

Discover-It-Yourself Extended Range Raman System

The Discover-It-Yourself series from is designed to support new Raman method development. The Extended Range DIY system (DIY-ER) is unique because it measures the Raman spectrum in stretch and fingerprint regions using a single detector and two laser lines. The software then "stitches" the two spectra together to give the complete Raman spectrum. Overcome challenges with fluorescence interference using the DIY-ER.

MADE IN
AMERICA



See More of the Spectrum

The DIY-ER system allows you to access both the fingerprint (~65 – 2000 cm^{-1}) and the stretch region (2000 – 4000 cm^{-1}) of the Raman spectrum using a single detector and a single sampling probe. A combination of filters in the probe allows the spectra to be measured sequentially and then stitched together in software (or concatenated).

Avoid Fluorescence

The DIY-ER system allows you to avoid moving deep in the near-IR to see samples with strong backgrounds. Moving to longer excitation wavelengths reduces both the fluorescence and Raman intensities, but DIY-ER measurements do not have the same trade-off. The DIY-ER system achieves higher Raman intensity and lower fluorescence background by shifting to a shorter wavelength to measure the stretch region.

Choose the Right Excitation Lines

Most measurements can be accomplished using a 680/785nm or 860/1064 nm laser pair. Packaged in the convenient M-type format by IPS, these lasers feature easy operation with individual power control. Raman probes are designed to match the wavelength pair that you choose. Custom solutions are available. Contact us for more information.

Software

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

BWSpec®

BWSpec® 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. Raman spectra from DIY-ER are "stitched together" automatically in the software. BWSpec offers multiple data formats and allows users to optimize acquisition parameters, such as 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

Sample Applications



Pharmaceutical

API and Excipient Identification, In-Line Tablet Characterization



Food and Agriculture

Food Safety, Seed Characterization and Diagnostics, Crop Quality



Petrochemical and Biofuels

Overcome fluorescence in biofuel measurements



Research and Development

Method Development, Product Development Process Raman Integration

Stretch Block 1064 nm / 860 nm

Spectrometer Options

Sol® HT

Raman Shift Coverage	125 to 2500 cm^{-1} @ 1064 nm 2100 to 4700 cm^{-1} @ 860 nm
Coverage Range	1047 to 1450 nm
Resolution Range	10 cm^{-1} @ 1296 nm
Detector Type	Linear InGaAs Array
Thermoelectric Cooling	-20°C @ relative humidity \leq 90%

Laser Options

350 mW

Probe Options

Laboratory-Grade

Laser Blocking	OD6 Default
Shaft Material	316 Stainless Steel
Shaft Length	37 mm (1.49 in.)
Shaft Diameter	9.53 mm (0.38 in.)
Working Distance	8 mm (0.21 in.)
Maximum Operating Temperature	80 °C (176 °F); Non-immersive use

Spectrometer Note: The start range of Raman shift is dependent on the selected probe.

Laser Note: The 1064 / 860 nm laser product is built as per the specifications of the customer and sold solely as a component (or a module) to incorporate into other equipment. The purchaser assumes responsibility to comply with US FDA21 CFR 1040 with regard to the use of this laser and its introduction into commerce.