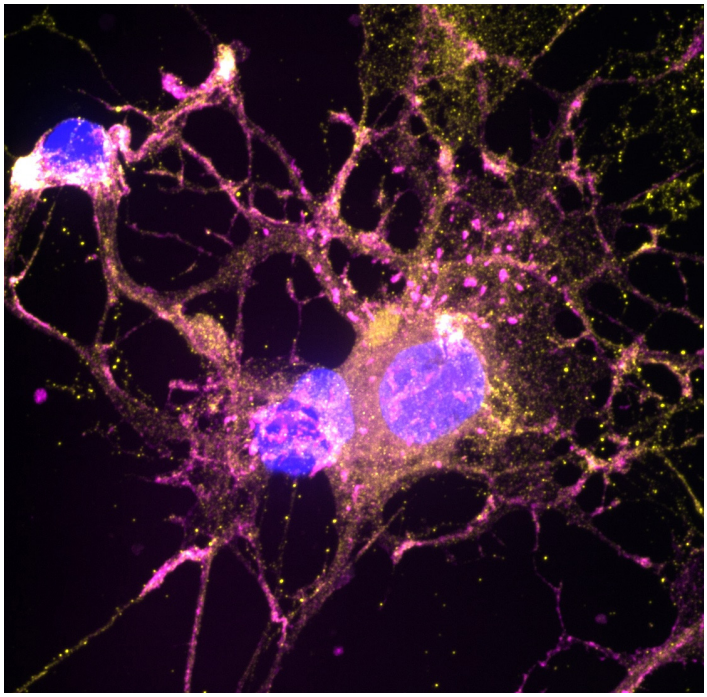


ZIVA Light Engine for Yokogawa CSU-X1

Four Turnkey Laser Illuminator for Yokogawa CSU-X1 Confocal Scanner

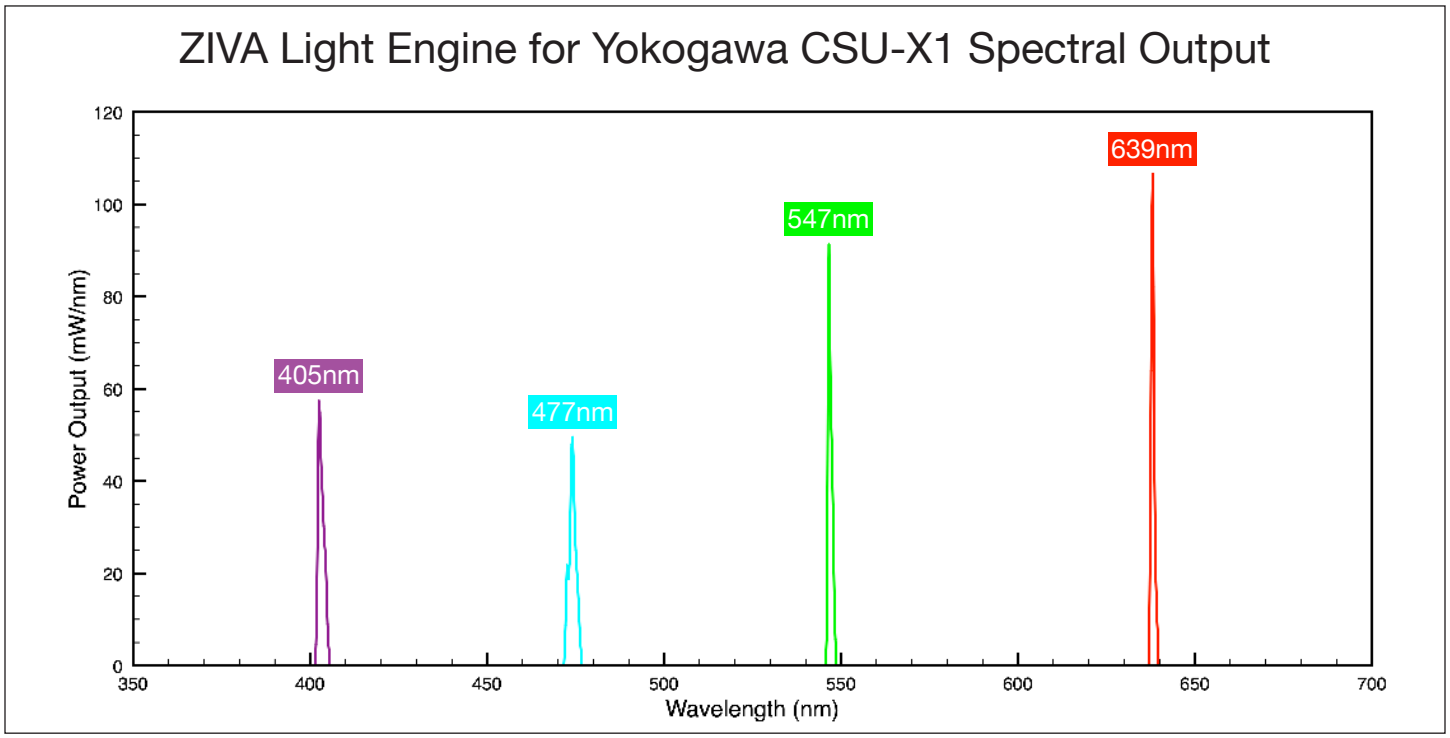
The Yokogawa CSU-X1 is a longstanding, highly-regarded, dependable spinning disk confocal scanner in widespread use for 3-dimensional imaging of live cells, tissues and microorganisms. Despite it's robust design, aging lasers originally installed in these fluorescence microscopy accessories will fail over time. Affordable replacement lighting which functions with the brightness of traditional single-mode lasers will inevitably be required. Lumencor's ZIVA Light Engine fits the bill. It provides Yokogawa CSU-X1s single-mode laser power densities, with better spatial uniformity and stability, thereby extending the functional CSU lifetime well beyond that of the originally installed lasers, at less than half the price.

