

## STN Series Single Frequency Fiber Laser Systems

We have leveraged its unique fiber technology to develop a family of high-performance single frequency laser systems with line widths as low as 700Hz.

Available in both OEM module and bench-top versions, the Rock family of single frequency laser systems provides the end user with robust, low noise operation with broad mode-hop-free tunability.

The Rock family of single frequency lasers have been utilized in a wide array of applications where low acoustic noise sensitivity and frequency stability are pivotal to success.

### 1. Rock Series Compact Single-frequency Fiber Laser OEM Modules

#### Features:

- Narrow Linewidth <700Hz
- Ultra-Low Phase-Noise
- Excellent Frequency Stability
- Broad Mode-Hop-Free Tunability
- Comprehensive, User-Friendly Interface
- Low sensitivity to Acoustic Noise



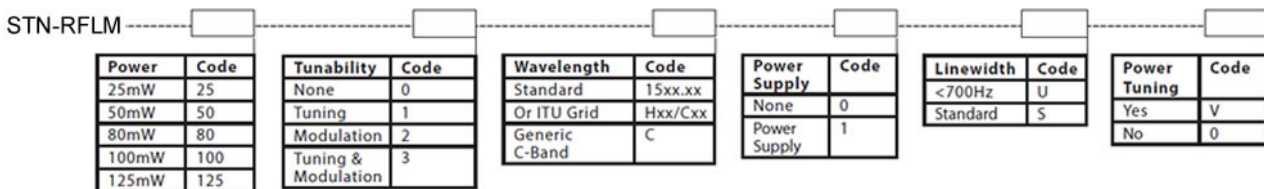
	Rock Module 1.5 micron	Rock Module Ultra 1.5 micron	Rock Module 1.0 micron
Center Wavelength Range (nm) 1	1530-1565	1530-1565	1030-1075
Laser Emission	CW - single frequency		
Output Power (mW) 2	25, 50, 80, 100, 125	25, 40, 80	25, 50, 80, 100, 125
Line Width (120 $\mu$ sec 3) (kHz)	<3kHz for $\leq$ 50mW <5kHz for $\geq$ 80mW	<700Hz	<5kHz
Beam Quality	M2 < 1.05		
Frequency Stability (MHz) 4	20MHz		
RIN-Peak Frequency (MHz)	~0.5 - 1		
Optical S/N (dB) (50 pm resolution bandwidth) 5	>75dB		
PM output	Standard		
Thermal tuning	Standard		
Thermal Tuning Range 6	>60GHz (480pm)	>60GHz (480pm)	>66GHz (250pm)
Fast Piezo Tuning Capability 7	Optional		
Piezo-electric Tuning Range - Internal Driver	+/-200MHz		
Piezo-electric Tuning Range - External Driver - Optional 8	8GHz 9		
Piezo-electric Modulation Frequency 10 (kHz)	up to 40kHz		
Calibrated Power Monitor	Standard		
Signal to ASE Noise (Integrated)	35dB		
Side Mode Suppression Ratio	>50dB		
Operating Temperature (degrees C)	-10 to 35		
Wavelength Set Resolution	50MHz		
Power Stability (% RMS) 11	0.12		
Absolute Wavelength Accuracy	+/-8pm		
Fiber Pigtail (PM FC/APC)	Standard		
Polarization Extinction Ratio	>23dB	>23dB	>20dB
Frequency-noise (Hz/ $\sqrt$ Hz) - (Ultra only)	150@10Hz ; 45@100Hz; 18@1kHz; 5@10kHz; 0.9@300kHz		
Phase-noise ( $\mu$ rad/ $\sqrt$ Hz) 1m opt. Path - (Ultra only)	4.6@10Hz; 1.4@100Hz; 0.6@1kHz; 0.2@10kHz; <0.1@300kHz		
RIN level (dB/Hz) - (Ultra only)	-125@0.3MHz; <-140@10MHz; <-155@100MHz		
RIN Level at peak (dB/Hz)	<-110dB/Hz @ PEAK	<-115dB/Hz @ PEAK	<-100dB/Hz @ PEAK

Optical Isolation (dB)	>45dB	>45dB	>35dB
Power Tuning (optional)12	10%-100% max output	10%-100% max output	
Module Dimension	200x120x26mm		

**FOOTNOTES:**

1. Wavelength selectable from range. Other wavelengths available.
2. Other power levels available
- 3 Linewidth based on self-heterodyne measurement with 120µS delay line.
4. Over 1 hour with base temperature constant within 0.2 degrees C after a 30 minute warm-up
5. ~80dB typical
6. Continuous mode-hop-free tuning range operating with a case temperature of 25 degrees C
7. Internal PZT driver included (+/-10V)
8. External PZT drive required -20 to +65V
9. 64pm @ 1550nm / 30pm @ 1064nm
10. External signal required to reach 40kHz. Up to 14kHz @3dB bandwidth for internal driver
11. <0.1% RMS in current mode
12. Can modulate the output (e.g. sawtooth, sinewave) up to 1kHz bandwidth with no impact on laser performance

**Ordering Example:** STN-RFLM-100-0-1550.92-1, Rock Fiber Laser Module, 100mW, No Tunability, 1550.92nm, with Power Supply



## 2. Rock Series Compact Single-frequency Benchtop Fiber Laser Source

**Features**

- Narrow Linewidth <700Hz
- Ultra-Low Phase-Noise
- Excellent Frequency Stability
- Broad Mode-Hop-Free Tunability
- Comprehensive, User-Friendly Interface
- Low Sensitivity to Acoustic Noise



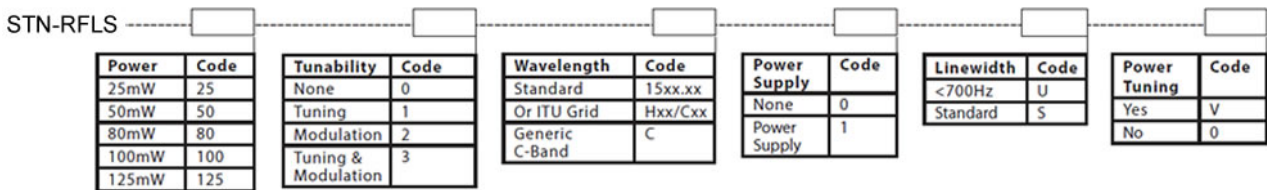
	Rock Module 1.5 micron	Rock Module Ultra 1.5 micron	Rock Module 1.0 micron
Center Wavelength Range (nm) 1	1530-1565	1530-1565	1030-1075
Laser Emission	CW - single frequency		
Output Power (mW) 2	25, 50, 80, 100, 125	25, 40, 80	25, 50, 80, 100, 125
Line Width (120 µsec 3) (kHz)	<3kHz for ≤50mW <5kHz for ≥80mW	<700Hz	<5kHz
Beam Quality	M2 < 1.05		
Frequency Stability (MHz) 4	20MHz		
RIN-Peak Frequency (MHz)	~0.5 - 1		
Optical S/N (dB) (50 pm resolution bandwidth) 5	>75dB		
PM output	Standard		
Thermal tuning	Standard		
Thermal Tuning Range 6	>60GHz (480pm)	>60GHz (480pm)	>66GHz (250pm)
Fast Piezo Tuning Capability 7	Optional		
Piezo-electric Tuning Range - Internal Driver	+/-200MHz		
Piezo-electric Tuning Range - External Driver - Optional 8	8GHz 9		
Piezo-electric Modulation Frequency	up to 40kHz		

10 (kHz)			
Calibrated Power Monitor	Standard		
Signal to ASE Noise (Integrated)	35dB		
Side Mode Suppression Ratio	>50dB		
Operating Temperature (degrees C)	-10 to 35		
Wavelength Set Resolution	50MHz		
Power Stability (% RMS) 11	0.12		
Absolute Wavelength Accuracy	+/-8pm		
Polarization Extinction Ratio	>23dB	>23dB	>20dB
Frequency-noise (Hz/√Hz) - (Ultra only)	150@10Hz ; 45@100Hz; 18@1kHz; 5@10kHz; 0.9@300kHz		
Phase-noise (μrad/√Hz) 1m opt. Path - (Ultra only)	4.6@10Hz; 1.4@100Hz; 0.6@1kHz; 0.2@10kHz; <0.1@300kHz		
RIN level (dB/Hz) - (Ultra only)	-125@0.3MHz; <-140@10MHz; <-155@100MHz		
RIN Level at peak (dB/Hz)	<-110dB/Hz @ PEAK	<-115dB/Hz @ PEAK	<-100dB/Hz @ PEAK
Optical Isolation (dB)	>45dB	>45dB	>35dB
Power Tuning (optional)12	10%-100% max output	10%-100% max output	
Module Dimension	257x103x312mm		

**FOOTNOTES:**

1. Wavelength selectable from range. Other wavelengths available.
2. Other power levels available
3. Linewidth based on self-heterodyne measurement with 120μS delay line.
4. Over 1 hour with base temperature constant within 0.2 degrees C after a 30 minute warm-up
5. ~80dB typical
6. Continuous mode-hop-free tuning range operating with a case temperature of 25 degrees C
7. Internal PZT driver included (+/-10V)
8. External PZT drive required -20 to +65V
9. 64pm @ 1550nm / 30pm @ 1064nm
10. External signal required to reach 40kHz. Up to 14kHz @3dB bandwidth for internal driver
11. <0.1% RMS in current mode
12. Can modulate the output (e.g. sawtooth, sinewave) up to 1kHz bandwidth with no impact on laser performance

**Ordering Example:** STN-RFLS-100-0-1550.92-U-0, Rock Fiber Laser Source, 100mW, No Tunability, 1550.92nm, <700Hz and no power tuning



### 3. Power Rock Watts-level, kHz linewidth, Single Frequency Laser Modules for OEM Applications

**Features:**

- Output Powers 2W and above
- Narrow Linewidth <700Hz
- Ultra-Low Phase-Noise
- Excellent Frequency Stability
- Broad Mode-Hop-Free Tunability
- Low sensitivity to Acoustic Noise



	Rock Module 1.5 micron	Rock Module 1.0 micron
Center Wavelength Range (nm) 1	1530-1565	1030-1075
Laser Emission	CW - single frequency	
Output Power (mW) 2	0.5, 1.2	0.5, 1.2

Line Width (120 $\mu$ sec 3) (kHz)	<3kHz (<700Hz optional)	<5kHz
Beam Quality	M2 < 1.05	
Frequency Stability (MHz) 4	20MHz	
RIN-Peak Frequency (MHz)	~0.5 - 1	
Optical S/N (dB) (50 pm resolution bandwidth) 5	>65dB	
PM output	Optional	
Thermal tuning	Standard	
Thermal Tuning Range 6	>60GHz (480pm)	>66GHz (250pm)
Fast Piezo Tuning Capability 7	Optional	
Piezo-electric Tuning Range - Internal Driver	+/-200MHz	
Piezo-electric Tuning Range - External Driver - Optional 8	up to 40kHz	
Calibrated Power Monitor	Standard	
Signal to ASE Noise (Integrated)	35dB	
Side Mode Suppression Ratio	>50dB	
Operating Temperature (degrees C)	-10 to 30	
Wavelength Set Resolution	50MHz	
Power Stability (% RMS)	0.1	
Absolute Wavelength Accuracy	+/-8pm	
Output Termination	Standard Fiber or Armored Cable	
Polarization Extinction Ratio	>23dB	
RIN Level at peak (dB/Hz)	<-110dB/Hz (<-115dB/Hz optional)	<-100dB/Hz PEAK @
Optical Isolation (dB)	>25dB	
Power Tuning (optional)	20%-100% max output	
Module Dimension	298x140x80mm	

Footnotes:

1. Wavelength selectable from range. Other wavelengths available.
2. Other power levels available.
3. Linewidth based on self-heterodyne measurement with 120 $\mu$ S delay line.
4. Over 1 hour with base temperature constant within 0.2 degrees C after a 30 minute warm-up
5. ~70dB typical
6. Operating with case temperature of 25 degrees C
7. Internal PZT driver included (+/-10V)
8. External trigger required. Up to 14kHz @ 3dB bandwidth for internal driver

**Ordering Example:** STN-RFLPX-1-3-1550.12-1-S-S-0-S-1, Power Rock Fiber Laser Source, 1W, Tunability & Modulation, 1550.12nm, PM, Seed Beam, Standard Output, Non-collimated, Standard Linewidth, Power supply needed

STN-RFLPX	-		-		-		-		-		-		-		-		-		-	
<small>POWER</small>	<small>CODE</small>	<small>TUNABILITY</small>	<small>CODE</small>	<small>WAVELENGTH</small>	<small>CODE</small>	<small>POLARIZATION</small>	<small>CODE</small>	<small>SEED PORT</small>	<small>CODE</small>	<small>OUTPUT</small>	<small>CODE</small>	<small>COLLIMATOR</small>	<small>CODE</small>	<small>LINEWIDTH</small>	<small>CODE</small>	<small>POWER</small>	<small>Supply</small>	<small>CODE</small>	<small>CODE</small>	
1.5W	0.5	None	0	Standard	1550.12	PM	1	No Seed Beam	N	Standard	S	No collimator	0	<700Hz	U	1W	0	YES	1	
1W	1	Tuning & Modulation	1	ITU Grid	1550.12			Seed Beam	S	Armored	A	2.5mm	1	Standard	S	1W	0	YES	1	
3W	3	Tuning & Modulation	3	Generic C-band	C															

#### 4. Rock High Power Single-frequency Fiber Lasers

**Features:**

- Output Powers up to 30W
- Narrow Linewidth <700Hz
- Ultra-Low Phase-Noise
- Excellent Frequency Stability
- Broad Mode-Hop-Free Tunability
- Low sensitivity to Acoustic Noise

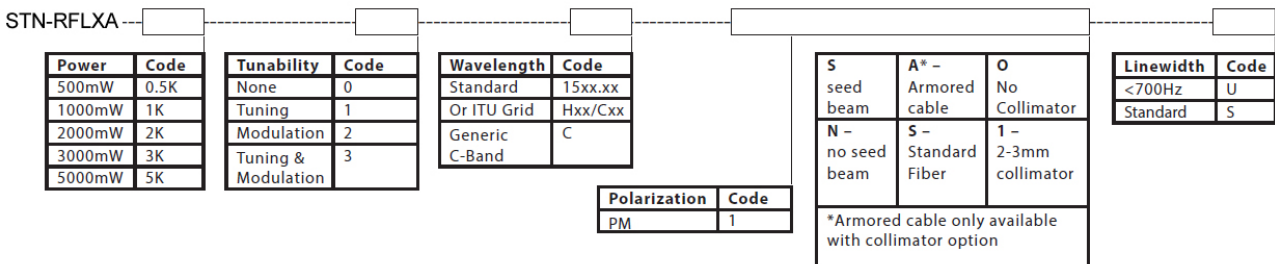
	High Power Rock 1.5 micron	High Power Rock 1.0 micron
Center Wavelength Range (nm) 1	1530-1565	1030-1075
Laser Emission	CW - single frequency	
Output Power (mW) 2	0.5, 1.2, 3.5	0.5, 1.2, 5, 10
Line Width (120 $\mu$ sec 3) (kHz)	<3kHz (<700Hz optional)	<5kHz
Beam Quality	M2 < 1.05	

Frequency Stability (MHz) 4	20MHz	
RIN-Peak Frequency (MHz)	~0.5 - 1	
Optical S/N (dB) (50 pm resolution bandwidth) 5	>65dB	
PM output	Optional	
Thermal tuning	Standard	
Thermal Tuning Range 6	>60GHz (480pm)	>66GHz (250pm)
Fast Piezo Tuning Capability 7	Optional	
Piezo-electric Tuning Range - Internal Driver	+/-200MHz	
Piezo-electric Tuning Range - External Driver - Optional 8	up to 40kHz	
Calibrated Power Monitor	Standard	
Signal to ASE Noise (Integrated)	35dB	
Side Mode Suppression Ratio	>50dB	
Operating Temperature (degrees C)	-10 to 30	
Wavelength Set Resolution	50MHz	
Power Stability (% RMS)	0.1	
Absolute Wavelength Accuracy	+/-8pm	
Output Termination	Standard Fiber or Armored Cable	
Polarization Extinction Ratio	>23dB	>20dB
RIN Level at peak (dB/Hz)	<-110dB/Hz (<-115dB/Hz optional)	<-100dB/Hz PEAK @
Optical Isolation (dB) 9	>30dB	>25dB
Power Tuning (optional)	20%-100% max output	
Module Dimension	298x140x80mm	

Footnotes:

1. Wavelength selectable from range. Other wavelengths available.
2. Different Power Levels may have different packaging.
3. Linewidth based on self- heterodyne measurement with 120 μ S delay line.
4. Over 1 hour with base temperature constant within 0.2 degrees C after a 30 minute warm-up
5. ~70dB typical
6. Operating with case temperature of 25 degrees C
7. Internal PZT driver included (+/-10V)
8. External trigger required. Up to 14kHz @ 3dB bandwidth for internal driver
9. 1550nm, 0-5W, 25dB min. 1064nm, 0-2W 25dB min; >2W 20dB min.

