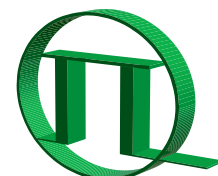


PDL 800-D



PICOQUANT

Picosecond Pulsed Diode Laser Driver

- Pulsed and CW operation
- Easy selectable repetition rates from 31.25 kHz to 80 MHz
- Laser pulse energy adjustable via driver unit
- Laser heads from 375 to 1990 nm, LED heads from 255 to 600 nm
- External trigger / sync output



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

Picosecond Pulsed Diode Laser Driver

The PDL 800-D is a stand-alone driver for the picosecond pulsed laser diode heads from 375 to 1990 nm (LDH-P/D/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-D features easy to use controls for repetition frequency and laser pulse energy. Continuous Wave (CW) operation is possible with the latest generation of laser heads, the LDH-D Series. Wavelengths can be changed quickly by simply plugging in a different laser or LED head.

The internal oscillator has two selectable base frequencies, 80 MHz and 1 MHz. Each base frequency can be further reduced by division through 1, 2, 4, 8, 16 and 32. The highest repetition frequency that can be derived is therefore 80 MHz, the lowest repetition rate is 31.25 kHz.

Laser pulses can also be triggered by an external trigger input so that the PDL 800-D can be synchronized with other instruments over the full frequency range. A sync output allows to trigger other components such as TCSPC electronics. Gating inputs allow to disable the laser output on two time scales through an external TTL-signal.

For multiple wavelengths experiments, the PDL 808 "Sepia" is recommended, for automated systems, the computer controlled multichannel PDL 828 "Sepia II" is the best choice.

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
Operation mode pulsed or Continuous Wave (CW)
Base frequencies 80 MHz, 1 MHz (selectable)
Repetition frequencies user selectable: 1, 1/2, 1/4, 1/8, 1/16
1/32 of base frequency:
• 80, 40, 20, 10, 5 or 2.5 MHz
• 1000, 500, 250, 125, 62.5 or 31.25 kHz

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 < 20 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)

Gating Inputs

Slow gate transition time < 1 ms (pulsed and CW)
Fast gate transition time typ. 10 ns (pulsed only)

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.

Dimensions

Driver unit 237 × 310 × 97 mm (w × d × h)

Temperature Range 10 - 40 °C

Pulsed Light Sources



LDH-P/D/FA Series
Picosecond pulsed
laser diode heads

Available wavelengths: 375 - 510 nm, 530 nm, 595 nm and 635 - 1990 nm, pulsed and CW operation, options: peltier cooled, high power version, narrow spectral bandwidth, selected short pulses, fiber coupling to singlemode and multimode optical fibers



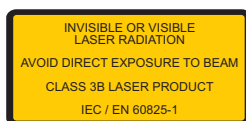
PLS Series
Sub-nanosecond
pulsed LEDs

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



For all available types and wavelengths please go to:

<http://www.picoquant.com/products/ldh/ldhseries.htm>
<http://www.picoquant.com/products/pls/plsseries.htm>
http://www.picoquant.com/products/ldh_fa/ldh-fa.htm



Further available are Modulated Diode Lasers; PC Modules for TCSPC and Fluorescence Lifetime Spectrometer; Time-resolved Fluorescence Microscopes; Upgrade kits for Laser Scanning Microscopes. Please call for detailed information and data sheets. OEM Modules of all products are available upon request. **Please check our website for updated information.**

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