

SFYSM

CW 1 μm Single-Frequency Fiber Laser Module



Standard Wavelengths:

1030, 1064, 1093, 1107 nm

Custom Wavelengths:

Any within the range 1030 – 1112 nm

Wavelength Tuning Range: **0.5 nm**

Output Power: **30 mW**

The Optromix SFYSM is a single-frequency Ytterbium fiber laser with an ultra-narrow spectrum linewidth. SFYSM is made in an OEM module form factor and intended for use as a laser source in different systems. SFYSM requires an external power supply of +5 VDC and can be controlled using a computer via the software provided with the module. SFYSM provides a wide-range precise thermal wavelength tuning and a fast piezo tuning using an external PZT driver. This module consists of a seed laser and a pre-amplifier.

Key Features

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

Applications

- Atomic Trapping and Cooling
- Quantum Optics and Computing
- Free Space Communication
- Optical Sensing
- Nonlinear Pump Source
- Coherent Communication
- High Precision Spectroscopy

FEATURES

THERMAL WAVELENGTH TUNING

SFYSM allows for the thermal wavelength tuning to be carried out using a temperature adjustment of the seed laser temperature. The allowable wavelength tuning range is > 0.5 nm. Wavelength stabilization occurs approximately 0.1 seconds after setting a new value.

FAST WAVELENGTH TUNING AND MODULATION

SFYSM 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 $\sim 60\text{--}80$ MHz/V (DC voltage). The allowable signal modulation is up to 10 kHz

OPTICAL OUTPUT TYPE

Depending on the output power, a standard model is equipped with a PM output fiber cable terminated by an FC/APC connector. A Narrow Key of the FC/APC connector is aligned to the output polarization.

COMPUTER CONTROL

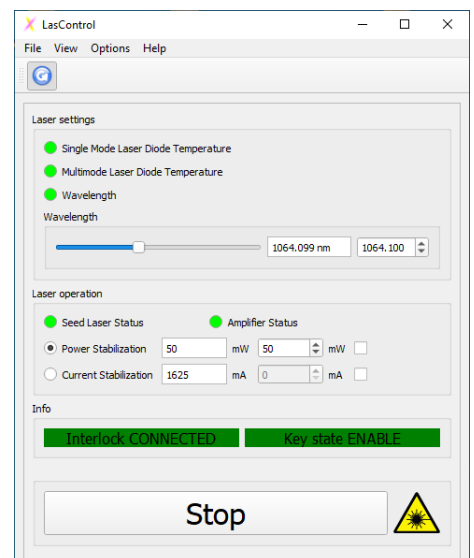
The standard SFYSM model allows controlling the laser using a computer via an Ethernet port. The original Optromix software is provided along with the laser

Options

- Up to 1 nm Wavelength Tuning

Range

- Up to 5 m length optical output cable



SPECIFICATION

OPTICAL

Parameter	SFESM
Operating Mode	CW, Single-frequency, TEM ₀₀
Standard Wavelength	1030 nm, 1064 nm, 1093 nm, 1107 nm, 1112 nm
Custom Wavelength	1030 – 1120 nm
Thermal Wavelength Tuning Range ¹	0.5 nm
Linewidth (FWHM)	< 100 kHz
Nominal Output Power	30 – 40 mW
Power Stability ²	< 1% (typical <0.5%)
Beam quality (M ²)	< 1.05 (typical <1.02)
Piezo Tuning Range ³	> 80 MHz/V
Wavelength Modulation ³	Up to 10 kHz
Polarization	Linear (PER > 23dB)
RIN level (peak:app 0.7 MHz)	< -110dB/Hz@peak, < -140dB/Hz@10MHz
Output Optical Isolator	Yes
Optical Output ⁴	Fiber cable terminated by an FC/APC connector

Notes

1. Optionally up to 1 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
4. Optional Output: The output type can be replaced by the customers' request

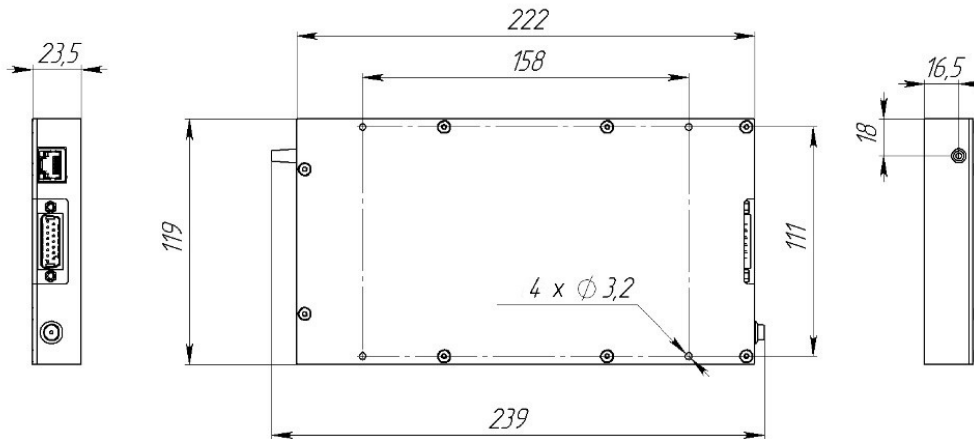
ELECTRICAL/MECHANICAL/ENVIRONMENTAL

Parameter	SFYA	PMYA	SMYA
Power Supply Requirements		+5 VDC	
Power Consumption (10W output)		< 35 W	
Cooling		Heat Sink	
Control Connector ¹		Ethernet	
Dimensions (WxHxL)	119 mm x 23.5 mm x 222 mm		
Standard Output Cable Length ²		1.2 m	
Weight		< 1 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:
SFYSM-1xxx-0030-cc

xxx - Wavelength(nm)

yyyy- Output power(mW)

cc- Optical output: FA-FC/APC, FO-fiber without termination

Standard Warranty – 12 months from the date of delivery.

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

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