

thinkforward

The new **RAM II** module is setting new levels of performance and versatility standards in FT-Raman spectroscopy.



VERTEX 70 with RAM II

- Dual excitation channel configuration between 3 different wavelengths: 1064, 976, and 785 nm
- Up to 6.500 cm^{-1} Stokes-shift
- Automatic accessory recognition
- Full line of internal and external sampling accessories
- 21 CFR Part 11 Compliance and validation

The new *RAM II* module is the first dual channel FT-Raman accessory for Bruker Optics FT-IR spectrometers. The module is designed for researchers who seek flexibility of using different Raman laser wavelengths in combination with FT-IR spectroscopy.

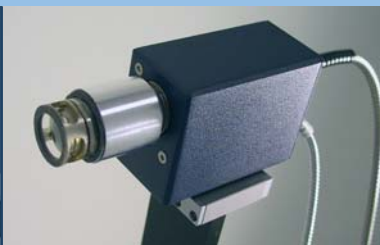
RAM II is an add-on module that can be coupled to Bruker Optics' multi range FT-IR spectrometers, such as the *VERTEX 70*, utilizing the spectrometer's one input and one output port. It combines fast and easy sample handling and maximum suppression of disturbing fluorescence, expected from FT-Raman. Switching between the infrared and Raman configurations is achieved through software control.

Bruker Optics' proprietary ultra high sensitivity Ge detector with 5 days hold time of refrigerant, enhanced collection optics and the new dynamic 24 bit electronics provide unsurpassed sensitivity performance and long term stability. The new *RAM II* module is equipped with standard 1064 nm excitation for utmost suppression of fluorescence. In addition, configurations with a 976 or a 785 nm laser are available to offer flexibility.

RAM II's large sample compartment can accommodate an extensive range of pre-aligned sampling accessories, designed to accommodate all types of sample formats; from powders to liquids in vials. Bruker Optics offers various accessories to enhance the performance of FT-Raman analysis.



The *RAMANSCOPE*™ FT-Raman microscope for non-destructive analysis of microscopic samples



RamProbe is ideal for non-contact remote sampling and reaction monitoring



Large sampling compartment holds various prealigned sample stages and other accessories



Motorized horizontal sample video stage for high sample throughput and Raman mapping

RAM II

Performance:

Spectral range: 6500* - 70 cm⁻¹ Stokes shift
Option: 50 cm⁻¹ **

Resolution: better than 2 cm⁻¹
Option: better than 1 cm⁻¹

Optical system:

Design: FT-Raman accessory to be coupled to Bruker Optics FT-IR spectrometers (Such as VERTEX 70)
Class I laser safety enclosure with interlocks for sample compartment. ***

Excitation Lasers: **Measurement channel 1:** Integrated air-cooled diode pumped Nd:YAG laser, 1064 nm, 500 mW, (Option: Nd:YAG 1500 mW) polarized, computer controlled laser power.,
Alternatively: Integrated air cooled diode laser, 976 nm, 1000 mW, polarized, computer controlled laser power.

Measurement channel 2: Integrated air-cooled diode laser, 785 nm, 600 mW, polarized, computer controlled laser power.

Detectors: **Measurement channel 1:** High sensitive InGaAs detector (room temperature).
Option: Ultra high sensitive Ge detector (liquid nitrogen cooled).

Measurement channel 2: Si diode detector for detection of Raman radiation excited by a 785 nm laser

Collection optics: High throughput collection lens standard, options: long distance objectives, gold coated reflective optics.

Sample Compartment: Attached to the front of the module, accessible from three sides, 180 degree collection optics standard, 90 degree collection optics optional.

Sampling accessories: Standard sampling kit for preparing solid and liquid samples. Prealigned sample stage with servo-assisted sample positioning (z-axis control), option: xyz-axis control

Options

Internal accessories

- Video stage,
- Variable temperature cell, Low temperature cell
- Heatable (hot) stage
- Cryostats
- Sapphire cell, long path cell,
- Sample rotator, Automatic sample changer
- Polarization accessory, TLC stage

External accessories

- FT-Raman microscope
- Fibre optic probes

Services

- Remote diagnostics
- Service contracts
- Validation Packages and Services
- In house and factory based application training

* = Depends on excitation wavelength

** = 1064 nm excitation

*** = Laser safety classification: Depending on accessories adapted the classification of the FT-Raman module may equal the classification of the exciting laser and exceed class I.

Bruker Optics is continually improving its products and reserves the right to change specifications without notice.

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