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# Challenging the international lighting industry

It is common that the LED lights are perceived as unpleasant, eye-stabbing and piercing. The specialists usually say that it is due to flicker or glare and that this negatively affects productivity. Flicker which is actually a "change in visual perception due to fluctuations over time" which affects us because the LED light has a light intensity fluctuation due to the 230/110V AC sine wave.

We saw this before with the introduction of the fluorescent lamp that flicker had a negative impact on humans. Flicker affects some of us more significantly than others and is an important factor when designing lighting at a workplace, school or home. The difference is significant even if 70% of us are unaffected, as the remaining 30% will perform worse if they are negatively affected. This is a huge burden on society. There are many studies that show the importance of good and functional light especially for children and adolescents.

All professional LED solutions have this as a problem and have always used separate drivers (power supplies) to prevent light flicker. These, however, take up a significant space in the lighting fixture and especially where design and space is important. Suddenly, the small LED has gone from being super slim to being very “big” and hard to get aesthetically good looking if you do not split the LED module and the driver. This must end!

Two years ago Optoga started a development project to reduce the size of this "driver" to make it possible to embed it in the LED module itself. (LEDs, safety components and drivers).

"We believe that the solution needs to meet all international standards and recommendations as per IEEE1789 and CIE TN 006: 2016 " says Stefan Larsson.

For this project new employees were hired and lab investments were made. The work soon gave results. However several solutions had to be rejected when they became too expensive or too difficult to produce. Lighting is after all a mass market where products will be used in large volumes. Now after two years, we are pleased to have tested and validated a solution which meets the required standards and and has a high functional life.

"It's incredible that these LED modules are so small in size and have minimal flicker. My coworkers should not be exposed to the flicker problem any more" says Prof. Dr. Heinz Busch, NTTF GmbH

We have developed a new technology and designs that can start delivery immediately after launch to our customers in Europe. Build height is only 10 mm with both high Color Rendering Index (CRI) and high light output. They will work perfectly in retail lighting and in demanding office applications. Technically, it is a new driver technology, but also a new type of LED solution that gives a longer life and less light changes over time. Most importantly, it is now flicker free and meets the current standards.

"We are specialized and work in a niche, so in the mass market we will never be a great player. But for all luminaire manufacturers who want the best light source, we will be number one” says Stefan Larsson.

**For further information:**

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**Who is Optoga?**The company was formed in November 2004. Optoga develops and supplies LEDs, LED drivers, LED modules and software solutions to the lighting industry, vehicle manufacturers and electronics companies. By developing products with integrated LED and driver electronics, Optoga has taken the initiative to replace fluorescent, incandescent and halogen lamps with LED-based light solutions.

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