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Press Release

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iBeam smart – Fully Featured

TOPTICA's latest innovation in OEM diode lasers

TOPTICA Photonics announces the fully featured premium OEM diode laser series – the iBeam smart .

Latest innovations include:

- FINE: Feedback Induced Noise Erasion
- SKILL: Speckle KILLer
- Digital and analog modulation
- Autopulse
- GUI: Graphical User Interface
- Record power levels
- Single-mode fiber coupling

These latest innovations will allow users to further increase productivity and reliability in their applications.

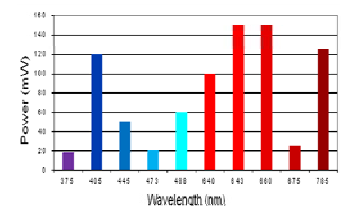
The electronic design of the iBeam smart is the most advanced of any compact diode laser in the market and allows the customer to adjust the lasing properties in a way never demonstrated before in ultra compact diode lasers:

FINE – the Feedback Induces Noise Eraser makes the iBeam smart completely insensitive to optical feedback. Using FINE we guarantees, that fiber coupling or applications with reflective surfaces (e.g. glass plates or cuvettes) is a bliss with the iBeam smart. Power instabilities or mode noise are nuisances from the past with this new feature.

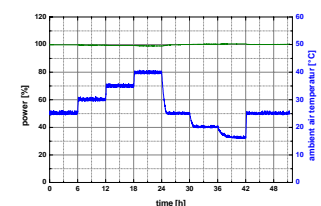
SKILL function acts as a purely electronic “speckle killer” by decreasing the longitudinal coherence lengths of emitted light to a minimum. This is a long demanded feature, without adding any complexity to the customer's setup. Furthermore, TOPTICA announces the new power record for 488 nm direct diode lasers with 60 mW. The compact design (100 x 40 x 40mm³) and direct modulation capabilities of the iBeam smart make it the perfect substitute for Ar gas lasers and solid state laser counterparts. Direct digital modulation up to 250 MHz and analog modulation up to 1 MHz (0..100 %) eliminate the need of AOMs / AOTFs, thus save costs and minimize integration efforts.



iBeam smart – fully featured ultra compact diode laser.



iBeam smart – power champion.



iBeam smart – excellent power stability.

Author:

Dr. Manfred Karlowatz, TOPTICA Photonics AG

The already proven ultra stable performance characteristics of the iBeam smart (world leader in power stability and beam pointing) add to the impressive SKILL set of TOPTICA's premium OEM laser series and renders it the perfect choice for demanding applications such as confocal microscopy or flow cytometry.

Key specifications of iBeam smart:

- Highest power levels achievable with compact diode lasers (120 mW at 405 nm, 50 mW at 445 nm, 60 mW at 488 nm, 100 mW at 640 nm, 150 mW at 642 nm and 150 mW at 660 nm)
- True one-box solution – 100 x 40 x 40 mm³ with integrated laser controller
- Best in class beam pointing stability (< 5 µrad / °C)
- Beam diameter ~1.1 mm 1/e²
- Excellent beam quality, i.e. wave front error < 0.05 λ, M² < 1.2
- Lowest intensity noise in industry (< 0.2 % <10 MHz)
- Unmatched power stability of iBeam series (< 0.5% drift in 48 hrs)
- Insensitive to optical feedback via FINE
- Minimized laser speckle via FINE
- Analog (up to 1 MHz) and digital (up to 250 MHz) direct modulation

Typical applications for the iBeam and iPulse series include:

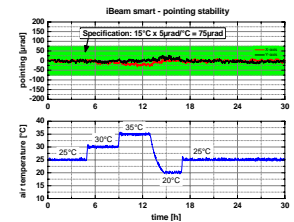
- Flow cytometry
- Confocal microscopy
- Micro lithography
- Retina scanning
- Fluorescein angiography
- Microplate readout

The iBeam smart is available on request at all standard diode laser wavelengths from the UV to the IR.

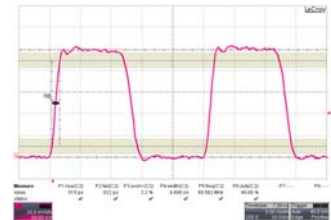
Demonstration units at all wavelengths are available.

iBeam smart and new features will be shown live at the TOPTICA booth 517 during BIOS and Photonics West.

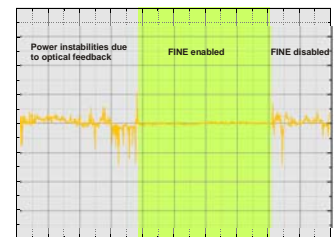
TOPTICA Photonics AG develops, manufactures, services and distributes technology-leading diode and fiber lasers and laser systems for scientific and industrial applications. Sales and service is offered worldwide through TOPTICA Germany and its subsidiary TOPTICA USA, as well as all through 14 distributors. 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.



iBeam smart – unmatched pointing stability.



iBeam smart – digital modulation up to 250 MHz.



iBeam smart – insensitive to optical feedback with FINE.

Author:

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