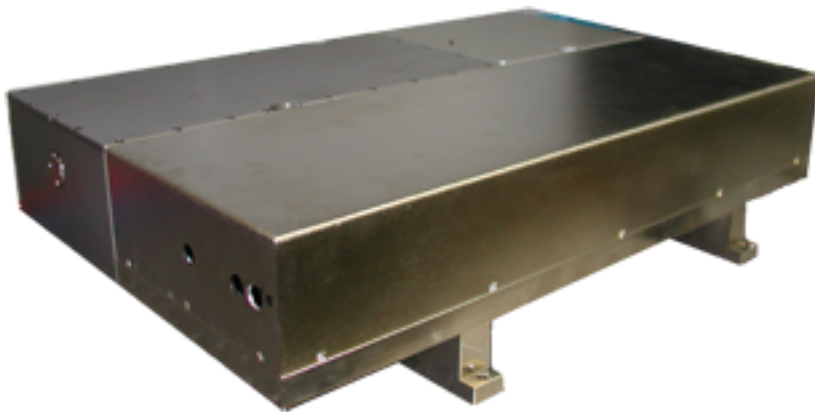


TU Series

Diode Pumped Solid-State Lasers
Tunable ns Ti: Sapphire



Features

- ns Pulse Width
- Narrow Bandwidth 1 to 3 GHz
- High Repetition Rate: single shot to 10kHz
- TEM00 Mode Beam Profile
- mJ level Energy/pulse
- Broad Tuning from 700 to 960nm
- Harmonic from 193 to 480nm
- External TTL Triggering
- Computer wavelength scanning (100 MHz/step)
- Multi-pass Amplifier to achieve ~ Watts level UV Output
- RS232 Computer Control

Applications

- OH Radical Concentration Measurement
- CARS
- LIDAR
- Laser Induced Fluorescence
- Mass Spectrometry
- MALDI
- Multi-Photon Spectroscopy
- Raman Spectroscopy
- Non-Contact Inspection
- Time Resolved Spectroscopy



Photonics Industries
International, Inc.

Photonics Industries Ti: Sapphire

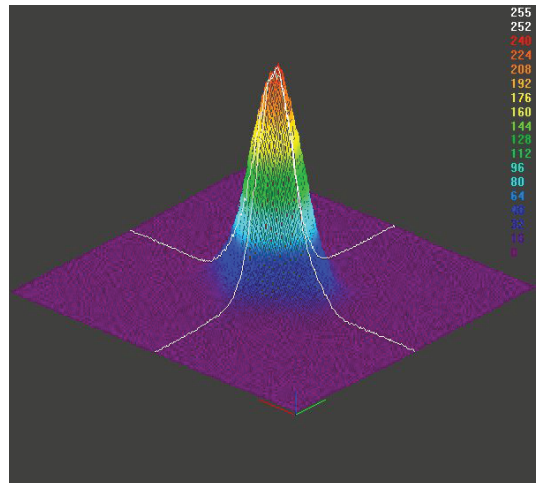
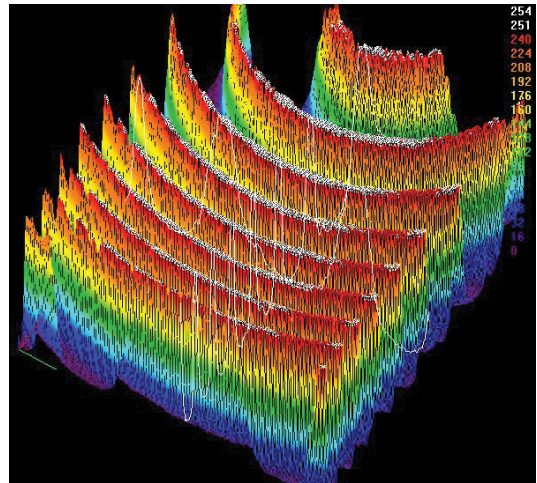
Photonics Industries' patented TU Series of Ti:Sapphire lasers are tunable over a wide range of wavelengths and operate at high repetition rates while providing mJ of energy with a very narrow line width. The TU Series combines our field proven diode pumped Nd:YAG or Nd:YLF lasers with one Ti:Sapphire oscillator to provide a reliable and efficient tunable laser in a compact package.

By minimizing dispersive optical components in the laser cavity, our TU Series lasers provides superior wavelength stability (typically $<0.04 \text{ cm}^{-1}$ over eight hours). The fundamental can be tuned from $\sim 700 \text{ nm}$ to $\sim 940 \text{ nm}$. With sum and/or harmonic generations, the tuning range can be extended from 480 nm down to 193 nm .