**Ordering Example:** STN-RFLXA-5-0-1550.92-1-S-A-1-S, High Power Rock, 5W, No Tunability, 1550.92nm, PM, Seed Beam, Armored Cable & Collimator, Standard



## 5. ROCK Injection Seeder Laser System

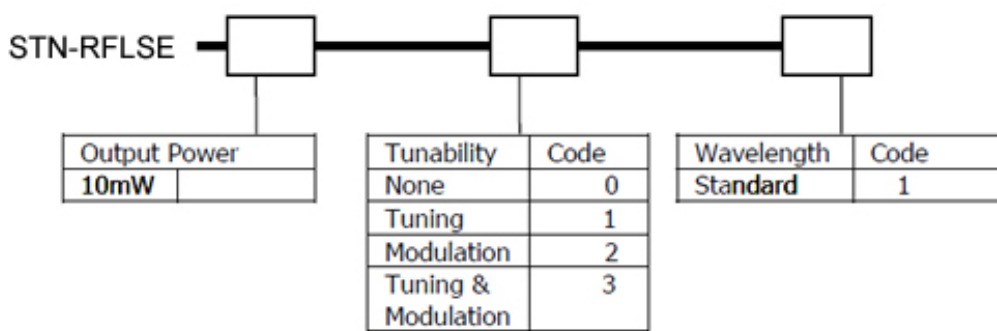


- Very narrow linewidth (long coherence length)
- 10 mW output power
- Single longitudinal mode
- Single polarization operation

- Integrated Electronics for build-up-time (BUT) reduction
- PZT and PZT mount included
- Integrated noise reduction
- High wavelength stability
- Integrated system
- Microprocessor control
- Thermal wavelength tuning
- No additional noise

Wavelength Range	1530–1565, 1030-1080 nm
Output Power	10mW *
Longitudinal Mode	Single Frequency
Spectral Line Width	< 5kHz
Polarization Extinction Ratio (PER)	> 20d
Tuning Range (Thermal)	30GHz
Connectors	Fiber Connectors and Free Space Collimator
Package Dimension	265.8 x 482.7 x 44.1mm

**Ordering Example:** STN-RFLSE-10-1-1064.175 =Rock Fiber Laser Seeder , 10mW, tuning, wavelength of 1064.175nm



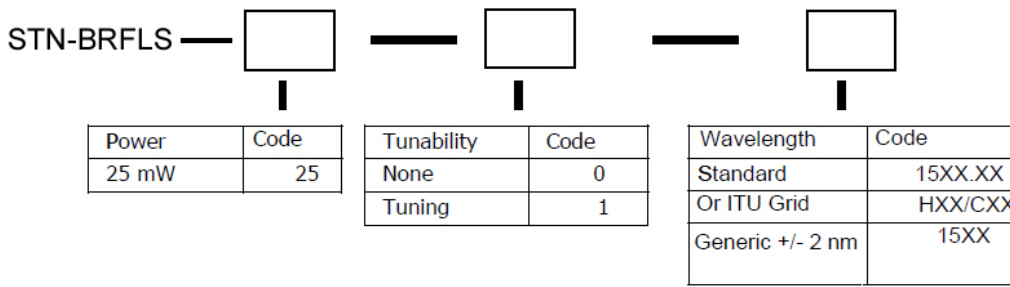
## 6. Rock Brillouin Laser Source

- Extremely Narrow Linewidth (200Hz)
- 25mW Output Power
- Single Longitudinal Mode
- Single Polarization Mode
- Integrated Relative Intensity Noise Reduction
- High Wavelength Stability
- Microprocessor Control



Wavelength Range	1530–1565 nm
Output Power	25 mW
Longitudinal Mode	Single Frequency
Wavelength Accuracy	50 MHz
Spectral Line Width	~ 200 Hz
Relative Intensity Noise (RIN) @ Peak ~ 1 MHz	<-120 dB/Hz
Relative Intensity Noise (RIN) > 50 MHz	< 155 dB/Hz
Signal to ASE Noise Ratio (50 pm, bandwidth)	> 65 dB
Side Mode Suppression Ratio (SMSR)	> 50 dB
Polarization Extinction Ratio (PER)	> 25 dB
Tuning Range	30 GHz
Power Stability over Hours	± 2%
Connectors	FC/APC
Package Dimension	471 x 362 x 204 mm

**Ordering Example:** STN-BRFLS-25-1-1550.XX = Brillouin Rock Fiber Laser System, 25 mW output power, tuning, with a wavelength at 1550.XX nm.



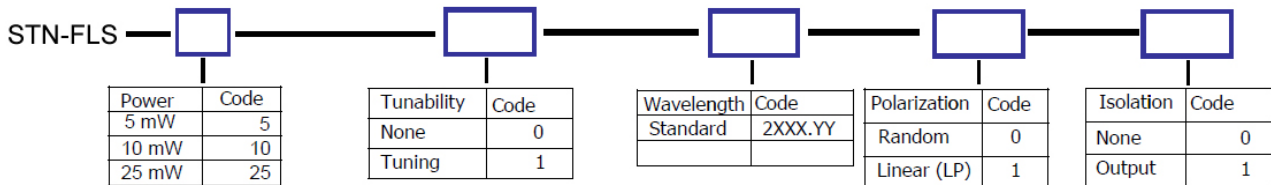
### 7. 2um Single Frequency Fiber Laser Source

- Superior Noise Operation.
- Acoustically Isolated Packaging.
- Stable Operation Over Long Periods.
- Perfect for CO2 Detection Applications.

Specifications:

- Wavelength Range: 2050 nm (2030 nm – 2100 nm available on request)
- Output Power: up to 25 mW (with no output isolation)
- Longitudinal Mode: Single Frequency
- Wavelength Set Resolution: 50 MHz
- Spectral Line Width (Heterodyne): < 50 kHz
- Frequency Stability: < 50 MHz (Over 1 hour with base temperature constant to within < 2° c after 30 min warm-up.)
- Relative Intensity Noise (RIN) @ Peak: ~ 1MHz <-90dB/Hz
- Relative Intensity Noise (RIN): > 50 MHz Short Noise Limited
- Polarization Extinction Ratio (PER): > 17 B (optional)
- Tuning Range: 10 GHz (thermal)
- Power Stability: ± 5%
- Connector: FC/APC Connector (panel mounted, narrow key)
- Package Dimension: 382 x 480 x 88 mm (Laser head)

**Ordering Example:** STN-FLS-25-1-2XXX.YY-1-0 = 2um Fiber Laser System, 25 mW Output Power, With Tuning, at 2XXX.YY.XX nm, Linearly Polarized, No Isolation.



### 8. Rock-Powered Multi-channel Laser System



Our Multi-Channel Fiber Laser Systems offers up to 5 ROCK Fiber Laser Modules mounted on interchangeable linecards for convenient and dynamic provisioning. The ROCK laser is a high power,

compact fiber laser suitable for sensing, LIDAR, test and measurement, and telecommunication applications. The Fiber Laser Module incorporates our proprietary fiber technology developed. Each Fiber laser provides up to 80 mW of output power (1530-1565 nm and 1030-1080 nm). It provides narrow linewidth with wide thermal tuning and piezo tuning bandwidths. It is most suitable for applications in harsh environments where low noise and wavelength stability are critical.

**Features:**

- Vibration Insensitive
- Very narrow linewidth (long coherence length) <1 kHz
- Center wavelength over 1530-1565 nm and 1030 – 1080 nm
- Up to 80 mW output power
- Single longitudinal mode
- Single polarization operation
- Integrated power loop
- Integrated noise reduction
- High wavelength stability
- Integrated with pump laser
- Microprocessor control
- Thermal wavelength tuning
- Fast piezo wavelength modulation
- Customizable

**Applications:**

- Interferometric Sensing
- LIDAR
- Test & Measurement
- Metrology

Wavelength Range	1530–1565, 1030-1080 nm
Output Power	25, 50, 80, 100, 125 mW
Longitudinal Mode	Single Frequency
Wavelength Set Resolution	50 MHz
Spectral Line Width (Heterodyne)	< 5 kHz – 10 kHz. 1kHz optional
Frequency Stability (*)	< 50 MHz
Relative Intensity Noise (RIN) @ Peak ~ 1 MHz	<-110 dB/Hz for 1550 nm, <-100 dB/Hz for 1µm
Relative Intensity Noise (RIN) > 50 MHz	Shot Noise Limited
Signal to ASE Noise Ratio (50 pm, bandwidth)	> 65 d
Signal to ASE Noise Ratio ( Integrated)	> 35 dB
Side Mode Suppression Ratio (SMSR)	> 50 d
Polarization Extinction Ratio (PER)	Optional
Tuning Range (Thermal)	≥ 30 GHz
Connectors	LC/APC OR SC/APC
Fiber Pigtail	Specify
Package Dimension	482.6x266x552mm

(\*) Over 1 hour with base temperature constant to within < 2° c after 30 min warm-up

Order Information (for example):

STN-RFMLS - LC - OEM – XX - 50 - V – ITU: 20-30-40-50-60

**9. High Energy Single Frequency Fiber Laser System**

**Features**

- MilliJoule Output Energy
- Up to 25W Output Power
- Transform Limited Linewidth
- Ruggedized Turnkey system
- Center wavelength 1018 –1080 nm, 1528-1575nm
- Near-single mode (M2 < 1.3)
- Polarization Maintaining (PER >15dB)



- Collimated output
- Customizable
- All- Fiber construction



Wavelength	1064 nm, 1550 nm (Other wavelengths available upon request)
Seed Laser Optical Linewidth	<3kHz (down to 500 Hz available)
Output Energy	100 $\mu$ J to 1.3 mJ
Output Average Power	0.5 to 25 W
Output Peak Power	$\geq$ 500kW (SRS / SPM limited) , $\geq$ 6kW (SBS limited)
Pulse Width	20 ps to 2000ns, or CW (multiple pulse options)
Repetition Rate	100Hz to 5 MHz (typical 10-100 kHz)
Polarization Extinction Ratio (PER)	$\geq$ 15 dB
Beam Quality	$M2 \leq 1.5$ (typically $<1.3$ based on wavelength)
Output Optical Linewidth	Transform Limited
Output Format	Collimated beam, nominal 2mm width (other beam widths and output isolator available upon request)
Package Dimension (nominal)	508 (W) x 508 (H) x 508(L) mm
Cooling	Water, Air

## STM Series Single Frequency Fiber Lasers

Single frequency fiber lasers are sources of single-frequency polarized light offering low phase and intensity noise, narrow spectral linewidth and long coherence length. They are comprised of a single frequency Yb-doped fiber laser which emits a single mode narrow-band infrared light with electronics which provide temperature stabilization, and active stabilization of the laser output power. The laser is offered in a 2RU benchtop or rack mountable air cooled package.

### Features

- Low intensity noise
- True single frequency operation without mode hops (single-frequency models)
- Long coherence length
- Interlock
- Safety key

### Applications

- Interferometry
- Doppler sensors
- Atom Cooling
- Microscopy
- Holography
- Bio Photonics Applications



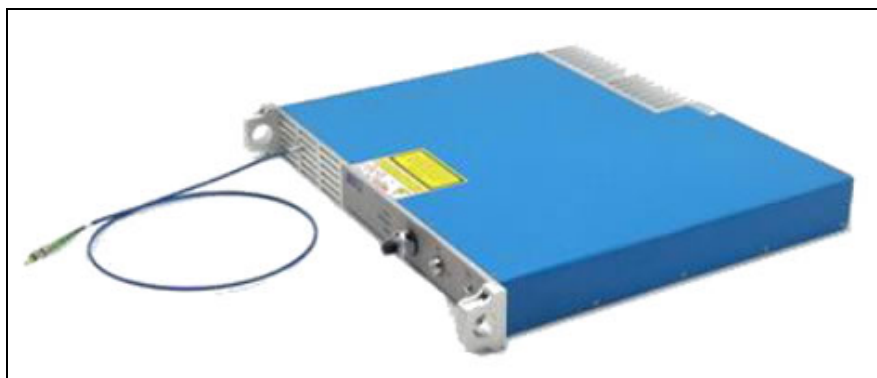
### Single Frequency NIR Fiber Lasers

	Min	Nominal	Max	
Wavelengths Available		1028 or 1064		nm
Output Power		up to 10		W
Power Tunability Range		20 - 100		%
Emission Linewidth (FWHM)		50	100	kHz
Long Term Wavelength Stability	Nominal - 0.02		Nominal + 0.02	nm
Degree of Polarization	98	99		%
Relative RMS Intensity Noise at Nominal Power, Integrated over 5 Hz to 100 kHz		0.1 (typical)	0.3	%
Long Term Output Power Drift (8 hours)	-2		2	%

### Single Frequency Visible Fiber Lasers

	Min	Nominal	Max	
Wavelengths Available		514 or 532		nm
Output Power		200, 500, 1000		mW
Power Tunability Range		20 - 100		%
Emission Linewidth (FWHM)		100	200	kHz
Long Term Wavelength Stability	Nominal - 0.02		Nominal + 0.02	nm
Degree of Polarization	98	99		%
Relative RMS Intensity Noise at Nominal Power, Integrated over 5 Hz to 100 kHz		0.1 (typical)	0.3	%
Long Term Output Power Drift (8 hours)	-2		2	%

## Single Frequency Laser (Single Longitudinal Mode Laser)

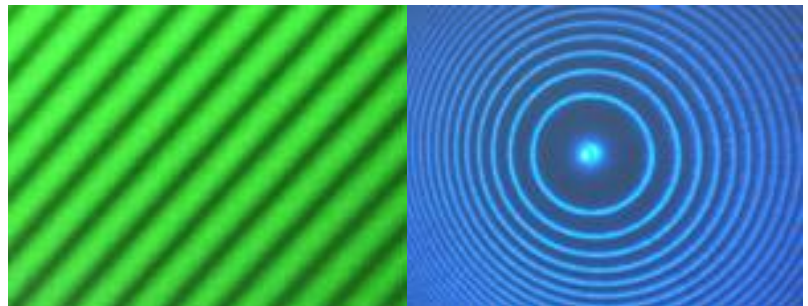


### Applications

- Holography
- Raman spectrum
- Precision measurement
- Interference lithography
- Biomedical/fluorescence
- Atomic excitation/absorption

### Features

- Spectral linewidth <math><0.00001\text{ nm}</math>



### Options

- Modulation repetition rate up to 1MHz
- Frequency stabilized laser optional
- Fiber coupled optional

### List of STC Series Single Longitudinal Mode Lasers

Wavelength (nm)	Model	Output power (mW)	Features
360	STC-MSL-FN-360	1~50	
457	STC-MSL-FN-457	1~350	
	STC-MSL-RA-457	350~1000	Water cooled
	STC-MSL-W-457	1000~2000	Water cooled
473	STC-MSL-FN-473	1~100	
515	STC-MSL-F-515	1~20	
523.5	STC-MSL-III-523.5	1~50	

	STC-MSL-FN-523.5	50~100	
526.5	STC-MSL-III-526.5	1~20	
	STC-MSL-FN-526.5	20~100	
530	STC-MSL-S-530	1~50	Good seal IP67
	STC-MSL-DS-530	1~50	Electronic Integrated
532	STC-MSL-III-532	1~100	
	STC-MSL-S-532	1~100	Good seal IP67
	STC-MSL-DS-532	1~100	Electronic Integrated
	STC-MSL-FN-532	100~400	
	STC-MSL-F-532	400~700	
	STC-MSL-RA-532	700~2000	Water cooled
	STC-MSL-R-532	2~10 W	Water cooled
	STC-MSL-AO-532	1~10uJ@1Hz~1kHz, 10ns	Q-switched
543	STC-MSL-FN-543	1~100	
556	STC-MSL-FN-556	1~100	
561	STC-MSL-FN-561	1~80	
577	STC-MSL-F-577	1~300	
588	STC-MSL-FN-588	1~200	
589	STC-MSL-FN-589	1~200	
	STC-MSL-RA-589	200~500	Water cooled
607	STC-MSL-FN-607	1~100	
639	STC-MSL-FN-639	1~300	
656.5	STC-MSL-FN-656.5	1~50	
660	STC-MSL-FN-660	1~20	
671	STC-MSL-FN-671	1~500	
	STC-MSL-R-671	500~800	Water cooled
	STC-MSL-RA-671	800~1000	Water cooled
	STC-MSL-W-671	1000~2500	Water cooled
721	STC-MSL-FN-721	1~100	
914	STC-MSL-FN-914	1~100	
946	STC-MSL-FN-946	1~50	
1030	STC-MSL-FN-1030	1~20	
1047	STC-MSL-U-1047	1~500	Ultra compact
	STC-MSL-FN-1047	500~800	
1053	STC-MSL-FN-1053	1~200	
1064	STC-MSL-S-1064	1~200	Good seal IP67

	STC-MSL-III-1064	200~1000	
	STC-MSL-R-1064	1~10 W	Water cooled
	STC-MSL-AO-1064	1~200uJ@1Hz~1kHz, 25ns	Q-switched
	STC-FL-1064-SF	1~500	
1112	STC-MSL-FN-1112	1~20	
1122	STC-MSL-FN-1122	1~80	
1313	STC-MSL-FN-1313	1~500	
1319	STC-MSL-FN-1319	1~50	
1342	STC-MSL-III-1342	1~200	
	STC-MSL-R-1342	1~5 W	Water cooled
1550	STC-FL-1550-SF	1~1000	

**Ordering Information:** STC-MSL-xx-yy-zz-ss, where xx means series numbers such FN, III, R, FL etc, yy means wavelength in nm, zz means laser power in mW, ss means power stability.

