

SureLock™

LM Series Compact Single Frequency Laser Modules

LM Series Compact Single Frequency Laser Modules incorporate the Coherent SureLock VHG-stabilized laser diode to deliver steady, single frequency performance in an ultra-compact footprint. Offering both computer and integrated user controls, the LM Series includes precision temperature and current controls to deliver better than 1 m coherence length and 1% power stability with less than 1 minute warm-up. This tightly integrated package makes it the ideal choice for both OEM instrumentation and laboratory applications.

All SureLock Series lasers are stabilized using the Coherent PowerLocker® Volume Holographic Grating (VHG), ensuring precise, ultra-stable center wavelengths, low temperature dependence, and consistent optical performance over the locked region.

The LM Module is available in wavelengths from 405 nm to 785 nm.



FEATURES

- Single frequency, collimated TEM output with long coherence length (~1 m)
- Remote computer and onboard user controls with integral LCD Display
- Precision temperature and current stabilization
- Ultra-compact footprint 40 mm x 42.5 mm x 100 mm
- Plug-and-play operation
- Optional isolator option for some models
- Optional singlemode fiber coupling output - PM or SM with FC/APC connector

APPLICATIONS

- Raman Spectroscopy
- Interferometry
- Metrology
- HeNe Replacement
- Bio-Instrumentation
- Particle Characterization
- LIDAR
- Graphic Arts
- Sensing
- Analytical Instrumentation

LM Series Compact Single Frequency Laser Modules

Specifications ¹	LM Series						
Center Wavelength ² (vacuum) (nm)	405/406	633	638	687	690	785	785 ³
Center Wavelength Tolerances (nm)	±0.5	±0.5	±0.5	±2	±1	±0.5	±0.5
Output Power (mW)	12 25 40	40 70	40 120	45	40	80 100	150
Beam Size (mm)	0.8 x 0.5	0.9 x 1.1	0.9 x 1.1	0.9 x 1.4	0.9 x 1.5	0.9 x 1.7	1.5 x 1.9
Linewidth, Typical (MHz) ($\Delta\lambda$)	160	150	300	300	100	300	100
Optical Operating Specifications	Minimum		Typical		Maximum		
Spatial Mode			Single Mode				
Polarization			100:1				
Beam Divergence (mrad)			1		3		
Pointing Stability (μ rad)					±25		
Noise (%) (RMS, 0 to 20 MHz)			0.25		0.5		
Power Stability (%) (5 hours)			3				
Electrical Operating Specifications	Minimum		Typical		Maximum		
Operating Current (A)					1.5		
Operating Voltage (VDC)			5		12		
Modulation Input (VDC) (TTL)	0				5		
Modulation Speed (kHz)					3		
Environmental Operating Specifications	Minimum		Typical		Maximum		
Storage Temperature	-10°C (14°F)				60°C (140°F)		
Operating Temperature ⁴	10°C (50°F)		25°C (77°F)		40°C (104°F)		
Operation Humidity	Non-Condensing						
Dimensions (H x W x L)	42.5 x 40.0 x 100 mm (1.67 x 1.57 x 3.94 in.)						
Power Requirements							
100 to 240 V AC, 50 to 60 Hz							
Connector: +5 V DC, 2.1 mm dia.							

Notes:

1. All specifications are at rated power with a case temperature of 25° C unless otherwise noted.
2. Please specify wavelength at time of ordering.
3. Available only with isolator.
4. Non-condensing.



LMFC Series Fiber Coupled Single Frequency Laser Modules

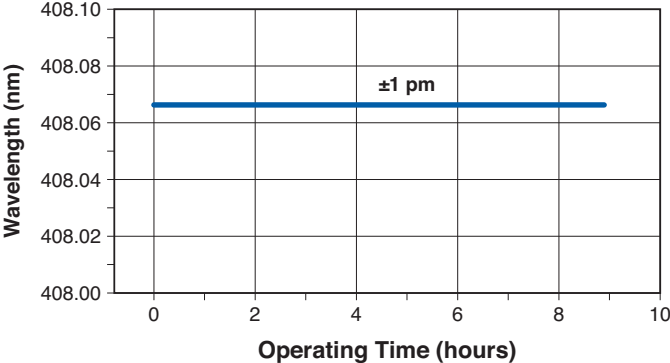
Specifications ^{1,2}	LMFC Series		
Center Wavelength ² (vacuum) (nm)	633	638	785
Center Wavelength Tolerances (nm)	±0.5	±0.5	±0.5
Output Power (mW)	25	25	30
Linewidth, Typical (MHz) ($\Delta\lambda$)	150	300	300
Optical Operating Specifications	Minimum	Typical	Maximum
Spatial Mode		Single Mode	
Polarization		100:1	
Fiber Type (μm)	3/125	4/125	5/125
Connector		FC/APC	
Noise (%) (RMS, 0 to 20 MHz)		0.25	0.5
Power Stability (%) (5 hours)		3	
Electrical Operating Specifications	Minimum	Typical	Maximum
Operating Current (A)			1.5
Operating Voltage (VDC)		5	12
Modulation Input (VDC) (TTL)	0		5
Modulation Speed (kHz)			3
Environmental Operating Specifications	Minimum	Typical	Maximum
Storage Temperature	-10°C (14°F)		60°C (140°F)
Operating Temperature ³	10°C (50°F)	25°C (77°F)	40°C (104°F)
Operation Humidity	Non-Condensing		
Dimensions (H x W x L)	42.5 x 40.0 x 100 mm (1.67 x 1.57 x 3.94 in.)		
Power Requirements	Minimum	Typical	Maximum
100 to 240 V AC, 50 to 60 Hz			
Connector: 2.1 mm diameter			