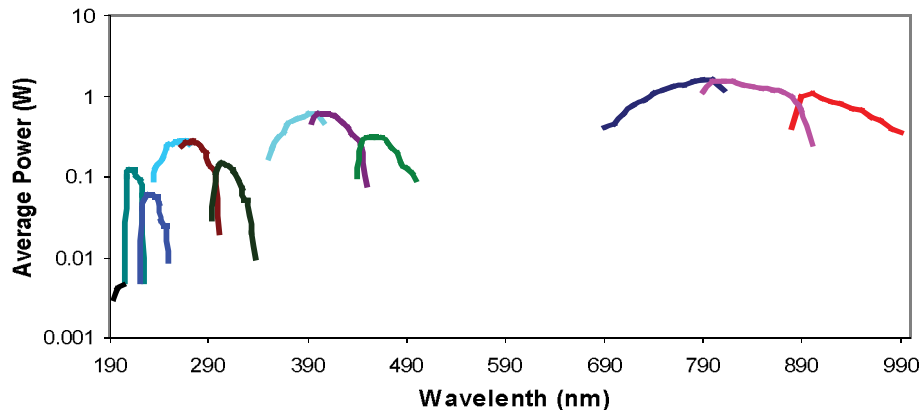
Computer wavelength scanning is available for the fundamental wavelength tuning (step size: $< 100 \text{ MHz}$).

There are two versions of the TU Series: The TU-L addresses high pulse energy at relatively low repetition rates (single shot to 4 kHz); the other TU-H is for high repetition rate applications (single shot to $> 10 \text{ kHz}$).

Photonics Industries' TU Series of broadly tunable, high rate narrow line width Ti:Sapphire lasers provide a superior alternative to dye lasers and low repetition rate OPO's. These lasers have been used in the biological sciences to excite fluorescence from a variety of probe molecules. In Raman spectroscopy the Ti:Sapphire's broad tunability, high conversion efficiency has made this laser a popular choice. In measurements of the time constant decay of a fluorescent signal using Time-resolved Fluorescence the Ti:Sapphire laser has proven to be a valuable tool. It has been a top choice for OH radical concentration measurement in the atmosphere.



Ti:sapphire Laser(10mJ @ 1kHz pumping @ 527nm by DS20-527)



Specifications

	Tuning Range	TU-L (Avg. Power @ 1 kHz)*	TU-H (Avg. Power @ 4 kHz) *
Fundamental	720-940 nm	>1 W	>1 W
2nd Harmonic	360-470 nm	>400 mW	>200 mW
3rd Harmonic	240-313 nm	>150 mW	>100 mW
4th Harmonic	206-235 nm	>50 mW	>20 mW
Frequency Mixing	193-206 nm	3-10 mW	1-10 mW

* The rated average power is for peak tuning with DS/DM pump. For higher powers or DC pump, please contact the factory.

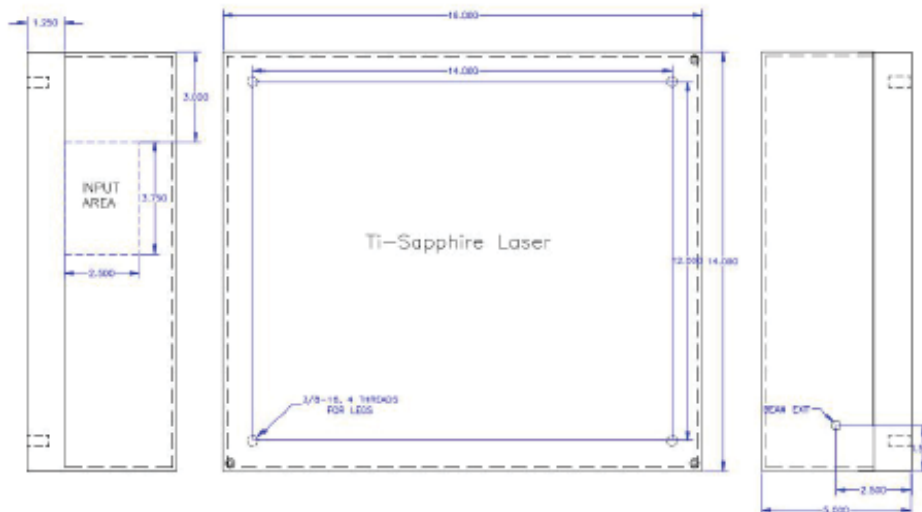
	TU-L	TU-H
Typical Pulse Widths	10-35 ns	30-50 ns
Spatial Mode Profile	TEM ₀₀	TEM ₀₀
Energy Instability (P to P)*	2% rms	2% rms
Line Width (in fundamental)	0.1 cm ⁻¹	
Repetition Rate	Single shot to 4 kHz	4kHz to 10 kHz

* For fundamental wavelengths.

