

# Discover-It-Yourself Low Frequency Raman System

The Discover-It-Yourself series is designed to help develop new Raman applications. The Low-Frequency DIY system (DIY-LF) measures the Raman spectrum on the anti-Stokes region, across the laser excitation line, and into the Stokes region. Powerful filters remove scattering within about 5  $\text{cm}^{-1}$  of the laser line to give you access to structural Raman data that is unavailable through other techniques.



## Powerful Performance in a Simple Design

Accessing valuable information from the structural region of the Raman spectrum is easier than ever before. Connect the fiber optic output of a narrow-linewidth IPS laser to the LF Probe to excite the sample and use a second fiber optic to move the collected Raman signal to a high-sensitivity B&W Tek spectrometer. Precision optics and precise alignment give you point-and-shoot power to measure one of the most information-rich but hardest-to-access regions of the Raman spectrum.

## An Array of Sampling Accessories

Extend the capabilities of the Low Frequency probe with a wide variety of sampling accessories. From probes for process monitoring to microscope interfaces, our sampling accessories ensure consistent and accurate Raman data. Exchanging sampling accessories is easy with the standard dovetail adapter at the output port.

## See More

Low Frequency Raman opens a new spectral window, enabling in-situ reaction or process monitoring. Follow the structure of chemicals through a reaction process or watch a drying or polymerization reaction to determine the optimum conditions. Essentially self-calibrating, the symmetry around the scattered laser light allows you to calibrate the probe with picometer accuracy. Find new answers with the DIY-LF system.

## Software

Metrohm offers both BWSpec<sup>®</sup> software and Software Development Kit (SDK) packages enabling solutions suited for various Raman applications.

### BWSpec<sup>®</sup>

BWSpec<sup>®</sup> is a spectral data acquisition software. This includes a wide range of tools designed to perform measurements and calculations at the click of a button. Adjusted for the output of a DIY-LF system, the software quickly measures across the laser scatter, allowing you to analyze both the Stokes and anti-Stokes peaks. BWSpec offers multiple data formats and lets users optimize acquisition parameters like integration time and laser power. This also includes automatic dark removal and manual/auto baseline correction.

### Software Development Kit (SDK)

SDKs allow users to control the DIY systems through customized interfaces. Fundamental laser and spectrometer control for data acquisition, calibration, and transfer is possible. The SDK package is designed for 32 and 64-bit Windows operating system and available for all our USB-based systems.

## Sample Applications



### Pharmaceutical

API and Excipient Identification, In-Line Tablet Characterization



### Biomedical

Biopharmaceutical Growth Monitoring

### Food and Agriculture

Food Safety, Seed Characterization and Diagnostics, Crop Quality



### Research & Development

Method Development, Product Development Process Raman Integration



Supported Wavelengths

532 nm , 785 nm, 1064 nm

Laser Mode

IPS multi-mode lasers recommended.  
Single mode lasers supported.

Laser Power

Power varies by laser  
Typically, <300 mW in multi-mode  
50 mW in single mode

Physical Dimensions

234 mm x 103 mm x 59 mm

Sampling Accessories

Probe tip  
Vial Holder  
Non-Contact Optics  
Large Space Adapter  
Microscope Adapter

Laser

IPS supplies a selection of high-performance laser configurations to support the Low Frequency DIY.

Customization is available.

Detector

B&W Tek supplies a range of high-performance Raman spectrometers with BWSpec software for use in the DIY configuration.

Customization is available.