



# SureLock™

## LMFC Series Compact Single Frequency Laser Modules

Coherent's LMFC Series Fiber Coupled Single Frequency Laser Module incorporates a Coherent SureLock™ VHG-stabilized laser diode to a single-mode, polarization-maintaining fiber, delivering steady, single frequency performance in an ultra-compact footprint. Offering both computer and integrated user controls, the LMFC Series includes precision temperature and current controls to deliver better than 1m 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 Power-Locker® Volume Holographic Grating (VHG), ensuring precise, ultra-stable center wavelengths, low temperature dependence, and consistent optical performance over the locked region.



### FEATURES & BENEFITS

- Single frequency with long coherence length (~1 m)
- Single Mode Fiber Coupled output - PM (standard) or SM (optional) w/FC/APC connector, minimum 1 m length
- Precision temperature and current stabilization
- Ultra-compact footprint 40 mm x 42.5 mm x 100 mm
- Plug and play operation
- NoiseBlock™ narrow-band ASE suppression filters and beamsplitters available in matching wavelengths to further reduce linewidth and ASE noise

### APPLICATIONS

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

## SureLock: LMFC Series Compact Single Frequency Laser Modules Datasheet

SPECIFICATIONS <sup>1</sup>	LM Series										
Center Wavelength <sup>2</sup> (vacuum) (Lp/nm)	405/ 406	633	638/ 640	643	658	685	690	780.25	785	808	826
Center Wavelength Tolerances (nm)	±1	±0.5	±1	±1	±1	±1	±1	±0.25	±1	±1	±1
Output Power (Po/mW)	3 6	30	14 25	25	12	16	15	25	30 50 70	XXX	XXX
Linewidth, Maximum (MHz) ( $\Delta\lambda$ )	160	150	300	XXX	300	300	100	50	50	50	250
Polarization Ratio	100:1										

<sup>1</sup> All specifications are at rated power with a case temperature of 25°C unless otherwise noted.

<sup>2</sup> Please specify wavelength at time of ordering.

OPTICAL OPERATING SPECIFICATIONS	Minimum	Typical	Maximum
Spatial Mode	Single Mode		
Polarization		100:1	
Fiber Type ( $\mu\text{m}$ )	3/125	4/125 <sup>1</sup>	5/125
Connector		FC/APC	
Noise (%) (RMS, 0 to 20 MHz)		0.25	0.5
Power Stability (%) (1 hour)		0.10	0.5
ELECTRICAL OPERATING SPECIFICATIONS	Minimum	Typical	Maximum
Operating Current (A)			1.5
Operating Voltage (VDC)		3.3	
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 <sup>2</sup>	10°C (50°F)	25°C (77°F)	40°C (104°F)
Operation Humidity	Non-Condensing		
Dimensions (D x L)	100 x 80 mm (3.94 x 3.15 in.)		

<sup>1</sup> 2 mrad typical for 780.25 nm and 785 nm 175/225 mW versions.

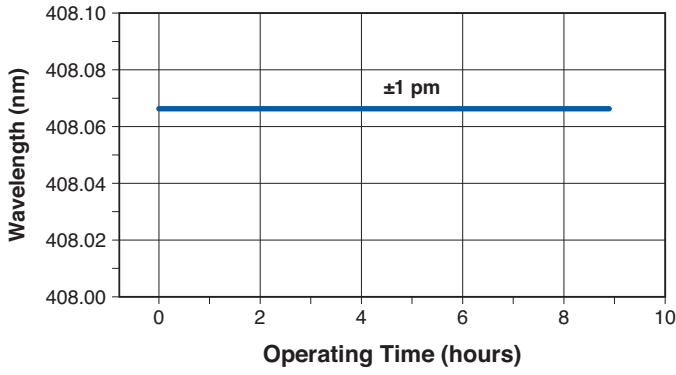
<sup>2</sup> Non-condensing.

POWER REQUIREMENTS
100 to 240 V AC, 50 to 60 Hz
Connector: +3.3VDC, 2.1 mm dia.