ZIVA's lasers are refined by bandpass filters, merged into a common optical train, passed through a despeckler and directed to the light output port on the front panel. Output wavelength selection is by direct electronic control of on/off laser switching. Light leakage such as when external selection via AOTF is employed is avoided. The Light Engine output port is directly coupled to the Yokogawa CSU-X1 scanner through a precision engineered adapter. This free-space optical coupling provides intense and uniform illumination at the sample plane. A compact 15cm x 35cm footprint saves precious bench top real estate.

ZIVA Light Engines offer advanced electronic control via an onboard computer with an embedded command library. A convenient GUI provides implementation of many of the command library functions. This gives access not only to the basic control functions of laser selection, on/off switching and output intensity adjustment, but also to an extensive panel of operating status reports and advanced control features. Linear laser output power respect to intensity control settings can be monitored in real-time in the control GUI. ZIVA controls are also implemented in several common image acquisition software packages. TTL trigger inputs are provided for each laser for applications requiring fast (~100 microsecond) switching. Long-term stability is sustained by active feedback control to maintain constant light output over time.

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

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



Features and Operating Characteristics:

Features	Details
Sources	4 solid-state lasers with despeckler [1]
Wavelengths	Center wavelengths 405, 477, 547, 639 ± 3 nm
Bandpass Filters	Integrally installed bandpass filters
Output Power	~100 mW per laser at adapter output
Light Delivery	Direct-coupled adapter for Yokogawa CSU-X1 scanner included [2]
Safety Interlocks	Laser output contingent on manual (key) and remote (electronic) interlocks [3]
Control Interfaces	Source selection, light output on/off and intensity via serial interface (RS-232/USB or ethernet). Source selection and light output on/off via TTL.
Software	Onboard control GUI accessed through ethernet connection or PC-based image acquisition software.
Onboard Metrology	Real-time power, cumulative laser on-time, internal temperature, humidity, dew point [3]
Power Requirements	100-240 V AC, 50-60 Hz. DC power supply (220 W, 24 V/9.2 A) and AC cord included
Warranty	24 months
Dimensions (W x L x H)	(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
Accessories	9-channel breakout cable for TTL triggering. Multiband dichroic beamsplitters for Yokogawa CSU [1]

[1] Customized wavelengths available upon request. Installation of multiband dichroic beamsplitter 10-10861 in Yokogawa CSU-X1 is required for transmission of 405, 477, 553 and 639 nm light. [2] Installation alignment required. [3] Interlock status and metrology readouts displayed in onboard control GUI.