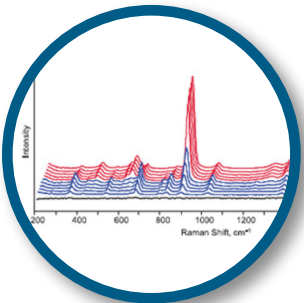
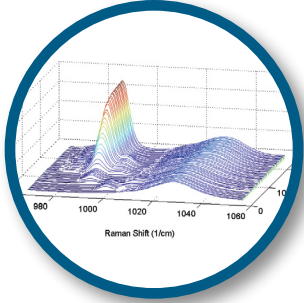


RAMANRXN1™ Instrument



The **RAMANRXN1™** instrument represents Kaiser's analyzer for research. This instrument is a compact, easy to use, turn-key Raman spectrometer system that incorporates the laser, spectrograph, and CCD in a compact base module. The **RAMANRXN1™** instrument is based on Kaiser's award winning f/1.8 axial transmissive spectrograph. The f/1.8 design is optically efficient and allows more than six times the light to be collected than traditional spectrograph designs. In conjunction with a high-performance CCD detector and Kaiser's proprietary HoloPlex™ grating technology, the **RAMANRXN1™** spectrometer is capable of providing fast, simultaneous, full spectral collection of Raman data at high spectral resolution.

The **RAMANRXN1™** spectrometer allows simple grating replacement using pre-aligned grating modules. The capability to change gratings allows users experimental flexibility for lower or higher resolution spectroscopy, or to use gratings designed for specific application. The glass-encapsulated holographic transmission design provides experimental high-performance and operator ruggedness to the spectrograph.

Sampling optimization is provided by utilizing high-performance fiber-coupled accessories; the AirHead™ for gas-phase monitoring, the MR Probe probe head for *in situ* liquids or non-contact solids monitoring, the MK II Probe Head for Raman depolarization ratio studies, the Raman Microprobe for sample visualization, mapping, or imaging, and the Analytical Sample Compartment for routine laboratory or quality assurance purposes. Fiber optic sampling and probe technologies enable the **RAMANRXN1™** instrument to measure research grade quality spectra whether the samples are static laboratory-based samples, or real time *in situ* liquid samples ranging in volumes from milli-liters to gallons.

When used in conjunction with Kaiser's Raman Calibration Accessory and protocols, the **RAMANRXN1™** instrument can produce wavelength independent databases, chemical models, and band assignments that may be transferred between instruments and laboratories. The **RAMANRXN1™** instrument design leads to an easy-to-use, high-stability workhorse research instrument capable of producing the same results day in and day out, without the need of an optical alignment expert to generate research Raman performance.

Functions

- Research & Development
- Quality Assurance / Quality Control
- Reaction Chemistry, Optimization, & Yields

System Benefits

- Specificity of mid-IR, but with the Ease of Sampling of Near-IR
- No Sample Preparation Required
- Accurate Transfer of Calibration Models from Lab-to-Pilot-to-Plant Systems
- Simple to Learn, Easy to Use
- Visualize Chemical Trends

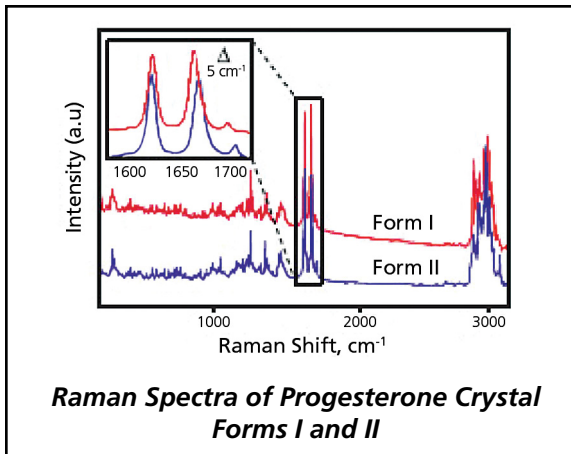


KAISER
OPTICAL SYSTEMS, INC.

An Endress+Hauser Company

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Compact, Easy to Use Research Raman Spectrometer



Instrument Features

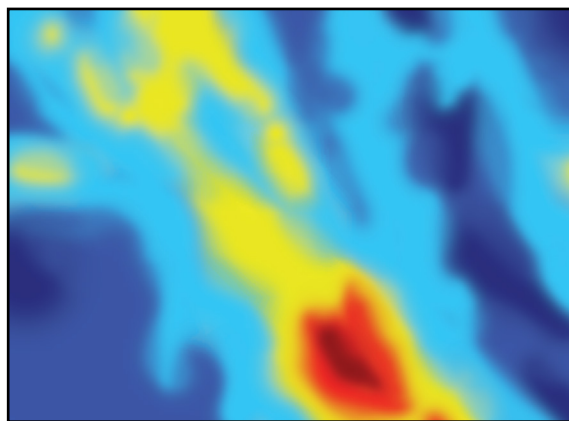
- 532 and 785nm Excitation Versions (options)
- Other Wavelengths by Request
- High Quality TE-cooled CCD
- Replaceable Grating Modules (full coverage, low resolution, high resolution)
- Fiber-optically Coupled to Sampling Accessories for System Robustness
- Raman Calibration and Verification Accessory (option)

Why Raman?

- Fast Measurements
- Sharp Spectral Peaks for Qualitative and Quantitative Analysis
- Univariate or Multivariate Prediction Mode

Sampling Options

- Fiber-optic Probe Head for *In situ*, Real-time Analysis
- Optimized for Low-wavenumber Performance
- Reaction Analysis Software
- Alloy C276 Immersion Optics: Temps to 450°C, Pressures to 3000 PSI
- High Pressure Extruder Optic for *In situ* Extrusion Monitoring
- Non-contact Optics: Microns to 17 Inches
- Routine Analysis Sample Compartment (RXN-ASC) with Sampling Kit
- Microprobe and Imaging Option



Raman image of a single polymer in a copolymer matrix

RAMANRXN1™

Specifications:

Measurement:	Raman
Laser Wavelength:	532nm, 785nm
Spectral Coverage:	100-4375 cm ⁻¹ (532nm), 100-3425 cm ⁻¹ (785nm)

Environmental:

Temperature:	20°C (Min) / 25°C (Max)
Relative Humidity:	20-80% Noncondensing



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Electrical Data - Base Unit:

Input Voltage: 110-240 VAC, 50-60Hz Standard

Max Power: <200 Watts Max (startup),
<135 Watts Typical

Warm-up time: 20 Mins

User Interface: Approved PC Operating
Windows 7, 32 Bit Professional

Physical - Base Unit:

Enclosure Type: Painted Steel, Aluminum, and Plastic

Dimensions: 23" x 17.63" x 8"
(width x length x height) (58 x 45 x 20 cm)

Weight: 61 lbs. (28 kg)



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