### 1. STC-MSL-FN-360 Single Longitudinal Mode Laser

All solid state single longitudinal mode laser at 360nm has the features of ultra compact, long lifetime, low cost and easy operating, which is used in DNA sequencing, flow cytometry, cell sorting, optical instrument, spectrum analysis, interference, measurement, holography, physics experiment, etc.



Part number	STC-MSL-FN-360-zz-ss
Wavelength (nm)	360±1
Operating mode	CW
Output power (mW)	>1, 2, 3, ... , 50
Power stability (rms, over 4 hours)	<3%(With TC-01), <5%
Transverse mode	TEM00
Longitudinal mode	Single
Spectral linewidth (nm)	<0.00001
Coherent length (m)	>50
Noise of amplitude (rms, 1Hz~20MHz)	<1%, typical<0.5%
M2 factor	<1.5
Beam diameter at the aperture (1/e <sup>2</sup> , mm)	<1.5
Beam divergence, full angle (mrad)	<1.2
Polarization ratio	>50:1, >100:1, optional Horizontal±5 degree (Vertical Optional)
Warm-up time (minutes)	<10
Pointing stability after warm-up (mrad)	<0.05
Beam height from base plate (mm)	27.4
Operating temperature (°C)	15~35
Power supply (90-264VAC)	STC-PSU-H-FDA
Expected lifetime (hours)	5000
Warranty	1 year
Dimension/weight (laser head)	197(L)×70(W)×50(H) mm, 2.0 kg
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3 kg
Dimension/weight (heat sink)	197(L)×117.5(W) ×57.3(H) mm, 1.6 kg
Dimension/weight (heat sink's driver)	277(L) ×145(W) ×106(H) mm, 2.6 kg

Note: The laser head needs to be used on a heat sink with good heat dissipation.

## 2. STC-MSL-FN-457 Single Longitudinal Mode Laser

Part number	STC-MSL-FN-457-zz-ss	
Wavelength (nm)	457±1	
Operating mode	CW	
Output power (mW)	>1, 5, 10, 20, ... , 150	>150, 160, ... , 350
Power stability (rms, over 4 hours)	<1%, <2%, <3%	<2%, <3%, <5%
Transverse mode	TEM00	Near TEM00
Longitudinal mode	Single	
Spectral linewidth (nm)	<0.00001	
Coherent length (m)	>50	
Noise of amplitude (rms, 1Hz~20MHz)	<1%, typical<0.5%	
M2 factor	<1.2	
Beam diameter at the aperture (1/e2, mm)	<2.0	
Beam divergence, full angle (mrad)	<1.2	
Polarization ratio	>100:1, Vertical±5 degree (Horizontal Optional)	
Warm-up time (minutes)	<10	
Pointing stability after warm-up (mrad)	<0.05	
Beam height from base plate (mm)	27.4	
Operating temperature (°C)	15~35	
Power supply (90-264VAC)	STC-PSU-H-FDA	
Expected lifetime (hours)	10000	
Warranty	1 year	
Dimension/weight (laser head)	197(L)×70(W)×50(H) mm, 2.0 kg	
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3 kg	

## 3. STC-MSL-RA-457 Single Longitudinal Mode Laser

Part number	STC-MSL-RA-457-zz-ss	
Wavelength (nm)	457±1	
Output power (mW)	>400, ..., 1000	
Transverse mode	TEM00	
Operating mode	CW	
Longitudinal mode Single	Single	
Spectral linewidth (nm)	<0.00001	
Power stability (rms, over 4 hours)	<3%, <5%	
Noise of amplitude (rms, 20Hz~20MHz)	<1%	
Beam diameter at the aperture (1/e2,mm)	<2.0	
Beam divergence, full angle (mrad)	<1.5	
M2 factor	<1.2	
Pointing stability after warm-up (mrad)	<0.05	
Polarization ratio	>100:1	
Warm-up time (minutes)	<10	
Beam height from base plate (mm)	51	
Operating temperature (°C)	20~30	
Cooled method	Water cooled	
Power supply (90-264VAC)	STC-PSU-H-FDA	
Expected lifetime (hours)	10000	
Warranty period	1 year	
Dimension/weight (laser head)	140.5 (L) × 73 (W) ×46.2 (H) mm, 4kg	
Dimension/weight (power supply)	275 (L) ×146(W) ×104 (H) mm, 2.4 kg	
Dimension/weight (chiller)	592 (L) ×485(W) ×212(H) mm, 15kg	

## 4. STC-MSL-W-457 Single Longitudinal Mode Laser

Part number	STC-MSL-W457-zz-ss
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Wavelength (nm)	457±1
Output power (mW)	>1000, ..., 2000
Transverse mode	TEM00
Operating mode	CW
Longitudinal mode Single	Single
Spectral linewidth (nm)	<0.00001
Power stability (rms, over 4 hours)	<3%, <5%
Noise of amplitude (rms, 20Hz~20MHz)	<1%
M2 factor	<1.5
Beam divergence, full angle (mrad)	<1.5
Beam diameter at the aperture (1/e <sup>2</sup> ,mm)	<2.0
Pointing stability after warm-up (mrad)	<0.05
Polarization ratio	>100:1
Warm-up time (minutes)	<20
Beam height from base plate (mm)	54
Cooled method	Water cooled
Operating temperature (°C)	20~25
Power supply (90-264VAC)	STC-PSU-W-FDA
Expected lifetime (hours)	10000
Warranty period	1 year
Dimension/weight (laser head)	408(L) ×225(W) ×78(H) mm, 5.7kg
Dimension/weight (power supply)	307(L)×168(W)×123(H) mm, 4.5 kg
Dimension/weight (chiller)	587.5(L)×482(W)×187.5(H) mm, 17 kg

### 5. STC-MSL-FN-473 Single Longitudinal Mode Laser

Part number	STC-MSL-FN-473-zz-ss	
Wavelength (nm)	473±1	
Operating mode	CW	
Output power (mW)	>1, 5, 10, 20, ... , 50	>50, ... ,100
Power stability (rms, over 4 hours)	<1%, <2%, <3%	<2%, <3%, <5%
Transverse mode	TEM00	
Longitudinal mode	Single	
Spectral linewidth (nm)	<0.00001	
Coherent length (m)	>50	
Noise of amplitude (rms, 1Hz~20MHz)	<1%, typical<0.5%	
M2 factor	<1.2	
Beam diameter at the aperture (1/e <sup>2</sup> , mm)	<2.5, typical<2.0	
Beam divergence, full angle (mrad)	<1.2	
Polarization ratio	>100:1, Vertical±5 degree (Horizontal Optional)	
Warm-up time (minutes)	<10	
Pointing stability after warm-up (mrad)	<0.05	
Beam height from base plate (mm)	27.4	
Operating temperature (°C)	15~35	
Power supply (90-264VAC)	STC-PSU-H-FDA	
Expected lifetime (hours)	10000	
Warranty	1 year	
Dimension/weight (laser head)	197(L)×70(W)×50(H) mm, 2.0 kg	
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3 kg	

Note: The laser head needs to be used on a heat sink with good heat dissipation.

### 6. STC-MSL-F-515 Single Longitudinal Mode Laser

Part number	STC-MSL-F-515-zz-ss
Wavelength (nm)	515±1
Operating mode	CW
Output power (mW)	>1, 3, 5, ..., 20

Power stability (rms, over 4 hours)	<1%, <2%, <3%
Transverse mode	TEM00
Longitudinal mode	Single
Spectral linewidth (nm)	<0.00001
Coherent length (m)	>50
Noise of amplitude (rms, 1Hz~20MHz)	<1%
M2 factor	<1.5
Beam diameter at the aperture (1/e <sup>2</sup> , mm)	<3
Beam divergence, full angle (mrad)	<2
Polarization ratio	>100:1, Vertical±5 degree (Horizontal Optional)
Warm-up time (minutes)	<10
Pointing stability after warm-up (mrad)	<0.05
Beam height from base plate (mm)	45
Operating temperature (°C)	15~35
Power supply (90-264VAC)	STC-PSU-H-FDA
Expected lifetime (hours)	10000
Warranty	1 year
Dimension/weight (laser head)	211(L)×88(W)×74(H) mm, 2.0 kg
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3 kg

### 7. STC-MSL-III-523.5 Single Longitudinal Mode Laser

Part number	STC-MSL-III-523.5-zz-ss
Wavelength (nm)	523.5
Operating mode	CW
Output power (mW)	>1, 5, 10, 20, ... , 50
Power stability (rms, over 4 hours)	<2%, <3%, <5%
Transverse mode	TEM00
Longitudinal mode	Single
Spectral linewidth (nm)	<0.00001
Coherent length (m)	>50
Noise of amplitude (rms, 1Hz~20MHz)	<1%, typical<0.5%
M2 factor	<1.2
Beam diameter at the aperture (1/e <sup>2</sup> , mm)	<1.2
Beam divergence, full angle (mrad)	<1.5
Warm-up time (minutes)	<10
Pointing stability after warm-up (mrad)	<0.05
Beam height from base plate (mm)	24.8
Operating temperature (°C)	15~35
Power supply (90-264VAC or 5VDC)	STC-PSU-III-FDA
Expected lifetime (hours)	10000
Warranty	1 year
Dimension/weight (laser head)	140.5 (L) × 73 (W) ×46.2 (H) mm, 0.6kg
Dimension/weight (power supply)	133 (L) ×130(W) ×62.2 (H) mm, 1.2kg

### 8. STC-MSL-FN-523.5 Single Longitudinal Mode Laser

Part number	STC-MSL-FN-523.5-zz-ss
Wavelength (nm)	523.5±1
Operating mode	CW
Output power (mW)	>1, 5, 10, 20, ... , 50
Power stability (rms, over 4 hours)	<1%, <2%, <3%
Transverse mode	TEM00
Longitudinal mode	Single
Spectral linewidth (nm)	<0.00001
Coherent length (m)	>50
Noise of amplitude (rms, 1Hz~20MHz)	<1%



M2 factor	<1.2
Beam diameter at the aperture (1/e <sup>2</sup> , mm)	<1.5
Beam divergence, full angle (mrad)	<1.2
Polarization ratio	>100:1, Vertical±5 degree (Horizontal Optional)
Warm-up time (minutes)	<10
Pointing stability after warm-up (mrad)	<0.05
Beam height from base plate (mm)	27.4
Operating temperature (°C)	15~35
Power supply (90-264VAC)	STC-PSU-H-FDA
Expected lifetime (hours)	10000
Warranty	1 year
Dimension/weight (laser head)	197(L)×70(W)×50(H) mm, 2.0 kg
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3 kg

Note: The laser head needs to be used on a heat sink with good heat dissipation.

### 9. STC-MSL-III-526.5 Single Longitudinal Mode Laser

Part number	STC-MSL-III-526.5-zz-ss
Wavelength (nm)	526.5
Operating mode	CW
Output power (mW)	>1, 5, 10, 20, ... , 20
Power stability (rms, over 4 hours)	<2%, <3%, <5%
Transverse mode	TEM00
Longitudinal mode	Single
Spectral linewidth (nm)	<0.00001
Coherent length (m)	>50
Noise of amplitude (rms, 1Hz~20MHz)	<1%, typical<0.5%
M2 factor	<1.2
Beam diameter at the aperture (1/e <sup>2</sup> , mm)	<1.2
Beam divergence, full angle (mrad)	<1.5
Warm-up time (minutes)	<10
Pointing stability after warm-up (mrad)	<0.05
Beam height from base plate (mm)	24.8
Operating temperature (°C)	15~35
Power supply (90-264VAC or 5VDC)	STC-PSU-III-FDA
Expected lifetime (hours)	10000
Warranty	1 year
Dimension/weight (laser head)	140.5 (L) × 73 (W) ×46.2 (H) mm, 0.6kg
Dimension/weight (power supply)	133 (L) ×130(W) ×62.2 (H) mm, 1.2kg

### 10. STC-MSL-FN-526.5 Single Longitudinal Mode Laser

Part number	STC-MSL-FN-526.5-zz-ss
Wavelength (nm)	526.5±1
Operating mode	CW
Output power (mW)	>1, 5, 10, 20, ... , 100
Power stability (rms, over 4 hours)	<1%, <2%, <3%
Transverse mode	TEM00
Longitudinal mode	Single
Spectral linewidth (nm)	<0.00001
Coherent length (m)	>50
Noise of amplitude (rms, 1Hz~20MHz)	<1%
M2 factor	<1.2
Beam diameter at the aperture (1/e <sup>2</sup> , mm)	<1.5
Beam divergence, full angle (mrad)	<1.2
Polarization ratio	>100:1, Vertical±5 degree (Horizontal Optional)
Warm-up time (minutes)	<10

Pointing stability after warm-up (mrad)	<0.05
Beam height from base plate (mm)	27.4
Operating temperature (°C)	15~35
Power supply (90-264VAC)	STC-PSU-H-FDA
Expected lifetime (hours)	10000
Warranty	1 year
Dimension/weight (laser head)	197(L)×70(W)×50(H) mm, 2.0 kg
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3 kg

Note: The laser head needs to be used on a heat sink with good heat dissipation.

