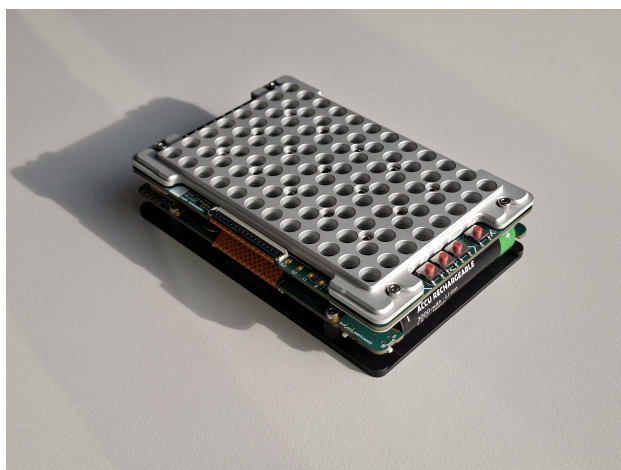
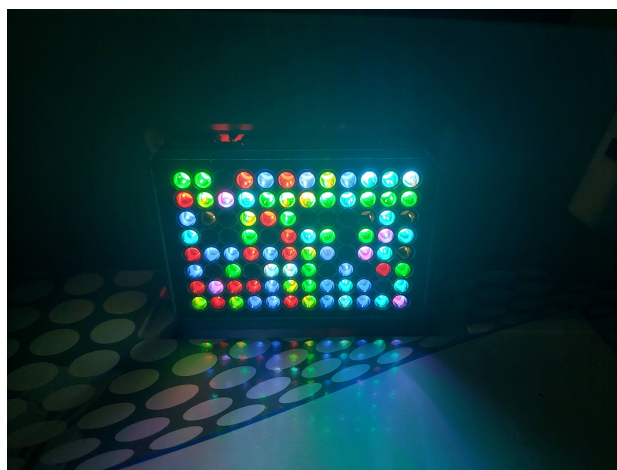


1 SUMMARY

The Diya 2.0 is an ultra compact precision microwell plate illuminator designed for mammalian, bacterial, and yeast cell applications as well as photocatalysis. It offers unparalleled flexibility for controlling light delivery, allowing independent adjustment of wavelength, intensity, and temporal patterns for each individual well. The integrated closed-loop temperature control system precisely maintains optimal cell temperature, eliminating thermal stress — a common limitation of other illuminators — and enabling safe, high-power illumination protocols. Its form factor makes it universally compatible with any instrument that already supports standard deep well plates.



(a) Front view, 96-well configuration, with cover removed.



(b) With 96-well black microwell plate and 7-colour LED illumination pattern.

Figure 1: Diya 2.0 microwell plate illuminator.

2 FEATURES

- Multi-wavelength, high-power LED illumination system
 - + Delivers up to 12 mW/cm^2 per wavelength channel. Higher intensities on request.
 - + Independent wavelength and 16-bit intensity control for each individual well;
 - + Seven wavelengths on-board: Violet (410 nm), Blue (465 nm), Green (520 nm), Yellow-Green (570 nm), Red (639 nm), NIR (865 nm), and White (broadband). See Patent Notice for Users in Germany.
 - + Customizable wavelengths available on request, including UVA (370 nm), Orange (605 nm), Red (625 nm), Deep Red (650 nm), NIR (940 nm), etc.
- Active temperature control maintains target temperature with high precision, even for high-power illumination protocols. Setpoint can be set above or below ambient temperature.
- Precise light intensity regulation with negligible crosstalk between wells when using black microwell plates.
- Compatible with 96, 24 and 6 well plates with easily swappable adapters.
- Under 500g, self-powered, and ultra compact form factor with the footprint of a deep well plate when fitted with an SLAS microplate, making it compatible with any instrument designed for standard SLAS microplates, including incubators and automatic liquid handlers.
- User-friendly graphical user interface and comprehensive API for software integration.

- Low power consumption.
- Wireless internet connectivity enables real-time deployment of process models directly to cells using light, as well as remote monitoring.

3 APPLICATIONS

- Optogenetic stimulation of mammalian, bacterial, and yeast cells in incubators or microscope stages.
- Photocatalysis.

4 DESCRIPTION

The Diya 2.0 is a precision-engineered illumination system designed for laboratory applications. It provides uniform, controlled illumination for standard microwell plates, enabling consistent results

in various biological and chemical assays.

The heat generated by the LEDs is removed by an integrated heat pump, and the temperature of the plate is maintained at the setpoint temperature, which can be set by the user to be even below the ambient temperature. With an SLAS microplate mounted, the assembled unit conforms to the dimensions of a standard deep well plate and is entirely self-powered, requiring no external cables or power supply. This makes it a drop-in replacement for a microplate in any SLAS-compatible instrument, from plate readers to liquid handlers and robotic incubators.

The device can be controlled and monitored remotely, with a user-friendly graphical user interface and comprehensive API for software integration, compatible with Python and MATLAB, with support for other programming languages available on request.

Patent notice for electrophysiology applications

In Switzerland, Liechtenstein, Germany, France, the Netherlands, Hungary, the United Kingdom, the United States, and Japan a patent family is in force that limits the use of this product to assemble or operate an electrophysiological stimulation and recording system. Usage that falls within the scope of these patents is prohibited without a license from the patent holder. The supplier assumes no liability for patent infringement resulting from the use of this product in combination with other components in these territories. By purchasing or using this product, you agree not to use it for any infringing purpose in the aforementioned territories. This product is intended for lawful research and commercial purposes only.

Patent notice for users in Germany

In Germany Diya 2.0 is temporarily only available in a 3 colour configuration.