	Width	Length	Height
Laser Head (DC Pumped)	14 in	16 in	5 in
Laser Head (DS/DM Pumped)	14.5 in	26 in	4.25 in
Laser Controller	19 in	13.5 in	5.25 in
Cooling	Closed loop chiller		
Electrical Requirement	110 VAC 20 Amps or 220 VAC 10 Amps @ 50/60 Hz		
Ambient Temperature	15 to 30 °C (59 to 86 °F) Operating Range		
Umbilical Length	3 meters (10 feet)		

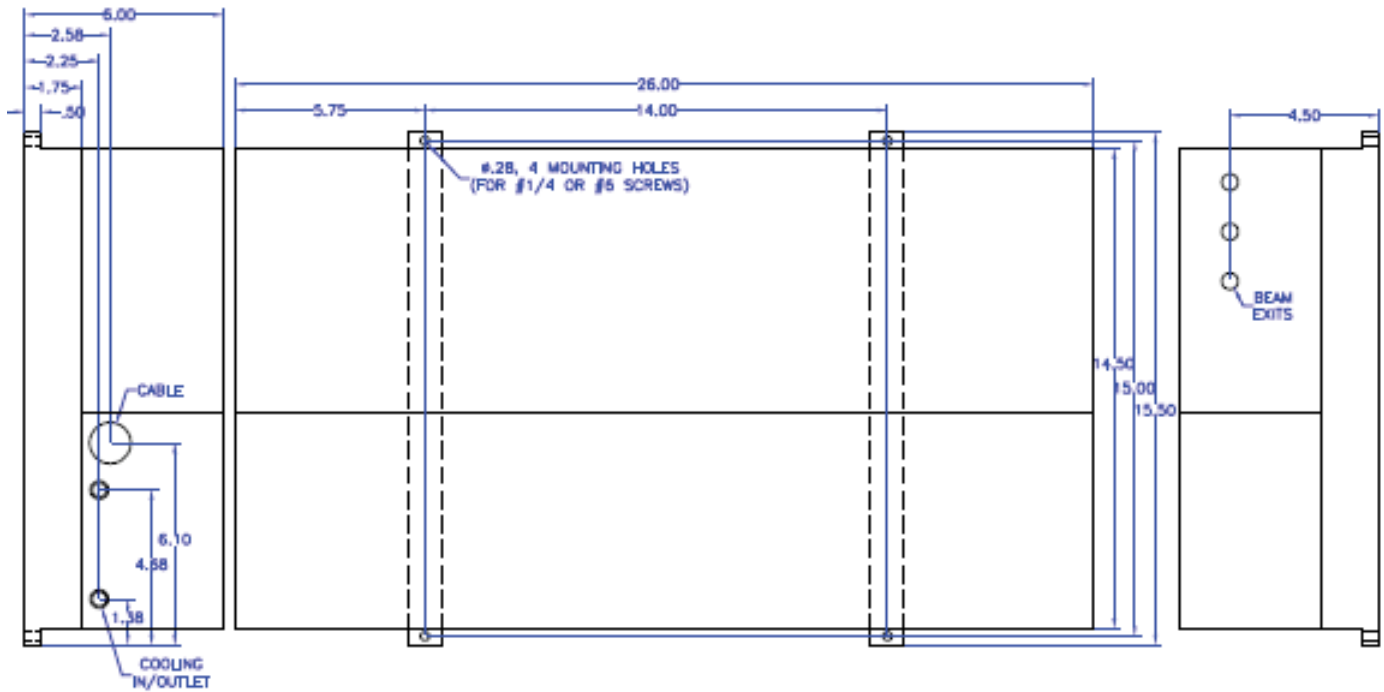
Dimensional Drawings

DC Pumped Ti: Sapphire



Dimensional Drawings

DM/ DS Pumped Ti: Sapphire



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Due to Photonics Industries' commitment to continuous product improvement, specifications and drawings are subject to change without notice.

Photonics Industries conforms to provisions of US 21 CFR 1040.10 & 1040.11 and is made under one or more US patents listed below:
9,531,147, 8,817,831, 7,869,471, 7,346,092, 7,082,149, 7,079,557, 6,999,483, 6,980,574, 6,961,355, 6,842,293, 6,762,405, 6,690,692,
6,587,487, 6,584,134, 6,366,596, 6,356,578, 6,327,281, 6,246,707, 6,229,829, 6,108,356, 6,061,370, 6,028,620, 5,936,983, 5,898,717 and
Pending Patents

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