CELESTA light engine®

The Next Generation Comes To Light

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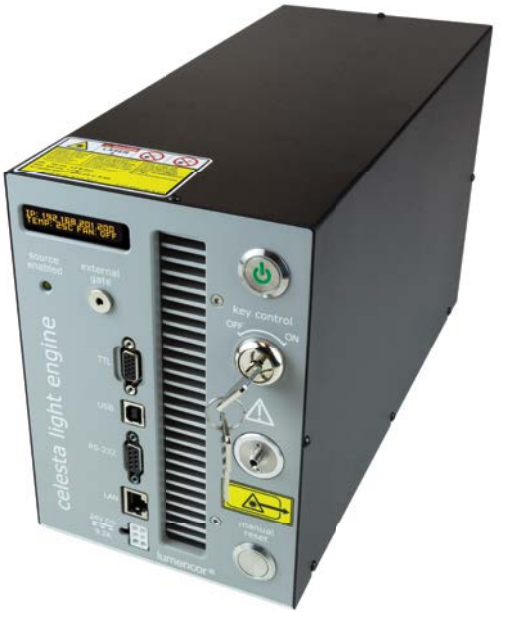

Integrated Array of Seven Solid-State Laser Light Sources

Confocal • MERFISH • Super-Resolution • Optogenetics • FRAP • DNA-PAINT

The next generation of solid-state illumination is here. In Lumencor's CELESTA light engine, seven individually addressable solid-state laser light sources join forces with advanced electronic control systems to deliver unprecedented output power and performance.

The CELESTA light engine delivers approximately 1 watt of output power at the distal end of a 1.5 mm dia optical fiber from each of its 7 individually addressable multimode laser light sources. Long-term power stability is sustained by active stabilization. An onboard photodiode continuously monitors the light output and generates a reference signal that is applied to the constituent sources in a feedback loop to maintain constant light output over time.

The laser outputs are refined by bandpass filters and merged into a common optical train directed to the light output port on the front panel. The light output port has a built-in adapter for connection to microscopes and other bioanalytical instruments through a SMA-terminated optical fiber.

The CELESTA features an advanced control system based around an onboard computer with an embedded command library. This allows control using simple and intuitive text string commands sent to the light engine via USB/RS-232 or TCP serial protocols. These commands give access not only to the basic control functions of light source selection, on/off switching and output intensity adjustment, but also to an extensive panel of operating status reports and preference settings. A GUI resident on the onboard computer and viewed using a web browser via a LAN connection provides convenient access to many of the command library functions. CELESTA controls are also implemented in several image acquisition software packages. TTL trigger inputs are provided for all 7 output lines for applications requiring fast (100 microseconds) switching.

For more information on the CELESTA light engine, please contact us at info@lumencor.com. To receive a purchase quotation for a CELESTA light engine, please submit our online quotation request form.

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Mercury FREE Microscopy

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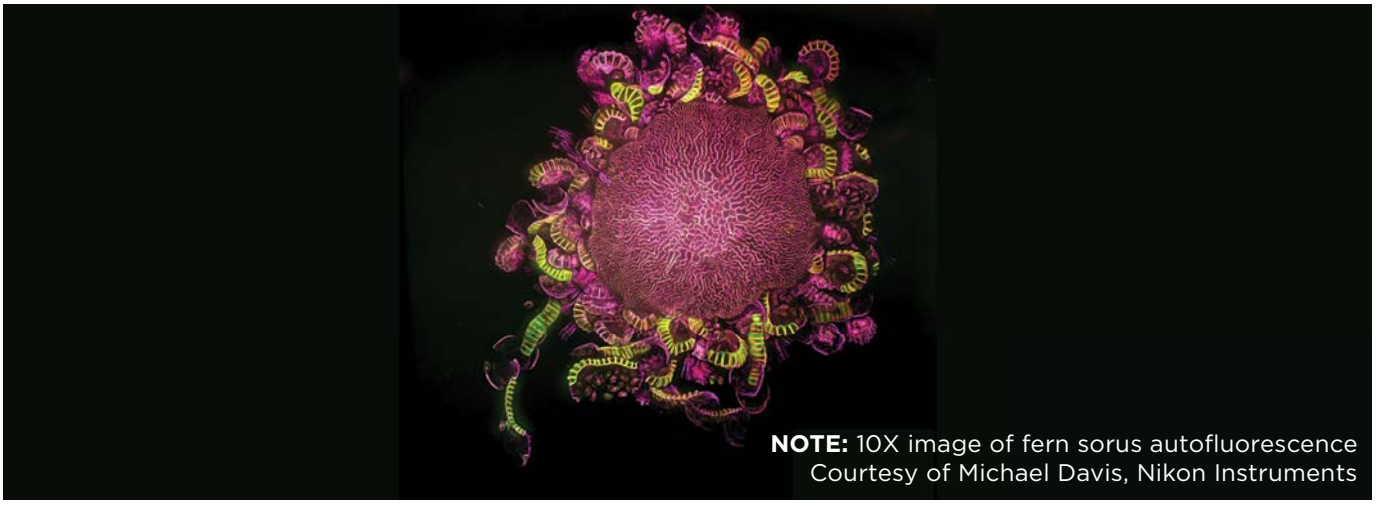
405 | 446 | 477 | 520 | 546 | 638 | 749



NOTE: 10X image of fern sorus autofluorescence
Courtesy of Michael Davis, Nikon Instruments

Features and Operating Characteristics:

Features	Details
Sources	7 class 4 multimode laser sources
Wavelengths	Nominal center wavelengths 405, 446, 477, 520, 546, 638, 749 ± 2 nm
Bandpass Filters	Integrally installed bandpass filters for spectral output refinement
Output Power	~1 watt per laser line at the distal end of a 1.5 mm dia. optical fiber
Light Delivery	SMA-terminated fiber
Safety Interlocks	Laser output contingent on manual (key) and remote (electronic) interlocks
Operational Control	Onboard computer with server/client architecture and embedded command library
Control Interfaces	Source selection, light output on/off and intensity via serial interface (RS-232/USB or TCP). Source selection and light output on/off via TTL
Software	Onboard GUI or PC-based image acquisition software
Power Requirements	220 W (24V DC/9.2A) power supply included
Warranty	18 months
Dimensions (W x L x H)	145 mm x 340 mm x 203 mm (5.7 in x 13.4 in x 8.0 in)
Weight	8.7 kg /19.1 lbs
Optional Accessories	9-channel breakout cable for TTL triggering. Light engine control pod[1]

[1] Control pod connects to light engine USB port and controls source selection, light output on/off and intensity settings.

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