



Leibniz
Ferdinand
Braun
Institut



Laser Drivers

& Accessories

Easy testing of state-of-the-art FBH lasers

The FBH is a center of competence for compound semi-conductors comprising the full value chain – from device design to epitaxy, process and mounting technology. As a one-stop agency, we offer complete solutions and know-how starting with the key components, the laser chips, through to sophisticated ready-to-use modules.

Our world-class lasers diodes and modules require sophisticated drivers and mounts to integrate all (opto)

electronic and mechanical components with highest precision as well as to precisely control the operating parameters. The in-house Prototype Engineering Lab provides simple to use plug-and-play systems with intuitive graphical user interfaces to enable our partners to conveniently test FBH's laser diodes and modules in their applications.

Common FBH laser driver features

- only one power supply
- PC controlled with easy-to-use graphical user interface
- offline mode for autonomous operation without PC
- internal and external trigger possible
- integrated Peltier element with corresponding driver for precise control of the laser operating temperature
- operating temperature: 15 °C ... 40 °C

Customized laser driver solutions

PMSD: programmable multi source laser driver

used e.g. with DBR tapered laser modules in butterfly package

- 10 individually programmable current sources (DC) in a single device
→ all current sources can be switched individually in parallel to get fewer current sources but with higher currents
- each driver can source 600 mA, all in parallel up to 6 A @ 5 V
- small dimensions: 210 x 192 x 75 mm³

PLS flex: programmable high-power picosecond and nanosecond laser driver

used e.g. with epitaxially stacked wavelength-stabilized multi-diode lasers with multiple tunnel diodes and active layers in a common waveguide

- pulse widths: 80 ps – 60 ns
- repetition frequency: single shot – 43 MHz
- GaN-based high-speed, high-current laser drivers up to 250 A
- laser chip on driver unit with electrical and programming control unit in a compact housing (97 x 105 x 30 mm³) or as single assembly
- further miniaturization possible

PLS 1030: picosecond laser pulse source

used e.g. with laser modules designed for pulse picking and pulse gating

- pulse widths: 5 – 15 ps
- repetition frequency: single shot – 10 MHz
- pulse peak performance: > 20 W

Turn-key system

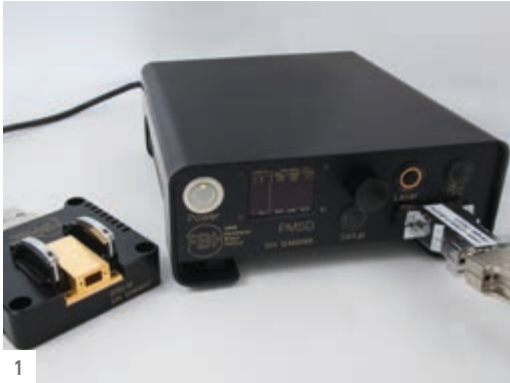
used e.g. with lasers in CCP-mount with up to 10 laser sections and up to 4 heater sections

- 10 individually programmable current sources (DC) in a single device
- each driver can source 750 mA, all in parallel up to 7.5 A @ 7 V
- 4 galvanically isolated programmable current sources (DC) to drive heating resistors up to 1.8 W
- fast alternating operation between different laser lines up to 1 kHz
- max. power consumption: 60 W (12 V, 5 A)
- flexible mounting to an inch or metric optical table
- easy integration via 30 mm optical cage system

Butterfly laser mounts

The BFM14 and BFM40 mounts provide an excellent solution for thermal management and electrical connections of butterfly laser modules. They are compatible with packages featuring 7 and 20 pins per side. Devices are simply loaded by zero insertion force sockets.

Configuring the mounts to the pin-out of customer's devices is done with a solderless dongle or a simple soldering matrix inside the mount. Quick connections to the laser driver and TEC controller are established through the standard D-sub connector on the back of the mount.



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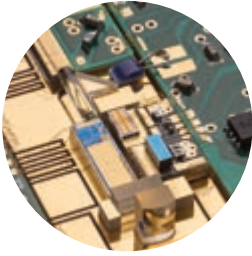


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- 1 PMSD – programmable laser driver unit (r.) for laser modules mounted into butterfly housing (l.)
- 2 PLS flex – very compact pulse laser source with PC control and fiber option

- 3 Turn-key system – for Raman measurements with fiber connection and integrated dual-wavelength diode laser

	PMSD	PLS flex	PLS 1030	Turn-key system
high power		✓	✓	
picosecond pulses		✓	✓	
nanosecond pulses		✓	✓	
multiple wavelengths	✓			✓
compatible with optical cage system				✓
suitable for optical setup evaluation	✓	✓		



translating ideas into innovation

The Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik (FBH) is an application-oriented research institute in the fields of high-frequency electronics, photonics and quantum physics. It researches and realizes electronic and optical components, modules and systems based on compound semiconductors. These devices are key enablers that address the needs of today's society in fields like communications, energy, health, and mobility.

Specifically, FBH develops light sources from the infrared to the ultra-violet spectral range: high-power diode lasers with excellent beam quality, UV light sources, and hybrid laser modules. Applications range from medical technology, high-precision metrology and sensors to optical communications in space and integrated quantum technology. In the field of microwaves, FBH develops high-efficiency multi-functional power amplifiers and millimeter wave frontends targeting energy-efficient mobile communications, industrial sensing and imaging as well as car safety systems. In addition, the institute fabricates laser drivers and compact atmospheric microwave plasma sources operating with energy-

efficient low-voltage drivers for use in a variety of applications.

The FBH is a center of competence for III-V compound semiconductors covering the full range of capabilities, from design through fabrication to device characterization. Within Research Fab Microelectronics Germany (Forschungsfabrik Mikroelektronik Deutschland – FMD), FBH joins forces with 12 other German research institutes, thus offering the complete micro and nanoelectronics value chain as a one-stop shop.

In close cooperation and strategic partnerships with industry, FBH's research results lead to cutting-edge products. The institute also successfully turns innovative product ideas into spin-off companies. With its Prototype Engineering Lab, the institute strengthens its cooperation with customers in industry by turning excellent research results into market-oriented products, processes and services. The institute thereby offers its international customer base complete solutions and know-how—from design to ready-to-use modules and prototypes.

contact

Ferdinand-Braun-Institut gGmbH
Leibniz-Institut für Höchstfrequenztechnik
Gustav-Kirchhoff-Straße 4
12489 Berlin, Germany

www.fbh-berlin.de

Prototype Engineering Lab

Dr. Neysha Lobo Ploch
Phone +49 30 6392 2634
Fax +49 30 6392 2602
Email prototype-engineering@fbh-berlin.de

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