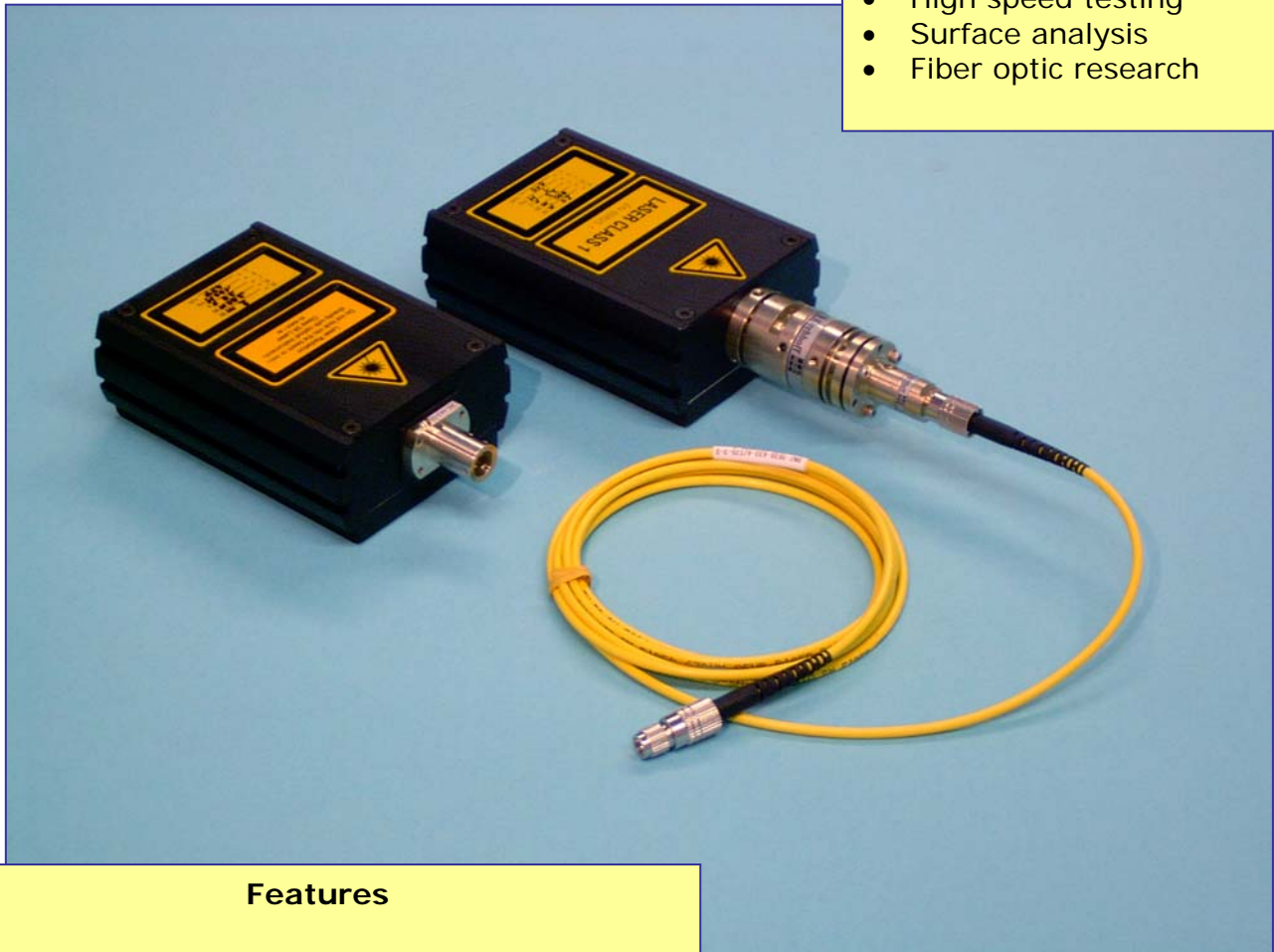


PiLas F Series Picosecond Laser Diode Systems

The PiLas Systems are diode lasers emitting very short optical pulses with pulse widths down to 12 ps (FWHM). The standard system consists of a digital electrical pulse generator EIG and an optical head with a laser diode and collimating optics (paralleling optics, single mode fiber output or multimode fiber output versions are also available). The laser diodes of the various models are pre-configured to emit on a fixed wavelength within a spectral range between 375 nm and 1670 nm, based on all commercial available diode wavelengths. Typical peak powers are in the range of 25 mW to more than 100 mW, depending on the laser diode used. The jitter between electrical trigger and optical pulse is about 4 ps. Special wavelengths or specifications are available on request.

Applications

- Time-resolved fluorescence
- High speed testing
- Surface analysis
- Fiber optic research



Features

- pulse widths down to 12 ps
- jitter less than 4 ps
- wavelengths from 375 nm to 1550 nm
- minimized pulse tail and second pulse
- optical peak power up to more than 1000 mW
- optional temperature control

Fast PiLas F Series

Optical Head of the Fast PiLas (fixed repetition rate 100 MHz)

Other repetition rates between 20 and 100 MHz available on request

Parameter (unit)	PIL040F*	PIL063F	PIL067F	PIL078F	PIL083F	PIL130F	PIL155F	PILxxDFB
wavelength (nm)	400	635	670	780	830	1300	1550	850, 1310 1550
tolerance (nm)	± 10	± 10	± 10	± 10	± 10	+5/-15	+5/-15	on request
spectral width (nm)	< 7	< 7	< 7	< 7	< 10	< 13	< 15	< 0.1
pulse width (ps)	< 50	< 45	< 45	< 45	< 45	< 50	< 30	50...100
peak power (mW)	> 100	> 100	> 100	> 100	> 100	> 30 ⁽¹⁾	> 40 ⁽¹⁾	> 20 ⁽¹⁾
avg. power (mW)	> 0.25	> 0.5	> 0.5	> 0.5	> 0.4	> 0.2 ⁽²⁾	> 0.1 ⁽²⁾	> 0.1 ⁽²⁾

* Only with TEC and fixed repetition rate to 50 MHz.

(1) Typical output power for collimated beam. Higher output power on request.

(2) For higher average power a thermoelectric stabilization is recommended.

Dimensions of the optical heads: width x height x depth = 74mm x 38mm x 107mm

A.L.S. GmbH reserves the right to change specifications without prior notice

Note: The optical heads are interchangeable to get different wavelengths with one EIG. However, the heads can not be exchanged between drivers with 1 MHz or 100 MHz repetition rate.

Control Unit EIG1000AF

Parameter	EIG1000AF (for PiLas 100 MHz version)
internal trigger	
repetition rate	100 MHz fixed other repetition rates between 20 and 100 MHz on request
repetition rate of internal trigger adjustable at	100 MHz fixed other repetition rates between 20 and 100 MHz on request
external trigger input	70 – 110 MHz typical -30%/+10% of the internally fixed repetition rate
amplitude	-5V...+5V / TTL / NIM
impedance	50 Ohm
pulse width	typ. 4 ns at 100 MHz
pre-trigger output	
amplitude	TTL level or 2V @ 50 Ohm
pulse width	typ. 4 ns at 100 MHz
trigger delay (others on request)	app. 10 ns
typical jitter between pretrigger and optical output	typ. 4 ps

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Dimensions of EIG: width x height x depth = 235mm x 88mm x 326 mm

Notice

This product complies with 21 CFR 1040 and IEC 60825-1, -2.



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