TiC. Ti:Sapphire Continuous Wave Laser

- 700-1000 nm tuning range with a single set of optics
- 690...1060 nm available customized and optimized wavelengths
- >1.8 W at 800 nm average output power
- Down to 2 GHz linewidth (with optional etalons)
- Integrated on-board pump laser option
- Automated wavelength tuning and Windows software
- Built-in spectrometer and power meter (optional)
- Optional built-in fiber coupling

TiC laser model designed for external pumping

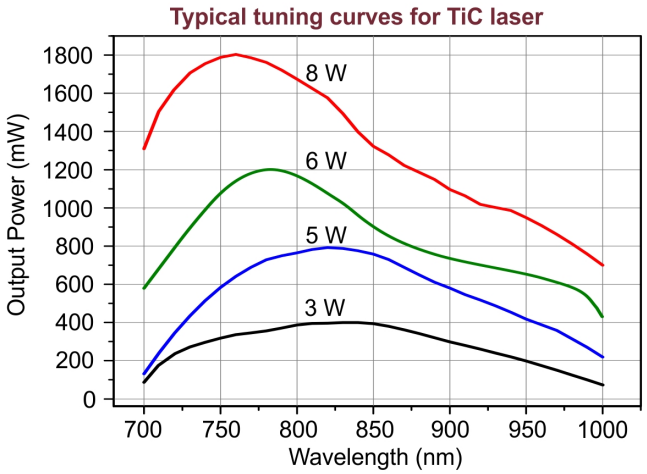
Product overview

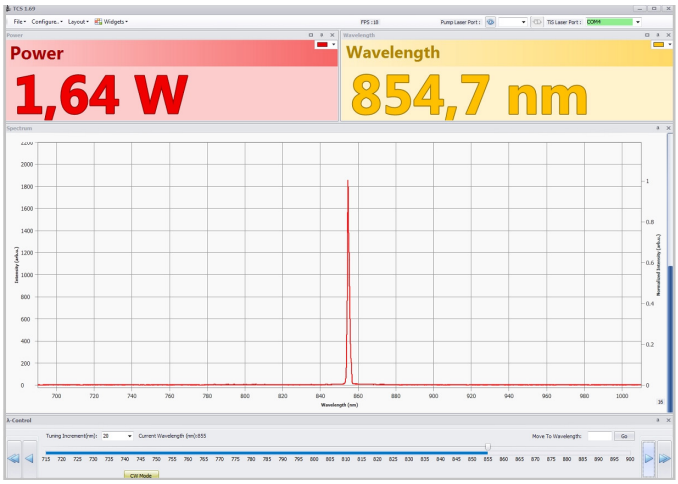
Continuous wave Ti:Sapphire laser features broad wavelength tuning range (700-1000 nm) and finds itself as a useful tool for many fields of fundamental research, especially various spectroscopy applications.

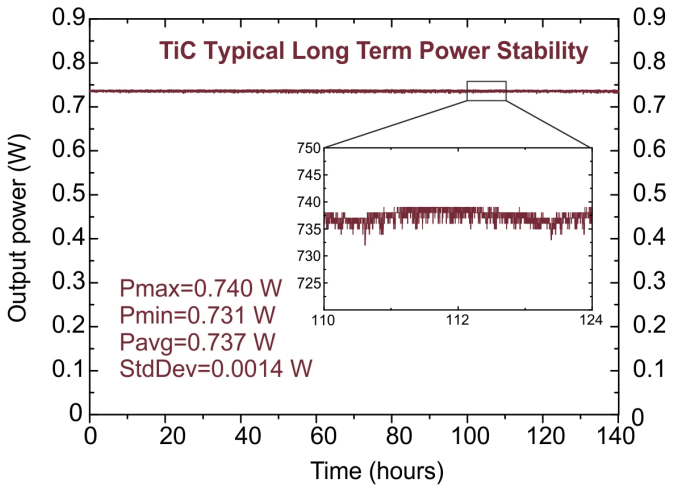
The wavelength tuning is carried out by a birefringent Lyot filter and can be either manually controlled or motorized via a step motor with USB connection to a PC. Two etalons can be optionally placed into the cavity in order to narrow the linewidth of the generated radiation down to 2 GHz.

The CW Ti:Sapphire laser needs to be pumped by a CW DPSS pump laser at 532 nm. Our company offers the oscillators without the pump laser, as well as a version with integrated pump laser with pump power varying from 2 W to 8 W.

Optional fiber-coupled modification is available. The radiation is steered into a fiber with 4 um core diameter. The optical scheme allows easy switching between the free-space and the fiber outputs via a flip mount.



