

A UV-Visible, LED-Based Source for Light-Activated Processes



Clearstone Technologies, a manufacturer of advanced LED technology light sources, launched the CF1000 – a UV-visible LED light source. The CF1000 offers programmable timed exposure and continuous emission at variable power settings, with high reliability, safe low operating voltage, instant turn on and high efficiency.

Up to three separate LED heads may be plugged into a single CF1000 controller, allowing uniform illumination of complex targets and larger areas, and the simultaneous use of multiple wavelengths. The CF1000 can be triggered with a footswitch for hands-free operation. Alternately, the footswitch input can be used for automated remote triggering. The first-generation LED heads are available at 365 nm, 395 nm and 455 nm, with maximum power output up to 1.8 W, 3.6 W and 4.6 W respectively. The second-generation LED heads are available with 2.5 W, 5.4 W and 6.9 W of light power from a 1.9-inch diameter window. The CF1000 recognizes and self-adjusts itself to the drive requirements of the various wavelengths and power levels of the LED heads. The entire system is protected against accidental plugging or unplugging of the LED heads even when the LEDs are on.

According to Dr. Sahara, founder and CEO of Clearstone Technologies, “The CF1000 offers a practical solution for consistent, low-maintenance processing of light-activated materials. The long life of LEDs avoids the production disruptions associated with replacing traditional UV bulbs, while providing better process control through its stable output power, narrow output spectrum and lack of excess heating. This makes LED especially suitable for processing delicate membranes or electronics. LEDs also eliminate the safety hazards from mercury contamination, UVC and UVB radiations, ozone creation, high temperature, high pressure, and high voltage associated with UV bulb systems.”

Larry Van Iseghem, president of Van Technologies, has performed investigations into the use of the CF1000 controller with both the 365-nm and 395-nm LED heads for applications involving UV-curable wood finishes and coatings. Larry commented, “Under an inert atmosphere, we were able to achieve remarkable cure response and finish characteristics. It was especially interesting to see the benefit of using the 365-nm head together with the 395-nm head to make more effective use of the UV absorption and sensitivity of the coating’s chemistry. There is significant versatility in the Clearstone Technologies system.”

In the future, the role of UV LEDs will continue to grow. LEDs are following a performance increase and price decrease that is similar to Moore’s law for computer chips. Clearstone’s goal is to help equipment users ride these trends with more powerful and sophisticated UV LED equipment.

Clearstone Technologies, Inc. develops effective, economical and easy-to-use light sources for curing adhesives, coatings, photo resists and other light-sensitive materials. With our expertise in optics, thermal design, photo-initiated materials, and user-friendly electronics interfaces, we are able to design and produce standard and custom systems for light-processed materials. ■

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