SLMFN Series
Single Frequency Laser System

Data Sheet

Overview

The SLMFN Series Single Frequency Laser Systems are continuous-wave (CW) lasers that deliver single longitudinal mode (SLM) / single-frequency output with excellent spectral purity and long coherence length. Available in wavelengths from 320nm to 721nm with output powers up to 650mW, the SLMFN Series features an ultra-compact design, stable performance, long operating lifetime, and optional frequency stabilization for demanding scientific and precision measurement applications.

Features

- Wavelengths from 320nm to 721nm
- CW operating mode
- Optical output power up to 650mW
- Single frequency / single longitudinal mode
- Narrow spectral linewidth
- Long coherence length
- Optional frequency stabilization
- FDA compliant

Applications

- DNA sequencing
- Flow cytometry
- Cell sorting
- Optical instrumentation
- Spectral analysis
- Interference
- Measurement
- Holography
- Physics experiment

320-360 nm Specifications

Parameter	SLMFN320	SLMFN335	SLMFN349	SLMFN355	SLMFN360	SLMFN457	SLMFN473
Wavelength	320±1 nm	335±1 nm	349±1 nm	355±1 nm	360±1 nm	457±1 nm	473±1 nm
Operating mode	CW						
Output power(1)	1-30 mW	1-10 mW	1-10 mW	1-10 mW	1-80 mW	1-350 mW	100-300 mW
Power stability (rms, 4 hours ±3°C)	<3%, <2%, <1%	<3%, <2%, <1%	<3%, <2%, <1%	<5%, <3%	<3%, <2%, <1%	<3%, <2%	<3%, <2%
Transverse mode	TEM_{00}						
Longitudinal mode	Single						
Spectral linewidth	<1MHz						
Coherent length	>50 m						
Noise of amplitude (rms, 20Hz-20MHz)	<1%, <0.5%						
Beam diameter at aperture ($1/e^2$)	<1.0 mm	<1.0 mm	<1.0 mm	<1.0 mm	<1.0 mm	<2.0 mm	<2.0 mm
Beam divergence, full angle	<1.2 mrad						
M^2 factor	<1.5	<1.5	<1.5	<1.5	<1.5	<1.2	<1.2
Polarization ratio	>100:1, Vertical						
Warm-up time	<10 min	<10 min	<10 min	<10 min	<10 min	<5 min	<5 min
Pointing stability over 2 hours after warm-up and ±3°C	<50 urad						
Pointing stability over temperature	<8 urad/°C						
Frequency shift over ±2°C and 8 hrs (optional)	<±200 MHz						
Frequency shift with temp (optional)	<200 MHz/°C						
Laser head consumption	15 W (typical), <25 W (40°C)						
Max. laser head base plate temp	50°C	50°C	50°C	50°C	50°C	-	-
Operating temperature	10-35°C						
Expected lifetime	>10000 hours						

515-550 nm Specifications

Parameter	SLMFN515	SLMFN522	SLMFN523	SLMFN526	SLMFN543	SLMFN550
Wavelength	515±1 nm	522±1 nm	523.5±1 nm	526.5±1 nm	543±1 nm	550±1 nm
Operating mode	CW					
Output power(1)	1-50 mW	1-150 mW	1-150 mW	1-150 mW	1-200 mW	1-200 mW
Power stability (rms, 4 hours ±3°C)	<3%, <2%, <1%					
Transverse mode	TEM_{00}					
Longitudinal mode	Single					
Spectral linewidth	<1MHz					
Coherent length	>50 m					
Noise of amplitude (rms, 20Hz-20MHz)	<1%, <0.5%					
Beam diameter at aperture ($1/e^2$)	~2.0 mm	~2.0 mm	<1.5 mm	<1.5 mm	<1.5mm	<1.5 mm
Beam divergence, full angle	~2.0 mrad	~2.0 mrad	<1.5 mrad	<1.5 mrad	<1.5 mrad	<1.5 mrad
M^2 factor	<1.2	<1.5	<1.2	<1.2	<1.2	<1.2
Polarization ratio	>100:1, Vertical					
Warm-up time	<10 min	<10 min	<5 min	<5 min	<5 min	<5 min
Pointing stability over 2 hours after warm-up and ±3°C	<50 urad					
Pointing stability over temperature	<8 urad/°C					
Frequency shift over ±2°C and 8 hrs (optional)	<±200 MHz					
Frequency shift with temp (optional)	<200 MHz/°C					
Laser head consumption	15 W (typical), <25 W (40°C)					
Operating temperature	10-35°C					
Expected lifetime	>10000 hours					