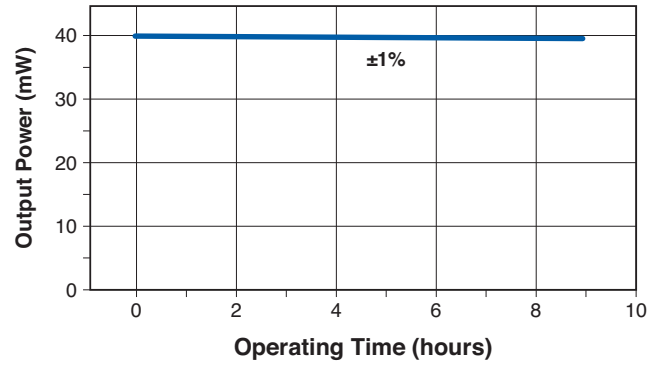
MODEL NUMBER
LM- $\lambda\lambda\lambda$ -PLR-Power
LM- $\lambda\lambda\lambda$ -PLR-Power-1K (includes keyswitch)

TYPICAL PERFORMANCE

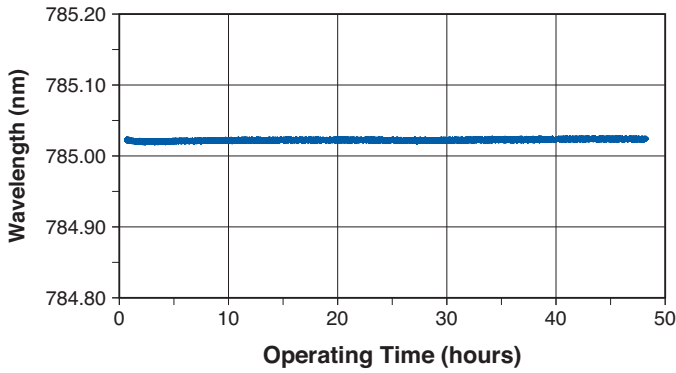
Wavelength Stability  
(405 nm Example)



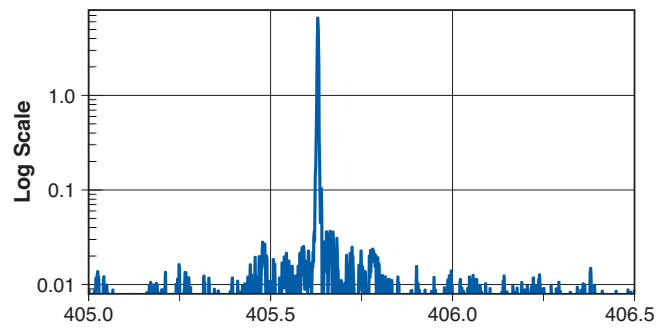
Optical Power Stability  
(405 nm Example)



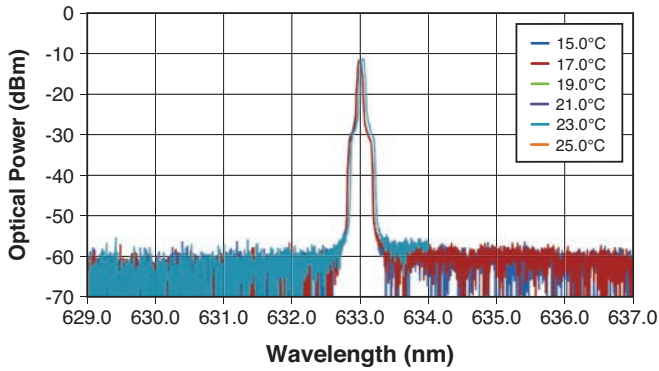
Wavelength Stability  
(785 nm Example)



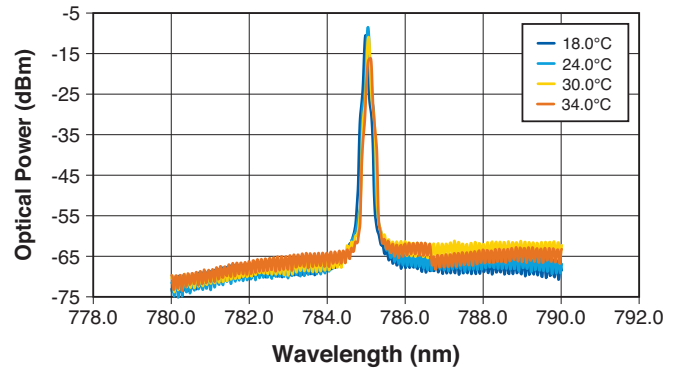
Optical Spectrum  
(405 nm Example)



