

Fiber Coupled Single Mode Tunable Laser 450-2200nm

(ultra-wide wavelength tunable range, SM, PM)



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Features

- Ultra Wide Tuning Range
- SM and PM
- Free-Space and Fiber Coupled
- Outstanding Power Stability

Applications

- Microscopy (FRET, TIRF, CLSM...)
- Absorption /Transmission / Reflection Spectroscopy
- Optical Device Characterization
- Metrology
- Hyperspectral Imaging



The SUTL is a fiber-coupled, single-mode tunable laser delivering up to 0.5 mW per 0.7 nm linewidth peak with more than 5 W of average power across an ultra-broad spectral range of 450–2200 nm. It offers power stability (<0.5% RMS) and is based on a supercontinuum laser platform operating at repetition rates up to 4 MHz. Wavelength tunability is achieved via a fiber-optic tunable filter providing a typical 200 nm tuning range, extendable using multiple filters. The single-mode output exhibits minimal polarization dependence, while the polarization-maintaining (PM) configuration delivers highly stable polarized light with an extinction ratio up to 35 dB. The standard configuration provides free-space output through a photonic crystal fiber (PCF) terminated with a fused glass core endface to prevent damage. Because the PCF mode field differs significantly from conventional fibers, direct connectorized coupling typically incurs losses exceeding 10 dB. To address this, mode-field-adaptor splicing is available with various fiber types to maintain single mode characters with standard connectors for convenient integration. Optional output isolators ensure operational stability in systems subject to back-reflections. The SUTL is offered as a turnkey, plug-and-play benchtop system ideal for scientific and industrial.

Specifications

Parameter	Min	Typical	Max	Unit
Spectrum Range *	450		2300	nm
Power Spectral Density **	-20	-10	-5	dBm/nm
Laser Linewidth	0.7	1.5	3	nm
Repetition Rate	Q-Switch		0.4	MHz
	MOPA		4	
Pulse Duration	Q-Switch	100		ns
	MOPA	10		
Power per Wavelength**	0.4nm	0.06	0.15	mw
	0.7nm	0.1	0.2	
	2nm	0.3	0.7	
Average Power Stability (std. dev.)		< 0.5		%
Output Power Adjustability	1		100	%
Spatial Mode Quality (M ²)		< 1.2		
Polarization Extinction Ratio (PM Fiber)	20	25	30	dB
Power Requirements (50/60 Hz)	100		240	ACV
Power Consumption		100		W
PCF	SC-5.0-1040 (NKT)			
PCF 1 st Zero Dispersion Wavelength		1050		nm
PCF Mode Field Diameter		4.6		μm
PCF Background Loss @1606nm		14		dB/km
PCF Background Loss @1550nm		10		dB/km
PCF Cladding Diameter		125		μm
PCF Outer Coating Diameter		245		μm
Operating Temperature	20		40	°C
Storage Temperature	-40		80	°C

* For MOPA pumping, Q-Switch has weak output near short wavelength end

** SM28 fiber output. Free Space output power about 2x higher

Note: The specifications provided are for general applications with a cost-effective approach. If you need to narrow or expand the tolerance, coverage, limit, or qualifications, please [click this link](#):

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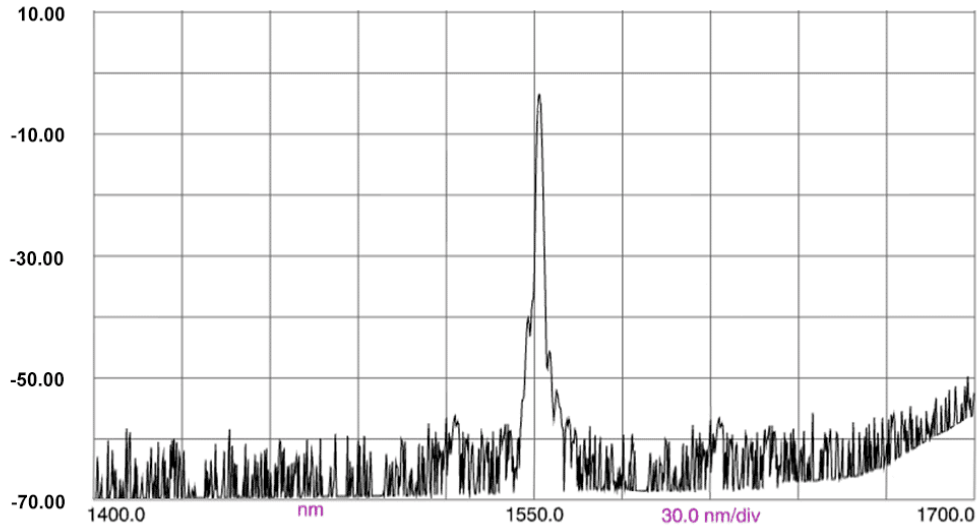
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Typical Spectrum (Output Fiber SM28, Linewidth 0.7nm)



