

DSYL CW 515 – 556 nm Single-Frequency Fiber Laser



Standard Wavelengths:

515.0, 532.0, 546.25, 553.7, 555.8 nm

Custom Wavelengths:

Any within the range 515 – 556 nm

Wavelength Tuning Range:

0.1 nm

Output Power:

Up to 3 W

The Optromix DSYL is a single-frequency Ytterbium fiber laser equipped with a frequency doubler unit. The DSYL core feature is an ultra-narrow linewidth (FWHM). DSYL provides a precise wide-range thermal wavelength tuning and a fast piezo tuning using an external PZT driver. The phase-matching temperature of an SHG crystal is automatically adjusted according to the fundamental wavelength settings. DSEL is a turn-key system where a control electronics and power supply are integrated with a seed laser and a power amplifier. DSYL is available in a benchtop or in a 19" rack housing connected with a laser head by an umbilical cable.

Key Features

- Ultra Narrow Linewidth
- Thermal Wavelength Tuning
- Fast Piezo Wavelength Tuning
- High Beam Quality
- High Power Stability
- Low RIN Level

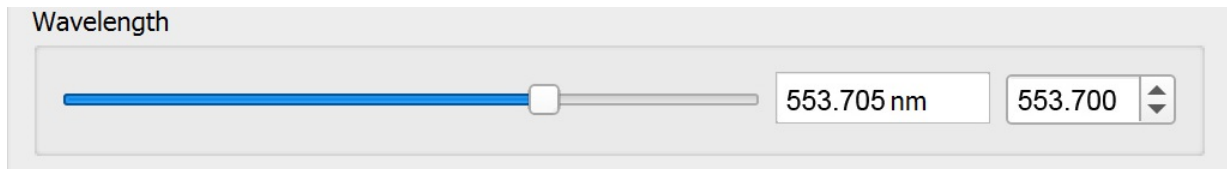
Applications

- Precision Laser Spectroscopy
- Atomic Cooling and Trapping
- Laser-based Metrology
- Quantum Optics/Computing
- Fluorescence Microscopy
- Laser Holography

FEATURES

THERMAL WAVELENGTH TUNING

DSYL allows for the thermal wavelength tuning is carried out using a temperature adjustment of the seed-laser temperature. The allowable wavelength tuning range is > 0.1 nm. Wavelength stabilization occurs approximately 0.1 seconds after setting a new value.



FAST WAVELENGTH TUNING AND MODULATION

DSYL is equipped with a piezo-actuator for the fast wavelength tuning using an external PZT driver. The allowable voltage is 0 – 100 V. Typical values of the tuning factor are ~ 100 -120 MHz/V (DC voltage). The allowable signal modulation is up to 10 kHz.

OUTPUT POWER ADJUSTMENT. APC/ACC MODES OF OPERATION. OUTPUT POWER STABILITY.

This laser model allows for output power adjusting in the range of 10 – 100 % of the nominal output power. The laser can operate in Automatic Power Control (APC) as well as in Automatic Current Control (ACC) modes. DSYL provides excellent longterm power stability.

OPTICAL OUTPUT TYPE

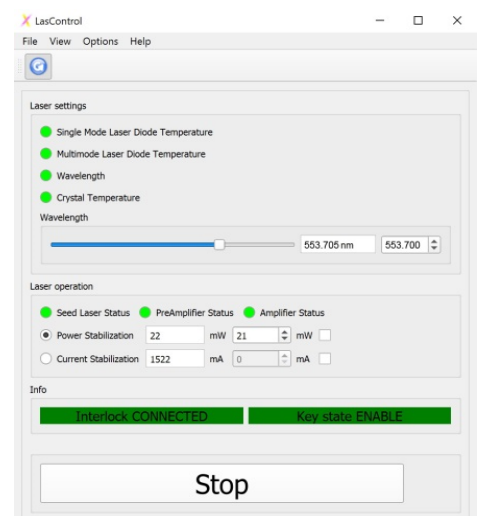
DSYL provides a free space output from the laser head. It also can be equipped with a fiber port for fiber coupling using a patch cord with FC/APC connectors. Optionally, the laser can be equipped with an additional low power TAP output for the fundamental wavelength monitoring.

COMPUTER CONTROL

The standard DSYL model allows controlling the laser using a computer via a USB port. The original Otromix software is provided along with the laser.

