

Press Release

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High Power Single-Mode Diode Laser New laser system XTL establishes CW power record in the red spectrum

TOPTICA Photonics AG presents the XTL, a new and unique OEM diode laser module in the red spectrum with unprecedented power for single-mode diode lasers: 250 mW at 650 nm. Various biophotonic and RGB applications now get access to a TEM₀₀ beam with a power level far above common diode lasers.

Key specifications include:

- 250 mW at 650 nm, 150 mW from SM fiber
- TEM₀₀ beam, $M^2 < 1.5$
- Excellent power stability < 0.5 % over 8 h
- Lowest power consumption for small operation costs
- Compact laser head (330 x 122 x 105 mm³) supports integration in case of space constraints

Up to now customers looking for a powerful laser source in the red regime, had to make compromises. On one hand they could choose a convenient diode laser system, but had to accept moderate output powers of up to 120mW. On the other hand, if more power was desired, they had to turn to either frequency doubled solid state lasers or bulky red gas lasers, both with well-know drawbacks.

The XTL overcomes the handicap of limited output power of diode laser systems. Using the latest high power semiconductor technology, it offers 250 mW @ 650 nm. Combined with an excellent power stability and its compact size, it is the ideal laser source for biophotonic applications.

In Flow Cytometry, for instance, the flow velocity depends on the available laser power. Higher power results in a faster excitation, thus faster available flow speed and higher number of analyzed cells per hour. Another key requirement of Flow Cytometry is high laser power stability: The more stable the power level, the lower the coefficient of variance. As the XTL provides excellent power stability (drift max. 0.5% over 8 hours), results of cell analysis are more exact and subsequently more accurately to assign.



New XTL – 250 mW @ 650 nm
SM diode laser



Excellent power stability
(drift < 0.5% over 8 h)

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Beyond Flow Cytometry, also High Content Screening / High Throughput Screening benefits from the XTL's high quality beam and its record power level. The higher the power, the higher the achievable throughput. Moreover, Photodynamic therapy is very flexible when using endoscopes. Areas inside the human body can be reached more easily. The XTL caters to such needs by offering high fiber coupling efficiency (60%) into optical fibers.

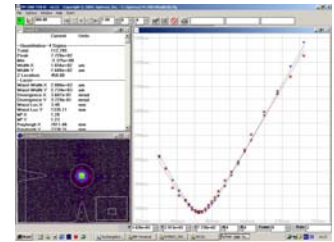
Typical applications for the XTL include:

- High content screening / High throughput screening (HCS/HTS)
- Flow cytometry
- Photo-dynamic therapy (PDT)
- Display technology

Mandatory for an industrial grade diode laser system, operators receive full remote control over the module via RS 232 interface. Laser parameters can be set and read out for most convenient and flexible operation. Active thermal stabilization of the laser chip ensures constant lasing conditions as well as best beam pointing stability. No extensive water cooling is necessary any longer.

TOPTICA already supports various biophotonic applications with its OEM series iBeam. The XTL complements the family of OEM lasers to provide the maximum available SM intensity in the industry. A detailed description can be found on our website:

http://www.toptica.com/page/industrial_diode_lasers.php



High quality TEM₀₀ beam:
M² < 1.5

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 is offered worldwide through TOPTICA Germany and its subsidiary TOPTICA USA, as well as all through 13 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.

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