

Prometheus

Ultra-Narrow Linewidth CW DPSS Green Laser

Prometheus is a frequency doubled Nd:YAG laser providing both 532 nm and 1064 nm outputs in a single package. Being based on a Non-Planar Ring Oscillator (NPRO) configuration Prometheus features frequency and intensity stability parameters unmatched by any other commercial product. Prometheus laser is simple to stabilize in temperature and easy to fine-tune by using an integrated PZT. Prometheus is available at power levels of 20 mW and 100 mW at 532 nm and corresponding powers of 500 mW and 1500 mW at 1064 nm from the second output.

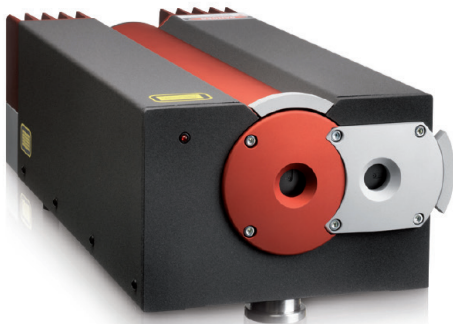
Prometheus is an ideal laser source for applications such as iodine frequency stabilization systems (please enquire about iodine based options), optical length and frequency standards, quantum optics studies, micro-cavity experiments, nonlinear optics pumping, gravitational waves studies, optical heterodyning and others.

Features & Benefits

- Monolithic non-planar ring oscillator (NPRO) technology for ultra-stable and narrow linewidth
- Fundamental and doubled wavelengths available simultaneously
- Efficient and stable extra-cavity doubling stage
- Extremely long coherence length
- Noise Eater – active intensity noise reduction technology
- User-installed, turn-key operation
- Low noise control electronics

Applications

- Iodine Frequency Stabilization
- Gravitational Wave Studies
- Laser-based Metrology
- Quantum Optics (optical trapping, optical lattice, squeezing)
- Nonlinear Optics Pump Source (SHG, DFG, OPO)



SPECIFICATIONS

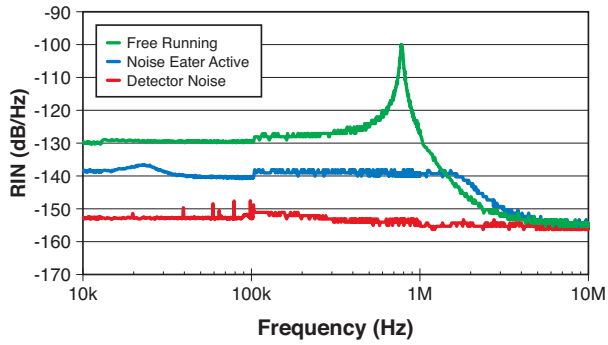
SPECIFICATIONS	Prometheus
Laser Power (mW)	
532 nm	20, 100
1064 nm	500, 1500
Laser Control Electronics	Analog, stand-alone
Operational Mode	Continuous-wave
Spatial Mode ¹	TEM ₀₀ (M ² <1.2)
Beam Roundness (at exit)	<1.3
Thermal Tuning Coefficient ¹ (GHz/K)	-6
Thermal Tuning Range ¹ (GHz)	60
Thermal Response Bandwidth (Hz)	1
PZT Tuning Coefficient ¹ (MHz/V)	≈2
PZT Tuning Range (MHz) (for 1064 nm and 532 nm)	±65 and ±130
PZT Response Bandwidth (kHz)	100
Emission Spectrum	Single-frequency
Spectral Linewidth (kHz)	≤3
Coherence Length (km)	>1
Frequency Stability ^{1,2} (MHz/min.)	≈2
Relative Intensity Noise (RIN) (dB/Hz), f >20 kHz	<-135
Intensity Noise, 10 Hz to 2 MHz (% rms)	<0.06
Type of Second Harmonic Generation	Single-path
Laser Head Size (L x W x H)	337 x 150 x 113 mm (13.3 x 5.9 x 4.4 in.)
Laser Head Weight	6.8 kg (15 lbs.)
Laser Controller Size (L x W x H)	135 x 340 x 345 mm (5.3 x 13.4 x 13.6 in.)
Laser Controller Weight ²	9.2 kg (20.3 lbs.)