Ordering Information (Part Number)

Prefix	Config	Wavelength Range	Linewidth ^[1]	Power	Tuning Method	Output ^[2]	Connector ^{[3][4]}
SUTL-	Q-Switch = 1 MOPA = 2	1300-1600nm = 01 1280-1760nm = 02 1900-2200nm = 03 850-1100nm = 04 650-850nm = 05 400-650nm = 06 1310-2200nm = 07 1280-2200nm = 08 900-2200nm = 09 Special = 00	2nm = 2 1.5nm = 1 3nm = 3 0.7nm = A Special = 0	0.1mW = 1 0.2mW = 2 0.3mW = 3 0.4mW = 4 0.5mW = 5	Manual = 1 GUI = 2 Special = 0	Free Space = 11 Photonic Fiber = 12 50/125 Fiber = 50 105/125 Fiber = 05 5mm Collimator = 5C SM28 = 28 Hi1060 = 10 Hi980 = 98 Special = 00	None = 1 FC/PC = 2 FC/APC = 3 Special = 0 HERFC/PC = H HERFC/APC = A

[1]. Large linewidth has higher power.

[2]. The free-space port is terminated with an end-capped photonic crystal fiber (PCF) and **cannot be mated directly to another fiber**. Fusion coupling to a standard fiber is available at additional cost due to the complexity of the process. Please note that single-mode (SM) fibers have a limited transmission bandwidth.

[3]. **PCF fiber can not couple into a regular fiber with connectors, only splicing that loss a large portion of light**. Regular fiber connector has PER ~22dB. HER Connector with PER >27 dB is available using special process

[4]. The default connector configuration uses fiber with 0.9 mm buffer protection. The connector cannot be installed directly onto bare fiber because the bare fiber is prone to damage during shipping. However, the connector can be assembled on bare fiber if a 3 cm protective loose tube is added for reinforcement. The customer may remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SMF-28 fiber and decreases further for smaller-core fibers.

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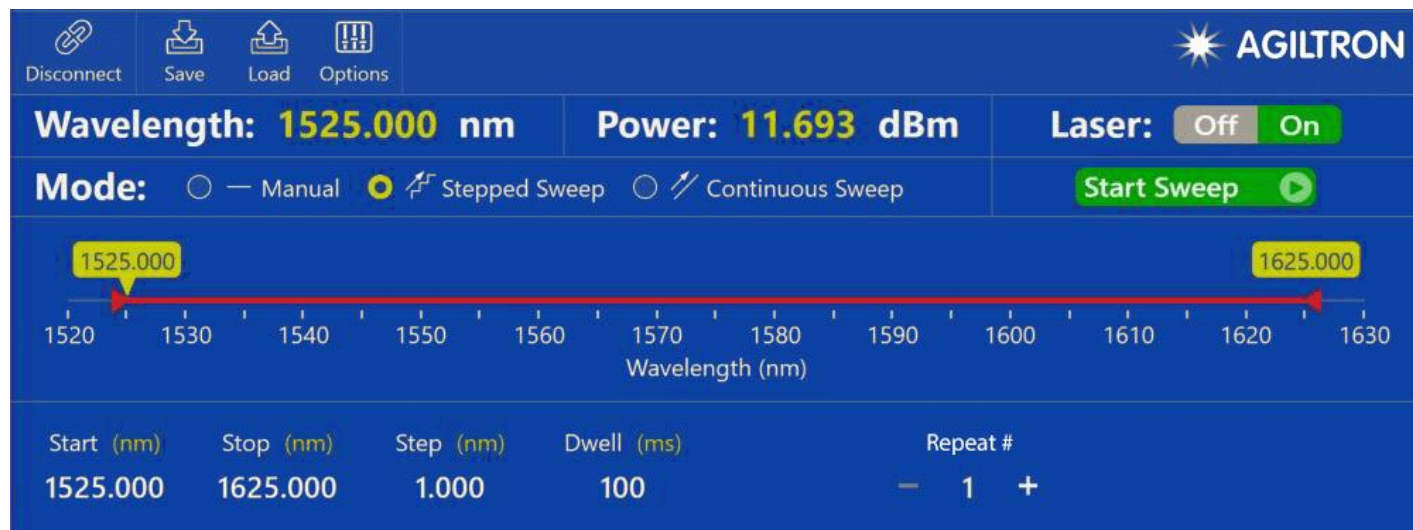
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Control GUI



