

Stabilized Single-Mode R-Type

Features

- Single-Mode TEM00 Output
- Ultra-Narrow Spectral Bandwidth < 40 MHz typical
- Stabilized Output Spectrum
- Circularized & Collimated Output Beam
- Integral Laser Line Filters¹
- UL/CE and IEC Certified
- > 70 dB SMSR Typical with integral laser line filter (35 dB – 45 dB typical without)
- Integral Laser Drive and TEC Control Electronics
- Remote Interlock

Standard Wavelengths

- 405 nm²
- 532 nm²
- 633 nm
- 638 nm
- 660 nm
- 780 nm
- 785 nm
- 808 nm
- 830 nm
- 976 nm
- 1030 nm
- 1053 nm
- 1064 nm

Additional wavelengths available

General Optical Specifications

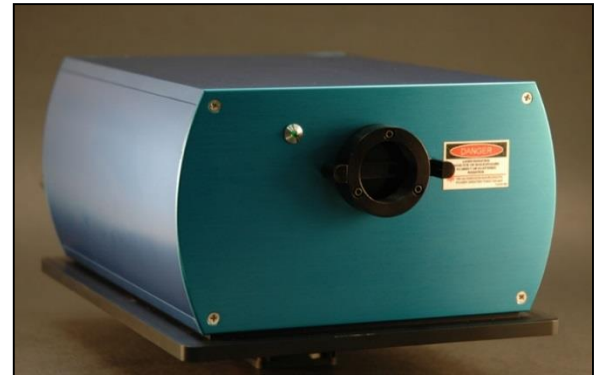
Wavelength Tolerance	+/- 0.5 nm
Spectral Linewidth ($\Delta\lambda$)	<100 MHz
Wavelength Stability Range	10 C - 35 C case temperature
SMSR	35 -45 dB
SMSR w/integral laser line filter	70 dB
Polarization Extinction (PER)	>17 dB
Polarization Orientation	Parallel to R-type base mounting plate
Spatial Profile	TEM00
Beam Quality (M-Squared)	< 1.5
Beam Ellipticity	1.5:1
Beam Diameter (measured at 500 mm)	~ 0.5 mm to 0.7 mm
Beam Divergence	~ 2 mrad
Peak Wavelength Drift	+/- 7pm assuming TEC control +/- 0.1 degree C
Output Power Stability	+/- 1% typical
Warm-up time	10 seconds from cold start
	1.5 seconds from warm start

Physical Specifications

Output Beam Exit Port	Standard C-Mount Thread (1" - 32)
Module dimensions	8.25" x 7" x 4.25"
Module weight	5 lbs.
Case material	Anodized Aluminum
Operating temperature	+15 to +35 deg C case temperature
Storage temperature range	-10 C to +55 C

1- Integral laser line filter at 633 nm, 638 nm, 785 nm, 808 nm, 830 nm, and 1064 nm

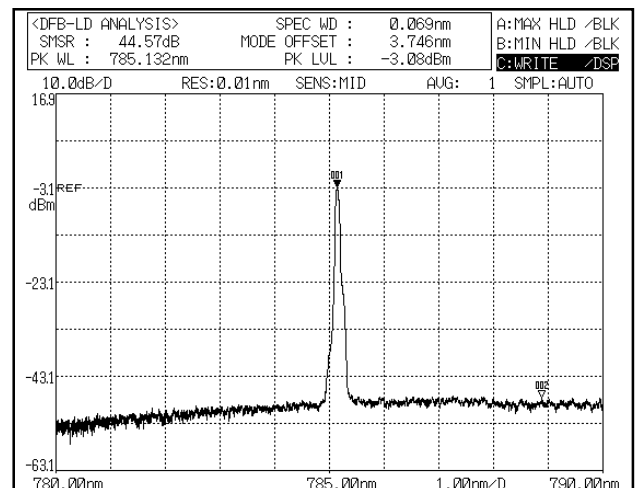
2- See 405 nm and 532 nm data sheets for specifications for these wavelengths



RPMC's R-type module is a fully turn-key, UL/CE and IEC certified laser module perfect for lab use. It comes complete with an internal wavelength stabilized laser module, a laser enable switch for safety, a safety key lockout, a remote interlock.

RPMC's proprietary Wavelength Stabilized Laser features high output power with narrow spectral bandwidth. The laser's stabilized peak wavelength remains "locked" regardless of case temperature (+10 to +35 deg. C) – making this source an ideal choice for the most demanding applications.

