

MLO-100

Mode-Locked Laser

MLO Mode-Locked Laser from Vescent Photonics is a stand-alone femtosecond laser designed for ease of use and high performance. Built around an Er-doped fiber and an EDFA, it will reliably deliver sub-100 fs pulses with a bandwidth of over 40 nm. The heart of the MLO-100 is our FO-100

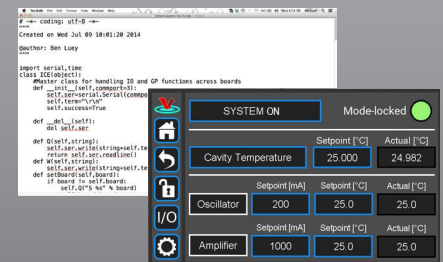
Fiber Oscillator including a gain fiber, mode-locker, and our unique cavity length adjustment tool for exact repetition rate control and precise matching of multiple systems. The MLO-100 houses the amplifier and pump diodes, current sources and temperature control, as well as the requisite drive electronics and user interface.



MLO-100 Mode-Locked Oscillator

Designed for ease of use *and* performance, the MLO-100's combination of touch screen interface and rotary knob input makes for simple set up and control. Modulation and control of the pump power as well as fast (via PZT) and slow (via temperature) tuning of the repetition rate makes the MLO-100 ideal as the engine for your frequency comb development. The slow integrator controlling the precise temperature set point allows long-term repetition rate locking when combined with the fast PZT loop.

Control the MLO-100 through a touch screen or via a serial command API



Features:

- Turn-key operation
- 1560 nm center wavelength
- >300 mW of mode locked power
- 2U 19" rack-mounted enclosure
- f_{rep} monitoring, control, and matching
- 100 or 200 MHz models
- Short pulses & broad bandwidth
- Low temperature drift

Applications:

- Timing & frequency measurements
- Frequency comb development
- Dual-comb spectroscopy
- Quantum sensing, computing, & cryptography

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MLO-100 Performance Specifications

Performance	
Center Wavelength	1560 nm
Output Power ¹	>300 mW
Pulse Width	<100 fs
Bandwidth	>40 nm
Nominal Repetition Rate	100 or 200 MHz
Carrier Envelope Offset Linewidth (f_{CEO})	<250 kHz
In-Loop Allan Deviation	< $10^{-16}/\sqrt{\tau}$
Repetition Rate Control	
PZT Control Range ²	>100 Hz or 400 Hz (note 3)
PZT Control Transfer Function	1 Hz/V or 4 Hz/V (note 3)
PZT Control Bandwidth ⁴	>250 kHz
Temperature Control Range ⁵	>40 kHz or >160 kHz (note 3)
Temperature Control Transfer Function	1 kHz/K or 4kHz/K (note 3)
Repetition Rate Stability ⁶	<1 ppm/°C
Power Control	
Modulation Bandwidth ⁷	>30 kHz
Modulation Range	± 10 mA
Monitor Outputs	
Repetition Rate (f_{rep})	Yes
Optical Output	Oscillator and/or amplifier power
Physical Properties	
Power Input	100 - 240 VAC; 50 - 60 Hz
Dimensions	19" x 10" x 2U

All specifications subject to change without notice.

¹With EDFA

²0-100 V input

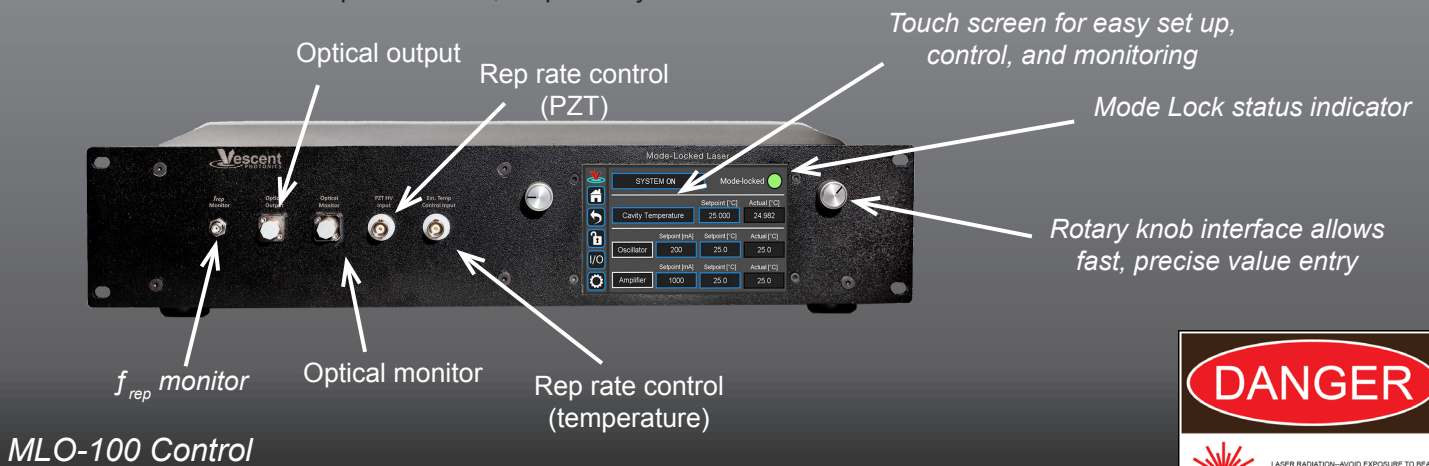
³100 MHz and 200 MHz repetition rates, respectively

⁴Small signal

⁵40°C range

⁶With respect to room temperature

⁷Limited by Er:fiber



MLO-100 Control



High-bandwidth control of the MLO repetition rate is made easy with the SLICE-DHV High Voltage Amplifier

