

LMFC Series Fiber Coupled Single Frequency Laser Modules



Single Frequency
Fiber Coupled

Ondax's LMFC Series Fiber Coupled Single Frequency Laser Module couples an Ondax 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.

The LMFC Module is available in wavelengths from 405nm to 830nm.

Features:

- Single frequency with long coherence length (~1m)
- Single Mode Fiber Coupled output - PM (standard) or SM (optional) w/ FC/APC connector, minimum 1m length
- Remote computer and onboard user controls with integral LCD Display
- Precision temperature and current stabilization
- Ultra-compact footprint 40mm x 42.5mm x 100mm
- 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 Counting
- LIDAR
- Graphic Arts

Specifications:

| Parameter | Sym- | Wavelength | | | | | | | | | |
|------------------------------|-----------------|------------------|-------|------|-------|-------|-------|--------|----------|-------|-------|
| Center Wavelength (vacuum) | L_p /nm | 405/406 | 633 | 640 | 658 | 685 | 690 | 780.25 | 785 | 808 | 830 |
| Center Wavelength Tolerances | nm | ±1 | ±0.5 | ±1 | ±1 | ±1 | ±1 | ±0.2 | ±1 | ±1 | ±1 |
| Output Power | P_o /mW | 6 | 30 | 15 | 12 | 16 | 15 | 25 | 30/50/70 | 40 | 50 |
| Linewidth, maximum (MHz) | $\Delta\lambda$ | 160 ¹ | 150 | 300 | 300 | 300 | 100 | 50 | 50 | 50 | 250 |
| Polarization Ratio | | 100:1 | 100:1 | 60:1 | 100:1 | 100:1 | 100:1 | 100:1 | 100:1 | 100:1 | 100:1 |

¹For 405nm diode only

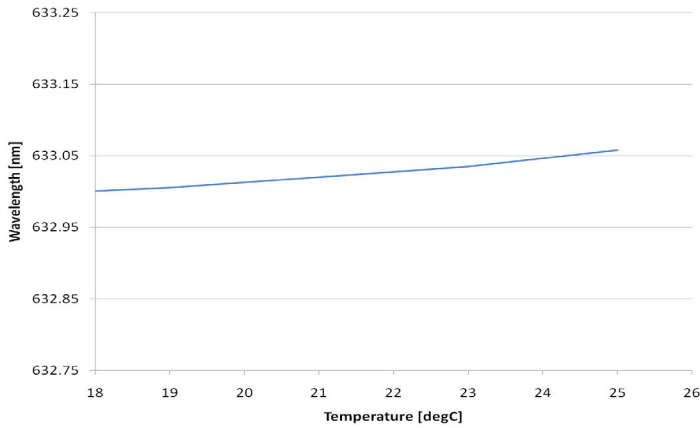
Operating Specifications

| Optical | Min | Typ | Max | Unit |
|------------------------------|----------------|-------|-------|------|
| Spatial Mode | Single Mode | | | |
| Polarization | 100:1 | | | |
| Fiber Type (PM) ² | 3/125 | 4/125 | 5/125 | μm |
| Connector | FC/APC | | | |
| Noise (RMS, 0-20 MHz) | 0.25 | | 0.5 | % |
| Power Stability (1 hr) | 0.10 | | 0.5 | % |
| Electrical | Min | Typ | Max | Unit |
| Operating Current | | | 1.5 | A |
| Operating Voltage | 3.3 | | | |
| Modulation Input (TTL) | 0 | 5 | | VDC |
| Modulation Speed | | | 3 | kHz |
| Environmental | Min | Typ | Max | Unit |
| Storage Temperature | -10 | 60 | | °C |
| Operating Temperature | 10 | 25 | 40 | °C |
| Operation Humidity | Non-condensing | | | |
| Dimensions (D x L) | 100 x 80 | | mm | |

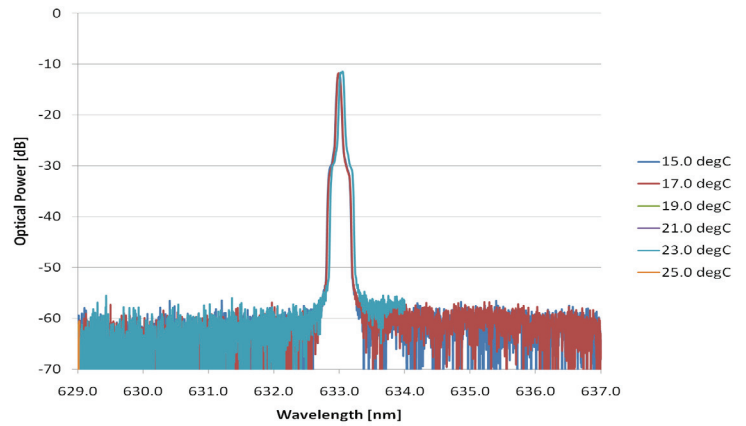
²Core dia. depends on wavelength. SM fiber (non-PM) also available by request.

