

# 10GHz Tunable Picosecond Laser

## Wavelength-Tunable Mode-Locked Laser Diode

### MLLD-100

#### Key Features

- Short pulse width 2 picosecond
- Wavelength tunable over C-band
- Synchronizable to external 8.5 - 11.5 GHz clock
- Fundamental single-longitudinal mode, no side-modes
- Turn-key quick start, no warm-up time
- Long-term stability > 72 hours



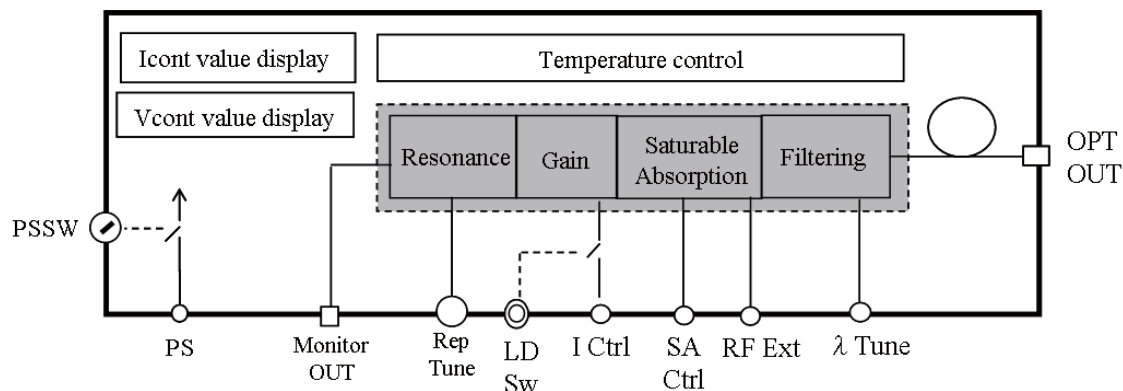
The MLLD-100 is a wavelength-tunable picosecond pulsed laser source based on a hybrid mode-locked semiconductor laser diode technology. The laser delivers a short pulse width of 2 ps with wavelength that covers the entire C-band window from 1530 to 1565 nm. The MLLD-100 is a fundamentally mode-locked with a short cavity and the repetition rate can be tuned from 8.5GHz to 11.5 GHz via cavity length tuning. The repetition rate can be easily locked to an external RF clock for ultra stable, low-jitter operation. RF power as low as 16 - 18 dBm is sufficient for stable locking.

Since there is only one longitudinal mode, there is no side-modes nor pulse-to-pulse amplitude fluctuations. Additionally, the MLLD-100 requires no warm-up time, and offers long-term stability of >72 hours continuous operation.

#### Applications

- 10, 40, 80, 160 and 320Gb/s RZ pulse sources
- High-speed OTDM demultiplexing
- Frequency comb generation
- Picosecond pump-probe studies
- Laser metrology for distance, delay and dispersion measurement

#### Functional Diagram



### Specifications

Parameter	Specification			Unit
	Min.	Typ.	Max.	
Wavelength	1530		1570	nm
Spectral width		2		nm
Pulse width		1.8	3	ps
Repetition rate	8.5		11.5	GHz
Timing jitter (rms) <sup>1</sup>		0.3	0.6	ps
Long-term stability <sup>2</sup>	72			Hours
Output power (main port)		-5		dBm
Output power (monitor port)		-10		dBm
Pulse amplitude fluctuation			0.1	%
External RF input power		18		dBm
Warm-up time		10	30	Sec
Power consumption			20	W
Operating temperature	+15		+35	°C
Humidity (non-condensing)		<80		%RH
Dimensions (WxHxD)	236 x 133 x316			mm
Optical connector	FC/SPC or FC/APC			
Weight	6			kg

Note: The above specifications are subjected to change without prior notice. Please contact Alnair Labs for more details and latest updates.  
<sup>1</sup> When locked to external RF synthesizer. Saturable voltage and LD current tuned to recommended operating point. <sup>2</sup> Continuous error-free operation at 10Gb/s data rate.

### Typical Performance

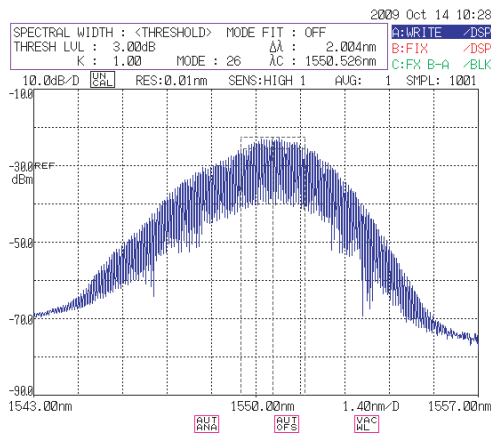


Fig. 1 Typical pulse output spectrum at 1550nm.

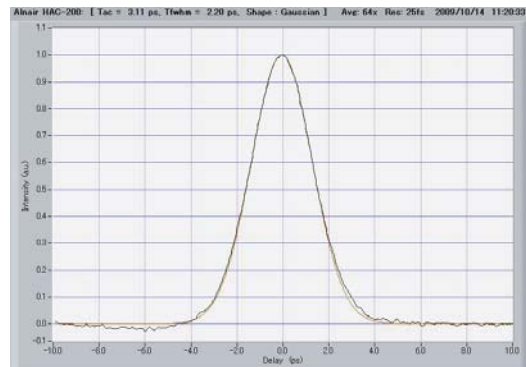


Fig. 2 Autocorrelation trace of output pulses.

### Ordering Information

MLLD-100 -

Connector Type

Connector Type Code  
 FS: FC/SPC  
 FA: FC/APC