

## Press Release

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### New industrial single-frequency diode laser

#### DFB diode based OEM solution released

Customers in the fields of Raman applications, gas sensing, interferometry, holography and drug screening can look forward to a new industrial diode laser system: In January 2006, TOPTICA launches its new single-frequency module *d/fBeam*, uniting properties of the established *iBeam* series and the unique spectral characteristics of DFB (Distributed Feed-Back) laser diodes.

There are plenty of benefits for these demanding tasks: Raman microscopists will appreciate the narrow linewidth of less than  $0.001 \text{ cm}^{-1}$ , interferometry scientists welcome the long coherence length, gas sensing is supported by high power stability whereas all industrial operators benefit from a compact all-in-one design.

Key features of the *iBeam* modules are an excellent beam quality (diffraction-limited,  $\text{TEM}_{00}$ ), circular beam shape, full computer control, and a very compact footprint ( $156 \times 56 \times 66 \text{ mm}^3$ ). In addition, the built-in DFB laser diode guarantees an outstanding performance with high spectral purity, continuous single-mode operation, a coherence length of  $> 2.5 \text{ m}$  and superior power and frequency stability.

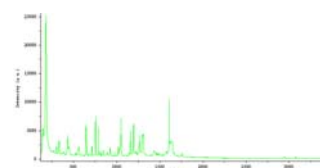
In the past external cavity diode lasers were used for various single-frequency applications, but when exposed to vibrations or huge ambient temperature changes, performance has often been aggravated by mode hops, misalignment or coherence breakdown. The *d/fBeam* avoids this drawback by combining an intrinsically frequency-stable DFB laser diode with an established opto-mechanical concept and proprietary microprocessor-based control electronics. Coherence properties are maintained even under harsh industrial conditions; mode competition and mode hops are eliminated once and for all.

All relevant laser parameters can be set and monitored by a standard PC via RS 232 interface. High-sensitivity environmental and industrial measurement tasks are thus performed rapidly and may even be remotely controlled. If required, the *d/fBeam* can be temperature-tuned by  $0.5 \text{ nm}$ .

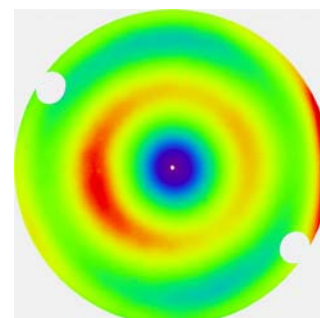
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*d/fBeam* with optional fiber-coupling



Raman spectrum of Acetylsalicylic acid, courtesy of Jobin Yvon



Wave front of a lens, recorded via phase-shifting interferometry

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Standard wavelengths for the *df*Beam series are 760, 763, 773, 780, and 785 nm (others on request). Optionally, single-mode fiber-coupling is available: TOPTICA's patented FiberDock™ allows for high coupling efficiencies and long-term stability of the fiber output power.

*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 commercialisation.*