



Frequently Asked Questions Light Engines for Fluorescent Analyses

What is a light engine?	A light engine is a solid state illumination subsystem. The sources and optical elements required to deliver pure, stable, switchable light to your analysis are all included in a compact, easy to use box. No additional excitation or neutral density filters, filter wheel, optical elements, shutter or controller is needed.
What colors are available?	Users may choose up to 7 colors from a visible palette of violet, blue, cyan, teal, green, yellow, orange, red. NIR is also available upon request.
Are wavelengths customizable?	Yes, to some extent the nominal output and bandwidths can be customized.
Is the bandwidth of each color controllable?	The center point and spectral bandpass are set at the factory. The customer may select to expand or narrow the output to as little as 10 nm widths. Once product is shipped these values are fixed.
How is intensity controlled?	Light engines are computer controllable via TTL, RS232 or USB interfaces. They are supported by Elements, ImageProPlus, iVision, LabView, MetaMorph, and Slidebook drivers. Lumencor also assists in providing a custom interface to enable fully integrated systems control of the light engine.
Can the individual wavelengths be controlled?	Individual wavelengths operate independently. They can be run serially or simultaneously. Most any combination may be used at one time.
Can individual wavelengths be run simultaneously?	For most microscope applications, users need sequential color operation with a standard light engine power supply. All SPECTRA model colors may be turned on at the same time at full power, if a high power supply is used. This high power supply and electronic configuration is available from Lumencor as an optional accessory. All colors except green and yellow may be used simultaneously with the standard supply. All the colors are operable at once at sub-maximal power levels.
Can individual wavelengths be replaced?	Individual wavelength submodules are switchable in Lumencor's factor. The light engine submodules are not designed for user replacement.
What systems are available?	The SPECTRA light engines® (3 - 7 colors) are available. Single and double color units are available upon request.
What is required to change from one wavelength to another?	Switching between wavelengths and intensities up to 1 kHz (1 ms) frequency via computer control is possible. No shutters or external filters, including excitation filters are required.
What adapters are required to utilize the light engine?	Numerous options exist: 1. Liquid light guide coupling, N.A. = 0.3 for a 3 mm diameter fiber; 2. Macroscopic adapter: 2.5 - 3 cm diameter and slightly converging; or 3. Integrating rods (3 mm dia) mated directly to your optical fiber or fiber bundle. Many custom adaptors are available, please inquire.
What is the LE lifetime?	More than 10,000 hr of actual run time is guaranteed for the light engine.
Are the light engines stable?	The light engines operate in DC mode, so there is no 60 Hz noise. Drift and power drop for a 1 ms pulse at maximum power is 0.5% and 0.05% for the green channel. Continuous improvements to the stability are anticipated in future revisions.
What are switching/delay characteristics?	Pulse widths of 100 μ s and decay times of less than 2 μ s are typical.