

Technical Specifications for Micro Raman Spectrometer

Spectrometer-

High efficiency spectrometer with focal length 250-300 mm.

- Scan to scan repeatability should be better than 0.05cm^{-1} .
- Optimization for excitation wave lengths at 532nm & 785nm with fully automatic selection of the topics. No manual change of optics should be involved.
- Spectrometer Range: 200nm – 2000nm.
- Raman Spectral Range: 100cm^{-1} to 4000cm^{-1} or more.
- Spectral Resolution better than $0.5\text{-}0.7\text{ cm}^{-1}$
- Variable Laser Spot size: 1μ to 300μ .
- Encoder feedback controlled grating stage with minimum two or three gratings i.e. 2400, 1200, 600 l/mm.

- The spectrograph should allow spectral coverage from 100 cm^{-1} to 4000 cm^{-1} or more in one single continuous acquisition without any step and stitches. Spectral stitching after collection of multiple exposures is unacceptable.
- Detector – CCD array detector, Peltier cooled to -70°C . No water or liquid nitrogen required.
- Manual/Motorized neutral density filters to offer 16 different output power level from 0.00005 to 100% of the Laser at sample.

Automisation-

The offered be Raman system should fully automatic with following

Auto alignment and optimisation of input laser power.

Auto switching and auto alignment of laser.

Self validation using built-in internal reference sample.

Built-in self calibration and intensity correction using light sources.

Motorised switching between laser and white light sample images using integral video

Microscope-

Specially adapted Research Grade microscope allowing confocal measurement with better than $2.5\mu\text{m}$ depth resolution. Including:

- Reflected Light & Transmitted Light.
- Standard Objectives: x5, x20, x50 and x100
- Long working distance Objective: 20x.
- Binocular head with color video camera.
- Mapping stage XYZ Stage with step size XY 100nm, Z 16nm.
- Microscope Enclosure – Class 3B

Lasers-

Diode Laser – 785nm, more than 100 to 250mW, Air cooled

Diode Laser – 532nm, 50mW/100mW, Air cooled 50mW

Suitable Base plate or Optical table for mounting:

Kinematic Honeycomb base plate to accommodate spectrometer, Microscope and two lasers.

Computer & Software-**Computer-**

Operating optimized computer, Dual core

4 GB RAM, DVD-RW, 500 GB SATA HDD

Windows 7 Professional (64 bit), 22'' TFT Color Monitor.

Software

- Instrument control and data acquisition software, fully integrated data analysis and presentation software with image capture software for white light image display and capture.
- Image capture for viewing and saving n screen white light images.
- Additional software license for extra 2 users for offline analysis.

Warranty:

One Year & extended warranty of two more years.

Optional Items

A) Heating and cooling module: - 196 °C to 500 °C.

Nitrogen (Cryogenic) Cooling System