powered on, it will always start up in this state. It will then be locked out of control from user input, time clock events, or any other command until it receives confirmation that it is not in an emergency state.

The intensity and color of the default state settings should be specified in order to achieve the required light levels in emergency conditions.

For example, a lamp can be programmed to have a default state of 4000K at 50% intensity. This means that every time the lamp is powered off and then on again it will return to 4000K, 50% intensity. If the lighting product is part of Ketra's lighting control network, it can then be set to any other desired setting in response to user input, time clock events, etc. when not in an emergency state. The detection of an emergency state is discussed in *Section 2* below.

2. Mechanism to Enter Emergency State

A. Wired G2 Fixtures

For wired G2 fixtures, a contact closure input wired into the N3 can be used to provide a wired signal to the fixtures to enter Emergency Mode. When the contact closure fires it will cause the G2 fixtures to go to the specified default state per Section 1. It will also prevent unauthorized users or time-clock events from changing the state of the lights until the contact closure returns to its default state.

To use a wired signal to G2 fixtures, the emergency mode contact closure must be connected to the N3 powering each run of G2.
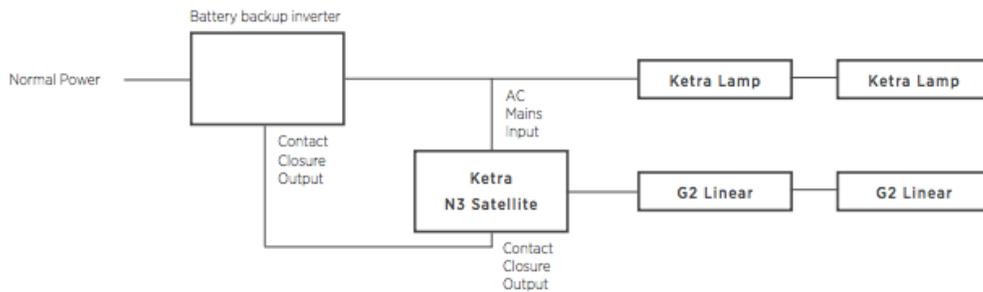

FIGURE 1

B. KetraNet Mesh Fixtures

All KetraNet Mesh lamps and fixtures, including the S38, S30, A20, and D3, require a two second power cycle delay when switching to the back up power supply in order to guarantee that they detect an emergency event, enter their emergency state, and prevent any unauthorized commands. They also require a contact closure input into an N3 to indicate when it is safe for them to leave emergency mode and accept time-clock events and user control.

By using a power cycle event to enter an emergency mode, the KetraNet Mesh system does not rely on wireless communication to respond to an emergency. While Ketra makes every effort to make our wireless communication as robust as possible, we cannot guarantee it in the case of an emergency and therefore require this two second power off delay.

After the two second power off, all KetraNet Mesh devices will power on to the default state as specified in Section 1 and will remain locked in emergency mode until they hear a command from the specified N3 telling them it is safe to exit. While in emergency mode they will be locked out from any time-clock events or user control.

If the emergency backup system employs a generator, a UL1008 transfer switch and UL924 relay can be used to sense the loss of utility power and force the lighting controls into Emergency Mode. See *Figure 2* for an example of this.
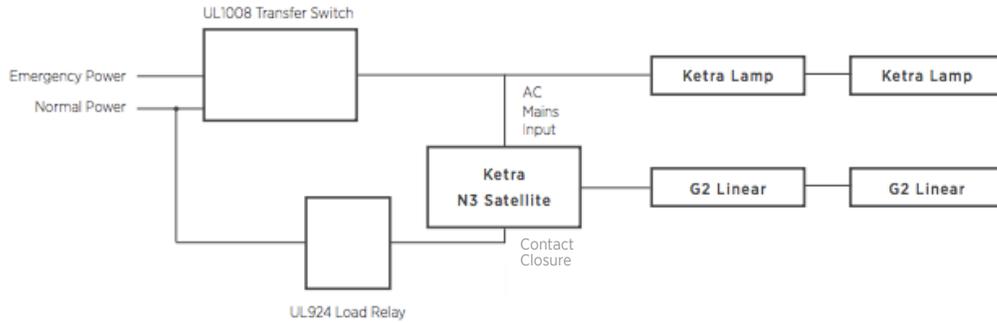

FIGURE 2

3. **Sinusoidal Backup Power Supply Requirements**

Ketra's products require a sinusoidal AC power source. Some inverters produce a square wave; it is important to ensure that a sinusoidal source is specified.