

LDH-FA Series



Amplified Picosecond Pulsed Laser Diode Heads

- Available wavelengths: 266, 355, 532, **NEW 560**, 766, 1064 and 1532 nm
- Pulse width down to 70 ps (FWHM)
- Average output power between 1 mW and 450 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

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 high pulse energies of the amplified infrared lasers permit an efficient wavelength conversion using, for example, Second Harmonic Generation (SHG), Third Harmonic Generation (THG) or even Fourth Harmonic Generation (FHG). In that way, it is for the first time possible to generate picosecond pulses at 266 nm, 355 nm, 531 nm, 560 nm or 766 nm with adjustable repetition rates up to 80 MHz and final pulse widths below 100 ps (FWHM).

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

266 nm / 355 nm

Model	LDH-P-FA-266	LDH-P-FA-355
Center wavelength	266 ± 3 nm	355 ± 3 nm
Pulse width (FWHM)	< 80 ps	< 80 ps
Average output power at 40 MHz repetition rate at 80 MHz repetition rate	1 mW > 1 mW	5 mW > 5 mW
Repetition rate	1 MHz to 80 MHz, freely adjustable	10 kHz to 80 MHz, freely adjustable
Spectral width	<< 1 nm	<< 1 nm
PER	> 20 dB	> 20 dB
Output	collimated beam*	collimated beam
Power stability***	< 3 % rms	< 3 % rms
Dimensions (l × w × h)	272.6 × 74 × 100 mm (incl. clean-up filter)	272.6 × 74 × 100 mm (incl. clean-up filter)

532 nm

Model	LDH-P-FA-530B	LDH-P-FA-530L	LDH-P-FA-530XL
Center wavelength	532 ± 3 nm	532 ± 3 nm	532 ± 3 nm
Pulse width (FWHM)	< 100 ps	< 100 ps	< 100 ps
Average output power at 40 MHz repetition rate at 80 MHz repetition rate	2 mW > 4 mW	20 mW > 20 mW	100 mW > 200 mW**
Repetition rate	10 kHz 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	> 20 dB	> 20 dB
Output	Polarisation maintaining fiber with FC/APC output connector	collimated beam	collimated beam
Power stability***	< 3 % rms	< 3 % rms	< 3 % rms
Dimensions (l × w × h)	195 × 112 × 24 mm (without fiber)	214 × 74 × 100 mm	214 × 74 × 100 mm

560 nm

Model	LDH-P-FA-560
Center wavelength	557 ± 3 nm
Pulse width (FWHM)	< 70 ps
Average output power at 40 MHz repetition rate at 80 MHz repetition rate	3 mW --
Repetition rate	1 MHz to 40 MHz, freely adjustable
Spectral width	<< 1 nm
PER	> 20 dB
Output	collimated beam
Power stability***	< 3 % rms
Dimensions (l × w × h)	223 × 74 × 100 mm

766 nm

Model	LDH-P-FA-765XL
Center wavelength	766 ± 3 nm
Pulse width (FWHM)	< 100 ps
Average output power at 40 MHz repetition rate at 80 MHz repetition rate	100 mW > 100 mW
Repetition rate	1 MHz to 80 MHz, freely adjustable
Spectral width	<< 1 nm
PER	> 20 dB
Output	collimated beam
Power stability***	< 3 % rms
Dimensions (l × w × h)	223 × 74 × 100 mm

1063 nm

Model	LDH-P-FA-1060	LDH-P-FA-1060XL
Center wavelength	1063 ± 3 nm	1063 ± 3 nm
Pulse width (FWHM)	< 100 ps	< 100 ps
Average output power at 40 MHz repetition rate at 80 MHz repetition rate	25 mW > 50 mW**	< 450 mW < 450 mW
Repetition rate	10 kHz to 80 MHz, freely adjustable	1 MHz to 80 MHz, freely adjustable
Spectral width	<< 1 nm	<< 1 nm
PER	> 10 dB	> 10 dB
Output	FC/APC fiber receptacle	collimated beam
Power stability***	< 3 % rms	< 3 % rms
Dimensions (l × w × h)	195 × 112 × 24 mm (without fiber)	214 × 74 × 100 mm

1532 nm

Model	LDH-P-FA-1530	LDH-P-FA-1530XL
Center wavelength	1532 ± 3 nm	1532 ± 3 nm
Pulse width (FWHM)	< 100 ps	< 100 ps
Average output power at 40 MHz repetition rate at 80 MHz repetition rate	25 mW > 50 mW**	< 450 mW < 450 mW
Repetition rate	1 MHz to 80 MHz, fiber receptacle	1 MHz to 80 MHz, fiber receptacle
Spectral width	<< 1 nm	<< 1 nm
PER	> 10 dB	> 10 dB
Output	collimated beam	collimated beam
Power stability***	< 3 % rms	< 3 % rms
Dimensions (l × w × h)	195 × 112 × 24 mm (without fiber)	214 × 74 × 100 mm

* limited collimation range

**cooling optimization necessary (please ask for more details)

*** (12 hours, $\Delta T_{\text{ambient}} < 0.5 \text{ K}$)

Please check our webpage for updated information.

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



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