

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).



These tables are updated on a regular basis based on data of recently manufactured laser heads. Other specifications such as shorter pulse widths or higher powers than listed might be possible depening on the performance of diodes on stock. Please contact us for more information. All measurements shown may be subject to a 10 % callibration error. Each laser head undergoes an extensive burn-in test to ensure long-term stability and is shipped with a comprehensive set of test data. This test data is kept in our database, which already holds records of more than 18 years.

Specifications

266 nm / 355 nm				
Model	LDH-P-FA-266		LDH-P-FA-355	5
Center wavelength	266 ± 3 nm		355 ± 3 nm	
Pulse width (FWHM)	< 80 ps		< 80 ps	
Average output power				
at 40 MHz repetition rate	1 mW		5 mW	
at 80 MHz repetition rate	> 1 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 ($I \times w \times h$)	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-53	0L	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	1			
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, 1 MHz to 80		MHz, freely	1 MHz to 80 MHz,
	freely adjustable	adjustable		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 be	eam	collimated beam
Power stability**	< 3 % rms	< 3 % rms		< 3 % rms
Dimensions (I × w × h)	195 × 112 × 24 mm (wi- thout fiber)	214 × 74 × 1	00 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	20 mW		3 mW	
at 80 MHz repetition rate	> 20 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 (I × w × h)	214 × 74 × 100 mm		223 × 74 × 100 mm	

66 nm				
Model	LDH-P-FA-765XL			
Center wavelength	766 ± 3 nm			
Pulse width (FWHM)	< 100 ps			
Average output power				
at 40 MHz repetition rate	100 mW			
at 80 MHz repetition rate	> 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 (I × 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	25 mW	< 450 mW		
at 80 MHz repetition rate	> 50 mW	< 450 mW		
Repetition rate	10 kHz to 80 MHz, freely adjustable 1 MHz to 80 MHz, freely adjust			
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 $(I \times w \times h)$	195 × 112 × 24 mm (without fiber) 214 × 74 × 100 mm			
1532 nm	1			
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	25 mW	< 450 mW		
at 80 MHz repetition rate	> 50 mW	< 450 mW		
Repetition rate	10 kHz to 80 MHz, freely adjustable	1 MHz to 80 MHz, freely adjustable		
Spectral width	<<1nm <<<1nm			
PER	> 10 dB	> 10 dB		
Output	collimated beam	collimated beam		
Power stability**	< 3 % rms < 3 % rms			
Dimensions (I × w × h)	195 × 112 × 24 mm (without fiber)	214 × 74 × 100 mm		

* limited collimation range ** (12 hours, $\Delta_{Tambient}$ < 0.5 K)

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