Diode Laser Modules

SureLock™

OEM Wavelength Stabilized Laser

Ondax's Raman OEM Lasers are wavelength-stabilized, high-power, compact laser modules available in both free-space and fiber-coupled outputs designed specifically for incorporation into Raman spectroscopy systems. The ultracompact electronics provide constant temperature control, along with variable analog current control and an interlock connection to facilitate straightforward integration. The included base plate allows for flexible mounting in virtually any orientation.

All SureLock™ Series lasers feature the PowerLocker™ Volume Holographic Grating (VHG) for precise, ultra-stable center wavelengths and narrow spectral bandwidth. This technology minimizes wavelength shifts due to temperature changes, ensuring consistent optical performance across the entire power range from 0% to 100%, making these lasers highly reliable for demanding applications. The narrowed spectral bandwidth, low power consumption, and broad operating temperature characteristics deliver affordable portable instrument quality performance.

Wavelength options cover a wide wavelength range and standard units come with an FC/PC connector. Customization options are available to meet specific customer requirements.



FEATURES

- Ultra-compact design, marginally larger than the 14-pin butterfly laser, with custom mounting options available.
- Using standard 0.22NA 105um multimode fiber delivering up to 600mW for robust Raman signal generation.
- Exceptionally narrow spectral bandwidth, <0.15nm, ideal for high-resolution Raman spectroscopy.
- Superior wavelength stability, maintaining < 0.010 nm variation across the full operating temperature range to ensure consistent performance.
- Availability of custom wavelengths and tolerances to meet specific Raman application needs.
- Options for free-space optical output, allowing flexible system design and integration.
- Different electronic interconnect alternatives available to accommodate system requirements and simplifications in assembly.

APPLICATIONS

- Raman Spectroscopy
- Metrology
- Bio-instrumentation
- Sensing
- Analytical Instrumentation

ONDAX

Specifications	638 nm	785 nm	830 nm	1064 nm
SKU	115-81060-025	115-81060-010	115-81060-011	115-81060-013
Output Power (mW), Maximum	500	600	600	600
Center Wavelength (nm)				
Minimum	637.5	784.5	829.5	1063.5
Typical	638	785	830	1064
Maximum	638.5	785.5	830.5	1064.5
Spectral Bandwidth (FWHM nm)				
Typical	0.09	0.08	0.08	0.09
Maximum[4]	0.15	0.15	0.15	0.15
Spectral Bandwidth (FWHM cm^{-1})				
Typical	2.2	1.2	1.2	0.8
Maximum[4]	3.7	2.4	2.2	1.3
Sidemode Suppression Ratio, SMSR (dB)				
Minimum	40	40	40	40
Temperature Setpoint[1] (°C)				
Typical	25	25	25	25
Maximum	40	40	40	40
Stabilized Temperature Range[1] (°C)				
Minimum	10	10	10	10
Fiber Type: Standard[3]	FC/ PC > 1m 0.22NA / 105 µm core / 900 µm tubing			
Operating Requirements				
Current (A)				
Typical	1.3	1.3	1.3	1.3
Maximum	3	3	3	3
Input Voltage (V), Typical	5	5	5	5
Operating Temperature[2] (°C)				
Minimum	0	0	0	0
Typical	25	25	25	25
Maximum	40	40	40	40
Storage Temperature[2] (°C)				
Minimum	-20	-20	-20	-20
Maximum	80	80	80	80

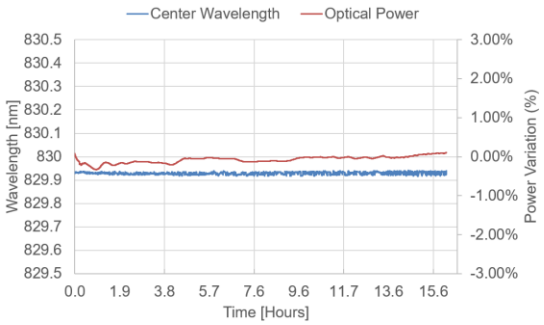
All specifications are at rated power with a case temperature of 25°C unless otherwise noted. Wavelengths specified are vacuum referenced. Ex 632.991nm vacuum referenced is equivalent to 632.816nm standard air referenced for HeNe

[1] Temperature set point is internal TEC set point. R-T thermistor data is available to determine actual thermistor setting. [2] Non-condensing

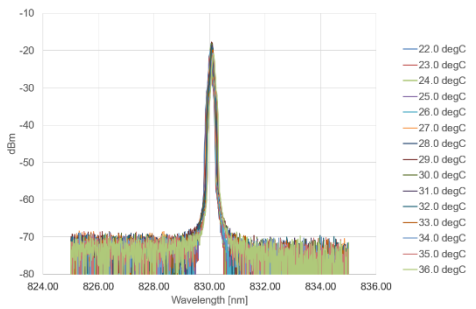
[3] Free space option available. Please contact sales for options [4] Measurement system is resolution limited. Results may be better.

