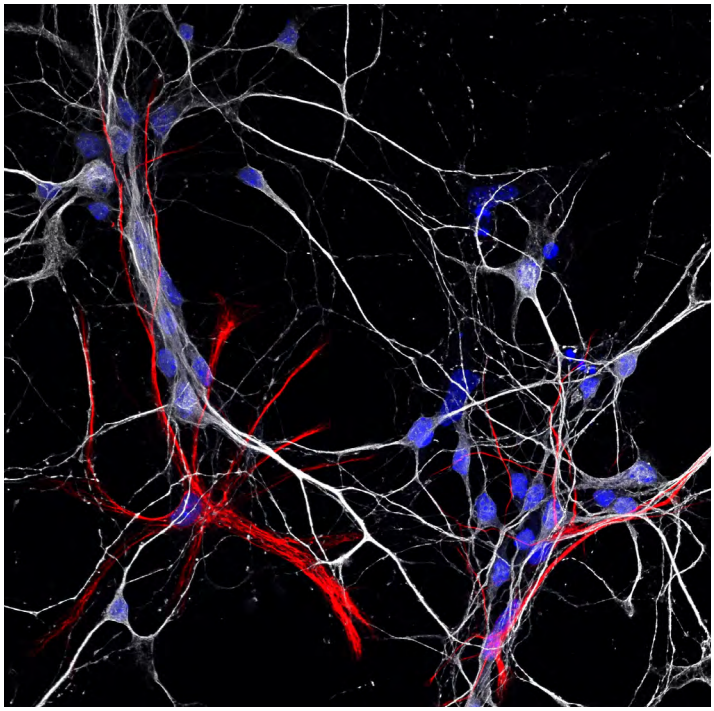


Image by CrestOptics

Bright, Stable, Turnkey 7 Laser Light Engine

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

Lumencor's CELESTA Light Engine remains an industry leading, turnkey illuminator: designed to best support many of the highest resolution, photon-demanding, microscopy techniques in the life and material sciences. CELESTA integrates seven independent, solid-state lasers with advanced electronic control to deliver unprecedented stability, optical power and brightness. The CELESTA quattro Light Engine provides the same performance in a streamlined four or five laser format.

CELESTA is configurable, with 10 laser options to satisfy your specific imaging needs. Each output is refined by a bandpass filter and merged into a common optical train, passed through a despeckler and directed to the light output port on the front panel. The light output port has a built-in adapter for facile connection to microscopes and other bioanalytical instruments through a SMA- or FC/ PC-terminated optical fiber. Output power at the distal end of the optical fiber is 400-800 mW from each laser. These capabilities are assembled in an easy-to-use device with a space-saving footprint.