Devices can be spectrally tailored to suit application needs and offer side mode suppression ratio (SMSR) better than 40 dB, making these sources ideal for high resolution Raman spectroscopy, confocal microscopy, metrology and interferometry applications.



Typical 785 nm SS Laser Spectrum (SMSR > 40 dB)

Electrical Performance Specifications

Input Power	100-240 VAC, 50-60 Hz, 0.4A
Fuse Rating	250 V, 1A, Fast Blow, 5 mm x 20 mm, 2 each

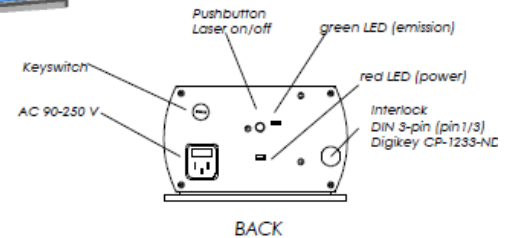
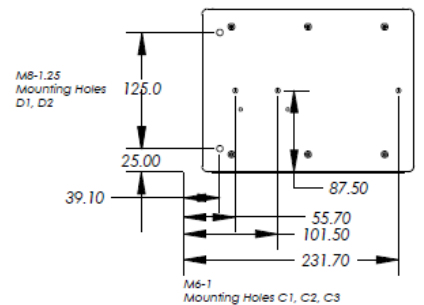
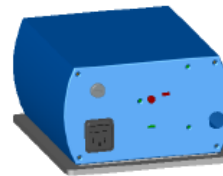
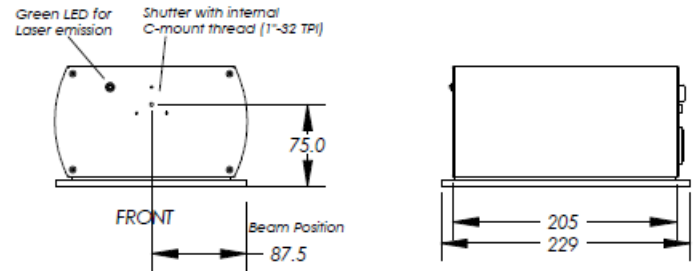
Standard R-type

Wavelength (nm)	Minimum Output Power (mW)	Part number
633	15	R0633SR0015B
633	60	R0633SR0060B
638	35	R0638SR0035B
638	60	R0638SR0060B
660	50	R0660SR0050B
780	100	R0780SR0100B
785	100	R0785SR0100B
808	100	R0808SR0100B
830	100	R0830SR0100B
976	200	R0976SR0200B
976	450	R0976SR0450B
1030	450	R1030SR0450B
1053	500	R1053SR0500B
1064	500	R1064SR0500B

R-type with Isolator

Wavelength (nm)	Min. Power (mW)	Part number
633	10	R0633SR0010B-IS
633	35	R0633SR0035B-IS
638	20	R0638SR0020B-IS
638	35	R0638SR0035B-IS
780	90	R0780SR0090B-IS
785	90	R0785SR0090B-IS

Mechanical Specifications



Operational Notes

- Do not retro-reflect beam (unless you have selected a version with integral optical isolator)! This can cause Catastrophic Optical Damage (COD) and is not covered under warranty.
- To adjust power output, RPMC recommends using Pulse Width Modulation (PWM) to adjust average power or using an external Neutral Density Filter when using a single-mode diode laser. See Note 3.
- By using PWM, user can adjust average power from 10% to 100% in digital increments by setting pulse width and duty cycle. For example, if a 50% duty cycle is selected, the laser will be on 50% of the time, and off 50% of the time, making the average power equal to 50% of the CW output power. The sample will experience a lower average power (equal to % duty cycle). Rise/fall time is approximately 20 microseconds.
- RPMC can supply our Laser Control Unit (LCU-M) for pulse width modulation which includes software and hardware interface for digital USB control. Please ask about this product
- The R-type is designed to be used in an open beam configuration – Users should design their optical layout in a manner that minimizes or eliminates the possibility of inadvertent exposure to hazardous laser radiation. To this end, RPMC has provided a SM-1 threaded mount in the laser’s shutter module to facilitate the creation of a class I enclosure.
- See Operation Manual for full operating and safety instructions. This document is meant to offer a product overview only.