Optical Spectrum  
(633 nm Example)



Optical Spectrum  
(785 nm Example)



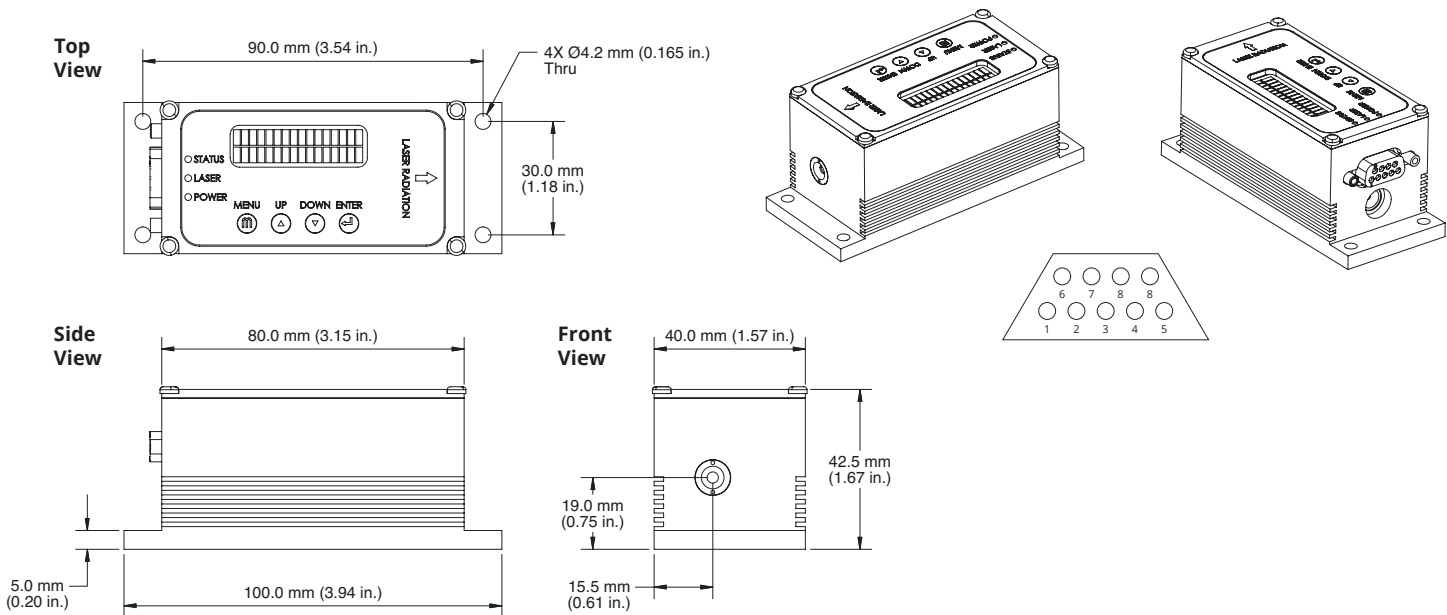
# SureLock: LMFC Series Compact Single Frequency Laser Modules Datasheet

PINOUT <sup>1</sup>		
PIN	DEFINITION	DESCRIPTION
1	VCC	Positive Power Pin +3.3V
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

<sup>1</sup> 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



Coherent, Inc.,  
 5100 Patrick Henry Drive Santa Clara, CA 95054  
 p. (800) 527-3786 | (408) 764-4983  
 f. (408) 764-4646

tech.sales@coherent.com [www.coherent.com](http://www.coherent.com)



Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice. Coherent's scientific and industrial lasers are certified to comply with the Federal Regulations (21 CFR Subchapter J) as administered by the Center for Devices and Radiological Health on all systems ordered for shipment after August 2, 1976.

Coherent offers a limited warranty for all SureLock Lasers. For full details of this warranty coverage, please refer to the Service section at [www.coherent.com](http://www.coherent.com) or contact your local Sales or Service Representative. MC-042-20-0M1220 Copyright ©2020 Coherent, Inc.