

# LDH-FA Series

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## Picosecond Pulsed Laser Diode Heads

- Available wavelengths: 531, 596, 766, 1064 and 1532 nm
- Pulse width down to 80 ps (FWHM)
- Average output power between 0.3 mW and 1000 mW (depending on wavelength)
- Repetition rates up to 80 MHz
- Collimated beam or PM fiber output with FC/APC fiber connector



## Applications

- Time-resolved fluorescence spectroscopy/microscopy (FLIM, FRET, FCS)
- Stimulated Emission Depletion Microscopy (STED)
- Biochemical analytics
- Diffuse Optical Tomography (DOT)
- Quantum optics
- LIDAR, ranging
- 3D Polymerization

# Picosecond Pulsed Laser Diode Heads

The picosecond pulsed laser diode heads of the LDH-FA Series are based on a Master Oscillator Fiber Amplifier (MOFA) concept with optional frequency conversion. The master oscillator generates infrared picosecond pulses with variable repetition rates up to 80 MHz. The output of this seed laser is directly connected to a single or double stage fiber amplifier, which boosts the output from the seed laser by several dB while maintaining the other characteristics of the seed laser beam like e.g. the emission wavelength, polarization and the short pulse width.

The high pulse energies of the amplified infrared lasers permit an efficient wavelength conversion using, for example, single pass Second Harmonic Generation (SHG). In that way it is for the first time possible to generate picosecond pulses at 531 nm or 766 nm with adjustable repetition rates up to 80 MHz. A sum frequency generation techniques permits to generate yellow laser emission at 596 nm, which is currently not available from a direct emitting laser diode. The final pulse widths can be < 100 ps (FWHM) for the infrared, red and green laser heads.

The laser heads are available in two versions that either emit from a polarization maintaining single mode fiber with FC/APC fiber connector or generate a collimated output beam.

All laser heads can be driven by the PDL 828 "Sepia II", the PDL 808 "Sepia", the PDL 800-D or the PDL 800-B.

## Specifications

Model	LDH-P-FA-530B	LDH-P-FA-530L	LDH-P-FA-530XL	LDH-P-FA-595
Center wavelength	531 ± 3 nm	531 ± 3 nm	531 ± 3 nm	596 ± 3 nm
Pulse width (FWHM)	< 100 ps	< 100 ps	< 100 ps	< 130 ps
Average output power (40 MHz repetition rate)	2 mW	> 20 mW	> 100 mW > 200 mW (at 80 MHz)	> 0.3 mW
Repetition rate	10 kHz to 80 MHz, freely adjustable	1 MHz to 80 MHz, freely adjustable	1 MHz to 80 MHz, freely adjustable	10 kHz to 40 MHz, freely adjustable
Spectral width	< 1 nm	< 1 nm	< 1 nm	< 0.5 nm
PER	> 10 dB	> 10 dB	> 10 dB	> 10 dB
Output	FC/APC fiber connector	collimated beam	collimated beam	FC/APC fiber connector
Power stability (12 hours, $DT_{\text{ambient}} < 0.5 \text{ K}$ )	< 3 % rms	< 3 % rms	< 3 % rms	< 3 % rms
Dimensions (l × w × h)	195 × 112 × 24 mm (without fiber)	214 × 74 × 100 mm	214 × 74 × 100 mm	195 × 112 × 24 mm (without fiber)

Model	LDH-P-FA-765	LDH-P-FA-1060	LDH-P-FA-1530
Center wavelength	766 ± 3 nm	1062 ± 3 nm	1532 ± 3 nm
Pulse width (FWHM)	< 100 ps	< 100 ps	< 100 ps
Average output power (40 MHz repetition rate)	> 100 mW > 250 mW (at 80 MHz)	> 500 mW > 1000 mW (at 80 MHz)	> 500 mW > 800 mW (at 80 MHz)
Repetition rate	1 MHz to 80 MHz, freely adjustable	1 MHz to 80 MHz, freely adjustable	1 MHz to 80 MHz, freely adjustable
Spectral width	< 1 nm	< 1 nm	< 1 nm
PER	> 10 dB	> 10 dB	> 10 dB
Output	collimated beam	collimated beam	collimated beam
Power stability (12 hours, $DT_{\text{ambient}} < 0.5 \text{ K}$ )	< 3 % rms	< 3 % rms	< 3 % rms
Dimensions (l × w × h)	214 × 74 × 100 mm	214 × 74 × 100 mm	214 × 74 × 100 mm



Please check our webpage for updated information.

All measurements shown may be subject to a 10 % calibration error.

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