### 11. STC-MSL-S-530 Single Longitudinal Mode Laser



Part number	STC-MSL-S-530-A-zz-ss (Harsh condition)	STC-MSL-S-530-B-zz-ss (Normal condition)
Wavelength (nm)	530±1	
Operating mode	CW	
Output power (mW)	>1,5,10,20,...,50	
Power stability (rms, over 4 hours)	<1%,<2%,<3%	
Transverse mode	TEM00	
Longitudinal mode	Single	
Spectral linewidth (nm)	<0.00001	
Coherent length (m)	>50	
Noise of amplitude (rms, 20Hz~20MHz)	<0.5%	
M2factor	<1.2(<1.1 optional)	
Beam diameter at the aperture( 1/e2,mm)	0.7±0.05	
Beam divergence, full angle (mrad)	<1.5	
Polarization ratio	>100:1 Horizontal±5 degree (Vertical Optional)	
Pointing stability after warm-up (mrad)	<0.05	
Pointing stability Over Temp. (μrad/°C)	<8	
Warm-up time (minutes)	<5	
Beam height from base plate (mm)	19	
Power Consumption(W)	<30	
Shock Tolerance(6ms)	7g laterally,15g vertically	
IP Rating	IP67	IP65
Power supply(90-264VAC)	STC-PSU-H-FDA, STC-PSU-A-F	
Operating temperature (°C)	0-60	10-35
Max. Heat Dissipation of Head(W)	10W@50°C	4W@25°C
Modulation	Modulation isn't available.	
Expected lifetime (hours)	10000	
Warranty	1 year	
Dimension/weight (laser head)	100 (L) ×40 (W) ×40(H) mm, 0.36kg	
Dimension/weight (power supply)	236(L) ×145(W) ×104 (H) mm, 2.3kg (H-FDA) 162(L) × 144(W) ×55(H) mm, 0.5kg (A-F)	

### 12. STC-MSL-DS-530 Single Longitudinal Mode Laser

Model	MSL-DS-530zz-ss
Wavelength (nm)	530±1
Operating mode	CW
Output power (mW)	>1,5,10,20,...,50
Power stability (rms, over 4 hours)	<1%, <2%, <3%
Transverse mode	TEM00
Longitudinal mode	Single
Spectral linewidth (nm)	<0.00001
Coherent length (m)	>50
Noise of amplitude (rms, 20Hz~20MHz)	<0.5%
M2 factor	<1.2(<1.1 optional)
Beam diameter at the aperture( 1/e2 ,mm)	0.7±0.05
Beam divergence, full angle (mrad)	<1.5
Pointing stability after warm-up (mrad)	<0.05
Pointing stability Over Temp. (μrad/°C)	<8
Warm-up time (minutes)	<5
Beam height from base plate (mm)	19
Shock Tolerance(6ms)	7g laterally, 15g vertically
Power Supply	5V DC
Operating temperature (°C)	10-35
Modulation	Modulation isn't available.
Expected lifetime (hours)	10000
Warranty	1 year
Dimension/weight	100 (L) ×60 (W) ×40(H) mm, 0.41kg

### 13. STC-MSL-III-532 Single Longitudinal Mode Laser

Part number	STC-MSL-III-532-zz-ss
Wavelength (nm)	532±2
Operating mode	CW
Output power (mW)	>1, 5, 10, 20, ... , 100
Power stability (rms, over 4 hours)	<1%, <2%, <3%
Transverse mode	TEM00
Longitudinal mode	Single
Spectral linewidth (nm)	<0.00001
Coherent length (m)	>50
Noise of amplitude (rms, 1Hz~20MHz)	<0.5%
M2factor	<1.2(<1.1 optional)
Beam diameter at the aperture (1/e2, mm)	<1.5
Beam divergence, full angle (mrad)	<1.2
Warm-up time (minutes)	<10
Pointing stability after warm-up (mrad)	<0.05
Beam height from base plate (mm)	24.8
Operating temperature (°C)	15~35
Power supply (90-264VAC)	STC-PSU-III-FDA
Expected lifetime (hours)	10000
Warranty	1 year
Dimension/weight (laser head)	140.5 (L) × 73 (W) ×46.2 (H) mm, 0.6kg
Dimension/weight (power supply)	133 (L) ×130(W) ×62.2 (H) mm, 1.2kg

### 14. STC-MSL-S-532 Single Longitudinal Mode Laser

Model	MSL-S-532-A-zz-ss (Harsh condition)	MSL-S-532-B-zz-ss (Normal condition)
Wavelength (nm)	532±2	

Operating mode	CW	
Output power (mW)	>1,5,10,20,...,100	
Power stability (rms, over 4 hours)	<1%, <3%, <5%	
Transverse mode	TEM00	
Longitudinal mode	Single	
Spectral linewidth (nm)	<0.00001	
Coherent length (m)	>50	
Noise of amplitude (rms, 20Hz~20MHz)	<0.5%	
M2 factor	<1.2	
Beam diameter at the aperture( 1/e2 ,mm)	0.7±0.05	
Beam divergence, full angle (mrad)	<1.5	
Polarization ratio	>100:1 Horizontal±5 degree (Vertical Optional)	
Pointing stability after warm-up (mrad)	<0.05	
Pointing stability Over Temp. (μrad/°C)	<8	
Warm-up time (minutes)	<5	
Beam height from base plate (mm)	19	
Power Consumption(W)	<30	
Shock Tolerance(6ms)	7g laterally, 15g vertically	
IP Rating	IP67	IP65
Power supply(90-264VAC)	STC-PSU-H-FDA	STC-PSU-A-FP
Operating temperature (°C)	0-60	10-35
Max. Heat Dissipation of Head(W)	10W@50°C	4W@25°C
Modulation	Modulation isn't available.	
Expected lifetime (hours)	10000	
Warranty	1 year	
Dimension/weight (laser head)	100 (L) ×40 (W) ×40(H) mm, 0.36kg	
Dimension/weight (power supply)	236(L) ×145(W) ×104 (H) mm, 2.3kg (H-FDA) 162(L) × 144(W) ×55(H) mm, 0.5kg (A-F)	

### 15. STC-MSL-DS-532 Single Longitudinal Mode Laser

Part number	STC-MSL-DS-532-zz-ss	
Wavelength (nm)	532±1	
Operating mode	CW	
Output power before fiber (mW)	>1,5,10,20,...,100	
Power stability (rms, over 4 hours)	<1%, <2%, <3%	
Transverse mode	TEM00	
Longitudinal mode	Single	
Spectral linewidth (nm)	<0.00001	
Coherent length (m)	>50	
Noise of amplitude (rms, 20Hz~20MHz)	<0.5%	
M2 factor	<1.2(<1.1 optional)	
Beam diameter at the aperture( 1/e2 ,mm)	0.7±0.05	
Beam divergence, full angle (mrad)	<1.5	
Pointing stability after warm-up (mrad)	<0.05	
Pointing stability Over Temp. (μrad/°C)	<8	
Warm-up time (minutes)	<5	
Beam height from base plate (mm)	19	
Power Consumption(W)	<6	
Fiber	Multimode/ Single Mode	
Shock Tolerance(6ms)	7g laterally, 15g vertically	
Power Supply	5V DC (Photoelectric integrated)	
Operating temperature (°C)	10-35	
Storage temperature (°C)	5-50	
Modulation	Modulation isn't available.	
Expected lifetime (hours)	10000	
Warranty	1 year	
Dimension/weight	100 (L) ×60 (W) ×40(H) mm, 0.41kg (without fiber)	

	130.5(L) × 60(W) × 45(H) mm, 0.5kg (with MM fiber) 139(L) × 60(W) × 46(H) mm, 0.52kg (with SM fiber)
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### 16. STC-MSL-FN-532 Single Longitudinal Mode Laser

Part number	STC-MSL-FN-532-zz-ss	
Wavelength (nm)	532±1	
Operating mode	CW	
Output power (mW)	>1, 5, 10, 20, ... , 300	>300, ..., 400
Power stability (rms, over 4 hours)	<1%, <2%, <3%	<2%, <3%
Transverse mode	TEM00	
Longitudinal mode	Single	
Spectral linewidth (nm)	<0.00001	
Coherent length (m)	>50	
Noise of amplitude (rms, 1Hz~20MHz)	<0.5%	
M2 factor	<1.2(<1.1 optional)	
Beam diameter at the aperture (1/e <sup>2</sup> , mm)	<1.5	
Beam divergence, full angle (mrad)	<1.2	
Polarization ratio	>100:1, Vertical±5 degree (Horizontal Optional)	
Warm-up time (minutes)	<10	
Pointing stability after warm-up (mrad)	<0.05	
Beam height from base plate (mm)	27.4	
Operating temperature (°C)	15~35	
Power supply (90-264VAC)	STC-PSU-H-FDA	
Expected lifetime (hours)	10000	
Warranty	1 year	
Dimension/weight (laser head)	197(L)×70(W)×50(H) mm, 2.0 kg	
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3 kg	

Note: The laser head needs to be used on a heat sink with good heat dissipation.

### 17. STC-MSL-F-532 Single Longitudinal Mode Laser

Part number	STC-MSL-F-532-zz-ss	
Wavelength (nm)	532±1	
Operating mode	CW	
Output power (mW)	>400, 600, ... , 500	500, ... , 700
Power stability (rms, over 4 hours)	<1%, <2%, <3%, <5%	<2%, <3%, <5%
Transverse mode	TEM00	
Longitudinal mode	Single	
Spectral linewidth (nm)	<0.00001	
Coherent length (m)	>50	
Noise of amplitude (rms, 1Hz~20MHz)	<1%, typical<0.5%	
M2 factor	<1.5	
Beam diameter at the aperture (1/e <sup>2</sup> , mm)	<2.5	
Beam divergence, full angle (mrad)	<1.2	
Polarization ratio	>100:1, Vertical±5 degree (Horizontal Optional)	
Warm-up time (minutes)	<10	
Pointing stability after warm-up (mrad)	<0.05	
Beam height from base plate (mm)	45	
Operating temperature (°C)	15~35	
Power supply (90-264VAC)	STC-PSU-H-FDA	
Expected lifetime (hours)	10000	
Warranty	1 year	
Dimension/weight (laser head)	211(L)×88(W)×74(H) mm, 2.0 kg	
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3 kg	

### 18. STC-MSL-RA-532 Single Longitudinal Mode Laser

Part number	STC-MSL-RA-532-zz-ss
Wavelength (nm)	532±1
Operating mode	CW
Wavelength (nm)	532±1
Operating mode	CW
Output power (mW)	>700, 800, 900, .....2000
Power stability (rms, over 4 hours)	<1%, <2%, <3%
Transverse mode	TEM00
Longitudinal mode	Single
Spectral linewidth (nm)	<0.00001
Coherent length (m)	>50
Noise of amplitude (rms, 1Hz~20MHz)	<1%
Beam diameter at the aperture (1/e <sup>2</sup> , mm)	<2
Beam divergence, full angle (mrad)	<1.2
M2 factor	<1.2
Warm-up time (minutes)	<10
Pointing stability after warm-up (mrad)	<0.05
Beam height from base plate (mm)	51
Operating temperature (°C)	20~30
Power supply (90-264VAC)	STC-PSU-H-FDA
Expected lifetime (hours)	10000
Warranty	1 year
Dimension/weight (laser head)	140.5 (L) × 73 (W) × 46.2 (H) mm, 4kg
Dimension/weight (power supply)	275 (L) × 146(W) × 104 (H) mm, 2.4 kg
Dimension/weight (chiller)	592 (L) × 485(W) × 212(H) mm, 15kg

#### 19. STC-MSL-R-532 Single Longitudinal Mode Laser

Part number	STC-MSL-R-532-zz-ss
Operating mode	CW
Output power (mW)	>700, 800, ..., 10000
Power stability (rms, over 4 hours)	<1%, <2%, <3%, <5%
Transverse mode	TEM00
Longitudinal mode Single	Single
Noise of amplitude (rms, 20Hz~20MHz)	<1%
Polarization ratio	>100:1
M2 factor	<1.2
Beam divergence, full angle (mrad)	<1.5
Beam diameter at the aperture (1/e <sup>2</sup> ,mm)	<1.5
Spectral linewidth (nm)	<0.00001
Pointing stability after warm-up (mrad)	<0.05
Beam height from base plate (mm)	59
Warm-up time (minutes)	<20
Cooled method	Water cooled
Operating temperature (°C)	20~25
Power supply (90-264VAC)	STC-PSU-W-FDA
Expected lifetime (hours)	10000
Warranty period	1 year
Dimension/weight (laser head)	432(L) × 218(W) × 82(H) mm, 9kg
Dimension/weight (power supply)	307(L) × 168(W) × 123(H) mm, 4.5 kg
Dimension/weight (chiller)	587.5(L) × 482(W) × 187.5(H) mm, 17 kg

#### 20. STC-MSL-AO-532 Single Longitudinal Mode Laser

Part number	STC-MSL-AO-532-zz-ss
Wavelength (nm)	532±1
Operating mode	Acousto-Optic Q-switched

Single pulse energy ( $\mu$ J)	1~100
Longitudinal mode	Single
Pulse duration (ns)	<25
Peak power (kW)	1~4
Rep. rate (Hz)	1~1000
Polarization ratio	>100:1
Ave power stability (over 4 hours)	<3%, <5%
Beam divergence, full angle (mrad)	<2
Beam diameter at the aperture (1/e <sup>2</sup> ,mm)	~2
Beam height from base plate (mm)	59
Warm-up time (minutes)	<20
Cooled method	Water Cooled
Operating temperature ( $^{\circ}$ C)	20~30
Power supply (90-264VAC)	STC-PSU-AOM(3U)
Expected lifetime (hours)	10000
Warranty period	1 year
Dimension/weight (laser head)	432(L) $\times$ 218(W) $\times$ 82(H) mm, 9kg
Dimension/weight (power supply)	483.5 (L) $\times$ 454 (W) $\times$ 147.5 (H) mm, 8.3 kg
Dimension/weight (chiller)	587.5(L) $\times$ 482(W) $\times$ 187.5(H) mm, 17 kg

## 21. STC-MSL-FN-543 Single Longitudinal Mode Laser

Part number	STC-MSL-FN-543-zz-ss
Wavelength (nm)	543 $\pm$ 1
Operating mode	CW
Output power (mW)	>1, 5, 10, ... , 20
Power stability (rms, over 4 hours)	<1%, <2%, <3%
Transverse mode	TEM00
Longitudinal mode	Single
Spectral linewidth (nm)	<0.00001
Coherent length (m)	>50
Noise of amplitude (rms, 1Hz~20MHz)	<1%
M2 factor	<1.2
Beam diameter at the aperture (1/e <sup>2</sup> , mm)	<1.5
Beam divergence, full angle (mrad)	<1.2
Polarization ratio	>100:1, Vertical $\pm$ 5 degree (Horizontal Optional)
Warm-up time (minutes)	<10
Pointing stability after warm-up (mrad)	<0.05
Beam height from base plate (mm)	27.4
Operating temperature ( $^{\circ}$ C)	15~35
Power supply (90-264VAC)	STC-PSU-H-FDA
Expected lifetime (hours)	10000
Warranty	1 year
Dimension/weight (laser head)	197(L) $\times$ 70(W) $\times$ 50(H) mm, 2.0 kg
Dimension/weight (power supply)	236(L) $\times$ 145(W) $\times$ 104(H) mm, 2.3 kg

Note: The laser head needs to be used on a heat sink with good heat dissipation.

## 22. STC-MSL-FN-556 Single Longitudinal Mode Laser

Part number	STC-MSL-FN-556-zz-ss
Wavelength (nm)	556 $\pm$ 1
Operating mode	CW
Output power (mW)	>1, 5, 10, 20, ... , 100
Power stability (rms, over 4 hours)	<1%, <2%, <3%, <5%
Transverse mode	TEM00
Longitudinal mode	Single
Spectral linewidth (nm)	<0.00001
Coherent length (m)	>50

Noise of amplitude (rms, 1Hz~20MHz)	<1%, typical<0.5%
M2 factor	<1.2
Beam diameter at the aperture (1/e2, mm)	<2.0
Beam divergence, full angle (mrad)	<1.2
Polarization ratio	>100:1, Vertical±5 degree (Horizontal Optional)
Warm-up time (minutes)	<10
Pointing stability after warm-up (mrad)	<0.05
Beam height from base plate (mm)	27.4
Operating temperature (°C)	15~35
Power supply (90-264VAC)	STC-PSU-H-FDA
Expected lifetime (hours)	10000
Warranty	1 year
Dimension/weight (laser head)	197(L)×70(W)×50(H) mm, 2.0 kg
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3 kg

Note: The laser head needs to be used on a heat sink with good heat dissipation.

