Brightest air-cooled UV-LED on the market with integrated N_2 purge

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Flagship product: GH-103A UV-LED lamp

Hamamatsu Photonics is pleased to introduce a new family of high performing air cooled UV-LEDs for curing and printing applications[1]. Designed to respond to these demanding applications, these UV-LEDs' high dosage allow users to operate at higher feed speeds. This in addition to their simple integration, durability and energy efficiency, enable customers to increase throughput, reduce operational costs and minimize downtime.

The flagship product is the GH-103A UV-LED lamp[2], which can provide an irradiance of 24* W/cm², the brightest among air-cooled UV-LEDs available on the market. This is made possible thanks to a patented air-cooling mechanism, **Th**ermal **o**bservation **S**ylphy air **Ma**terial (**ThoMaS**). ThoMaS consists of temperature monitoring, a proprietary airflow structure (Sylphy air) and a proprietary heat sink. This cooling structure keeps the exteriors of the lamp cool and prevents the formation of hotspots, especially when two or more lamps are combined to increase irradiation width. The high irradiance of this lamp is matched by a large window size of 103 x 24 mm to deliver enough UV dose at 395 nm for the most demanding curing applications.

Even when operating at high intensities, the efficient cooling system of the GH-103A ensures an average lifetime of 20,000 hours, which is 33% greater than the closest competing products. Hamamatsu's Actual Lifetime Consultation and Extension allows customers to extend the warranty depending on the operating conditions of the application. Finally, for applications with stringent surface curing requirements at high speeds, a N_2 purge module can be attached to

the GH-103A. This N_2 module is the result of a patented **Ha**mamatsu **N**itrogen **C**ontrol **E**ngineering (**HaNCE**) which spreads N_2 uniformly below the irradiation window to effectively displace ambient O_2 while keeping N_2 consumption low. In summary, GH-103A is a compelling alternative to Hg-arc lamps and water-cooled UV-LED lamps in applications that need high dosage. A few examples of applications include inkjet, narrow web flexo and hybrid printing.

Additionally to the GH-103A UV-LED lamp, we also offer other UV-LED lamps to meet the diverse requirements of our customers. The low-power compact GC-77 and its side-emitting version GC-77S are specially designed for pinning in inkjet printing. Their sleek design is adapted for the narrow space between different color ink heads and their output (2.5* W/cm²) is sufficient to prevent the spread of ink droplets, thereby increasing the quality of the print. For applications that require a medium level of UV dosage within a small footprint, the GC-113A is the UV-LED lamp to consider. With an irradiance of 7.5-10* W/cm² and a compact package, GC-113A strikes the ideal balance between size and performance. GC-113A comes with wavelength choices of 365, 385 and 395 nm, whereas GC-77(S) offers one additional wavelength choice of 405 nm.

Finally, to complete this product family, Hamamatsu Photonics offers a high dose surface curing UV-LED lamp – the GA-107. Its emission at 365 nm is optimal for surface curing. Its large window size (107x108 mm) and uniform irradiance of 1.5 W/cm² at 10 mm from the window surface provides sufficient UV dosage for curing of varnishes and inks at high speeds. Despite having a window 4x the size of the GH-103A, it does not compromise with the overall size.

All of these UV-LED lamps[2] can be connected to extend the irradiation window width based on the application requirements.

* At 0 mm distance from the irradiation window. Irradiation values at different distances from the window are available in our brochures[2].

1. https://www.hamamatsu.com/eu/en/product/light-and-radiation-sources/uv-led-light-source/uv-led-light-source_linear-irradiation.html
2. https://www.hamamatsu.com/content/dam/hamamatsu-photonics/sites/documents/99_SALES_LIBRARY/etd/LC-L5G_TLSZ1043E.pdf

About Hamamatsu Photonics

Hamamatsu Photonics offers high performing and reliable UV-LEDs for printing, industrial coating and surface modification applications. We support machine manufacturers improve production standards by providing easy-to-integrate, durable and efficient light-based solutions.
For further information, visit our UV-LED light sources products page here.

www.hamamatsu.com

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Market: UV printing machine manufacturing

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