

What's Watt?

Whether you're setting up your holiday light display, installing a FireFly lightning simulator or connecting a string of lights to your microFLICKER, it's mission critical that you **do not overload your controller**.

Seems simple enough. Just total the wattage of each bulb or fixture and make sure you don't exceed the controller's rating, right? Well, not exactly. **You must also allow for "inrush" current**. What the heck is inrush, you ask?

When they're cold, incandescent and halogen bulbs can draw up to 10x their normal wattage for that fraction of a second until their filament gets hot. This extreme current is called in-rush. This explains why bulbs often burn out just when you flip the switch. It also explains why you can blow fuses, trip breakers or damage light controllers when everything seems okay.

So, LEDs and other types of lights don't do this, right? Kind of, depending on the technology. **Most LEDs that use LED drivers also exhibit in-rush at power up** although it isn't normally as extreme. LED drivers are used in most household replacement bulbs and most commercial fixtures.

In-rush is why you don't see all lights in a stadium, factory, large store or many offices turned on simultaneously. And it's one of the reasons that some household LED replacement bulbs advertise a soft or delayed start... something that makes them unusable for use with lighting controllers since they won't respond fast enough.

I can trust the wattage on the bulb or fixture, right? Not really. We have seen small incandescent bulbs rated at 15-watts actually be closer to 25-watts. While that's not a big deal for one bulb, it's an extra 100-watts if you have a string of 10 bulbs. And we have a 500-watt halogen light in our warehouse that is actually less than 400-watts when we test with a wattmeter. So, what do I do? First, allow lots of headroom. In other words, you should **never load a controller to its maximum rating**. That said, Lights Alive uses components that will generally withstand the in-rush, but that's not the case with all manufacturers as it does increase cost slightly.

If you're approaching the maximum capacity of your controller, we would **suggest measuring actual wattage with our Kill-A-Watt meter** or equivalent. If you're going to simply add the rated wattage, always overestimate your load to insure reliable operation and to protect your equipment.