Typical Performance

Optical Performance Stability (Sample)

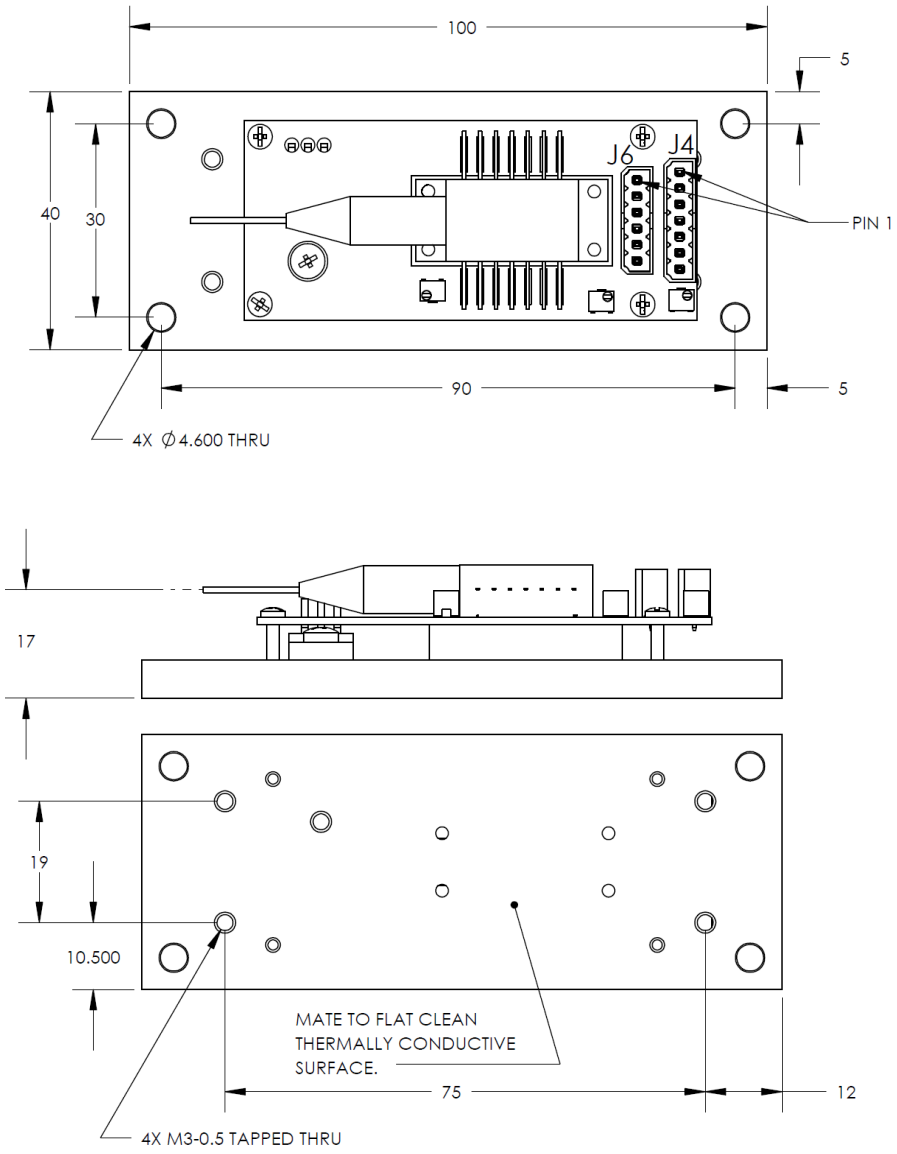


Optical Spectrum (Sample)



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Outline Drawing (all dimensions in mm)



Pinout – J4[1]

Pin	Description
1	Interlock (open circuit: laser off, close circuit: laser on with 20-40 sec delay)
2	Interlock (open circuit: laser off, close circuit: laser on with 20-40 sec delay)
3	TTL+ (0-1.5V laser Off, 3.5-5V laser ON)
4	TTL GND
5	Analog Voltage for Maximum Current
6	Analog Voltage Input (DO NOT EXCEED VOLTAGE VALUE ON J4-PIN5)
7	Analog Voltage for Threshold Current

[1]Male Mating Connector:
Phoenix Contact 1778887

Pinout – J6[2]

Pin	Description
1	4.9-5.25 VDC
2	Power GND
3	Laser Emission Indicator V out (5v, 50-100mA) output
4	Laser Emission Indicator GND
5	N/A
6	N/A

[2]Male Mating Connector:
Phoenix Contact 1778874

Warnings:

Fiber Tip Cleanliness: Inspect and clean all fiber tips before mate. Dirty or contaminated fiber tips could cause permanent damage to fiber connector. Cover all fiber tips when not in use. Damage to fiber or fiber connector is not covered by warranty.

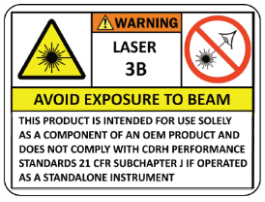
Electrostatic Discharge (ESD): Some pins are not protected from overdriven. ESD or other accidental unintended application of voltage may overdrive the laser diode beyond its rated ability cause permanent or latent damage. Damage from improper use is not covered by warranty.

Laser Eye Safety: These modules are intended for use in OEM applications. Use protective eyewear and follow local regulatory requirements for use of laser diodes.

Environmental Conditions: Units are intended to be mounted on a heat sink. Poorly mounted units may cause permanent damage due to overheating / runaway heating. Damage from improper use is not covered by warranty.







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