



WHERE ECOLOGICAL MEETS ECONOMICS

LAMP-FREE LED PROJECTORS ELIMINATE MERCURY POLLUTION AND THE COST OF REPLACING LAMPS. by Don Kreski

Several projector manufacturers have developed solid state light sources as an alternative to mercury-based lamps. Not only are LEDs and lasers mercury-free, but they can last six to ten times longer than a lamp. Up until recently, however, the results of these development efforts have been practical only for very limited applications.

DEVELOPING A LAMP-FREE PROJECTOR

LED-based projectors have been around for more than six years. Mitsubishi introduced the first in 2005, a pocket sized unit producing all of 10 ANSI lumens brightness.

Christie offers various LED Illuminated solutions; the Christie Matrix StIM projection system with InfraScene LED technology for NVG stimulation and the Christie Entero both feature Christie ArrayLOC for real-time self-adjustment. Christie Micro-Tiles are built on DLP technology and designed for maximum image quality in

high-ambient light environments. Christie asserts that LED offers several benefits, including "instant on, long life, better brightness control, and environmentally responsibility," among other benefits.

Engineering a brighter LED projector is a tough problem. 600 to 1,000 lumens is fine for a darkened home theater or museum, but not for a classroom or conference room. While LEDs produce less heat per lumen than other light sources, they are sensitive to heat, with green LEDs suffering much more degradation than red or blue. The

necessity to include a green light source in an RGB projection system is the biggest limitation for high-output LED projectors.

According to Joe Gillio, Director of Product Management for Casio Business and Professional Products, Casio engineers began looking at the problem early in 2009. They believed they could overcome the limitations of the green LED by using a laser beam instead. Their efforts produced the first LED/laser hybrid projector, introduced in March, 2010.

This effort, called the Casio Green Slim,

produced red light from a red LED, blue light from a blue laser, and green light by exciting a green phosphor with the blue laser. The light from each passes through condenser lenses to a DLP chip, producing red, green and blue pixels.

The Green Slim is a portable projector aimed primarily at the 'road warrior' market, although in practice almost half have been purchased by schools and ceiling-mounted. These first-generation projectors are capable of producing 2500 - 3000 ANSI lumens with an expected lifespan of about 20,000 hours.

At Infocomm this year Casio introduced three new form factors sharing a larger, more powerful light engine. This second generation hybrid uses a red LED to produce red light, a blue LED to produce blue and a blue laser, reflected off a phosphor, to produce green. It can output 3000 - 3500 ANSI lumens with an expected lifespan of 20,000 hours.

USER BENEFITS

A big advantage of any LED or LED/laser hybrid is economic. A typical \$500 to \$1,500 projector is likely to need five replacement lamps over its useful life, at a cost of \$200 - \$300 each. A laser hybrid or LED projector may have a slightly higher initial cost, yet save the buyer \$1,000 - \$1,500 in replacement lamps over its lifetime.

Don Kreski is the president of Kreski Marketing Consultants.

DEFINING TERMS:

GREEN AV, TCO-CERTIFICATION, STEP

- Green AV means being more energy efficient and environmentally friendly.
- There are many examples of AV control systems being used to reduce energy consumption, not just for AV, but also for lighting. It is likely that control systems will play a vital part in reducing energy consumption going forward.
- Powering up a system takes time and is not always reliable. Selecting equipment that is fast and reliable during start up is becoming a more important purchase decision criteria and is a new trend.
- TCO Certified, the international third party eco-label for AV and IT products, has been recognized by InfoComm International's new sustainability rating system for AV installations—STEP (Sustainability Technology Environments Program). As part of the program, TCO Certified projectors and monitors will be recommended for pro AV equipment purchases. STEP will promote sustainable practices by the associations' members and their customers. The rating system will be a tool for owners and technology providers to plan for and implement sustainable practices in their technology projects.

Source: InfoComm International