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LED Lighting and Flickers

Most dimmers in North America are TRIAC type dimmers. They do not work by "dimming" the available power as their name implies, they actually switch the full power on and off quickly during the cycle of AC power.

We are all familiar with the 60Hz specification of our electricity. Without going into too much detail, a triac dimmer will pulse on and off 120 times per second. Shorter durations for more dimming and longer durations for more light. This is fine for incandescent and halogen bulbs because they have filaments that glow and are slow to react to these pulses. LEDs on the other hand, turn on and off instantaneously.

A flicker rate of 120 times per second, or 120Hz, is just past the boundary of being perceptible to the human eye. Or so we thought. This invisible flickering can be the root of issues such as dizziness, headaches, blurred vision, migraines, lack of focus, a general ill-feeling and in extreme cases, epileptic seizures. Studies have shown that the varying health effects are directly affected by the frequency at which this occurs. There is much discussion about exactly what frequency is safe, but it is agreed that above 2,500Hz it is entirely imperceptible.

LinearLED has recently changed power supplies to a new technology that uses 20,000Hz switching, a margin that eliminates the problem entirely. It is so fast that it can be used as lighting with commercial video equipment. These new drivers are also intelligent, they assess the incoming signal and adjust for all types of TRIAC dimmers (forward phase, reverse phase, etc.)

This is a new environmental problem, regulations and certification standards are still being sorted out. LinearLED is well ahead of the problem and these drivers are far beyond the minimum levels that will soon be implemented by various governments and industry.

Our products are of the highest quality, because we value the longevity of our product, and the wellbeing of our clients. Your satisfaction is our guarantee in every step of the process, from quoting projects, through manufacturing and warranty, we ensure our products will not only look great, they will also last.

' 3-80 Hz is flicker range, 80-2000Hz is stroboscopic range. We use the generic term flicker for the full range in this article.