Notes:

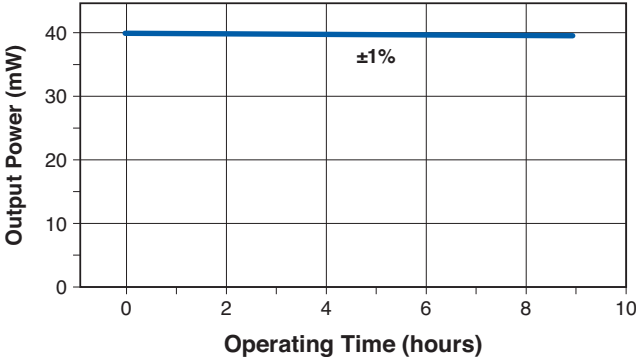
1. All specifications are at rated power with a case temperature of 25° C unless otherwise noted.
2. Please specify wavelength at time of ordering.
3. Non-condensing.

Typical Performance Data

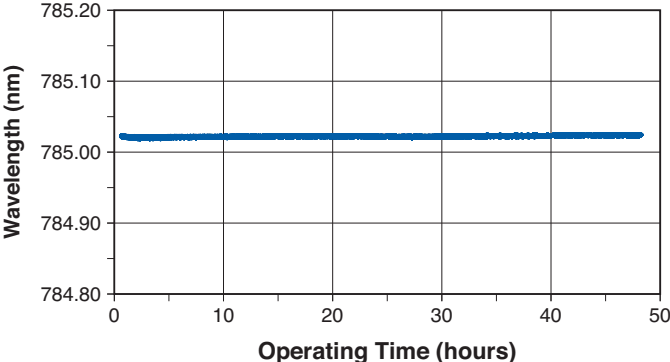
Wavelength Stability
(405 nm Example)



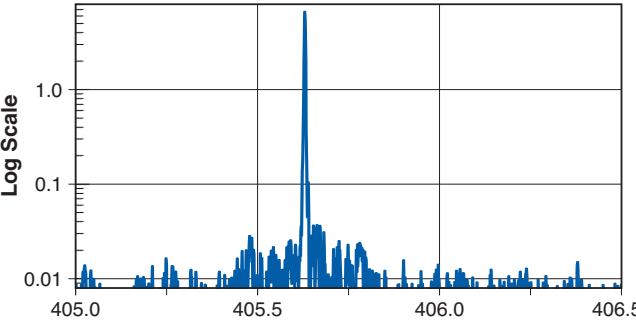
Optical Power Stability
(405 nm Example)



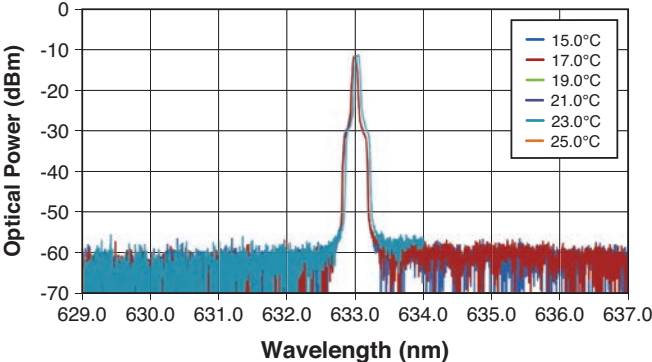
Wavelength Stability
(785 nm Example)



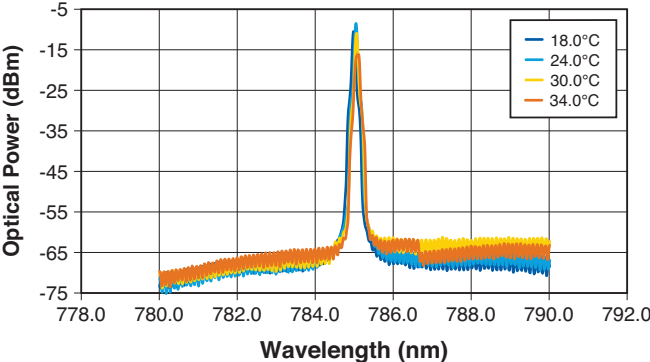
Optical Spectrum
(405 nm Example)