### 23. STC-MSL-FN-561 Single Longitudinal Mode Laser

Part number	STC-MSL-FN-561-zz-ss	
Wavelength (nm)	561±1	
Operating mode	CW	
Output power (mW)	>1, 5, 10, 20,,	150
Power stability (rms, over 4 hours)	<1%, <2%, <3%, <5%	
Transverse mode	TEM00	
Longitudinal mode	Single	
Spectral linewidth (nm)	<0.00001	
Coherent length (m)	>50	
Noise of amplitude (rms, 1Hz~20MHz)	<1%, typical<0.5%	
M2 factor	<1.2	
Beam diameter at the aperture (1/e2, mm)	<2.0	
Beam divergence, full angle (mrad)	<1.2	
Polarization ratio	>100:1,Vertical±5 degree (Horizontal Optional)	
Warm-up time (minutes)	<10	
Pointing stability after warm-up (mrad)	<0.05	
Beam height from base plate (mm)	27.4	
Operating temperature (°C)	15~35	
Power supply (90-264VAC)	STC-PSU-H-FDA	
Expected lifetime (hours)	10000	
Warranty	1 year	
Dimension/weight (laser head)	197(L)×70(W)×50(H) mm, 2.0 kg	
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3 kg	

Note: The laser head needs to be used on a heat sink with good heat dissipation.

### 24. STC-MSL-F-577 Single Longitudinal Mode Laser

Part number	STC-MSL-F-577-zz-ss	
Central wavelength (nm)	577±2	
Operating mode	CW	
Output power (mW)	>10, 20, 50, ..., 200	>200, ..., 300
Power stability (rms, over 4 hours)	<1%, <2%, <3%	<2%, <3%, <5%
Transverse mode	TEM00	
Longitudinal mode	Single	
Spectral linewidth (nm)	<0.00001	
Coherent length (m)	>50	
Noise of amplitude (rms, 1Hz~20MHz)	<1%, typical<0.5%	
M2 factor	<1.5	
Beam diameter at the aperture (1/e2,mm)	~2.5	
Beam divergence, full angle (mrad)	<1.5	



Beam height from base plate (mm)	45
Polarization ratio	>100:1 Horizontal±5 degree (Vertical Optional)
Warm-up time (minutes)	<10
Pointing stability after warm-up (mrad)	<0.05
Operating temperature (°C)	10~35
Power supply (90-264VAC)	STC-PSU-H-FDA
Expected lifetime (hours)	10000
Warranty period	1 year
Dimension/weight (laser head)	211(L)×88(W)×74(H) mm, 1.6 kg
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3kg

## 25. STC-MSL-FN-588 Single Longitudinal Mode Laser

Part number	STC-MSL-FN-588-zz-ss
Wavelength (nm)	588±2
Operating mode	CW
Output power (mW)	>1, 5, 10, 20, ... , 200
Power stability (rms, over 4 hours)	<3%, <5%, <10%
Transverse mode	TEM00
Longitudinal mode	Single
Spectral linewidth (nm)	<0.00001
Coherent length (m)	>50
Noise of amplitude (rms, 1Hz~20MHz)	<1%, typical<0.5%
M2 factor	<1.2
Beam diameter at the aperture (1/e2, mm)	<2.5
Beam divergence, full angle (mrad)	<1.2
Polarization ratio	>100:1, Horizontal±5 degree (Vertical Optional)
Warm-up time (minutes)	<10
Pointing stability after warm-up (mrad)	<0.05
Beam height from base plate (mm)	27.4
Operating temperature (°C)	15~35
Power supply (90-264VAC)	STC-PSU-H-FDA
Expected lifetime (hours)	10000
Warranty	1 year
Dimension/weight (laser head)	211(L)×88(W)×74(H) mm, 1.36 kg
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3kg

## 26. STC-MSL-F-589 Single Longitudinal Mode Laser

Part number	STC-MSL-F-589-zz-ss
Wavelength	589±1
Operating mode	CW
Output power (mW)	>1, 5, 10, 20,... 200
Power stability (rms, over 4 hours)	<3%, <5%, <10%
Transverse mode	Near TEM00
Longitudinal mode	Single
Spectral linewidth (nm)	<0.00001
Coherent length (m)	>50
Noise of amplitude (rms, 1Hz~20MHz)	<1%, typical<0.5%
M2 factor	<1.2
Beam diameter at the aperture (1/e2, mm)	<2.5
Beam divergence, full angle (mrad)	<1.2
Polarization ratio	>100:1, Horizontal±5 degree (Vertical Optional)
Warm-up time (minutes)	<10
Pointing stability after warm-up (mrad)	<0.05
Beam height from base plate (mm)	45
Operating temperature (°C)	15~35
Power supply (90-264VAC)	STC-PSU-H-FDA

Expected lifetime (hours)	10000
Warranty	1 year
Dimension/weight (laser head)	211(L)×88(W)×74(H) mm, 2.0 kg
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3kg

### 27. STC-MSL-RA-589 Single Longitudinal Mode Laser

Part number	STC-MSL-RA-589-zz-ss
Wavelength (nm)	589±1
Output power (mW)	>1, 10, ..., 500
Transverse mode	TEM00
Operating mode	CW
Longitudinal mode Single	Single
Spectral linewidth (nm)	<0.00001
Power stability (rms, over 4 hours)	<3%, <5%
Noise of amplitude (rms, 20Hz~20MHz)	<1%
Beam diameter at the aperture (1/e <sup>2</sup> ,mm)	<2.0
Beam divergence, full angle (mrad)	<1.5
M2 factor	<1.2
Pointing stability after warm-up (mrad)	<0.05
Polarization ratio	>100:1
Warm-up time (minutes)	<10
Beam height from base plate (mm)	51
Operating temperature (°C)	20~30
Cooled method	Water cooled
Power supply (90-264VAC)	STC-PSU-H-FDA
Expected lifetime (hours)	10000
Warranty period	1 year
Dimension/weight (laser head)	140.5 (L) × 73 (W) ×46.2 (H) mm, 4kg
Dimension/weight (power supply)	275 (L) ×146(W) ×104 (H) mm, 2.4 kg
Dimension/weight (chiller)	592 (L) ×485(W) ×212(H) mm, 15kg

### 28. STC-MSL-FN-607 Single Longitudinal Mode Laser

Part number	STC-MSL-FN-607-zz-ss
Wavelength (nm)	607±1
Operating mode	CW
Output power (mW)	>1, 5, 10, 20, ... , 100
Power stability (rms, over 4 hours)	<1%, <2%, <3%
Transverse mode	TEM00
Longitudinal mode	Single
Spectral linewidth (nm)	<0.00001
Coherent length (m)	>50
Noise of amplitude (rms, 1Hz~20MHz)	<1%
M2 factor	<1.2
Beam diameter at the aperture (1/e <sup>2</sup> , mm)	<1.5
Beam divergence, full angle (mrad)	<1.2
Polarization ratio	>100:1, Vertical±5 degree (Horizontal Optional)
Warm-up time (minutes)	<10
Pointing stability after warm-up (mrad)	<0.05
Beam height from base plate (mm)	27.4
Operating temperature (°C)	15~35
Power supply (90-264VAC)	STC-PSU-H-FDA
Expected lifetime (hours)	10000
Warranty	1 year
Dimension/weight (laser head)	197(L)×70(W)×50(H) mm, 2.0 kg
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3kg

Note: The laser head needs to be used on a heat sink with good heat dissipation.

### 29. STC-MSL-FN-639 Single Longitudinal Mode Laser

Part number	STC-MSL-FN-639-zz-ss
Wavelength (nm)	639±1
Operating mode	CW
Output power (mW)	>1, 5, 10, 20, ... 300
Power stability (rms, over 4 hours)	<1%, <2%, <3%
Transverse mode	TEM00
Longitudinal mode	Single
Spectral linewidth (nm)	<0.00001
Coherent length (m)	>40
Noise of amplitude (rms, 1Hz~20MHz)	<1%, typical<0.5%
M2 factor	<1.2(<1.1 optional)
Beam diameter at the aperture (1/e <sup>2</sup> , mm)	<1.5
Beam divergence, full angle (mrad)	<1.5
Polarization ratio	>100:1, Horizontal±5 degree (Vertical Optional)
Warm-up time (minutes)	<10
Pointing stability after warm-up ( mrad/°C)	6
Beam height from base plate (mm)	27.4
Operating temperature (°C)	15~35
Power supply (90-264VAC)	STC-PSU-H-FDA
Expected lifetime (hours)	10000
Warranty	1 year
Dimension/weight (laser head)	197(L)×70(W)×50(H) mm, 2.0 kg
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3kg

Note: The laser head needs to be used on a heat sink with good heat dissipation.

### 30. STC-MSL-FN-656.5 Single Longitudinal Mode Laser

Part number	STC-MSL-FN-656.5-zz-ss
Wavelength (nm)	656.5±1
Output power (mW)	>1, 5, 10, 20, ... , 50
Transverse mode	TEM00
Longitudinal mode	Single
Operating mode	CW
Power stability (rms, over 4 hours)	<1%, <3%, <5%
Warm-up time (minutes)	<10
M2 factor	<1. 2
Beam divergence, full angle (mrad)	<1. 2
Beam diameter at the aperture (mm)	~2. 0
Beam height from base plate (mm)	27.4
Polarization ratio	>100:1, Vertical±5 degree
Spectral linewidth (nm)	<0.00001
Pointing stability after warm-up (mrad)	<0.05
Noise of amplitude (rms, 20Hz~20MHz)	<0. 5%
Coherent length (m)	>50
Operating temperature (°C)	15~35
Power supply (90-264VAC)	STC-PSU-H-FDA
Modulation	Modulation isn't available.
Expected lifetime (hours)	10000
Warranty	1 year
Dimension/weight (laser head)	197(L)×70(W)×50(H) mm, 2.0 kg
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3kg

Note: The laser head needs to be used on a heat sink with good heat dissipation.

### 31. STC-MSL-FN-660 Single Longitudinal Mode Laser

Part number	STC-MSL-FN-660-zz-ss
Wavelength (nm)	660±1
Operating mode	CW
Output power (mW)	>1, 2, 3, ... , 20
Power stability (rms, over 4 hours)	<3%, <5%
Transverse mode	TEM00
Longitudinal mode	Single
Spectral linewidth (nm)	<0.00001
Coherent length (m)	>50
Noise of amplitude (rms, 1Hz~20MHz)	<1%, typical<0.5%
M2 factor	<1.2
Beam diameter at the aperture (1/e2, mm)	<2.0
Beam divergence, full angle (mrad)	<1.2
Warm-up time (minutes)	<10
Pointing stability after warm-up (mrad)	<0.05
Beam height from base plate (mm)	27.4
Operating temperature (°C)	15~35
Power supply (90-264VAC)	STC-PSU-H-FDA
Expected lifetime (hours)	10000
Warranty	1 year
Dimension/weight (laser head)	197(L)×70(W)×50(H) mm, 2.0 kg
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3kg

Note: The laser head needs to be used on a heat sink with good heat dissipation.

### 32. STC-MSL-FN-671 Single Longitudinal Mode Laser

Part number	STC-MSL-FN-671-zz-ss	
Wavelength (nm)	671±1	
Operating mode	CW	
Output power (mW)	>1, 5, 10, 20, ... , 300	>300, ... , 500
Power stability (rms, over 4 hours)	<1%, <2%, <3%	<2%, <3%
Transverse mode	TEM00	
Longitudinal mode	Single	
Spectral linewidth (nm)	<0.00001	
Coherent length (m)	>50	
Noise of amplitude (rms, 1Hz~20MHz)	<1%, typical<0.5%	
M2 factor	<1.2(<1.1 optional)	<1.2
Beam diameter at the aperture (1/e2, mm)	<2.0, typical<1.5	
Beam divergence, full angle (mrad)	<1.2	
Polarization ratio	>100:1, Vertical±5 degree (Horizontal Optional)	
Warm-up time (minutes)	<10	
Pointing stability after warm-up (mrad)	<0.05	
Beam height from base plate (mm)	27.4	
Operating temperature (°C)	15~35	
Power supply (90-264VAC)	STC-PSU-H-FDA	
Expected lifetime (hours)	10000	
Warranty	1 year	
Dimension/weight (laser head)	197(L)×70(W)×50(H) mm, 2.0 kg	
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3kg	

Note: The laser head needs to be used on a heat sink with good heat dissipation.

### 33. STC-MSL-R-671 Single Longitudinal Mode Laser

Part number	STC-MSL-R-671-zz-ss
Wavelength (nm)	671±1
Operating mode	CW
Output power (mW)	>500, 600, ....., 800
Power stability (rms, over 4 hours)	<3%, <5%, <10%

Transverse mode	TEM00
Longitudinal mode	Single
Noise of amplitude (rms, 20Hz~20MHz)	<1%
Polarization ratio	>100:1
M2 factor	<1.5
Beam divergence, full angle (mrad)	<1.5
Beam diameter at the aperture (1/e <sup>2</sup> ,mm)	~1.5
Spectral linewidth (nm)	<0.00001
Pointing stability after warm-up (mrad)	<0.05
Beam height from base plate (mm)	59
Warm-up time (minutes)	<20
Cooled method	Water cooled
Operating temperature (°C)	20~25
Power supply (90-264VAC)	STC-PSU-W-FDA
Expected lifetime (hours)	10000
Warranty period	1 year
Dimension/weight (laser head)	432(L) ×218(W) ×82(H) mm, 9kg
Dimension/weight (power supply)	307(L)×168(W)×123(H) mm, 4.5 kg
Dimension/weight (chiller)	587.5(L)×482(W)×187.5(H) mm, 17 kg

#### 34. STC-MSL-RA-671 Single Longitudinal Mode Laser

Part number	STC-MSL-RA-671-zz-ss
Wavelength (nm)	671±1
Output power (mW)	>1, 10, ..., 1000
Transverse mode	TEM00
Operating mode	CW
Longitudinal mode	Single
Spectral linewidth (nm)	<0.00001
Power stability (rms, over 4 hours)	<3%, <5%
Noise of amplitude (rms, 20Hz~20MHz)	<1%
Beam diameter at the aperture (1/e <sup>2</sup> ,mm)	<2.0
Beam divergence, full angle (mrad)	<1.5
M2 factor	<1.2
Pointing stability after warm-up (mrad)	<0.05
Polarization ratio	>100:1
Warm-up time (minutes)	<10
Beam height from base plate (mm)	51
Operating temperature (°C)	20~30
Cooled method	Water cooled
Power supply (90-264VAC)	STC-PSU-H-FDA
Expected lifetime (hours)	10000
Warranty period	1 year
Dimension/weight (laser head)	140.5 (L) × 73 (W) ×46.2 (H) mm, 4kg
Dimension/weight (power supply)	275 (L) ×146(W) ×104 (H) mm, 2.4 kg
Dimension/weight (chiller)	592 (L) ×485(W) ×212(H) mm, 15kg

#### 35. STC-MSL-W-671 Single Longitudinal Mode Laser

Part number	STC-MSL-W-671-zz-ss
Wavelength (nm)	671±1
Output power (mW)	>800, 1000, ..., 2500
Transverse mode	TEM00
Operating mode	CW
Longitudinal mode	Single
Spectral linewidth (nm)	<0.00001
Power stability (rms, over 4 hours)	<3%, <5%
Noise of amplitude (rms, 20Hz~20MHz)	<1%

M2 factor	<1.5
Beam divergence, full angle (mrad)	<1.5
Beam diameter at the aperture (1/e <sup>2</sup> ,mm)	<3.0
Pointing stability after warm-up (mrad)	<0.05
Polarization ratio	>100:1
Warm-up time (minutes)	<20
Beam height from base plate (mm)	58
Cooled method	Water cooled
Operating temperature (°C)	20~25
Power supply (90-264VAC)	STC-PSU-W-FDA
Expected lifetime (hours)	10000
Warranty period	1 year
Dimension/weight (laser head)	408(L) ×225(W) ×78(H) mm, 5.7kg
Dimension/weight (power supply)	307(L)×168(W)×123(H) mm, 4.5 kg
Dimension/weight (chiller)	587.5(L)×482(W)×187.5(H) mm, 17 kg

### 36. STC-MSL-FN-721 Single Longitudinal Mode Laser

Part number	STC-MSL-FN-721-zz-ss	
Wavelength (nm)	721±1	
Operating mode	CW	
Output power (mW)	>1, 5, 10, 20, ... , 50	>50, ... , 100
Power stability (rms, over 4 hours)	<3%, <5%	<3%, <5%, <10%
Transverse mode	TEM00	
Longitudinal mode	Single	
Spectral linewidth (nm)	<0.00001	
Coherent length (m)	>50	
Noise of amplitude (rms, 1Hz~20MHz)	<1%, typical<0.5%	
M2 factor	<1.2	
Beam diameter at the aperture (1/e <sup>2</sup> , mm)	<1.5	
Beam divergence, full angle (mrad)	<1.2	
Warm-up time (minutes)	<10	
Pointing stability after warm-up (mrad)	<0.05	
Beam height from base plate (mm)	27.4	
Operating temperature (°C)	15~35	
Power supply (90-264VAC)	STC-PSU-H-FDA	
Expected lifetime (hours)	10000	
Warranty	1 year	
Dimension/weight (laser head)	197(L)×70(W)×50(H) mm, 2.0 kg	
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3kg	

Note: The laser head needs to be used on a heat sink with good heat dissipation.

