RamSpec™-785nm Raman System

Long-wavelength Raman Instrument

BaySpec's *RamSpec*™ series NIR long wave Raman spectral engines are designed for best-in-class performance, long-term reliability, and compact size and meeting real world challenges in reducing fluorescence interference for Raman instrumentation of biological samples. Benefiting from experience manufacturing high-volume spectral monitoring devices for the telecommunications industry, BaySpec's NIR spectral devices utilize low-cost field proven components. For the first time in instrumentation history an affordable, accurate and ruggedized Raman spectral device is a reality.

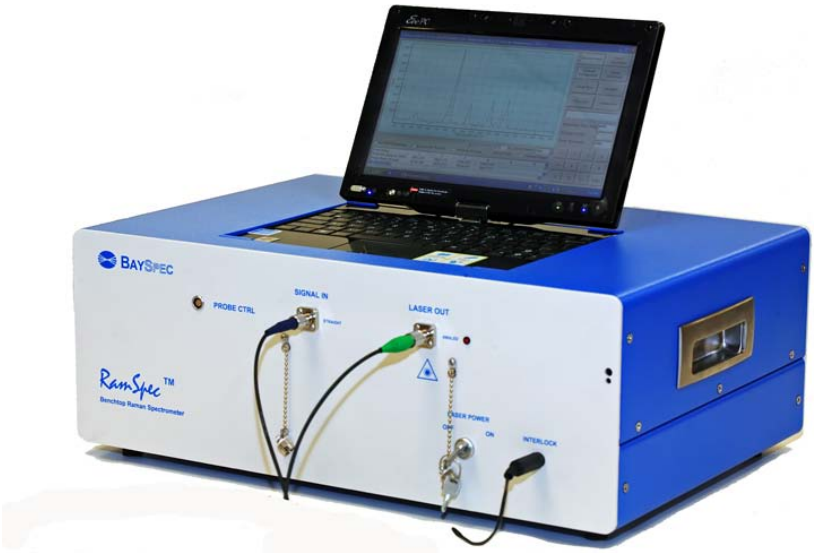
The *RamSpec*™ Series employs a highly efficient *Volume Phase Grating* (VPG®) as the spectral dispersion element and an ultra sensitive CCD array detector as the detection element, thereby providing high-speed parallel processing and continuous spectrum measurements. As an input, the device uses a fiber optic bundle or slit optics arrangement based on customer preferences. The signal is spectrally dispersed with the VPG® and the diffracted light is focused onto a CCD array detector. The control electronics read out the processed digital signal to extract required information. Both the raw data and the processed data are available to the end user.

Applications:

- Rapid, non-invasive and non-destructive nature of analysis
- Complement (or replace) traditional methods of analyses like Infrared, Gas Chromatography, XRD and wet chemistry
- Raw material ID
- Gemstone Analysis
- Process Control
- Didactic learning
- in vivo or in vitreo medical applications
- Forensics
- Drug screening
- Mineralogy
- Petrochemical
- Pharmaceuticals
- Many more…

Key Features

- Real-time spectral data acquisition with milli-sec response time
- Outstanding optical throughput with VPG® and f/1.8 design
- Wavelength range from 785-1080 nm (up to 3200 cm^{-1})
- Specifically designed for 785 nm excitation laser for reduced fluorescence interferences from biological samples
- 785 nm fiber laser, up to 800mW
- Deep cooled camera for low light detection
- Coaxial small form factor Raman probe with internal filters and coatings
- Camera, spectrograph, laser, probe, swivel-Notebook computer
- *Micro 2020* Windows-based software integrated for turn-key operation



BaySpec, Inc. | 101 Hammond Avenue, Fremont, California 94539 USA | ☏ 1.510.661.2008 | www.bayspec.com

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Parameter	Specification
PERFORMANCE	
Wavelength Range	785-1080 nm or customer specified
Wave Number	300 to 3200 cm^{-1}
Resolution	4 cm^{-1}
Signal / Noise	6000:1
Stray Light	0.05%
Wavelength Calibration	Optional Factory Calibrated
Integration Time	20 ms to 300 seconds
Dimensions	17 x 12 x 7 in^3 (432 x 305 x 178 mm^3)
Weight	25 lbs. (11 kg)
Power Consumption	<25 W
OPTICS	
f/ number	f/1.8
Grating	Custom *Volume Phase Grating (VPG)*®
Entrance Aperture Slit / Fiber Optic	Slit: 25 µ, 50 µ, 100 µ, 200 µ,etc Fiber optic: FC/APC, or custom design
LASER	
Power	~800 mW
PROBE	
Design	Coaxial, AR coated, filtering for optimal performance
DETECTOR	
Detector array	1024x64 or 2048x64 Pixel
High CCD Node Sensitivity.	6.5 µV/e^- Typical
Readout Noise	6 e^- rms@-40c Typical
Full Well Capacity	200ke^-
Detector	TE cooled CCD
A/D Converter	16 bit
Power	2 A@24 v
COMPUTER	
Battery backup	2 hours
Data Ports	USB 2.0
Trigger Modes	Software Controlled
Software	Windows 2000 or later

Specifications are subject to change without notice

Ordering Information

BRAM - □□□□ - □□

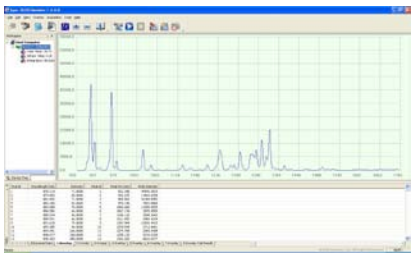
Code	Excitation λ
Please specify the starting wavelength i.e. :	
532	532 nm
785	785 nm
1064	1064 nm
xxxx	Custom

Code	Resolution
05	5 cm^{-1}
08	8 cm^{-1}
16	16 cm^{-1}
xx	Custom

Key design benefits:

- High throughput transmission Volume Phase Grating (VPG®)
- Fast f/1.8 optics
- No moving parts
- High signal/noise
- Minimal sample preparation
- Fast baseline correction

BaySpec "Micro 20/20" GUI Software included for ease of integration



BaySpec's "*Micro 20/20*" software is included with purchase at no charge, offering an intuitive, Windows-based software package with flexible data acquisition, processing and output functionalities

Includes DLL driver and software development kit for creation of new applications and output to leading software packages

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