¹ At 532 nm.

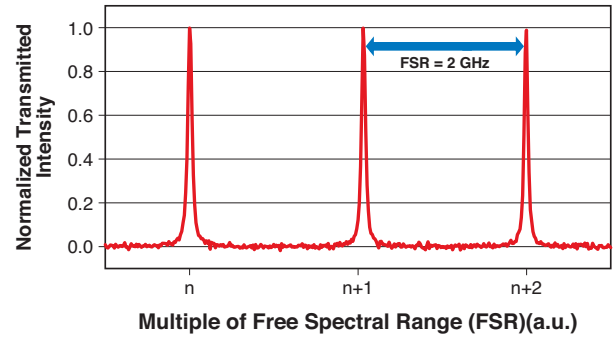
² Measured at constant room temperature.

TYPICAL PERFORMANCE DATA

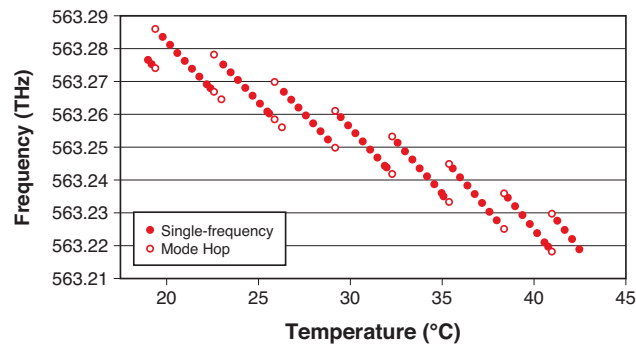
Relative Intensity Noise



Fabry-Perot Spectrum

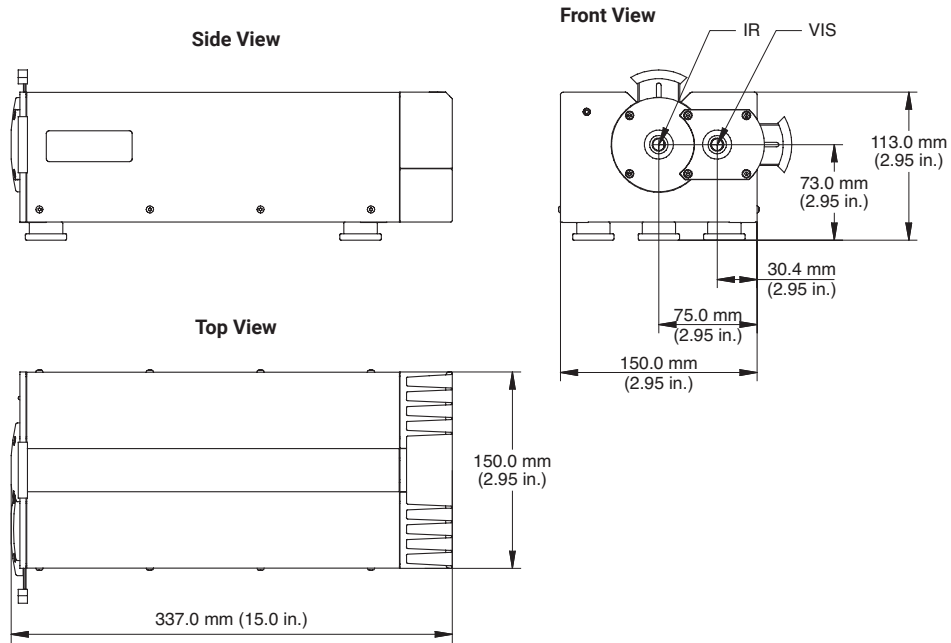


Thermal Frequency Tuning



MECHANICAL SPECIFICATIONS

Prometheus



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Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice. Coherent's scientific and industrial lasers are certified to comply with the Federal Regulations (21 CFR Subchapter J) as administered by the Center for Devices and Radiological Health on all systems ordered for shipment after August 2, 1976.

Coherent offers a limited warranty for all Prometheus Lasers. For full details of this warranty coverage, please refer to the Service section at www.coherent.com or contact your local Sales or Service Representative.

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