### 37. STC-MSL-FN-914 Single Longitudinal Mode Laser

Part number	STC-MSL-FN-914-zz-ss	
Wavelength (nm)	914±1	
Operating mode	CW	
Output power (mW)	>1, 5, 10, 20, ... , 100	
Power stability (rms, over 4 hours)	<1%, <2%, <3%	
Transverse mode	TEM00	
Longitudinal mode	Single	
Spectral linewidth (nm)	<0.00001	
Coherent length (m)	>50	
Noise of amplitude (rms, 1Hz~20MHz)	<1%	
M2 factor	<1.2	
Beam diameter at the aperture (1/e <sup>2</sup> , mm)	<1.5	
Beam divergence, full angle (mrad)	<1.2	
Polarization ratio	>100:1, Vertical±5 degree (Horizontal Optional)	

Warm-up time (minutes)	<10
Pointing stability after warm-up (mrad)	<0.05
Beam height from base plate (mm)	27.4
Operating temperature (°C)	15~35
Power supply (90-264VAC)	STC-PSU-H-FDA
Expected lifetime (hours)	10000
Warranty	1 year
Dimension/weight (laser head)	197(L)×70(W)×50(H) mm, 2.0 kg
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3kg

Note: The laser head needs to be used on a heat sink with good heat dissipation.

### 38. STC-MSL-FN-946 Single Longitudinal Mode Laser

Part number	STC-MSL-FN-946-zz-ss
Wavelength (nm)	946±1
Operating mode	CW
Output power (mW)	>1, 5, 10, 20, ... , 100
Power stability (rms, over 4 hours)	<1%, <2%, <3%
Transverse mode	TEM00
Longitudinal mode	Single
Spectral linewidth (nm)	<0.00001
Coherent length (m)	>50
Noise of amplitude (rms, 1Hz~20MHz)	<1%,
M2 factor	<1.2
Beam diameter at the aperture (1/e <sup>2</sup> , mm)	<2.0
Beam divergence, full angle (mrad)	<1.2
Polarization ratio	>100:1, Vertical±5 degree (Horizontal Optional)
Warm-up time (minutes)	<10
Pointing stability after warm-up (mrad)	<0.05
Beam height from base plate (mm)	27.4
Operating temperature (°C)	15~35
Power supply (90-264VAC)	STC-PSU-H-FDA
Expected lifetime (hours)	10000
Warranty	1 year
Dimension/weight (laser head)	197(L)×70(W)×50(H) mm, 2.0 kg
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3kg

Note: The laser head needs to be used on a heat sink with good heat dissipation.

### 39. STC-MSL-FN-1030 Single Longitudinal Mode Laser

Part number	STC-MSL-FN-1030-zz-ss
Wavelength (nm)	1030±2
Operating mode	CW
Output power (mW)	>1, 5, 10, ... , 20
Power stability (rms, over 4 hours)	<1%, <2%, <3%
Transverse mode	TEM00
Longitudinal mode	Single
Spectral linewidth (nm)	<0.00001
Coherent length (m)	>50
Noise of amplitude (rms, 1Hz~20MHz)	<1%
M2 factor	<1.2
Beam diameter at the aperture (1/e <sup>2</sup> , mm)	~2
Beam divergence, full angle (mrad)	<1.2
Polarization ratio	>100:1, Vertical±5 degree (Horizontal Optional)
Warm-up time (minutes)	<10
Pointing stability after warm-up (mrad)	<0.05
Beam height from base plate (mm)	27.4
Operating temperature (°C)	15~35

Power supply (90-264VAC)	STC-PSU-H-FDA
Expected lifetime (hours)	10000
Warranty	1 year
Dimension/weight (laser head)	197(L)×70(W)×50(H) mm, 2.0 kg
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3kg

Note: The laser head needs to be used on a heat sink with good heat dissipation.

#### 40. STC-MSL-U-1047 Single Longitudinal Mode Laser

Part number	STC-U-1047-zz-ss	
Central wavelength (nm)	1047	
Operating mode	CW	
Output power (mW)	>1, 5, 10, 20, ... , 200	>200, ... , 500
Power stability (rms, over 4 hours)	<1%, <2%, <3%, <5%	<2%, <3%, <5%
Transverse mode	TEM00	
Longitudinal mode	Single	
Spectral linewidth (nm)	<0.00001	
Coherent length (m)	>50	
Noise of amplitude (rms, 1Hz~20MHz)	<1%, typical<0.5%	
M2 factor	<1.2	
Beam diameter at the aperture (1/e2, mm)	0.70±0.05	
Beam divergence (mrad)	<1.5	
Polarization Ratio	>100:1, Horizontal±5 degree	
Warm-up time (minutes)	<10	
Pointing stability after warm-up (mrad)	<0.05	
Beam height from base plate (mm)	27.4	
Laser head consumption(W)	15 (typical) , <25 (40°C)	
Max. Laser Head Base plate Temp (°C)	50	
Operating Temperature (°C)	10-40	
Power supply (90-264VAC)	STC-PSU-H-FDA	
Expected lifetime (hours)	10000	
Warranty	1 year	
Dimension/weight (laser head)	136(L)×60(W) ×50(H) mm, 1.5 kg	
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3kg	

Note: The laser head needs to be used on a heat sink with good heat dissipation.

#### 41. STC-MSL-FN-1047 Single Longitudinal Mode Laser

Part number	STC-MSL-FN-1047-zz-ss	
Wavelength (nm)	1047±1	
Operating mode	CW	
Output power (mW)	>1, 5, 10, 20, ... , 300	>300, ... , 800
Power stability (rms, over 4 hours)	<2%, <3%, <5%	<3%, <5%
Transverse mode	TEM00	
Longitudinal mode	Single	
Spectral linewidth (nm)	<0.00001	
Coherent length (m)	>50	
Noise of amplitude (rms, 1Hz~20MHz)	<1%, typical<0.5%	
M2 factor	<1.5	
Beam diameter at the aperture (1/e2, mm)	<2.0	
Beam divergence, full angle (mrad)	<1.5	
Warm-up time (minutes)	<10	
Pointing stability after warm-up (mrad)	<0.05	
Beam height from base plate (mm)	27.4	
Operating temperature (°C)	15~35	
Power supply (90-264VAC)	STC-PSU-H-FDA	
Expected lifetime (hours)	10000	
Warranty	1 year	
Dimension/weight (laser head)	197(L)×70(W)×50(H) mm, 2.0 kg	



Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3kg
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Note: The laser head needs to be used on a heat sink with good heat dissipation.

#### 42. STC-MSL-FN-1053 Single Longitudinal Mode Laser

Part number	STC-MSL-FN-1053-zz-ss	
Wavelength (nm)	1053±1	
Operating mode	CW	
Output power (mW)	>1, 5, 10, 20, ... , 100	>100, ... , 200
Power stability (rms, over 4 hours)	<1%, <2%, <3%, <5%	<2%, <3%, <5%
Transverse mode	TEM00	
Longitudinal mode	Single	
Spectral linewidth (nm)	<0.00001	
Coherent length (m)	>50	
Noise of amplitude (rms, 1Hz~20MHz)	<1%, typical<0.5%	
M2 factor	<1.5	
Beam diameter at the aperture (1/e <sup>2</sup> , mm)	<2.0	
Beam divergence, full angle (mrad)	<1.5	
Warm-up time (minutes)	<10	
Pointing stability after warm-up (mrad)	<0.05	
Beam height from base plate (mm)	27.4	
Operating temperature (°C)	15~35	
Power supply (90-264VAC)	STC-PSU-H-FDA	
Expected lifetime (hours)	10000	
Warranty	1 year	
Dimension/weight (laser head)	197(L)×70(W)×50(H) mm, 2.0 kg	
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3kg	

Note: The laser head needs to be used on a heat sink with good heat dissipation.

#### 43. STC-MSL-S-1064 Single Longitudinal Mode Laser

Part number	STC-MSL-S-1064-A (Harsh condition)		STC-MSL-S-1064-B (Normal condition)	
Central wavelength (nm)	1064±1			
Operating mode	CW			
Output power (mW)	>1,5,10,20, ...,100	>100, ...,200	>1,5,10,20, ...,100	>100, ...,200
Power stability (rms, over 4 hours)	<1%, <2%, <3%	<2%, <3%	<1%, <2%, <3%	<2%, <3%
Transverse mode	TEM00			
Longitudinal mode	Single			
Spectral linewidth (nm)	<0.00001			
Coherent length (m)	>50			
M2 factor	<1.2			
Beam diameter at the aperture( 1/e <sup>2</sup> ,mm)	1.00±0.05			
Beam divergence, full angle (mrad)	<1.7			
Pointing stability after warm-up (mrad)	<0.05			
Pointing stability Over Temp. (μrad/°C)	<8			
Warm-up time (minutes)	<5			
Beam height from base plate (mm)	19			
Power Consumption(W)	<40			
Shock Tolerance(6ms)	7g laterally, 15g vertically			
IP Rating	IP67		IP65	
Power supply(90-264VAC)	STC-PSU-H-FDA		STC-PSU-A-F	
Operating temperature (°C)	0-60		10-35	
Max. Heat Dissipation of Head(W)	10W@50°C		4W@25°C	
Modulation	Modulation isn't available.			
Expected lifetime (hours)	10000			
Warranty	1 year			

Dimension/weight (laser head)	100 (L) ×40 (W) ×40(H) mm, 0.36kg
Dimension/weight (power supply)	236(L) ×145(W) ×104 (H) mm, 2.3kg (H-FDA) 162(L) × 144(W) ×55(H) mm, 0.5kg (A-F)

#### 44. STC-MSL-III-1064 Single Longitudinal Mode Laser

Part number	STC-MSL-III-1064-zz-ss	
Wavelength (nm)	1064±1	
Operating mode	CW	
Output power (mW)	>1, 5, 10, 20, ... , 500	>500, ... , 1000
Power stability (rms, over 4 hours)	<1%, <2%, <3%	2%, <3%
Transverse mode	TEM00	
Longitudinal mode	Single	
Spectral linewidth (nm)	<0.00001	
Coherent length (m)	>50	
Noise of amplitude (rms, 1Hz~20MHz)	<1%, typical<0.5%	
M2 factor	<1.5(<1.2 optional)	<1.5
Beam diameter at the aperture (1/e <sup>2</sup> , mm)	<2.0	
Beam divergence, full angle (mrad)	<1.5	
Warm-up time (minutes)	<10	
Pointing stability after warm-up (mrad)	<0.05	
Beam height from base plate (mm)	24.8	
Operating temperature (°C)	15~35	
Power supply (90-264VAC)	STC-PSU-III-FDA	
Expected lifetime (hours)	10000	
Warranty	1 year	
Dimension/weight (laser head)	140.5 (L) × 73 (W) ×46.2 (H) mm, 0.6kg	
Dimension/weight (power supply)	133 (L) ×130(W) ×62.2 (H) mm, 1.2kg	

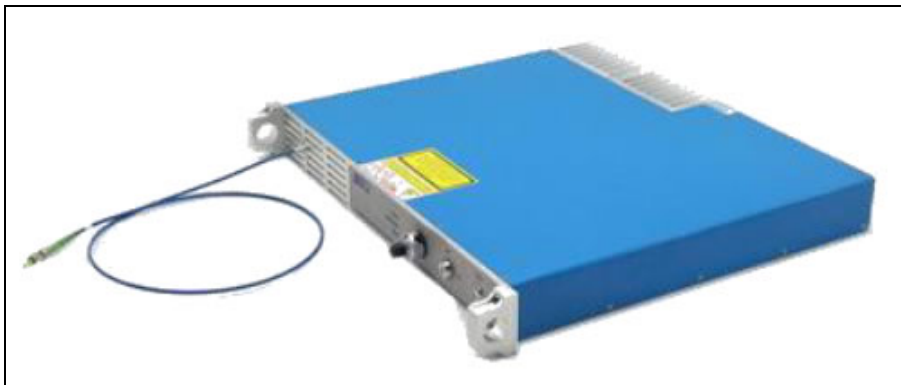
#### 45. STC-MSL-R-1064 Single Longitudinal Mode Laser

Part number	STC-MSL-R-1064-zz-ss	
Wavelength (nm)	1064±1	
Operating mode	CW	
Output power (W)	>1, 2, ... , 10	
Power stability (rms, over 4 hours)	<1%, <2%, <3%, <5%	
Transverse mode	TEM00	
Longitudinal mode Single	Single	
Noise of amplitude (rms, 20Hz~20MHz)	<0.5%	
Polarization ratio	>100:1	
M2 factor	<1.5	
Beam divergence, full angle (mrad)	<1.5	
Beam diameter at the aperture (1/e <sup>2</sup> ,mm)	~1.5	
Pointing stability after warm-up (mrad)	<0.05	
Spectral linewidth (nm)	<0.00001	
Beam height from base plate (mm)	59	
Warm-up time (minutes)	<20	
Cooled method	Water cooled	
Operating temperature (°C)	20~30	
Power supply (90-264VAC)	STC-PSU-W-FDA	
Expected lifetime (hours)	10000	
Warranty period	1 year	
Dimension/weight (laser head)	432(L) ×218(W) ×82(H) mm, 9kg	
Dimension/weight (power supply)	307(L)×168(W)×123(H) mm, 4.5 kg	
Dimension/weight (chiller)	587.5(L)×482(W)×187.5(H) mm, 17 kg	

#### 46. STC-MSL-AO-1064 Single Longitudinal Mode Laser

Part number	STC-MSL-AO-1064-zz-ss
Wavelength (nm)	1064±1
Operating mode	Acousto-Optic Q-switched
Single pulse energy (μJ)	1~200
Longitudinal mode	Single
Pulse duration (ns)	<25
Peak power (kW)	1~8
Rep. rate (Hz)	1~1000
Polarization ratio	>100:1
Ave power stability (over 4 hours)	<3%, <5%
Beam divergence, full angle (mrad)	<2
Beam diameter at the aperture (1/e <sup>2</sup> ,mm)	~2
Beam height from base plate (mm)	59
Warm-up time (minutes)	<20
Cooled method	Water Cooled
Operating temperature (°C)	20~30
Power supply (90-264VAC)	STC-PSU-AOM(3U)
Expected lifetime (hours)	10000
Warranty period	1 year
Dimension/weight (laser head)	432(L) ×218(W) ×82(H) mm, 9kg
Dimension/weight (power supply)	483.5 (L) ×454 (W) ×147.5 (H) mm, 8.3 kg
Dimension/weight (chiller)	587.5(L)×482(W)×187.5(H) mm, 17 kg

#### 47. STC-FL-1064-SF Single Longitudinal Mode Laser



Part number	STC-FL-1064-SF-zz-ss
Wavelength (nm)	1064±1
Operating mode	CW
Output power (mW)	10, 100, 500
Power stability (rms, over 4 hours)	<1%, <2%
Transverse mode	TEM <sub>00</sub>
Longitudinal mode	Single
Spectral linewidth (KHz)	<100
Frequency shift (MHz)	<10@1hour
M <sup>2</sup> factor	<1.2
Beam Delivery Optics	FC/APC
Polarization ratio(dB)	>15
Warm-up time (minutes)	<30
Operating temperature (°C)	15~30
Power supply (V DC)	12
Expected lifetime (hours)	10000
Warranty	1 year
Options	RS 232 interface, PZT tuning
Dimension/weight	420(L)×380(W) ×49(H)mm, 7 kg

#### 48. STC-MSL-FN-1112 Single Longitudinal Mode Laser

Part number	STC-MSL-FN-1112-zz-ss
Wavelength (nm)	1112±3
Operating mode	CW
Output power (mW)	>1, 5, 10, ... , 20
Power stability (rms, over 4 hours)	<1%, <2%, <3%
Transverse mode	TEM00
Longitudinal mode	Single
Spectral linewidth (nm)	<0.00001
Coherent length (m)	>50
Noise of amplitude (rms, 1Hz~20MHz)	<1%
M2 factor	<1.2
Beam diameter at the aperture (1/e <sup>2</sup> , mm)	~2
Beam divergence, full angle (mrad)	<1.2
Polarization ratio	>100:1, Vertical±5 degree (Horizontal Optional)
Warm-up time (minutes)	<10
Pointing stability after warm-up (mrad)	<0.05
Beam height from base plate (mm)	27.4
Operating temperature (°C)	15~35
Power supply (90-264VAC)	STC-PSU-H-FDA
Expected lifetime (hours)	10000
Warranty	1 year
Dimension/weight (laser head)	197(L)×70(W)×50(H) mm, 2.0 kg
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3kg

Note: The laser head needs to be used on a heat sink with good heat dissipation.

