Fiber Coupled Laser for Raman Spectroscopy
RAM Series

Data Sheet

Overview

The RAM series is a line of UV, visible, and near IR fiber coupled diode lasers with narrow spectral linewidth feature and delivering output power levels up to 450mW. The RAM series is available from 375nm to 980nm wavelengths. Designed specifically for Raman spectroscopy and with features of narrow spectral bandwidth from 0.01nm and 0.06nm, spectral purity and a high level of wavelength stability, the laser has integrated laser driver and thermoelectric cooler. Its compact dimensions and convenient functions make the laser optimal for industrial and medical applications, including Raman spectrometer, chemical and biological research, environmental science, jewelry appraisal, forensic appraisal, food/drug safety inspection, geological exploration, systems design and integration.

Features

- Available wavelengths: 375nm, 405nm, 488nm, 514.5nm, 633nm, 639nm, 660nm, 690nm, 730nm, 785nm, 808nm, 830nm, 852nm, 975nm, and 980nm
- CW operating mode
- Optical output power 5mW to 450mW
- Narrow spectral linewidth
- Ultra-compact design

Applications

- Raman spectroscopy
- Chemical and biological research
- Environmental science
- Jewelry appraisal
- Forensic appraisal
- Food and drug safety inspection
- Geological exploration

375-639 nm Specifications

Parameter	RAM375	RAM405	RAM488	RAM514	RAM633	RAM639
Central wavelength	375±0.5 nm	405±0.5 nm	488±0.5 nm	514.5±0.5 nm	633±0.5 nm	639±0.5 nm
Operating mode	CW	CW	CW	CW	CW	CW
Fiber core diameter	100um, 0.22 NA	100um, 0.22 NA	100um, 0.22 NA	100um, 0.22 NA	100um, 0.22 NA	100um, 0.22 NA
Fiber connector	SMA905	SMA905	SMA905	SMA905	SMA905	SMA905
Output power after fiber	>5 mW, >10 mW	>50 mW, >100 mW	>10 mW, >20 mW, >30 mW, >50 mW	>10 mW, >30 mW	>20 mW, >30 mW, >50 mW	>10 mW, >30 mW, >50 mW, >100 mW, >200 mW
Power stability (rms, over 4 hours)	<3%, <2%, <1%	<3%, <2%, <1%	<3%, <2%, <1%	<3%, <2%, <1%	<3%, <2%, <1%	<3%, <2%, <1%
Spectral linewidth	0.1 nm, 0.06 nm	0.1 nm, 0.06 nm	0.1 nm, 0.06 nm	0.1 nm, 0.06 nm	0.1 nm, 0.06 nm	0.1 nm, 0.06 nm
Central wavelength stability (rms, over 2 hours)	<10 pm	<10 pm	<10 pm	<10 pm	<10 pm	<10 pm
Noise of amplitude (rms, 1-20MHz)	<1%	<1%	<1%	<1%	<1%	<1%
Warm-up time	<5 min	<5 min	<5 min	<5 min	<5 min	<5 min
Operating temperature	20-30°C	20-30°C	20-30°C	20-30°C	20-30°C	20-30°C
Laser power consumption	5VDC@5A	5VDC@5A	5VDC@5A	5VDC@5A	5VDC@5A	5VDC@5A
Expected lifetime	10,000 hours	10,000 hours	10,000 hours	10,000 hours	10,000 hours	10,000 hours
Warranty period	10 months	10 months	10 months	10 months	10 months	10 months

Remarks:

- Specifications of the CW laser is based on the laser performance at full power output after the specified warmup period. The stability of output power may change when output power is adjusted at a different power level.
- Specifications are subject to change without notice.

660-830 nm Specifications

Parameter	RAM660	RAM690	RAM730	RAM785	RAM808	RAM830
Central wavelength	660±2 nm	690±0.5 nm	730±3 nm	785±0.5 nm	808±0.5 nm	830±0.5 nm
Operating mode	CW	CW	CW	CW	CW	CW
Fiber core diameter	100um, 0.22 NA	100um, 0.22 NA	100um, 0.22 NA	100um, 0.22 NA	100um, 0.22 NA	100um, 0.22 NA
Fiber connector	SMA905	SMA905	SMA905	SMA905	SMA905	SMA905
Output power after fiber	>10 mW, >30 mW, >50 mW, >100 mW, >200 mW	>100 mW, >200 mW, >300 mW, >450 mW	>100 mW, >200 mW, >300 mW, >400 mW	>100 mW, >200 mW, >300 mW, >450 mW	>100 mW, >200 mW, >300 mW, >450 mW	>10 mW, >20 mW, >50 mW, >100 mW
Power stability (rms, over 4 hours)	<3%, <2%, <1%	<3%, <2%, <1%	<3%, <2%, <1%	<1%	<3%, <2%, <1%	<3%, <2%, <1%
Spectral linewidth	0.1 nm, 0.06 nm	0.1 nm, 0.06 nm	0.1 nm, 0.06 nm	0.1 nm, 0.06 nm	0.1 nm, 0.06 nm	0.1 nm, 0.06 nm
Central wavelength stability (rms, over 2 hours)	<10 pm	<10 pm	<10 pm	<10 pm	<10 pm	<10 pm
Noise of amplitude (rms, 1-20MHz)	<1%	<1%	<1%	<1%	<1%	<1%
Warm-up time	<5 min	<5 min	<5 min	<5 min	<5 min	<5 min
Operating temperature	20-30°C	20-30°C	20-30°C	20-30°C	20-30°C	20-30°C
Laser power consumption	5VDC@5A	5VDC@5A	5VDC@5A	5VDC@5A	5VDC@5A	5VDC@5A
Expected lifetime	10,000 hours	10,000 hours	10,000 hours	10,000 hours	10,000 hours	10,000 hours
Warranty period	10 months	10 months	10 months	10 months	10 months	10 months

Remarks:

- Specifications of the CW laser is based on the laser performance at full power output after the specified warmup period. The stability of output power may change when output power is adjusted at a different power level.
- Specifications are subject to change without notice.