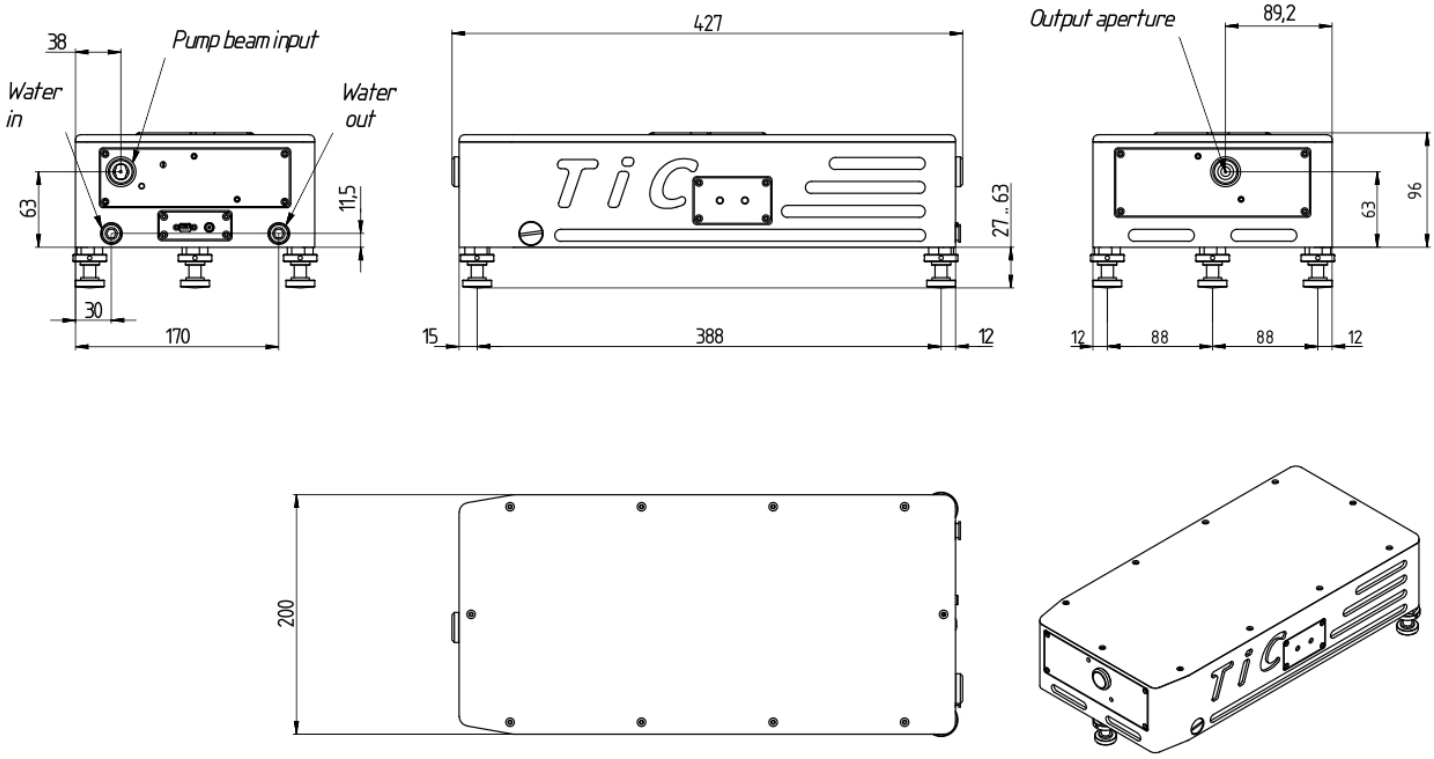




Standard models and available pump laser power matrix		
Pump laser power	**TiC output power at 800 nm (free-space)**	**TiC output power at 800 nm (fiber-coupled, optional)**
3 W **5 W** **6 W** **8 W**	>400 mW >800 mW >1.2 W >1.8 W	>250 mW >500 mW >900 mW >1.2 W
General optical specifications		
Wavelength tuning range	700-1000 nm (customized wavelengths in the range of 690...1060 nm)	
Output linewidth	<45 GHz (default) <20 GHz (with 1 intra-cavity etalon, optional) <2 GHz (with 2 intra-cavity etalons, optional)	
Pump laser	integrated or stand-alone DPSS 480...550 nm low-noise pump laser (up to 8 W); the pump laser must have low amplitude noise and have a TEM00 spatial mode	
Fiber output (optional)	FC socket, SMF FC-FC patch-cord, length 1 m, core dia 4 um	
Spatial mode and M^2	TEM00 (M^2 <1.2)	
Output beam diameter (at 1/e²)	<2 mm	
Output polarization	linear, horizontal, PER >100:1	
Beam divergence	<1 mrad	
Long-term output power stability[1)]	<0.2% rms	
Physical dimensions (L × W × H)		
Laser head	427 × 300 × 129 mm (incl. integrated pump laser) 427 × 200 × 123 mm (for external pumping)	
Integrated pump laser control unit	353 × 360 × 119 mm	
Closed-loop chiller unit	430 × 340 × 190 mm	
Environmental and utility specifications		
Operating temperature	15-30 °C	
Relative humidity	<60%, non-condensing	
Voltage	single-phase; 100-240 VAC; 50/60 Hz	
Power consumption	<1.5 kW	
Available factory configuration packages[2)]		
Thermally stabilized monolithic body	included in any package	
"Manual" factory package	- birefringent Lyot filter with manual micrometer screw adjustment - (optional) one or two intracavity etalons with manual adjustment	
"Basic" factory package (default)	- birefringent Lyot filter with step-motor adjustment - (optional) one or two intracavity etalons with manual or step-motor adjustment - motorized wavelength tuning with remote control - basic Windows software with wavelength tuning remote control capability	
"Auto" factory package	- birefringent Lyot filter with step-motor adjustment - (optional) one or two intracavity etalons with manual or step-motor adjustment - built-in spectrometer - built-in power meter - active output power stability locking[3)] - BRF control and etalons (optional) control via single Windows software application - extended Windows software version, incorporating monitoring of operational parameters and single-click wavelength tuning	

1) – after 30 min warm-up with cold start, during 12-hour continuous operation under equal room temperature conditions using factory-supplied/recommended stabilized closed-loop chiller with proper capacity and factory-supplied/recommended low-noise on-board integrated highly stable pump laser with active power locking turned ON; "Auto" package only;
2) – please select one of the packages as basis for your system; certain features may be tailored or combined differently according to specific customer requirements;
3) – available only with certain manufacturer-certified pump laser models, please enquire.

TiC laser head for use with external pump



TiC laser head with integrated pump