#### 49. STC-MSL-FN-1122 Single Longitudinal Mode Laser

Part number	STC-MSL-FN-1122-zz-ss
Wavelength (nm)	1122±3
Operating mode	CW
Output power (mW)	>1, 5, 10, 20, ... , 80
Power stability (rms, over 4 hours)	<1%, <2%, <3%
Transverse mode	TEM00
Longitudinal mode	Single
Spectral linewidth (nm)	<0.00001
Coherent length (m)	>50
Noise of amplitude (rms, 1Hz~20MHz)	<1%
M2 factor	<1.2
Beam diameter at the aperture (1/e <sup>2</sup> , mm)	~2
Beam divergence, full angle (mrad)	<1.2
Polarization ratio	>100:1, Vertical±5 degree (Horizontal Optional)
Warm-up time (minutes)	<10
Pointing stability after warm-up (mrad)	<0.05
Beam height from base plate (mm)	27.4
Operating temperature (°C)	15~35
Power supply (90-264VAC)	STC-PSU-H-FDA
Expected lifetime (hours)	10000
Warranty	1 year
Dimension/weight (laser head)	197(L)×70(W)×50(H) mm, 2.0 kg
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3kg

Note: The laser head needs to be used on a heat sink with good heat dissipation.

#### 50. STC-MSL-FN-1313 Single Longitudinal Mode Laser

Part number	STC-MSL-FN-1313-zz-ss
Wavelength (nm)	1313±1
Operating mode	CW

Output power (mW)	>1, 5, 10, 20, ... , 200	>200, ... , 500
Power stability (rms, over 4 hours)	<1%, <2%, <3%, <5%	<2%, <3%, <5%
Transverse mode	TEM00	
Longitudinal mode	Single	
Spectral linewidth (nm)	<0.00001	
Coherent length (m)	>50	
Noise of amplitude (rms, 1Hz~20MHz)	<1%, typical<0.5%	
M2 factor	<2.0	
Beam diameter at the aperture (1/e2, mm)	<2.0	
Beam divergence, full angle (mrad)	<1.5	
Warm-up time (minutes)	<10	
Pointing stability after warm-up (mrad)	<0.05	
Beam height from base plate (mm)	27.4	
Operating temperature (°C)	15~35	
Power supply (90-264VAC)	STC-PSU-H-FDA	
Expected lifetime (hours)	10000	
Warranty	1 year	
Dimension/weight (laser head)	197(L)×70(W)×50(H) mm, 2.0 kg	
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3kg	

Note: The laser head needs to be used on a heat sink with good heat dissipation.

### 51. STC-MSL-FN-1319 Single Longitudinal Mode Laser

Part number	STC-MSL-FN-1319-zz-ss	
Wavelength (nm)	1319±1	
Operating mode	CW	
Output power (mW)	>1, 5, 10, 20, ... , 50	
Power stability (rms, over 4 hours)	<1%, <2%, <3%, <5%	
Transverse mode	TEM00	
Longitudinal mode	Single	
Spectral linewidth (nm)	<0.00001	
Coherent length (m)	>50	
Noise of amplitude (rms, 1Hz~20MHz)	<1%, typical<0.5%	
M2 factor	<2.0	
Beam diameter at the aperture (1/e2, mm)	<2.0	
Beam divergence, full angle (mrad)	<1.5	
Warm-up time (minutes)	<10	
Pointing stability after warm-up (mrad)	<0.05	
Beam height from base plate (mm)	27.4	
Operating temperature (°C)	15~35	
Power supply (90-264VAC)	STC-PSU-H-FDA	
Expected lifetime (hours)	10000	
Warranty	1 year	
Dimension/weight (laser head)	197(L)×70(W)×50(H) mm, 2.0 kg	
Dimension/weight (power supply)	236(L) ×145(W) ×104(H) mm, 2.3kg	

Note: The laser head needs to be used on a heat sink with good heat dissipation.

### 52. STC-MSL-III-1342 Single Longitudinal Mode Laser

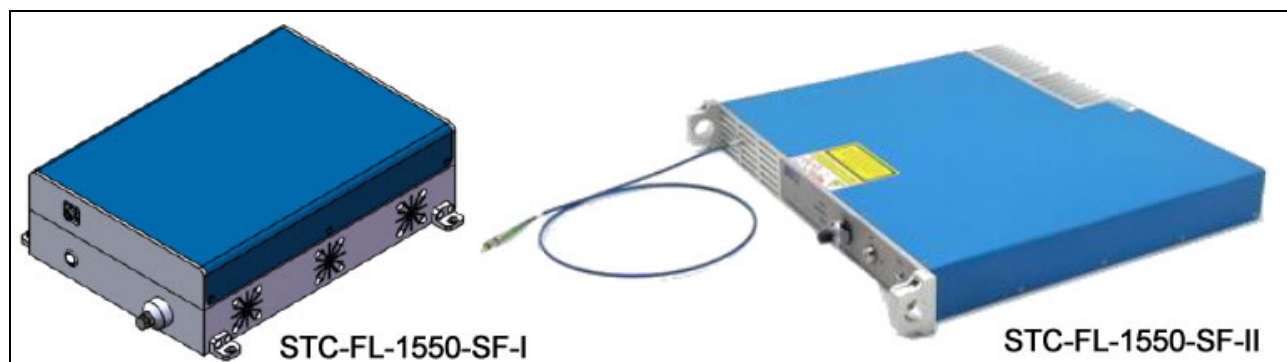
Part number	STC-MSL-III-1342-zz-ss	
Wavelength (nm)	1342±1	
Operating mode	CW	
Output power (mW)	>1, 5, 10, 20, ... , 100	>100, ... , 200
Power stability (rms, over 4 hours)	<1%, <2%, <3%, <5%	<2%, <3%, <5%
Transverse mode	TEM00	
Longitudinal mode	Single	
Spectral linewidth (nm)	<0.00001	
Coherent length (m)	>50	

Noise of amplitude (rms, 1Hz~20MHz)	<1%, typical<0.5%
M2 factor	<2.0
Beam diameter at the aperture (1/e2, mm)	<2.0
Beam divergence, full angle (mrad)	<1.5
Polarization ratio	>100:1, Horizontal±5 degree (Vertical Optional)
Warm-up time (minutes)	<10
Pointing stability after warm-up (mrad)	<0.05
Beam height from base plate (mm)	24.8
Operating temperature (°C)	15~35
Power supply (90-264VAC)	STC-PSU-III-FDA
Expected lifetime (hours)	10000
Warranty	1 year
Dimension/weight (laser head)	140.5 (L) × 73 (W) × 46.2 (H) mm, 0.6kg
Dimension/weight (power supply)	133 (L) × 130(W) × 62.2 (H) mm, 1.2kg

### 53. STC-MSL-R-1342 Single Longitudinal Mode Laser

Part number	STC-MSL-R-1342-zz-ss
Wavelength (nm)	1342±1
Operating mode	CW
Output power (W)	>1, 2, ..., 5
Power stability (rms, over 4 hours)	<1%, <2%, <3%, <5%
Transverse mode	TEM00
Longitudinal mode Single	Single
Noise of amplitude (rms, 20Hz~20MHz)	<0.5%
Polarization ratio	>100:1
M2 factor	<1.5
Beam divergence, full angle (mrad)	<1.5
Beam diameter at the aperture (1/e2,mm)	~1.5
Spectral linewidth (nm)	<0.00001
Pointing stability after warm-up (mrad)	<0.05
Beam height from base plate (mm)	59
Warm-up time (minutes)	<20
Cooled method	Water cooled
Operating temperature (°C)	20~30
Power supply (90-264VAC)	STC-PSU-W-FDA
Expected lifetime (hours)	10000
Warranty period	1 year
Dimension/weight (laser head)	432(L) × 218(W) × 82(H) mm, 9kg
Dimension/weight (power supply)	307(L) × 168(W) × 123(H) mm, 4.5 kg
Dimension/weight (chiller)	587.5(L) × 482(W) × 187.5(H) mm, 17 kg

### 54. STC-FL-1550-SF Single Longitudinal Mode Laser



Part number	STC-FL-1550-SF-II-zz-ss	STC-FL-1550-SF-I-zz-ss
Wavelength (nm)	1550±1	
Operating mode	CW	

Output power (mW)	1~500	1~1000
Power stability (rms, over 4 hours)	<1%, <2%	
Transverse mode	TEM00	
Longitudinal mode	Single	
Spectral linewidth (kHz)	<100	<2000
M2 factor	<1.2	
Beam Delivery Optics	FC/APC	
Polarization ratio(dB)	>15	
Warm-up time (minutes)	<15	
Beam height from base plate (mm)	58	
Operating temperature (°C)	15~35	
Power supply (V DC)	12	
Expected lifetime (hours)	10000	
Warranty	1 year	
Options	RS 232 interface	
Dimension/weight	420(L)×380(W) ×49(H)mm, 7 kg	264(L)×214(W) ×75(H), 3 kg

# STU Series Single Frequency DPSS Lasers

**Any wavelength from NIR to UV using a single engineering platform based on our proprietary patented BRaMMS DPSS Laser technology.**

We develop and produce Single Frequency DPSS lasers for demanding applications in:

- Leading edge research,
- Life sciences, BioMed,
- Semicon,
- Environmental Metrology, etc.

We are the **only** company, whose Continuous Wave Single Frequency DPSS Lasers uniquely perform at any wavelength within the range from NIR to UV from just a single technology platform, using our proprietary patented **Bragg Range Michelson Mode Selector (BRaMMS) DPSS Laser technology**. Whereas conventional light can be dispersed by a prism into a spectrum of constituent colours, our lasers emit just one ultra pure colour.

Using the BRaMMS laser technology we can offer any wavelength within spectrum range

- from IR (around 2µm) to through deep UV (<200nm)
- from our range of DPSS lasers operating in the CW Single Frequency regime. This is unique for a single platform laser technology.

All products feature laser cavity feedback locked Single Longitudinal Mode CW performance with no lock loss and mode hops during 100s of hours of nonstop operation.

The excellent beam quality with M2 <1.05 emerges from the smallest footprint and at the lowest power consumption for given output, with noise figure as low as < 0.1%rms (10Hz-10MHz).

Benefits of our laser design include:

- Up to ten times higher conversion efficiency
- Power scalability without water cooling
- No mode beating & associated high frequency noise, which often limits applicability
- The longest coherence length of over 100m, effectively the path difference over which lasers can interfere.

**BRaMMS DPSS Laser technology by us is the company’s proprietary pioneering technology platform.**

It utilises the spectrum discriminatory feature of a Michelson interferometer setup within a spectral range preselected by VBG (Volume Bragg Grating). This suppresses all but one lasing longitudinal mode within a laser cavity. Hence – **Bragg Range Michelson Mode Selector (BRaMMS)**.

Due to significantly lower power consumption for any required output and the resulting simplified thermal management, the BRaMMS laser technology provides up to 10 times wider range of output power scalability from the smallest footprint.

**We advance this technology via three main engineering lines:**

1. **STU-Solo-XXXX/XXXX**, covering spectrum range 700nm-2000nm by the generation at the fundamental wavelength;
2. **STU-Duetto-XXX/XXXX**, covering spectrum range 349nm -780nm by an intracavity second harmonic generation;
3. **STU-Quartetto-XXX/XXXX**, covering spectrum range 200nm – 380nm by an intracavity fourth harmonic generation.

**BRaMMS Laser Technology provides new wavelengths previously unattainable by DPSS lasers in UV, Visible and Near IR.**

Technology Feature	Benefit	Details
Ultra high efficiency for 2 <sup>nd</sup> harmonic conversion	Unique output power scalability	Upto 10 times higher conversion efficiency than leading designs
Feedback locked Single	Very low noise, free from mode	< 0.1% rms



Longitudinal Mode CW operation	hops	< 1MHz line width
Long coherence length, > 100m	A much broader range of applications	From light hungry Bio-Med to very large scale metrological applications
Gaussian beam profile	Diffraction limited spot size	TEM <sub>00</sub> , < 1 mrad divergence
Stabilised thermal management at multiple points	Very high beam pointing stability	≤ 5μrad/ °C
Low power consumption	Reduced requirement for laser head heat dissipation; no fans required	From < 20W; lowest power consumption for given output
Compact laser head and separate controller communicating via GUI with a notebook	Greatly reduced real estate	Laser heads from 50mm x 50mm x120mm; Controllers from 170mm x 53.5mm x163mm

The BRaMMS laser technology is worldwide protected by:

- US 8,498,316 – Intra-Cavity Second Harmonic Generation (SHG) Laser Device
- EPO 10173991 – Intra-Cavity Second Harmonic Generation (SHG) Laser Device (pending)

Our technology is able to displace bulky and inefficient gas lasers like argon-ion or helium cadmium lasers, dinosaurs of the laser industry. Our Single Frequency DPSS lasers are compact, reliable and long life systems, in demand for many cutting edge research and industrial applications, for example:

- life sciences instrumentation,
- semiconductor wafer metrology,
- holographic imaging,
- particle trapping,
- wind turbine power generation,
- avionic technologies...

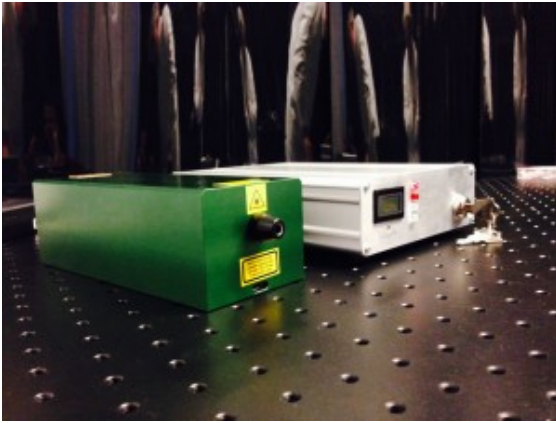
Using the BRaMMS laser technology we can offer any wavelength within the spectrum range from IR (around 2000nm) through deep UV (<200nm) from its range of DPSS lasers operating in the CW Single Frequency regime.

Additionally, due to the significantly lower power consumption for any required output and the resulting simplified thermal management, the BRaMMS laser technology provides up to a 10 times wider range of output power scalability from the smallest footprint. This opens up applications in portable and remotely controlled systems and devices which until our products were available have never before considered feasible.

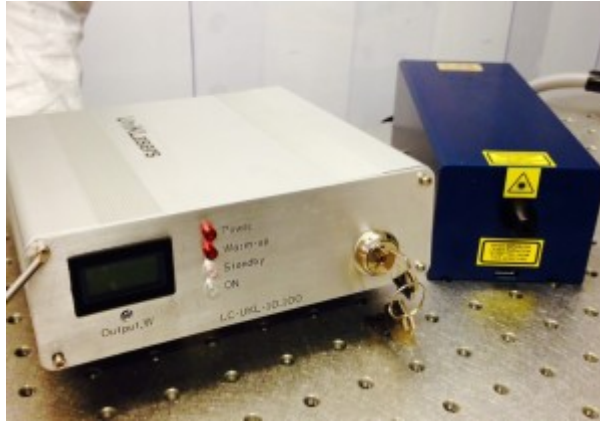
The following products have been released for sale:

- **STU-Solo** – 1064/XXXX from 50mW to 3W output power at 1064nm SLM
- **STU-Duetto** – 532/XXXX from 50mW to 2W output power at 532nm SLM
- **STU-Duetto** – 515/XXXX from 50mW to 1W output power at 515nm SLM
- **STU-Duetto** – 442/XXX from 10mW to 150mW output power at 442nm SLM
- **STU-Duetto** – 355/XXX from 10mW to 100mW output power at 355nm SLM
- **STU-Customised** – We can deliver any wavelength and adjust the power accordingly. Let's discuss your requirements and find the best solution.

