

Press Release

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New: Ultrafast Ytterbium and Erbium-based Fiber Lasers Oscillators for OEM Solutions

TOPTICA adds industrial series "FFI Osc" to its successful line of FemtoFiber™ lasers

At the Laser 2007 show, TOPTICA presents its new series of mode-locked Ytterbium and Erbium ultrafast fiber laser oscillators for OEM integration into industrial laser instruments. Picosecond laser oscillators are the preferred technical solution for many advanced industrial laser applications, especially in the field of micro-machining. In order to make mode-locked laser technology economically viable, TOPTICA now introduces turnkey picosecond and sub-picosecond industrial fiber laser oscillators with uptime and lifetime values that satisfy the highest industrial standards. Hands-off, ultrafast laser technology can now be operated by the non-specialist, eliminating the traditional need for "a laser jock on stand-by".

TOPTICA welcomes OEM enquiries within the following ranges:

Ytterbium based OEM ultrafast fiber laser:

- 1030 nm wavelength
- 15 – 50 MHz repetition rate setting
- 1 – 6 ps pulse duration setting
- various temporal, spectral pulse shapes
- up to 50 mW

Erbium based OEM ultrafast fiber laser:

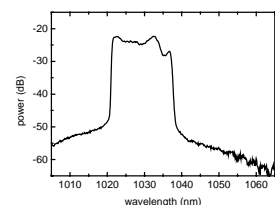
- 1560 nm wavelength
- 25 – 100 MHz repetition rate setting
- 500 fs pulse duration
- up to 50 mW

Both models are integrated in identical compact cabinets, comprising the laser unit and the electronic control elements. The self-starting laser unit is designed to work with excellent short- and long-term power stability parameters.

Laser output is either provided via single-mode fiber (default for Ytterbium



FFI Osc – Ytterbium or Erbium based ultrafast lasers with average powers up to 50 mW



Typical emission spectrum of Ytterbium based fiber laser (parabolic pulses, spectral width typically 0.5 – 15 nm)

Author:

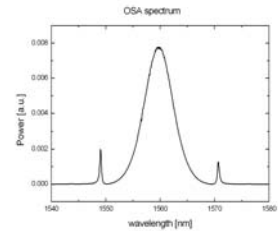
Dr. Thomas Renner, TOPTICA Photonics AG

Oscillator) or free space (default for Erbium oscillator).

The current specification ranges are derived from initial OEM developments – further customization of laser specifications (e.g. tuning of laser wavelength, pulse duration, pulse shape), size and interfacing is possible under standard OEM conditions.

The FFI Osc oscillators are especially suited for generating higher power levels in oscillator-amplifier combinations: The femto- or picosecond pulses are generated reliably and hands-off in fiber based seeder oscillators at mW power levels. These pulses with excellent amplitude and jitter parameters can subsequently be amplified to e.g. multi-Watt levels by the customer using separate amplifiers. Typical amplifiers are fiber, slab, rod or disc lasers operating in the well-known 1 or 1.5 μm wavelength regions.

Applications, which require the most stable mode of operation and compact/cost-effective solutions, are micro material processing, light sources for microscopy, ophthalmology and medical surgery / inspection. These markets are addressed by the OEM concept of the FFI Osc seeders.



Typical emission spectrum of Erbium based fiber lasers (solitonic pulses, spectral width typically 5 nm)

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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