



*A Passion for Precision.*

## Press Release

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### iBeam / iPulse Diode Laser Systems with more TOP Features and TOP Performances

New Features Extend TOPTICA's Lead in OEM Diode Lasers

TOPTICA Photonics AG extends its leadership in OEM diode laser technology by introducing four new TOP features to the iBeam / iPulse laser series.

#### Feedback-Induced Noise Eraser (FINE)

Power instabilities and high noise levels are common symptoms with any diode laser, when there is a tendency for optical feedback in the set-up (e.g. back reflections from fiber end-facets or from highly reflective samples).

A new feature, the groundbreaking Feedback Induced Noise Eraser (FINE) of TOPTICA's iBeam lasers eliminates this problem. A simple push of a button makes TOPTICA's iBeam / iPulse lasers ultra-stable against optical feedback. Customers save time and costs, by making realignment and optical isolators unnecessary.

#### Quickstart

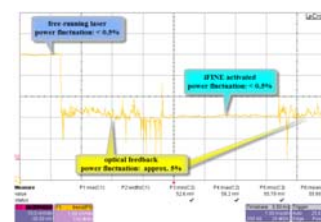
Tedious warm-up times are a major complaint of many OEM customers in almost all industries. Depending on the application this time-span varies profoundly and can last from several minutes to several hours. The problem: lost productivity, a huge drawback for the customer. Due to intelligent engineering TOPTICA's iBeam and iPulse lasers work within their specifications within an unprecedented 60 sec from a cold start! This unique feature enhances productivity, saves time and energy, all to the benefit of TOPTICA's customers and the environment!

#### Autopulse

Another new feature to make operation more convenient is the new autopulsing function, integrated into the iBeam / iPulse lasers. Offering improved flexibility: both frequency (15 Hz – 20 MHz) and duty cycle (10 – 90 %) can be set using simple software commands. A great feature, making feasibility studies, integration work and testing much easier than with any other diode laser in this class.



iBeam / iPulse diode laser system – now with 4 new TOP features



FINE (Feedback-Induced Noise Eraser), an invaluable feature, when it comes to optical feedback!

#### Author:

Dr. Manfred Karlowatz, TOPTICA Photonics AG

## TopControl

The TopControl, a LabView® based graphical user interface for Microsoft Windows® is introduced, which makes working with the iBeam / iPulse even more convenient. TopControl enables PC-controlled adjustments of all relevant laser parameters with an ease, giving the customer convenient access to the unique FINE, AUTOPULSE feature and much more of TOPTICA's OEM diode lasers.

## Highest power / best performance

TOPTICA continues to keep both crucial factors for successful industrial applications in perspective: delivering highest power (e.g. > 100 mW around 640 nm) at the best available performance (e.g. 0.5 % power stability in 48 h) of any diode laser in the industry. Based on close cooperation with OEM customers, TOPTICA has engineered both best performance and highest quality.

## Key specifications of iBeam / iPulse include:

- Excellent beam quality: i.e. wave front error <  $0.05 \lambda$ ,  $M^2 < 1.2$
- Lowest rms noise: < 0.5 % (10 Hz – 100 MHz)
- Direct modulation capability avoids power killers like AOM/EOMs
- Ultrafast asynchronous pulse modulation up to 250 MHz (iPulse)
- Highest single-mode fiber coupling efficiencies:  
i.e. > 60 % guaranteed, > 75 % typical and 87 % demonstrated
- Highest power stability: < 0.5 % drift (within 48 hours)

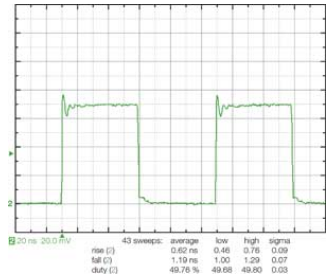
The beam diameter is approx. 1.2 mm  $1/e^2$ , close to its gas or solid state laser counterparts, making switching to an iBeam / iPulse a smooth process.

All lasers can be optionally coupled to single mode fibers by TOPTICA's OEM proven FiberDock unit. Due to the patented flexure mount design, easy adjustment, best long-term stability and highest coupling efficiencies are achieved.

## Typical applications for the iBeam and iPulse series include:

- Flow cytometry
- Confocal microscopy
- Micro lithography
- Computer-to-plate
- Disc mastering
- Ellipsometry
- Retina scanning
- Fluorescein angiography

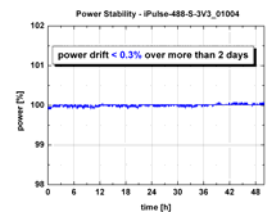
*TOPTICA Photonics AG develops, manufactures, services and distributes technology-leading diode and fiber lasers and laser systems for scientific and industrial applications. Sales and service is offered worldwide through TOPTICA Germany and its subsidiary TOPTICA USA, as well as all through 13 distributors. 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.*



iBeam / iPulse autopulse function can substitute a pulse generator in many applications



TopControl - access all relevant functions of your iBeam / iPulse by a convenient graphical user interface



Extreme longterm power stability of iBeam / iPulse lasers

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