

CPDL-M/S Series

Compact Diode Lasers for Integration

- Compact design for integration
- Wavelengths between 375 and 1990 nm
- Pulse widths < 100 ps
- Fixed intensity setting
- Internally triggered or externally triggered versions

Applications

- Time-resolved measurement
- Fluorescence lifetime
- Diffusion measurements
- Testing & Semiconductor Diagnostic
- Metrology & ranging (LiDAR)
- Seeding



PicoQuant's CPDL-M and CPDL-S Series consists of a range of laser heads suited for integration. They are based on our well established picosecondpulsed diode laser technologies as found in our LDH Series. CPDL-M and CPDL-S heads do not require a laser driver from the PDL Series for operation. Some (easy) integration work on the customer's side is needed to provide electrical power. The laser heads do not require any adjustment and are delivered with fixed intensity settings (e.g.. pulse shape setting). They can be triggered either internally (CPDL-M) at selected a fixed set of user selectable repetition rates or externally (CPDL-S) at any repetition rate from single shot up to typically 40 MHz.

Specifications

Beam parameters			
Optics focus length	f' = 4.5 mm		
Numerical aperture	0.55		
Typical divergence (with optics)	theta parallel < 0.6 mrad		
	theta perpendicular < 0.5 mrad		
Polarisation	typ. linear, perpendicular to the longer axis of the elliptical beam		
PER	typ. > 1:10 (> 10 dB)		
Side Mode Suppression Ratio (SMSR)	typ. < 0.01		
Pulse Repetition rate			
CPDL-M (Master, internally triggerred)	standard: 40, 20, 10, 5 MHz (On request: 80, 40, 20, 10 MHz)		
CPDL-S (Slave, externally triggered)	standard: single shot up to 40 MHz (On request: up to 80 MHz)		
Sync Out (CPDL-M only)			
Connector	SMA, coaxial		
Source Impedance	50 Ohm		
Amplitude	<-0.8 V		
Pulse width	Min. > 5 ns Max. < 10 ns		
Trigger Input (CPDL-S only)			
Connector	NIM-CAMAC		
Internal Impedance	50 Ohms		
Trigger Level	0.5 V		
Pulse width	min. 5 ns		
Repetition frequency	max. 40 MHz (on request up to 80 MHz)		
Active slope	rising edge		
Recommended Trigger Signal (CPDL-S only)			
Amplitude	+1V		
Source impedance	50 Ohms		
Pulse width	> 6 ns		
Slope	1 ns (10 to 90%)		
Dimensions			
free beam	62 × 100 mm (diameter × length)		
with fiber coupling	62 × 132 mm (diameter × length)		
Spectral width			
Wavelengths < 900 nm	approx. 2 to 8 nm		
Wavelengths > 900 nm	approx. 10 to 20 nm		
Power stability (cooled)			
12 hours, Delta T (ambient) < 3 K	1 % RMS, 3 % peak to peak		
Environmental			
Operating Temperature	15° to 40°C		
Power Supply			
Voltage	22 to 25 VDC		
•	<1A		

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.

Wavelengths

The table below is a non exhaustive list of possible wavelengths based on data from recently manufactured laser heads. Further wavelength and other other specifications such as shorter pulse widths or higher powers might be available upon request. Please contact us for more information.

Туре	Pulse ¹	Standard average power ²	High average power ³
(LDH-)	(FWHM) [ps]	[mW]	[mW]
CPDL-M/S-375	< 40	0.8	4.0
CPDL-M/S-395	< 70	1.0	5.0
CPDL-M/S-405	< 50	1.0	3.0
CPDL-M/S-420	< 70	0.5	5.0
CPDL-M/S-440	< 80	0.8	4.0
CPDL-M/S-450	< 70	0.7	5.0
CPDL-M/S-470	< 70	0.8	4.0
CPDL-M/S-485	< 90	0.7	5.0
CPDL-M/S-500	< 100	0.7	5.0
CPDL-M/S-510	< 110	0.6	4.0
CPDL-M/S-640	< 90	1.0	10.0
CPDL-M/S-650	< 90	0.4	3.0
CPDL-M/S-660	< 90	0.5	5.0
CPDL-M/S-685	< 70	0.5	4.0
CPDL-M/S-705	< 70	1.0	5.0
CPDL-M/S-730	< 70	1.0	3.0
CPDL-M/S-760	< 90	0.3	3.0
CPDL-M/S-785	< 70	0.5	5.0
CPDL-M/S-830	< 70	0.15	4.0
CPDL-M/S-1060	< 90	0.7	10.0
CPDL-M/S-1550	< 50	0.01	0.5
	(LDH-) CPDL-M/S-375 CPDL-M/S-395 CPDL-M/S-405 CPDL-M/S-405 CPDL-M/S-405 CPDL-M/S-405 CPDL-M/S-420 CPDL-M/S-420 CPDL-M/S-420 CPDL-M/S-420 CPDL-M/S-440 CPDL-M/S-450 CPDL-M/S-450 CPDL-M/S-485 CPDL-M/S-510 CPDL-M/S-510 CPDL-M/S-640 CPDL-M/S-650 CPDL-M/S-650 CPDL-M/S-660 CPDL-M/S-685 CPDL-M/S-705 CPDL-M/S-730 CPDL-M/S-730 CPDL-M/S-785 CPDL-M/S-785 CPDL-M/S-785 CPDL-M/S-785 CPDL-M/S-1060	(LDH-) (FWHM) [ps] CPDL-M/S-375 < 40	(LDH-) (FWHM) [ps] [mVV] CPDL-M/S-375 < 40

¹Shortest pulse width at optimal intensity setting above laser threshold (standard factory setting). Pulses are deconvoluted with 30 ps detection IRF.

Shorter pulse widths are available on demand.

² Average optical power at shortest pulse width (standard factory setting) and 40 MHz repetition rate.

³ On request: maximal average optical power for high intensity setting and broad pulses (special factory setting).



PicoQuant GmbH Rudower Chaussee 29 (IGZ) 12489 Berlin Germany
 Phone
 +49-(0)30-1208820-0

 Telefax
 +49-(0)30-1208820-90

 Email
 info@picoquant.com

 Web
 www.picoquant.com

All Information given here is reliable to our best knowledge. However, no responsibility is assumed for possible inaccuracies or omissions. Specifications and external appearances are subject to change without notice. Trademarks or corporate names are used for explanation and identification, to the owner's benefit and without intent to infringe.