Operation Instruction (see manual)

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Dimensions (Unit: mm)

*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

Accessory - Tunable Output

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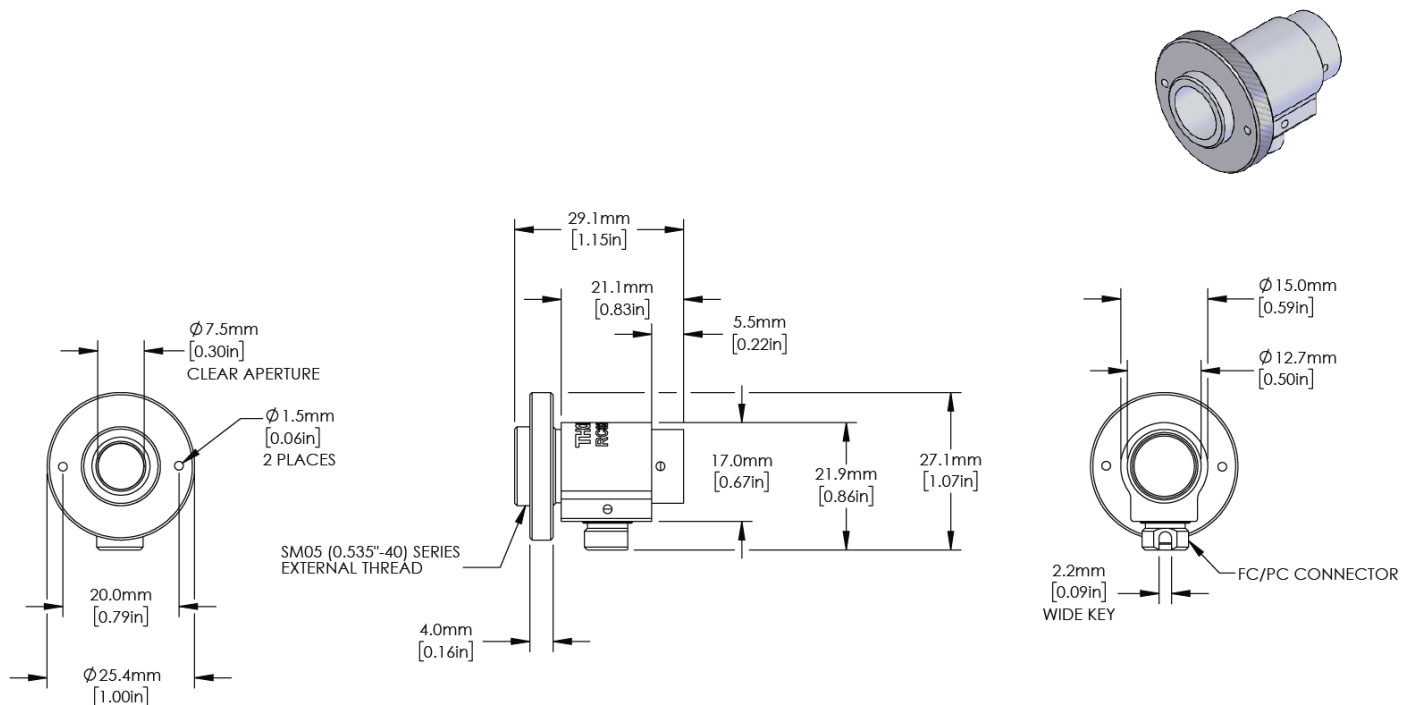
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Collimator Mechanical Dimensions (mm[inches])



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Laser Safety

This product meets the appropriate standard in Title 21 of the Code of Federal Regulations (CFR). FDA/CDRH Class 1M laser product. This device has been classified with the FDA/CDRH under accession number 0220191. All versions of this laser are Class 1M laser products, tested according to IEC 60825-1:2007 / EN 60825-1:2007. An additional warning for Class 1M laser products. For diverging beams, this warning shall state that viewing the laser output with certain optical instruments (for example eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. For collimated beams, this warning shall state that viewing the laser output with certain instruments designed for use at a distance (for example telescopes and binoculars) may pose an eye hazard.

Wavelength = 1.3/1.5 μm .

Maximum power = 30 mW.



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