You can open the product specification details by clicking on the relevant data sheet on the right hand side.



STU-Solo-1064/3000



STU-Duetto-442/50

### Applications:

We are the only company to be able to configure Continuous Wave, Single Frequency Lasers to uniquely emit at any wavelength covering the spectral range from Near Infra-Red to Ultra-Violet from a single universal technology platform, using proprietary patented BRaMMS technology.

The potential applications range is vast:

- holographic art to large scale structural analysis;
- from pharmaceutical instrumentation to cutting edge particle trapping techniques;
- from semiconductor wafer micro-processing to wind turbine power generation and avionic technologies.

Our novel patented BRaMMS technology provides reliable, cost effective, compact all-solid-state and class leading solutions for both well established and currently unavailable, but demanded, wavelengths. This opens up applications in portable and remotely controlled systems and devices, which have been never before considered feasible.

The newest generation of ultra compact, air cooled all solid state products is a new choice on the current deep UV spectrum market and a strong competitor to the pulsed laser technologies traditionally offered by large excimer UV gas lasers and water cooled frequency tripled/quadrupled Nd:YAG systems.

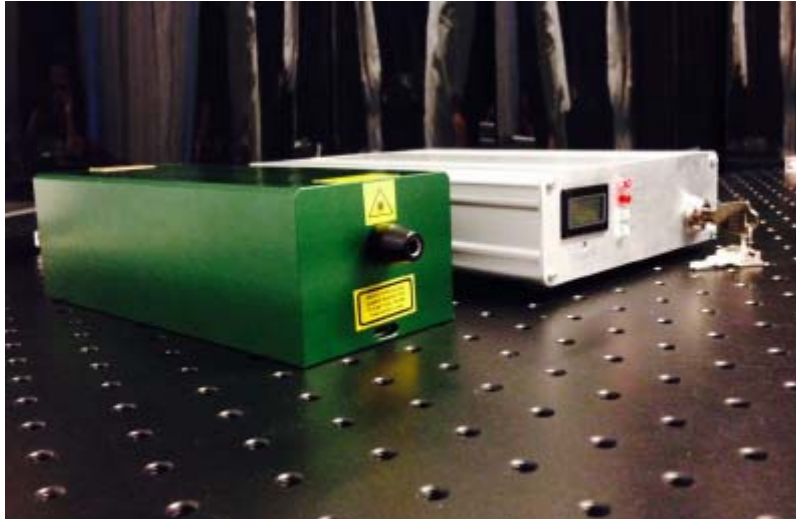
Let's look at our newer laser with wavelength of 515nm. This laser has a scalable output power up to several Watts, and is a compact, reliable and long life plug-and-play replacement for the bulky and inefficient argon-ion gas laser with the same green emission.

The new laser will feature optimised second harmonic generation of the diode pumped ytterbium doped YAG (Yb:YAG) laser at 1030nm using our novel patented BRaMMS technology.

Argon ion lasers have been around since the end of the 1960's and found broad applications in areas such as holography, printing, digital imaging, non-destructive testing including semiconductor inspection, spectroscopy, optical pumping, confocal microscopy, flow cytometry, DNA sequencers, compact disc and DVD mastering, photomask direct imaging, printed circuit board direct imaging, and precision optics inspection. However, they suffer disadvantages of being bulky (high power versions are several meters long) and inefficient (a 1W single frequency green laser has an efficiency of 0.01% requiring a large 10kW power supply with commensurate water cooling).

Benefits of our laser design include up to several orders of magnitude higher conversion efficiency, giving them unique output power scalability while eliminating the need for water cooling, a lack of mode beating and associated high frequency noise which often limits applicability, and the longest coherence length, over 100m, effectively the path difference over which lasers can interfere.

## 1. STU-Solo 1064/XXXX



from 50mW to 3W output power at 1064nm SLM

- feedback locked Single Longitudinal Mode CW operation
- mode hops and lock loss free
- very low noise performance, < 0.1% rms
- excellent beam quality from smallest footprint
- lowest power consumption for given output

Output Power (CW)	mW	low power version: 5 - 200 high power version:500-3000
Wavelength	nm	1064
Output Beam Diameter, TEM00	mm	low power version: 0.8 high power version: 1
Beam Divergence	mrad	< 1, diffraction limited
Beam Pointing Stability	μrad/°C	≤ 5
Longitudinal Mode Structure		SLM
Line Width	MHz	< 0.5
Line Spectral Position Stability	MHz (pm)	+/- 50 (+/- 0.2) within 4 hrs of CW operation
Coherence Length	m	> 100
Mode Hops Free Fine Tuning Range	GHz	25 -30 (optional)
Polarisation		Linear, Vertical; ≥100:1
Output Power Noise	%	≤ 0.1rms, ≤ 1p - p (10Hz -10MHz)
Output Power Stability	%	≤2, within any 4 hours ofCW operation
Working Temperatures	°C	15 -35, conductive cooling viamounting interface
Storage Temperatures	°C	- 20 to 75
Humidity	%	5 - 95, non - condensing
Warm up time	min	<10
Dimensions and Electrical:		
Operating Voltage	VAC	90 to 240
Frequency	Hz	50 - 60
Power Consumption	W	<20
Dimension	mm	Low power version: Laser Head 50x50x120; Controller 170x53.5x163 High power version: Laser Head 80x75x198; Controller 170x53.5x223

Fixed output power turnkey system, CW operation, factory aligned and sealed.

Specification may be subject to change without notice.

## 2. STU-Duetto 532/XXXX



- from 50mW to 2W output power at 532nm SLM
- feedback locked Single Longitudinal Mode CW operation
- mode hops and lock loss free
- very low noise performance, < 0.1% rms
- excellent beam quality from smallest footprint
- lowest power consumption for given output

	Units	Low Power Version	High Power Version
Output Power (CW)	mW	50 - 150	300 - 2000
Wavelength	nm	532	
Output Beam Diameter, TEM00	mm	0.8	1
Beam Divergence	mrad	< 1, diffraction limited	
Beam Pointing Stability	μrad/°C	≤ 5	
Longitudinal Mode Structure		SLM	
Line Width	MHz	< 0.5	
Line Spectral Position Stability	MHz (pm)	+/- 50 (+/- 0.2) within 4 hrs of CW operation	
Coherence Length	m	> 100	
Mode Hops Free Fine Tuning Range	GHz	25 -30 (optional)	
Polarisation		Linear, Vertical; ≥100:1	
Output Power Noise	%	≤ 0.1rms, ≤ 1p - p (10Hz -10MHz)	
Output Power Stability	%	≤2, within any 4 hours of CW operation	
Working Temperatures	°C	15 -35, conductive cooling via mounting interface	
Storage Temperatures	°C	- 20 to 75	
Humidity	%	5 - 95, non - condensing	
Warm up time	min	<10	<15
Operating Voltage	VAC	90 to 240	
Frequency	Hz	50 - 60	
Power Consumption	W	<20	<60
Dimension	mm	Laser Head 50x50x120; Controller 170x53.5x163	Laser Head 80x75x198; Controller 170x53.5x223

Fixed output power turnkey system, CW operation, factory aligned and sealed.

Specification may be subject to change without notice.

### 3. STU-Duetto 515/XXXX



- from 50mW to 1W output power at 515nm SLM
- feedback locked Single Longitudinal Mode CW operation
- mode hops and lock loss free
- very low noise performance, < 0.1% rms
- excellent beam quality from smallest footprint
- lowest power consumption for given output

Output Beam Diameter, TEM00	mm	1
Beam Divergence	mrad	< 1, diffraction limited
Beam Pointing Stability	$\mu$ rad/°C	$\leq 5$
Longitudinal Mode Structure		SLM
Line Width	MHz	< 0.5
Line Spectral Position Stability	MHz (pm)	+/- 50 (+/- 0.2) within 4 hrs of CW operation
Coherence Length	m	> 100
Mode Hops Free Fine Tuning Range	GHz	25 -30 (optional)
Polarisation		Linear, Vertical; $\geq 100:1$
Output Power Noise	%	$\leq 0.1$ rms, $\leq 1$ p - p (10Hz -10MHz)
Output Power Stability	%	$\leq 2$ , within any 4 hours of CW operation
Working Temperatures	°C	15 -35, conductive cooling via mounting interface
Storage Temperatures	°C	- 20 to 75
Humidity	%	5 - 95, non - condensing
Warm up time	min	<15
Operating Voltage	VAC	90 to 240
Frequency	Hz	50 - 60
Power Consumption	W	<60
Dimension	mm	Laser Head 80x75x198; Controller 170x53.5x223

#### 4. STU-Duetto 442/XXX

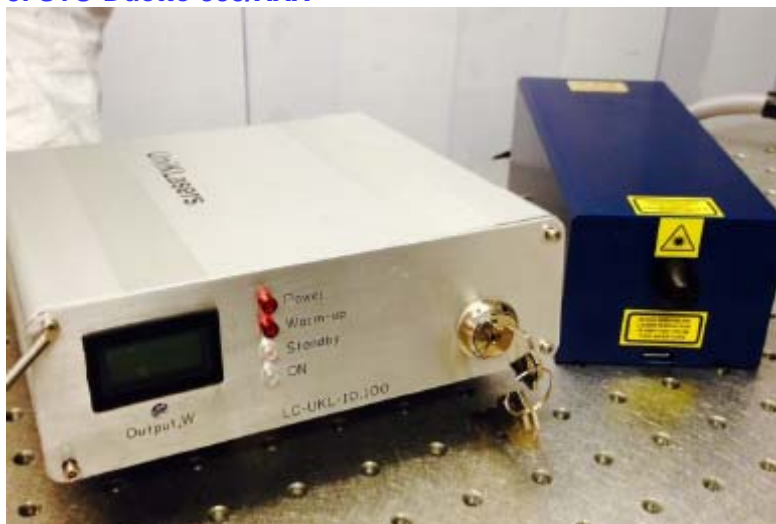


- from 10mW to 150mW output power at 442nm SLM
- feedback locked Single Longitudinal Mode CW operation
- mode hops and lock loss free
- very low noise performance, < 0.1% rms
- excellent beam quality from smallest footprint
- lowest power consumption for given output

	Units	Low Power Version	High Power Version
Output Power (CW)	mW	10 - 80	100 - 150
Wavelength	nm	442	
Output Beam Diameter, TEM00	mm	0.8	1
Beam Divergence	mrad	< 1, diffraction limited	
Beam Pointing Stability	μrad/°C	≤ 5	
Longitudinal Mode Structure		SLM	
Line Width	MHz	< 0.5	
Line Spectral Position Stability	MHz (pm)	+/- 50 (+/- 0.2) within 4 hrs of CW operation	
Coherence Length	m	> 100	
Mode Hops Free Fine Tuning Range	GHz	25 -30 (optional)	
Polarisation		Linear, Vertical; ≥100:1	
Output Power Noise	%	≤ 0.1rms, ≤ 1p - p (10Hz -10MHz)	
Output Power Stability	%	≤2, within any 4 hours of CW operation	
Working Temperatures	°C	15 -35, conductive cooling via mounting interface	
Storage Temperatures	°C	- 20 to 75	
Humidity	%	5 - 95, non - condensing	
Warm up time	min	<10	<15
Operating Voltage	VAC	90 to 240	
Frequency	Hz	50 - 60	
Power Consumption	W	<20	<60
Dimension	mm	Laser Head 50x50x120; Controller 170x53.5x163	Laser Head 80x75x198; Controller 170x53.5x223

Fixed output power turnkey system, CW operation, factory aligned and sealed.  
Specification may be subject to change without notice.

## 5. STU-Duetto 355/XXX



- from 10mW to 100mW output power at 355nm SLM
- feedback locked Single Longitudinal Mode CW operation
- mode hops and lock loss free
- very low noise performance, < 0.1% rms
- excellent beam quality from smallest footprint
- lowest power consumption for given output

Output Power (CW)	mW	10 - 100
Wavelength	nm	355
Output Beam Diameter, TEM00	mm	0.8
Beam Divergence	mrad	< 1, diffraction limited
Beam Pointing Stability	μrad/°C	≤ 5
Longitudinal Mode Structure		SLM
Line Width	MHz	< 0.5
Line Spectral Position Stability	MHz (pm)	+/- 50 (+/- 0.2) within 4 hrs of CW operation
Coherence Length	m	> 100
Mode Hops Free Fine Tuning Range	GHz	25 -30 (optional)
Polarisation		Linear, Vertical; ≥100:1
Output Power Noise	%	≤ 0.1rms, ≤ 1p - p (10Hz -10MHz)
Output Power Stability	%	≤2, within any 4 hours of CW operation
Working Temperatures	°C	15 -35, conductive cooling via mounting interface
Storage Temperatures	°C	- 20 to 75
Humidity	%	5 - 95, non - condensing
Warm up time	min	<15
Operating Voltage	VAC	90 to 240
Frequency	Hz	50 - 60
Power Consumption	W	<50
Dimension	mm	Laser Head 80x75x198; Controller 170x53.5x223

Fixed output power turnkey system, CW operation, factory aligned and sealed.

Specification may be subject to change without notice.

## 6. STU-Duetto 349 Single Frequency CW UV Laser

The STU-Duetto 349 UV Series offers unrivalled CW single frequency operation within the UV range, offering 50mW power with outstanding beam characteristics, high output stability, extremely low noise, small footprint, and versatile software package – making it suitable for a wide range of applications and system integrations.



### KEY FEATURES

- Ultra-narrow Linewidth:  $\leq 0.5$  MHz
- High Power Stability:  $\leq 2.0$  % over 8 hours
- High Spectral Stability:  $\pm 1$  pm over 8 hours
- Designed for Integration

### APPLICATIONS

Semiconductor Inspection - Wafer Fabrication - Lithography - Confocal Microscopy – Raman Spectroscopy - Biomedical/Bioengineering - Flow Cytometry - Fluorescence - Disc Mastering - Diffraction Grating Mastering - High Precision Optics - and more.

### SPECIFICATIONS

<b>Output Beam Parameters:</b>	
Output Power	50 mW
Wavelength	349 nm
Spectral Bandwidth	$\leq 0.5$ MHz
Spatial Mode	TEM00
Spectral Stability	$\pm 1.0$ pm (over 8 hour operation)
Coherence Length	$> 100$ m
Output Power Stability	$\leq 2.0$ % (over 8 hour operation)
Output Power Noise	$\leq 0.1$ % RMS (10 Hz – 10 MHz)
Beam Divergence	$\leq 2.5$ mrad, diffraction limited
Beam Diameter at Output Aperture	0.6 – 1.2 mm
Beam Pointing Stability	$\leq 5$ $\mu$ rad/ $^{\circ}$ C
<b>Integration Features:</b>	
Plug-In USB Connectivity	Combined Heatsink
Versatile Control Software	Remote Diagnostic Support
<b>Laser Head Dimensions:</b>	
L x W x H	222 x 110 x 105 mm
Beam Height	75 mm
<b>Environmental Conditions:</b>	
Ambient Temperature Range	18 – 30 $^{\circ}$ C
Laser Head Interface Stability	$\pm 1.5$ $^{\circ}$ C
Storage	0 – 50 $^{\circ}$ C
Humidity	5 – 95 %, non-condensing
Laser Head	Hermetically sealed
<b>Optional Accessories:</b>	
Heatsink	Fan-Assisted or Water-Cooled with Thermoelectric Chiller
External Manual Power Control	0 – 100 %, continuous
<b>Warranty</b>	12 Month Warranty For laser head and controller
Laser and Heatsink Dimensions	255 x 110 x 105 mm

### Performance Data

Longterm Wavelength and Power Stability



