



A Passion for Precision.

TOPTICA Photonics AG
Lochhamer Schlag 19
D-82166 Graefelfing / Munich

Press Release

July 20th, 2015

Versatility makes the difference: Field-upgradeable eight-color laser engine

TOPTICA presents new iChrome SLE multi-laser engine for multi-color microscopy and other biophotonics applications.

When it comes to light sources for biophotonics, one has had to choose between stability and flexibility. Even though home built breadboard solutions with standard laser modules enable flexibility, they are prone to misalignment and pose a challenge when integrated into a system as different lasers, AOTF's and other components need to be controlled. In contrast, miniaturized fixed systems are stable, but lack many of the advanced features and the flexibility often needed for advanced biophotonics applications.

The new multi-laser engine iChrome SLE offers both stability and flexibility in one package. TOPTICA's proprietary unmatched COOL^{AC} self-alignment technology is integrated into this advanced platform - combining up to 8 laser wavelengths, fiber switching technology for SM/PM fibers, AOTF and direct diode modulation plus field serviceable laser cartridges. In addition, TOPTICA's uniform interface makes integration into applications extremely user-friendly.

The iChrome SLE offers up to eight different wavelengths from a broad range (405 - 640 nm) and up to 70 mW per color out of the fiber. Each laser source is housed in an individual, field exchangeable cartridge. The integrated fiber switch enables fast switching of all colors between two SM/PM fibers within less than 10 ms. Thus, the iChrome SLE supports multi-color applications that require separate microscope input ports (for example FRAP, TIRF, Confocal Microscopy / Spinning Disk). It can also be used for advanced scientific setups where one laser engine is used to drive different devices without the need to swap fibers.

A uniform user interface controls all integrated laser sources of the iChrome SLE, making all lasers appear equal to the user, no matter

Contact:

Marketing

Dr. Tim Paasch-Colberg
Phone + 49 89 85837-123
Fax + 49 89 85837-200
tim.paasch-colberg@toptica.com

Sales

Dr. Manfred Karlowatz
Phone + 49 89 85837-114
Fax + 49 89 85837-200
manfred.karlowatz@toptica.com

www.toptica.com/pr_news/news.html



The iChrome SLE provides up to 8 individual colors from one single box, controlled via one unified user interface.



Each color of the iChrome SLE is housed inside an individual laser cartridge that can be replaced "in the field".

Author:

Dr. Tim Paasch-Colberg, TOPTICA Photonics AG

what the technology behind the laser source may be (DPSS or diode laser). Customers can choose from a variety of interfaces: USB, RS232, Ethernet, analog and digital ports. The microprocessor-controlled system enables flexible OEM integration into systems such as microscopes or flow cytometers for demanding cell biology applications requiring multiple wavelengths, while high-speed analog and digital modulation with up to 250 kHz allows fast switching of laser wavelengths and intensities.

Additional unique features turn the system into a true and advanced OEM solution for demanding multi-color applications. TOPTICA's COOL^{AC} technology automatically aligns the system at the push of a button and eliminates the need for manual readjustments, guaranteeing true plug and play capability, push-button installation and exceptional long-term operational stability - even a replaced laser cartridge aligns automatically.

Because of its' versatility, the iChrome SLE is an excellent tool for ever demanding tasks in biophotonics, wherein customers benefit from convenient field-exchangeable/upgradable laser modules, eliminating any lengthy system down-time.

The iChrome SLE is TOPTICA's second generation of multi laser systems. In 2010, the first fully integrated multi laser system iChrome MLE was introduced - providing four different colors from one fiber. Easy to use and outstanding performance, this system gained high popularity in various biophotonics applications. Building on the success of the iChrome MLE, TOPTICA pursued the development of an even better multi laser engine. Implementing valuable customer feedback and state-of-the-art technology the new iChrome SLE was created.

Specifications:

- Up to 8 colors (diode or DPSS sources)
- Available wavelengths: 405, 420, 445, 460, 473, 488, 505, 515, 532, 561, 568, 594, 640 nm
- Up to 70 mW per individual wavelength
- Power Stability; $\pm 2\%$ drift over 24 h @ room temperature $\pm 3^\circ\text{C}$
- RMS Noise: $< 1\%$ (10 Hz - 10 MHz)
- Fiber Output Connector: FC/AFC (8° angled), FC/PC, FC/APC others on request
- Max. Fiber Length: 2 m
- Fiber Switching Speed: < 10 ms
- Max. Modulation Frequency: 250 kHz for each color
- Rise/Fall Time (10% - 90 %): 1,5 μs
- Dimensions Laser Head (L x W x H): 500 x 370 x 140 mm³
- Weight: ~21 kg

TOPTICA Photonics AG develops, manufactures, services and distributes technology-leading diode and fiber lasers and laser systems for scientific and industrial applications. Sales and service are offered worldwide through TOPTICA Germany and its subsidiary TOPTICA USA, as well as all through 14 distributors. A key point of the company philosophy is the close cooperation between development and research to meet our customers' demanding requirements for sophisticated customized system solutions and their subsequent commercialization.



Two SM/PM fibers enable unique flexibility that supports a multitude of applications.

Author:

Dr. Tim Paasch-Colberg, TOPTICA Photonics AG