

Vantage® Tunable Diode Laser – Simply Better Littrow™

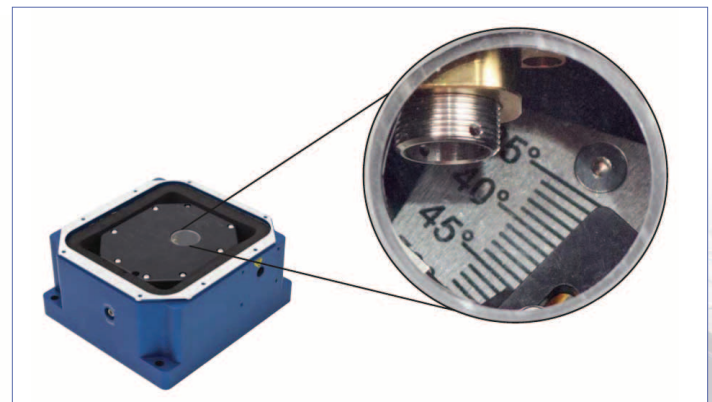
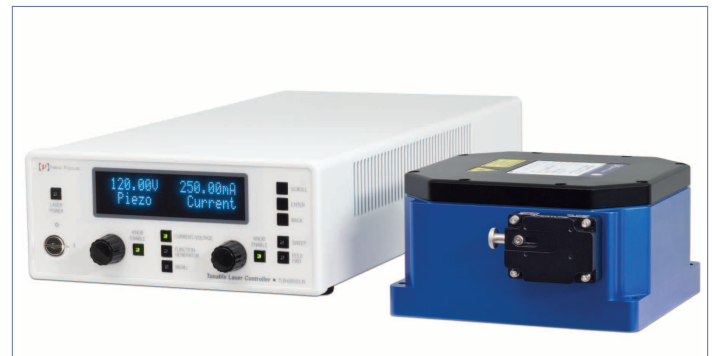


The TLB-7100 Vantage® Tunable Diode Laser is the latest addition to the New Focus family of lasers. An external cavity diode laser, the Vantage adopts the popular Littrow design to offer higher power at a variety of wavelengths to meet your experimental needs. Each laser unit is optimized to a user specified wavelength to deliver top performance and mode-hop-free piezo tuning while providing the option to manually coarse tune to another wavelength. The narrow linewidth measured over 50 ms, exceptional mode-hop-free tuning range, and power and wavelength stability make the Vantage a first in class Littrow. New Focus Vantage...Simply Better Littrow™.

The Vantage laser comes standard with our new premium low noise TLB-6800-LN controller with head recognition to automatically set the best diode temperature for the individual laser as well as a current upper limit to protect the diode from damage. The TLB-6800-LN includes an internal function generator, variable piezo gain, USB and RS232 communication, feed forward capability, and intuitive digital interface with real buttons to make your lab life easier.

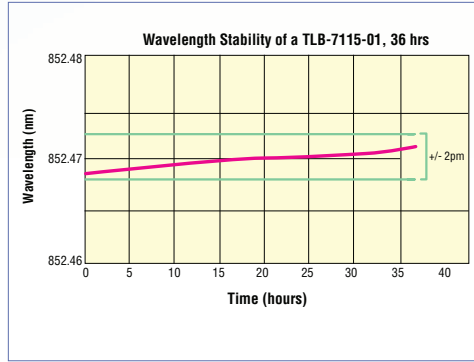
Applications are Atomic Spectroscopy, Laser cooling, BEC, MOT, Interferometry, and More.

- Piezo fine tuning and manual coarse tuning
- Magnetic damping for mechanical stability
- Tuning arm viewing window
- Output shutter for safety
- Laser head recognition for smart current and temperature settings

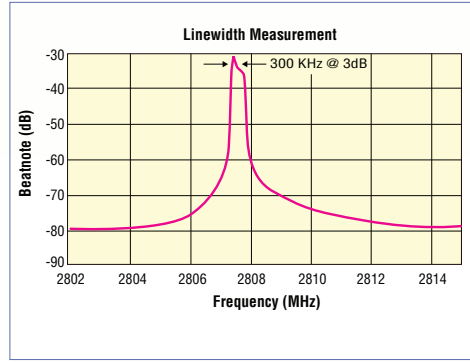


Be in-tune with the tuning arm angle. Viewing window enables easy coarse tuning.

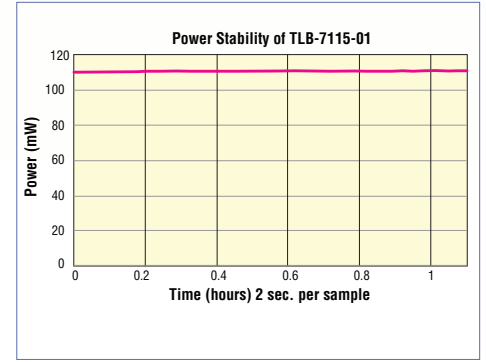
Vantage Highlights



Measured using a wavemeter with a 1pm resolution.
Laser is free-running.



Heterodyne beat note of two Vantage lasers, 50 ms integration time.



Power measurement of a TLB-7115-01 Vantage at 852 nm.

Specifications ¹	Value	Comment
Linewidth	300 kHz	Integrated over 50 ms
Wavelength Stability	1 pm 5 pm	Over 1 hour Over 36 hours
Frequency Modulation Bandwidth (Internal Generator)	0.1 Hz - 100 Hz	Full Fine Tuning Range
Max Frequency Modulation Bandwidth	100 Hz 1.5 kHz	Full Fine Tuning Range 20% of Fine Tuning Range
Max Current Modulation Bandwidth	<1 MHz	Through controller
Max Current Modulation Bandwidth	<100 MHz	Directly to diode through laser head SMA port
Optical Output	Free-space	

Model Number	Available Wavelengths ^{2,3}	Typical Mode-Hop Free Tuning Range	Typical Power
TLB-7102-01	392 - 398 nm	10 GHz with feedforward 2 GHz without feedforward	15 mW @ 397 nm
TLB-7102-02	421 - 423 nm	5 GHz with feedforward 2 GHz without feedforward	10 mW @ 423 nm
TLB-7102-03	428 - 431 nm	10 GHz with feedforward	15 mW @ 430 nm
TLB-7104-01	671 - 673 nm	15 GHz with feedforward	20 mW @ 671 nm
TLB-7113-02	695 - 703 nm	10 GHz with feedforward	25 mW @ 702 nm
TLB-7113-01	765 - 782 nm	50 GHz without feedforward	90 mW @ 780 nm
TLB-7115-01	830 - 867 nm	50 GHz without feedforward	90 mW @ 852 nm
TLB-7115-02	895 - 920 nm	50 GHz without feedforward	20 mW @ 895 nm

1. Published specifications at the time of order are guaranteed. The Vantage is serviceable both at the factory and on-site. Specifications are guaranteed when factory built and serviced only.
2. Laser is optimized at your specified wavelength. Please indicate desired wavelength to 0.01 nm.
3. Manual coarse tuning available to access wider portion of diode gain band. Accessible wavelengths and performance are dependent on user optimization.