552-589 nm Specifications

Parameter	SLMFN552	SLMFN556	SLMFN561	SLMFN577	SLMFN588	SLMFN589
Wavelength	552±1 nm	556±1 nm	561±1 nm	577±2 nm	588±2 nm	589±1 nm
Operating mode	CW					
Output power(1)	1-100 mW	1-150 mW	1-150 mW	1-300 mW	1-200 mW	1-200 mW
Power stability (rms, 4 hours ±3°C)	<3%, <2%	<3%, <2%, <1%	<3%, <2%, <1%	<3%, <2%, <1%	<3%, <2%, <1%	<3%, <2%, <1%
Transverse mode	TEM_{00}					
Longitudinal mode	Single					
Spectral linewidth	<1MHz					
Coherent length	>50 m					
Noise of amplitude (rms, 20Hz-20MHz)	<1%, <0.5%					
Beam diameter at aperture ($1/e^2$)	<1.5 mm	<2.0 mm	<2.0 mm	~2.0 mm	<2.5 mm	<2.5 mm
Beam divergence, full angle	<1.2 mrad	<1.2 mrad	<1.2 mrad	<1.5 mrad	<1.2 mrad	<1.2 mrad
M^2 factor	<1.2	<1.5	<1.2	<1.2	<1.2	<1.2
Polarization ratio	>100:1, Vertical	>100:1, Vertical	>100:1, Vertical	>100:1, Horizontal	>100:1, Horizontal	>100:1, Horizontal
Warm-up time	<5 min					
Pointing stability over 2 hours after warm-up and ±3°C	<50 urad					
Pointing stability over temperature	<8 urad/°C					
Frequency shift over ±2°C and 8 hrs (optional)	<±200 MHz					
Frequency shift with temp (optional)	<200 MHz/°C					
Laser head consumption	15 W (typical), <25 W (40°C)					
Operating temperature	10-35°C					
Expected lifetime	>10000 hours					

607-721 nm Specifications

Parameter	SLMFN607	SLMFN639	SLMFN656	SLMFN660	SLMFN671	SLMFN698	SLMFN721
Wavelength	607±1 nm	639±1 nm	656.5±1 nm	660±1 nm	671±1 nm	698±1 nm	721±1 nm
Operating mode	CW						
Output power(1)	1-200 mW	1-650 mW	1-100 mW	1-100 mW	1-500 mW	1-300 mW	1-300 mW
Power stability (rms, 4 hours ±3°C)	<3%, <2%, <1%	<3%, <2%, <1%	<3%, <2%, <1%	<5%, <3%	<3%, <2%, <1%	<3%, <2%	<3%, <2%
Transverse mode	TEM_{00}						
Longitudinal mode	Single						
Spectral linewidth	<1MHz						
Coherent length	>50 m						
Noise of amplitude (rms, 20Hz-20MHz)	<1%, <0.5%						
Beam diameter at aperture ($1/e^2$)	<1.5 mm	<1.5 mm	<2.0 mm	<2.0 mm	<2.0 mm	<1.5 mm	<1.5 mm
Beam divergence, full angle	<1.2 mrad	<1.5 mrad	<1.2 mrad	<1.2 mrad	<1.2 mrad	<1.5 mrad	<1.2 mrad
M^2 factor	<1.2	<1.2, <1.1	<1.2	<1.2	<1.2	<1.2	<1.2
Polarization ratio	>100:1, Horizontal	>100:1, Horizontal	>100:1, Vertical	>100:1, Vertical	>100:1, Vertical	>100:1, Vertical	>100:1, Vertical
Warm-up time	<10 min						
Pointing stability over 2 hours after warm-up and ±3°C	<50 urad						
Pointing stability over temperature	<8 urad/°C						
Frequency shift over ±2°C and 8 hrs (optional)	<±200 MHz						
Frequency shift with temp (optional)	<200 MHz/°C						
Laser head consumption	15 W (typical), <25 W (40°C)						
Operating temperature	10-35°C						
Expected lifetime	>10000 hours						

