

PDL 800-B

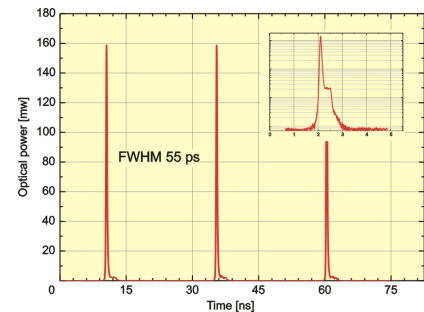
Picosecond Pulsed Diode Laser Driver

- Easily selectable repetition rates from 2.5 MHz to 40 MHz (optional 5 MHz to 80 MHz)
- Externally triggerable from single shot up to 80 MHz / sync output
- Laser pulse energy adjustable via driver unit
- Laser heads from 375 to 1990 nm, LED heads from 255 to 600 nm



Applications

- Time-resolved fluorescence spectroscopy
- Single molecule spectroscopy
- Test and measurement of detectors and optical fibers
- Diffuse Optical Tomography (DOT) of biological tissue
- Confocal microscopy (FLIM-, FRET-, FCS-imaging)
- Stimulated Emission Depletion (STED) microscopy
- Quantum optics, single photon generation
- Materials research

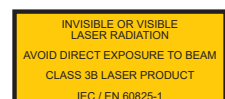


The PDL 800-B is a stand-alone driver for the picosecond pulsed laser diode heads from 375 to 1990 nm (LDH-P/FA Series) as well as for the sub-nanosecond pulsed LEDs from 255 to 600 nm (PLS Series). The laser heads can emit light pulses as short as 70 ps FWHM (50 ps on selection) at repetition rates from single shot up to 80 MHz with peak powers up to 1 Watt (depending on wavelength). The PDL 800-B features easy to use controls for repetition frequency and laser pulse energy. Wavelengths can be changed quickly by simply plugging in a different laser or LED head.

User selectable repetition frequencies of 40, 20, 10, 5 and 2.5 MHz are derived from the internal crystal controlled oscillator that generates a low jitter base frequency of 40 MHz (64 or 80 MHz are available for red diode laser heads upon request). Laser pulses can also be triggered by an external trigger input, so that the PDL 800-B can be synchronized with other instruments over the full frequency range. A sync output allows the PDL 800-B to trigger other components such as TCSPC electronics. A gating option allows to disable the laser output through an external TTL-signal.

For multiple wavelengths experiments and automated systems, the computer controlled multichannel PDL 828 "Sepia II" is recommended. An alternative single channel driver with dual mode (pulsed and CW) capabilities and internal repetition rates from 32.5 kHz to 80 MHz is also available (PDL 800-D).

Picosecond pulsed diode laser modules are also available in OEM quantities for system suppliers. These compact, cost-effective diode lasers with fixed parameters (repetition frequency, output power and wavelength) can easily be integrated into complex systems.



Specifications

Internal oscillator	
Type	crystal locked (up to 80 MHz max.)
Master frequency	40 MHz standard, other frequencies available upon request
Repetition frequencies	1, 1/2, 1/4, 1/8, 1/16 of base frequency 40, 20, 10, 5 or 2.5 MHz (standard)
External trigger input	
Amplitude	-5 to +5 V (maximum limits)
Trigger level (adjustable)	-1 to +1 V (negative slope)
Pulse width	> 5 ns
Frequency range	10 Hz to 80 MHz
Delay	35 ± 5 ns (from trigger input to optical output), jitter < 40 ps
Impedance	50 Ohms (dynamic), > 500 Ohms (static)
Connector type	BNC (female)
Synchronization output	
Amplitude	< -800 mV into 50 Ohms (NIM)
Pulse width	6 ns
Delay	12 ns (from falling edge to laser output), jitter < 20 ps
Impedance	50 Ohms
Connector type	SMA (female)
Remote interlock	
Voltage	< 7 VDC
Loop resistance	10 Ohms max.
Power supply	
Line voltage	220/240 or 110/120 VAC, 50/60 Hz
Power consumption	45 Watts max.
DC supply output	12 V/100 mA or 5 V/250 mA (for external modules)
Connector	6-pin DIN
Dimensions	
Driver unit	237 × 310 × 97 mm (w × d × h)
Temperature range	
	10 - 40 °C

Pulsed Light Sources

LDH-P/FA Series Picosecond pulsed laser diode heads



Available wavelengths: 375-510 nm, 530 nm and 635-1990 nm, options: peltier cooled, high power version, narrow spectral bandwidth, selected short pulses, fiber coupling to single-mode and multimode optical fibres

PLS Series Sub-nanosecond pulsed LEDs



Available wavelengths: 255-600 nm, options: spectral bandpass filter



PicoQuant GmbH
Rudower Chaussee 29 (IGZ)
12489 Berlin
Germany

Phone +49-(0)30-1208820-0
Telefax +49-(0)30-1208820-90
Email info@picoquant.com
Web www.picoquant.com