Optical Spectrum
(633 nm Example)



Optical Spectrum
(785 nm Example)



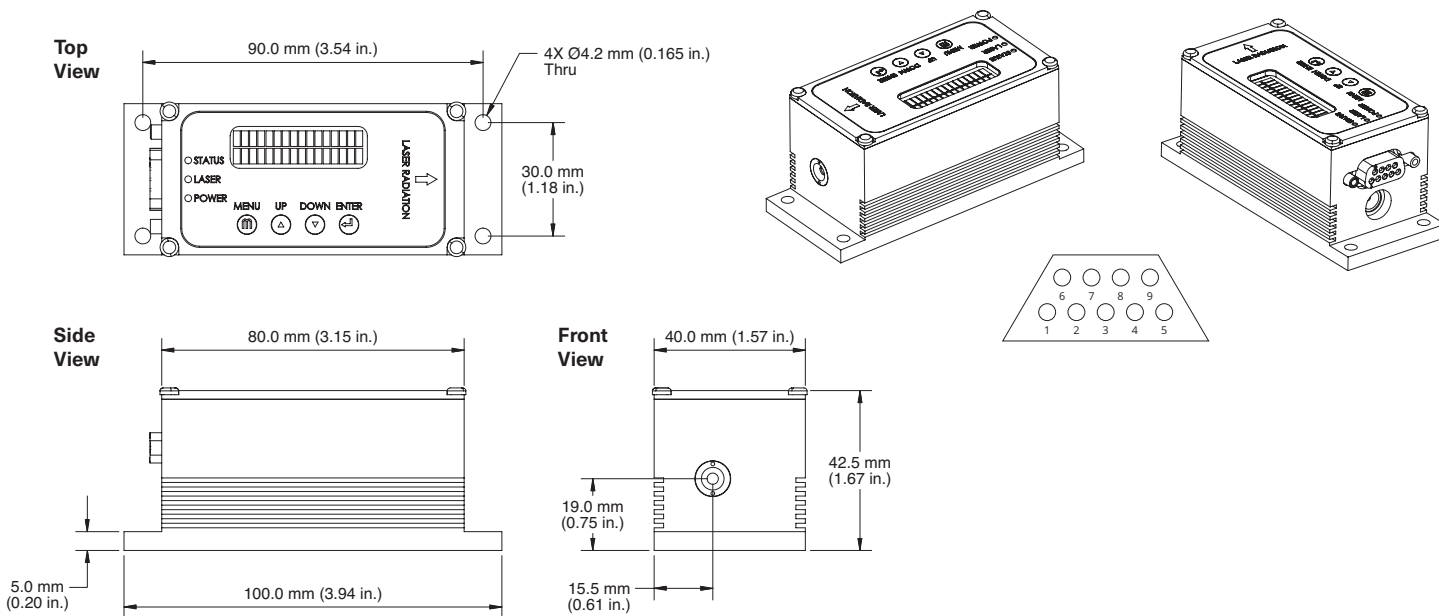
Pinout ¹		
Pin	Definition	Description
1	VCC	Positive Power Pin Vin
2	TXD	Send data to computer (RS-232)
3	RXD	Receive data from computer (RS-232)
4		Not used
5	GND	GND for power and RS-232 communication
6	TTL	Outside TTL modulation
7		Not used
8		Not used
9	GND	GND for power and RS-232 communication

Notes:

1. Pinout is compatible with standard RS-232 cable for interfacing with computer port or USB to RS-232 adapter.

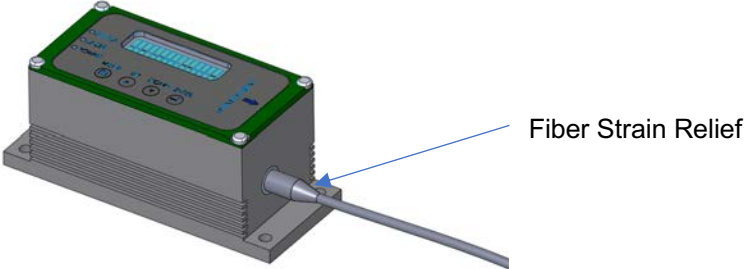
Mechanical Specifications

LM Series Laser Module Standard Configuration



Mechanical Specifications

LM Series Laser Module Fiber Pigtailed Configuration



LM Series Laser Module with Isolator Configuration