852-980 nm Specifications

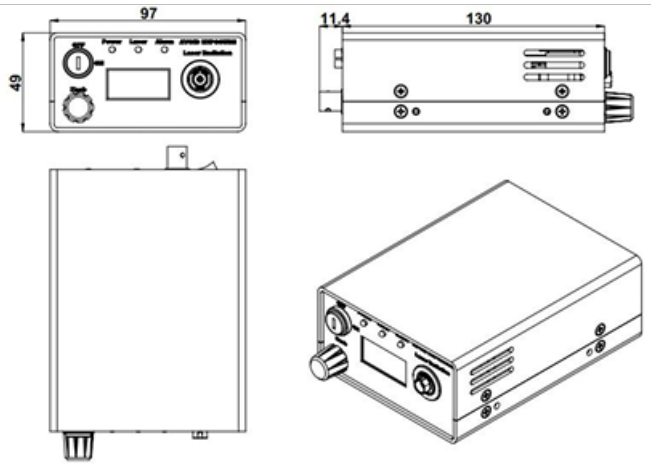
Parameter	RAM852	RAM975	RAM980
Central wavelength	852±0.5	975±2	980±5
Operating mode	CW	CW	CW
Fiber core diameter	100um, 0.22 NA	100um, 0.22 NA	100um, 0.22 NA
Fiber connector	SMA905	SMA905	SMA905
Output power after fiber	>100, >200, >300, >400	>100, >200, >300, >450	>100, >200, >300, >450
Power stability (rms, over 4 hours)	<3%, <2%, <1%	<3%, <2%, <1%	<3%, <2%, <1%
Spectral linewidth	0.1 nm, 0.06 nm	0.1 nm, 0.06 nm	0.1 nm, 0.06 nm
Central wavelength stability (rms, over 2 hours)	<10 pm	<10 pm	<10 pm
Noise of amplitude (rms, 1-20MHz)	<1%	<1%	<1%
Warm-up time	<5 min	<5 min	<5 min
Operating temperature	20-30°C	20-30°C	20-30°C
Laser power consumption	5VDC@5A	5VDC@5A	5VDC@5A
Expected lifetime	10,000 hours	10,000 hours	10,000 hours
Warranty period	10 months	10 months	10 months

Remarks:

- Specifications of the CW laser is based on the laser performance at full power output after the specified warmup period. The stability of output power may change when output power is adjusted at a different power level.
- Specifications are subject to change without notice.

RAM Series Laser Dimensions

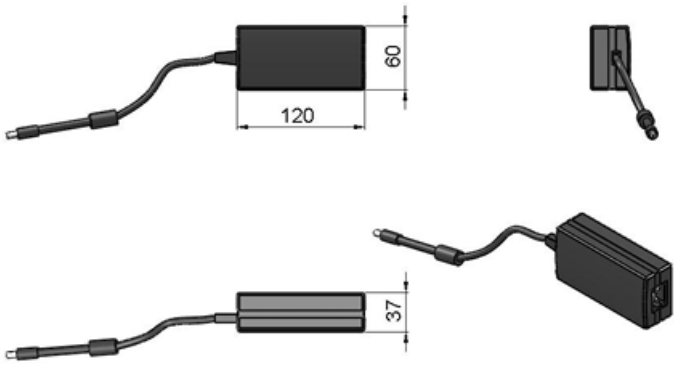
Unit: mm



Parameter	RAM Series
Dimensions	141.4(L)×97(W) ×49(H) mm^3
Weight	1.0 kg

Accessory (Adaptor) Dimensions

Unit: mm



Parameter	Adaptor
Dimensions	120(L)×60(W) ×37(H) mm^3
Weight	0.3 kg
Input voltage	85-264VAC

Ordering Information

For more information, please contact Lasermate directly at sales@lasermate.com.

Part Number Configuration RAM[1][2][3][4]				
RAM = Laser Model Series	**[1] = Wavelength**	**[2] = Output Power**	**[3] = Power Stability**	**[4] = Spectral Linewidth**
	375= 375nm 405= 405nm 488= 488nm 514= 514.5nm 633= 633nm 639= 639nm 660= 660nm 690= 690nm 730= 730nm 785= 785nm 808= 808nm 830= 830nm 852= 852nm 975= 975nm 980= 980nm	5= >5mW 10= >10mW 20= >20mW 30= >30mW 50= >50mW 100= >100mW 200= >200mW 300= >300mW 450= >450mW	E= <3% 2= <2% D= <1%	L= 0.1nm M= 0.06nm

Note: The above specifications are subject to change without notice.