

LDH-FA Series

Amplified Picosecond Pulsed Laser Diode Heads

- Available wavelengths: 266, 355, 515, 531, 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

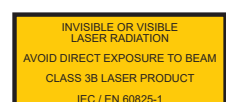
- Time-resolved fluorescence spectroscopy/microscopy (FLIM, FRET, FCS)
- Stimulated Emission Depletion Microscopy (STED)
- Biochemical analytics
- Diffuse Optical Tomography (DOT)
- Quantum optics
- LIDAR, ranging
- 3D polymerization



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, 515 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 drivers of the PDL Series (PDL 828 "Sepia II" or PDL 800-D).



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		1 MHz 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	2 mW	20 mW	100 mW
at 80 MHz repetition rate	> 4 mW	> 20 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 (wi- thout fiber)	214 × 74 × 100 mm	214 × 74 × 100 mm
515 nm / 560 nm			
Model	LDH-P-FA-515L		LDH-P-FA-560
Center wavelength	515 ± 3 nm		557 ± 3 nm
Pulse width (FWHM)	< 100 ps		< 70 ps
Average output power at 40 MHz repetition rate at 80 MHz repetition rate	20 mW > 20 mW		3 mW -
Repetition rate	1 MHz to 80 MHz freely adjustable		1 MHz to 40 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)	214 × 74 × 100 mm		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	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	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

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



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