Options

- Up to 0.2 nm Wavelength Tuning Range
- Additional Optical Monitor Output
- Up to 3 m umbilical cable length
- Seeder + Fiber Amplifier Design (independent housings design)
- Fiber coupling option
- SHG Waveguide used



SPECIFICATION

OPTICAL

Parameter	Optromix SFEX
Operating Mode	CW, Single-frequency, TEM ₀₀
Standard Wavelength	515.0, 532.0, 546.25, 553.7, 555.8 nm
Custom Wavelength	515 –556 nm
Thermal Wavelength Tuning Range ¹	> 0.1 nm
Linewidth (FWHM)	< 200 kHz
Nominal Output Power (Free Space)	50, 100, 200, 500, 1000, 1500, 2000, 2500, 3000 mW
Nominal Output Power (Fiber Coupled)	50, 100, 200, 500, 1000, 1500 mW
Output Power Tunability	10 – 100%
Power Stability ²	< 1% (typical <0.5%)
Beam quality (M ²)	< 1.05 (typical <1.02)
Piezo Tuning Range ³	> 100 MHz/V
Polarization	Linear (PER > 23dB)
RIN level (peak:app 1.4 MHz)	< -110dB/Hz@peak, < -140dB/Hz@10MHz
Optical Output	Armed fiber cable terminated by Collimator or FC/APC connector

Notes

1. Optionally up to 0.2 nm
2. Over 8 Hours with base temperature constant within 0.2 °C after 30 minute warm-up
3. External PZT Driver 0-100V, Modulation up to 10 kHz

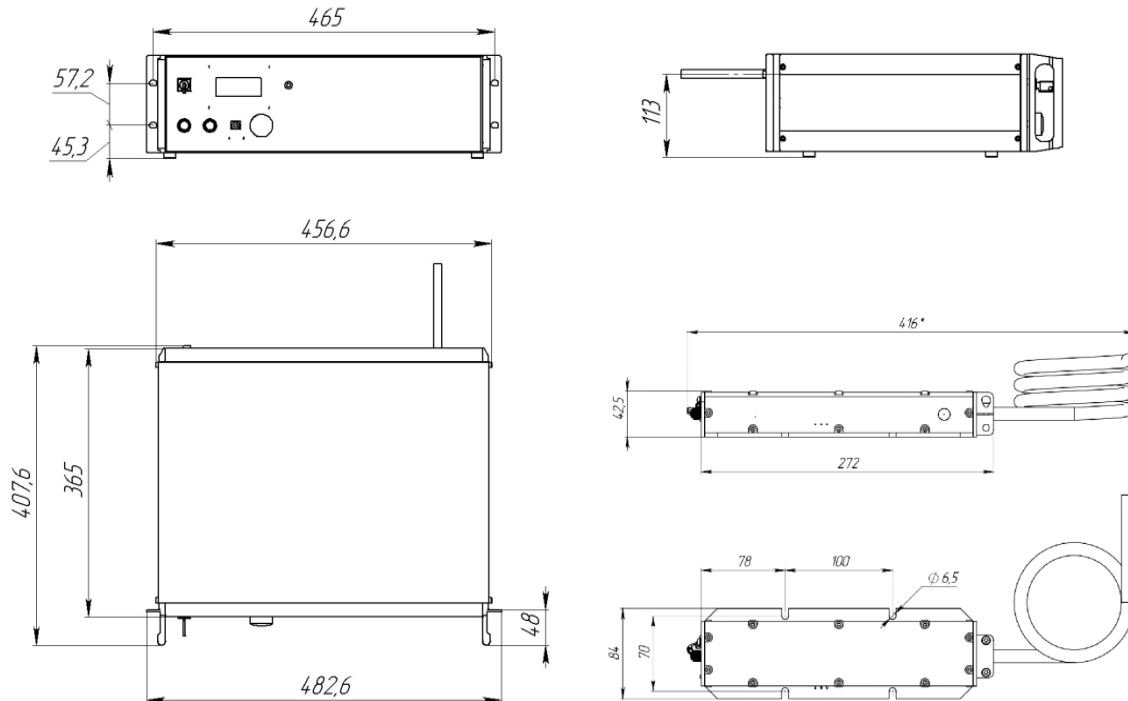
ELECTRICAL/MECHANICAL/ENVIRONMENTAL

Parameter	Optromix-SFE
Power Supply Requirements	100–240V, 50–60Hz, Single Phase
Power Consumption (10W output)	< 500 W
Cooling	Forced Air
Control Connector ¹	USB
Dimensions (WxHxL)	Electro-optical Unit: 465 x 140 x 365 mm Laser Head: 84 x 42.5 x 272 mm
Standard Output Cable Length ²	1.2 m
Weight	< 18 kg
Operation temperature	15 – 35 °C
Storage temperature	- 40 – +70 °C
Operation Humidity	10 – 85 %
MTBF	> 10.000 Hrs

Notes

1. Optional Connectors: RS232, Ethernet
2. Optional length: Up to 5 m

DIMENSIONS



Product code:
Optromix DSYL-5xx-yyyy-cc

xxxx: Wavelength(nm)
yyyy: Outputpower(mW)
cc: Opticaloutput: FS-Free Space, FP- Fiber Port,
FC/APC

Standard Warranty – 12 months from the date of delivery.

Information in this document is a subject to change without notice.

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