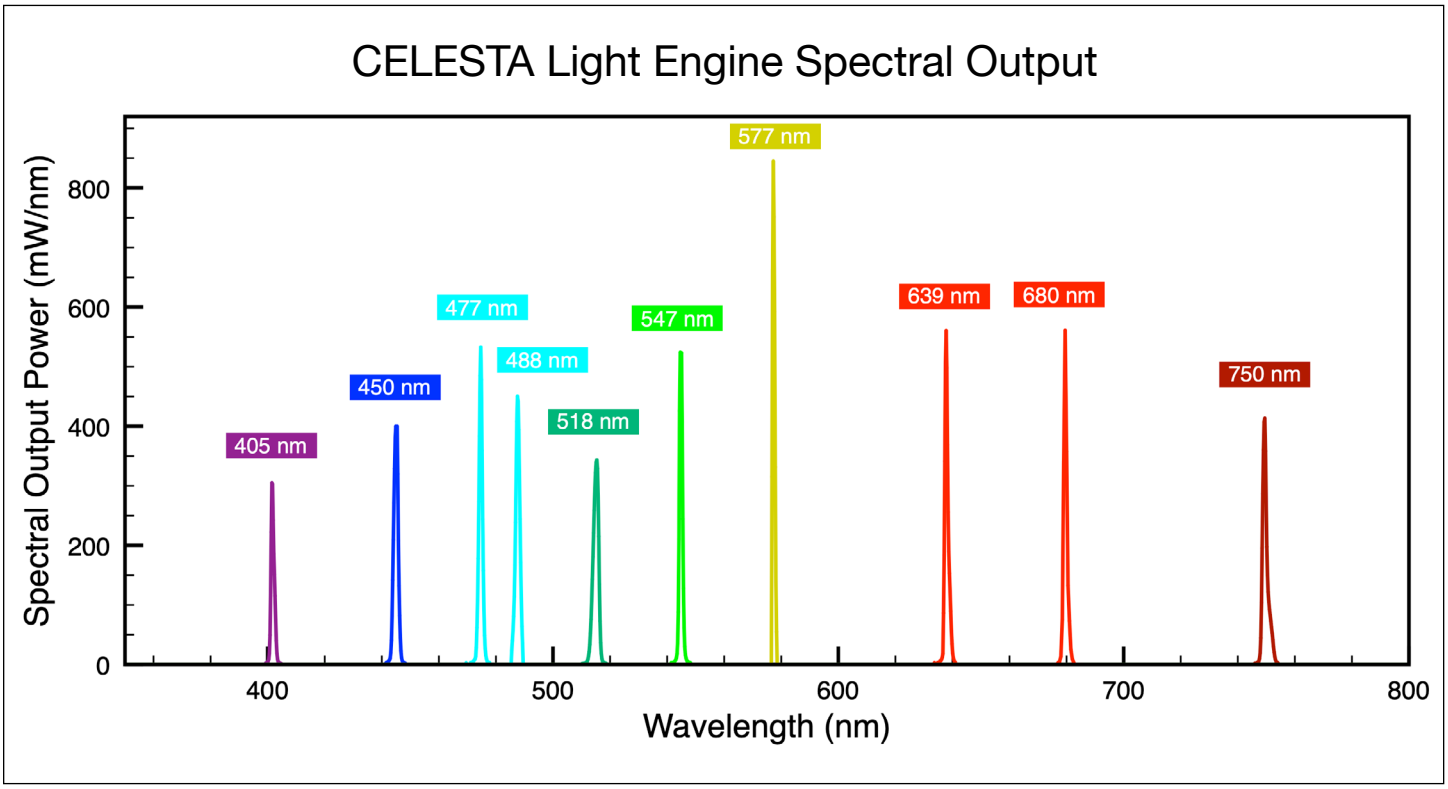
CELESTA Light Engine features an advanced control system based on an onboard computer with an embedded command library. This allows facile control using simple, intuitive commands sent to the Light Engine via USB/RS-232 or TCP serial protocols. These commands readily give access to source selection, on/off switching and output power control, as well as to operating status reports and advanced control features.

Long-term stability is sustained by active power control circuitry. Linear light intensity provides robustness and reproducibility. Light output is monitored and controlled for constant photon flux over time using an internal feedback loop. A GUI hosted on the Light Engine computer provides easy access to basic control functions, configuration settings and performance diagnostics.

CELESTA controls are also implemented in several commonly used image acquisition software packages. TTL trigger inputs are provided for all outputs for applications requiring fast (100 microseconds) switching time.

As with all Lumencor products, OEM customization is available upon request.

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.



Features and Operating Characteristics:

Features	Details
Sources	7 Class 4 lasers (CELESTA); 4 or 5 Class 4 lasers (CELESTA quattro)
Wavelengths	405 nm, 450 nm, 477 nm, 488 nm, 518 nm, 545 nm, 577 nm, 639 nm, 680 nm, 750 nm [1]
Bandpass Filters	Integrally installed bandpass filters (one per laser line)
Output Power	400-800 mW per laser at 100% power [2]
Light Delivery	SMA-terminated or FC/PC-terminated optical fiber [3]
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
Optional Accessories	(1) 9-channel breakout cable for TTL triggering. (2) Critical epilluminator [4]
Power Requirements	220 W (24V DC/9.2A) power supply included
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	9 kg /19.9 lbs
Warranty	24 months, warranty extension options available

[1] Output wavelengths ± 3 nm.
[2] Power output dependent on model. Custom specification available on customized models
[3] Optical fiber included with Light Engine purchase.
[4] Critical epilluminator provides uniform, high-irradiance illumination for single-molecule detection applications.