# Lights For Lightning Simulation

One of the toughest decisions when setting up professional lightning simulation is deciding what type of lights to use. Here are the major advantages and disadvantages of each technology.

## LED

LEDs run cool, remain white at any intensity and their reaction time is nearly instantaneous. Power consumption is minimal. Be careful, though. First you must insure that your lighting simulation controller is designed to support LEDs (all Lights Alive lightning simulators are LED compatible). You must also be certain that the LEDs you choose meet the following criteria.

- Fully dimmable (5-100% recommended)
- Instant on (no delayed or soft start) and instant off.
- 5000ºk (daylight white)
- Designed for rapid on/off cycles
- Sufficiently bright

Many inexpensive, consumer grade LEDs found in home improvement or department stores simply will not work. This is generally due to their internal power supply. Manufacturers continually change their power supply circuitry. And you cannot assume that because one particular bulb from a manufacturer works, that other models from them will be appropriate. Unless you are buying lights specifically designed for lightning simulation, be prepared for significant trial and error while finding appropriate LEDs.

## INCANDESCENT / HALOGEN

While this is clearly a way to get a lot of light for a few dollars, that's the only advantage to incandescent or halogen lights. These lights require a lot of power and they get extremely hot, thus creating a potential for fire or injuries. Both have extremely slow response times. The higher the wattage, the slower the response time as those filaments heat and cool. Halogen emits a reddish/orange light and conventional incandescent bulbs are even worse.

## STROBE

Strobes are designed to produce quick bursts of light (about 1/1000$^{th}$ of a second) at a predetermined rate (typically 1-18 flashes per second). That constant blink, blink, blink of a strobe will not create realistic lightning simulation. The exception is

professional strobes designed for remote control using a ¼" phone connector. Of course you must be using a lightning simulator that supports this strobe control protocol and randomized the flashes. As of this date, we are aware of only one lightning controller that is so equipped.

## DIMMABLE FLUORESCENT

Some dimmable fluorescent bulbs will work, but not for long. If you're lucky enough to find a dimmable 5000ºk bulb (they do exist), the results will be reasonably good, but read the fine print on the packaging. Dimmable fluorescents fail far faster when dimmed. When used for lightning, you don't count the life in years… or months… or weeks. They will last a few days at best, then they will be as black as if you had used them for years.

## WHAT TO AVOID?

Avoid high wattage incandescent bulbs with a passion (e.g., 500-watt halogen work lights). If you must use incandescent, use multiple low-wattage bulbs. Try to get bulbs with the blue tint, which helps overcome the yellow/orange color of incandescent.

Avoid LEDs and LED fixtures that do not specifically say, "dimmable" and "instant on" on the package. If it doesn't say it on the package, it likely isn't so. As to dimmable fluorescent bulbs, just don't go there.

## BOTTOM LINE

Lightning simulators specifically designed for LED compatibility along with LEDs specifically designed for Lightning simulation will give you the most realistic effect and ultimately will be the most reliable.



9247 E US Hwy 36 • Avon • IN • 46123 • Phone 317.280.3000 • FAX 317.536.2909