VisiScope Confocal with new ZIVA Light Engine for Yokogawa CSU Spinning Disk Confocal

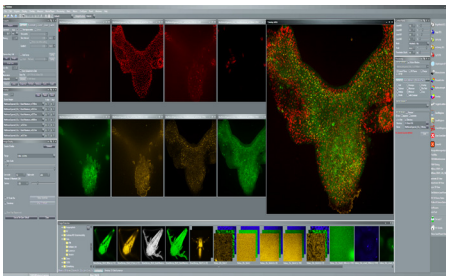
Multimode laser illumination with direct laser coupling and with 7 laser lines up to NIR

Visitron Systems GmbH signed up a close cooperation with Lumencor USA offering the new ZIVA multimode laser technology in combination for the Yokogawa CSU Spinning Disk confocal. The ZIVA technology extends the flexibility of the CSU-W1 confocal offering beside single mode laser illumination also multimode laser illumination in a compact small chassis without the need of channel alignment.

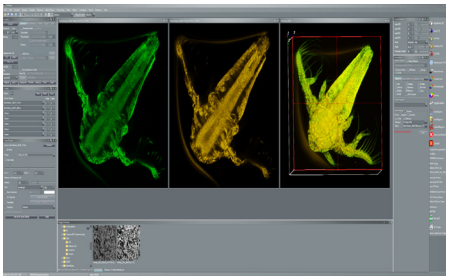
VisiScope Confocal

ZIVA -
Light Engine
Laser Illumination

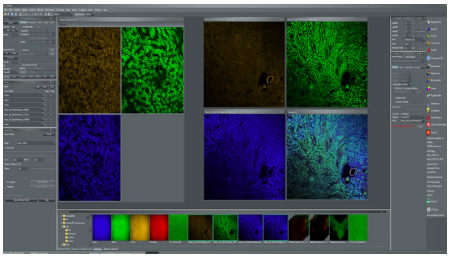
CSU-W1 with ZIVA Light Engine and Zeiss Axio-Observer.



Multi-fluorescens sample with 405nm, 488nm, 577nm and 639nm laser illumination



Brine Shrimp images with 488nm and 577nm laser illumination



VisiView realtime overlay of multi-fluorescence images with image gallery

Technical Background

The Lumencor's ZIVA always include 7 laser lines including an high power 748nm laser line for tissue analysis without additional requirement of NIR optical input at the CSU unit. The direct optically coupling to the CSU unit provides intense laser power and good uniform illumination at the sample plane.

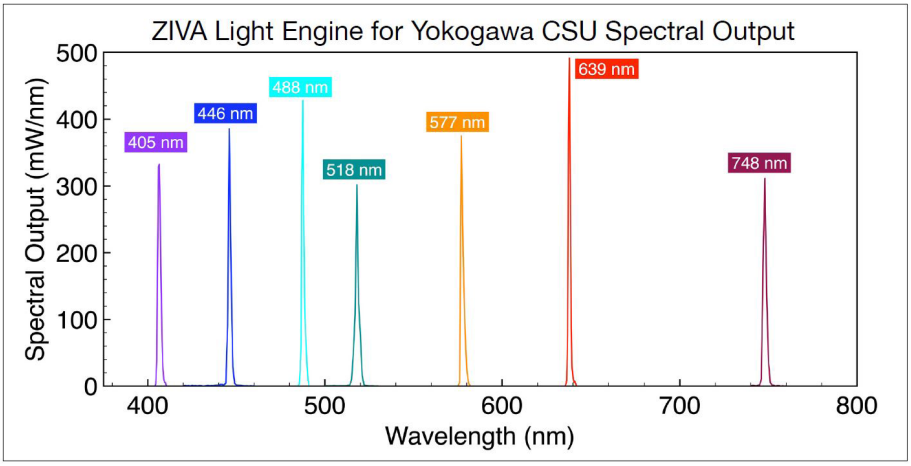
The ZIVA Light Engine for Yokogawa increases the number of lasers from typically four to seven. The laser lines are refined by bandpass filters, merged into a common optical train, passed through a despeckler and directed to the light output port on the front panel. Wavelength selection is managed by on/off switching of the lasers by the Visitron ViRTEx experiment control unit for perfect synchronization and fast switching.

VisiScope Confocal

ZIVA - Light Engine Laser Illumination

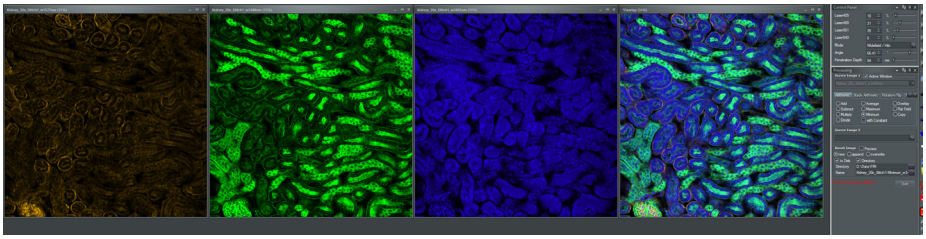
VisiView and ViRTEx ZIVA control

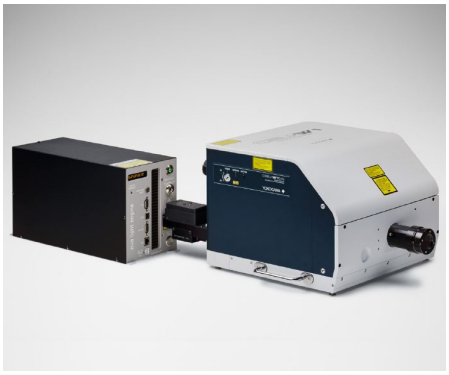
VisiView controls the ZIVA by USB for laser intensity control. The Visitron ViRTEx experiment control unit are responsible for TTL trigger control the on/off. The ZIVA TTL trigger inputs are provided for each laser for applications requiring fast (100 microsecond) switching. Long term stability is sustained by active feedback control to maintain constant light output over time.



Spectral lines of ZIVA unit with 450mW (748nm with 250mW) power

ViRTEx-200 Experiment Control for ZIVA TTL laser line streaming synchronization





Yokogawa CSU-W1 with ZIVA Light Engine

Features and Operating Characteristics:

Features	Details
Sources	7 solid-state, class 4 lasers with despeckler
Wavelengths	Center wavelengths 405, 446, 488, 518, 577, 639, 748 ± 3 nm [1]
Filters	One internal bandpass filter per laser
Output Power	250 mW (Violet) and 450 mW per laser at adapter output
Light Delivery	Output adapter for Yokogawa CSU 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 control via TTL.

Note: Installation of multiband dichroic beamsplitter 10-11013 and/or 10-11042 in Yokogawa CSU is required for transmission of 405, 446, 488, 518, 577, 639 and 748 nm light.