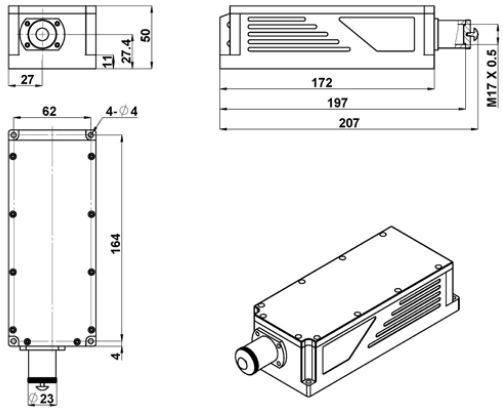
Remarks:

1. Any output power level can be selected within this range.
2. The laser head needs to be used on a heat sink with good heat dissipation.
3. Specifications of the CW laser is based on the laser performance at full power output after the specified warmup period. The stability of output power may change when output power is adjusted at a different power level.

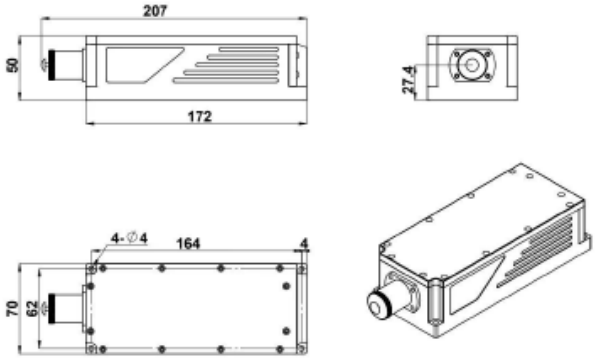
SLMFN Series Laser Head Dimensions

Unit: mm

SLMFN320/335/349/355/360



SLMFN

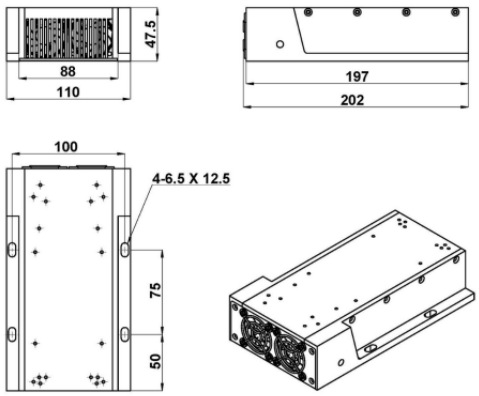


Parameter	SLMFN320/335/349/355/360	SLMFN
Dimensions	197(L)×70(W) ×50(H) mm^3	207(L)×70(W) ×50(H) mm^3
Weight	1.5 kg	1.5 kg
Beam height from base plate	27.4 mm	27.4 mm
Beam exit (from side)	27 mm	35 mm

SLMFN Series Heat Sink Dimensions

Unit: mm

HS2

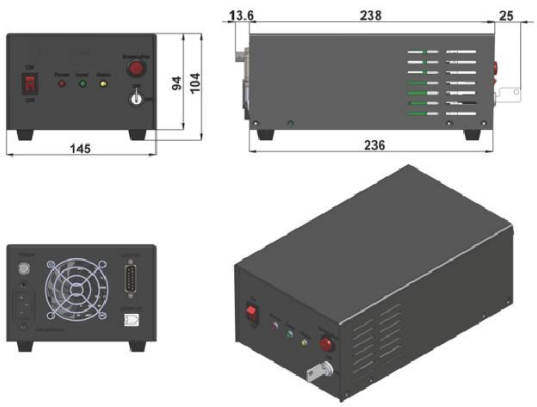


Parameter	HS2
Dimensions	202(L)×110(W) ×47.5(H) mm^3
Weight	1.25 kg

SLMFN Series Power Supply Dimensions

Unit: mm

High Power Elite Power Supply



Parameter	High Power Elite Power Supply
Dimensions	276.6(L) ×145(W) ×103.6(H) mm^3
Weight	2.3 kg
Input voltage	100-240 VAC

Ordering Information

For more information, please contact Lasermate directly at sales@lasermate.com.

Part Number Configuration
SLMFN[1]-[2][3][4][5][6][7]

SLMFN = Laser Model Series	[1] = Wavelength	[2] = Output Power	[3] = Power Supply	[4] = Power Stability	[5] = Noise of Amplitude	[6] = Frequency Stabilized Option	[7] = Heat sink
			H= High Power Elite Power Supply	A= <5% E= <3% 2= <2% D= <1%	1= <1% L= <0.5%	Blank = No FS = Yes	H=Heat Sink included

Note: The above specifications are subject to change without notice.