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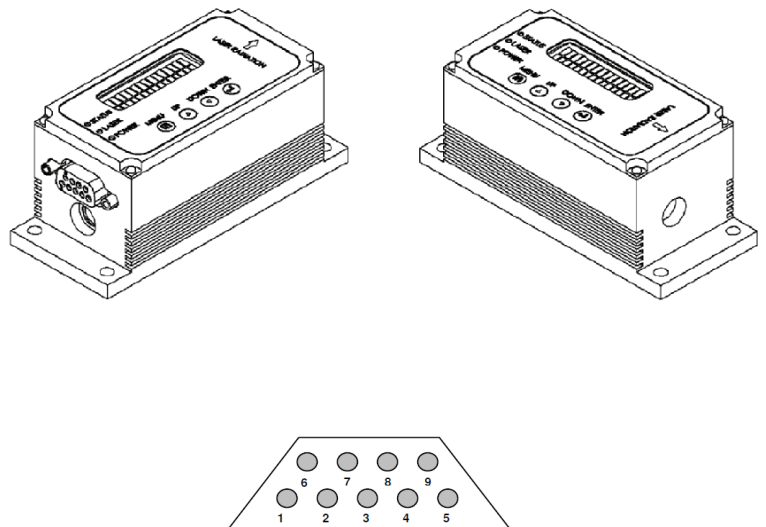
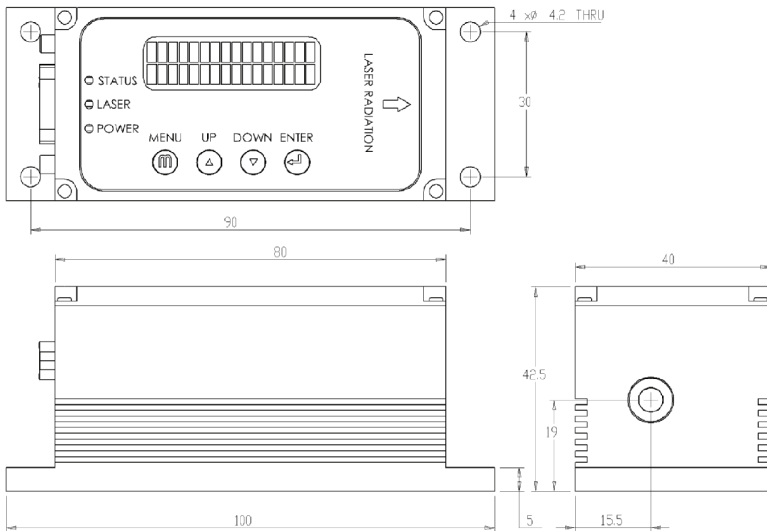
Wavelength Stability (633nm example)



Optical Spectrum (633nm example)



Outline Drawing and Connector Pinout



Model Numbers

LMFC- $\lambda\lambda\lambda$ -PLR-Power-PM or LMFC- $\lambda\lambda\lambda$ -PLR-Power-SM
 LMFC- $\lambda\lambda\lambda$ -PLR-Power-PM -1K or LMFC- $\lambda\lambda\lambda$ -PLR-Power-SM -1K (includes keyswitch)

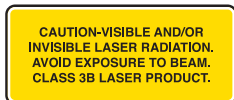
Power Requirements

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

Pinout

| Pin | Definition | Description |
|-----|------------|---------------------------------------|
| 1 | VCC | Positive Power Pin +3.3V |
| 2 | TXD | Send data to computer (RS232) |
| 3 | RXD | Receive data from computer (RS232) |
| 4 | | Not used |
| 5 | GND | GND for power and RS232 communication |
| 6 | TTL | Outside TTL modulation |
| 7 | | Not used |
| 8 | | Not used |
| 9 | GND | GND for power and RS232 communication |

Note: Pinout is compatible with standard RS232 cable for interfacing with computer port or USB-RS232 adapter



850 E. Duarte Rd. Monrovia, CA 91016
 626-357-9600 (Tel)
 626-513-7494 (Sales Fax)

For more information about Ondax products and the name of a local representative or distributor, visit www.ondax.com, email sales@ondax.com, or call (626) 357-9600. Specifications subject to change without notice. Each purchased laser is provided with test data and manual. Please refer to this data before using the laser.