# Raman Spectroscopy

## Reliable, Non-Destructive Measurement

Ocean Optics offers a complete range of fully integrated Raman systems for handheld, laboratory and educational applications. Most of our Raman systems include a high-sensitivity spectrometer, a 532 nm or 785 nm laser, operating software and sampling accessories for probe- or cuvette-based analysis. Systems are compatible and portable.

Raman analysis is nondestructive, requires very limited sample preparation, and allows for sample volumes in the microliter range. In fact, Raman techniques can be used to acquire data through vial walls, pill pack windows and bags -- packaging forms that are frequently used in the biomedical and pharmaceutical industries.

Our Raman spectrometers are especially useful for identifying spectral features, or fingerprints, that are often distinct and clearly separated.

We offer off-the-shelf and modular approaches, sampling accessories for a variety of environments, cuvettes for solution measurements and a full range of probes for measuring solids and liquids.


| Model | PeakSeeker 785 | PeakSeeker Pro 785E | PeakSeeker Pro 785 | PeakSeeker Pro 532 | PinPointer | QE65000 for Raman |
|---|---|---|---|---|---|---|
| Laser Wavelength | 785 nm | 785 nm | 785 nm | 532 nm | 785 nm | 532 or 785 nm |
| System | Diode Laser<br>Spectrometer<br>Probe<br>Laptop PC<br>Software | Diode Laser<br>Spectrometer<br>Probe<br>Laptop PC<br>Software | Diode Laser<br>Spectrometer<br>Probe<br>Laptop PC<br>Software | Diode Laser<br>Spectrometer<br>Probe<br>Laptop PC<br>Software | Diode Laser<br>Spectrometer<br>Probe<br>Software<br>Embedded Computer with LCD Display | Choose from<br>Laser<br>Probes<br>Sample Holders |
| Applications | Teaching labs, general purpose, moderate resolution Raman applications | Lab, industrial (pharmaceuticals), forensics | Lab, industrial (pharmaceuticals), forensics | Lab, industrial, security | Handheld, field-portable for on-site QC, forensics and security/inspection | General-purpose lab set-ups (aqueous solutions, powders, gels, tablets and surface media) |
| Item Code: | RAM-PKR-785 | RAM-PRO-785E | RAM-PRO-785 | RAM-PRO-532 | RAM-PINPTR-785 | QE65000, QE65000-RAMAN |

### Technical Tip

Raman spectroscopy offers a number of benefits for testing and characterization. Like regular IR spectroscopy, it is rapid and non-destructive. Raman can capture data from a sample contained in plastic or other materials that are optically transparent to the wavelengths of interest.

Unlike IR spectroscopy, which falls spectrally within the water window, Raman spectroscopy can be used to capture data on aqueous samples or samples with high moisture content. And, with the emergence of economical diode lasers in the NIR spectral region, Raman is a more attractive option for range of applications than ever before.

So, how to select between a Raman system with a 785 nm laser and one with a 532 nm laser? The 785 nm version is designed to minimize the fluorescence signal, making it useful for chemical identification and fingerprinting. What's more, the 785 nm version generates well defined peaks for use in chemometric analysis and can provide semi-quantitative data. Other wavelength options are available.

For applications where C-OH structural information is important, the 532 nm version is your best option. Such measurements are typical of biological and pharmaceutical sample analysis, where researchers study characteristics of active ingredients, binders, fillers and excipients.

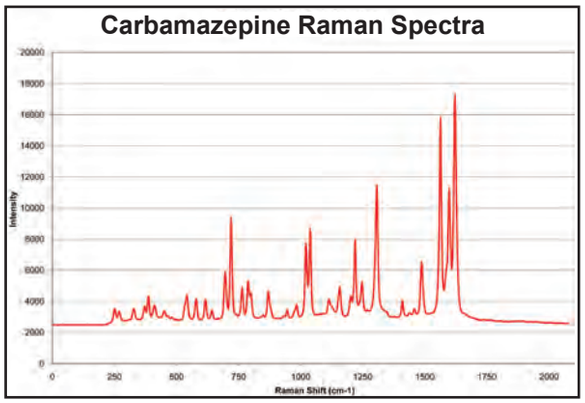
# Benchtop Raman Systems

## Meet the PeakSeeker Pro™ Family


The PeakSeeker Pro family of benchtop Raman systems is accurate, cost-effective and easy to use.

These remarkable instruments use TE-cooled, high-efficiency CCD detector arrays and can be configured with either a 532 nm or 785 nm wavelength excitation laser.

PeakSeeker Pro is extremely versatile for measuring multiple sample types and comes with sampling accessories, software and USB connectivity that enables true plug and play operation.




### Versatility

You can sample solids, liquids and powders -- even when samples are inside transparent packaging and containers such as bags, bottles and vials.

### Sensitivity

The PeakSeeker Pro fully meets the stringent requirements of USP Monograph 1120 for resolution, sensitivity and stability. The detector array is cooled to -20 ºC. Deep blocking laser rejection filters obstruct Rayleigh scatter and isolate Raman scatter for valuable molecular analysis.

### Portability

The spectrometer is portable and lightweight. Rugged construction and ergonomic design allow it to be carried just about anywhere and set up for immediate use.

### Simplicity

Each PeakSeeker Pro system includes a notebook computer pre-loaded with RSIQ™ software for true point-and-click operation. Sample spectra are acquired within seconds.

| Specifications | RAM-PKR-785 | RAM-PRO-785 | RAM-PRO-785E | RAM-PRO-532 |
|---|---|---|---|---|
| Laser wavelength: | 785 nm | 785 nm | 785 nm | 532 nm |
| Laser power: | 5-300 mW | 5-300 mW | 5-300 mW | 100 mW |
| Spectral range, Raman shift: | 200-3000 cm-1 | 200-2000 cm-1 | 200-3900 cm-1 | 200-4500 cm-1 |
| Resolution: | ~12 cm-1 | 6 cm-1 | 10 cm-1 | 10 cm-1 |
| Signal to Noise Ratio: | 250:1 (at full signal) | 1000:1 (at full signal) | 1000:1 (at full signal) | 1000:1 (at full signal) |
| Wavelength stability: | <1 cm-1 in 12 hours | <1 cm-1 in 12 hours | <1 cm-1 in 12 hours | <1 cm-1 in 12 hours |
| Photometric stability: | <4% in 12 hours | <1% in 12 hours | <1% in 12 hours | <1% in 12 hours |
| Optics: | 0.22 NA, sample spot size 0.1-.03 mm | 0.22 NA, sample spot size 0.1-.03 mm | 0.22 NA, sample spot size 0.1-.03 mm | 0.22 NA, sample spot size 0.1-.03 mm |
| Power input: | 15 VDC from power adapter input = 11/240 VAC @ 50/60 Hz | 15 VDC from power adapter input = 11/240 VAC @ 50/60 Hz | 15 VDC from power adapter input = 11/240 VAC @ 50/60 Hz | 15 VDC from power adapter input = 11/240 VAC @ 50/60 Hz |
| Operating temperature: | -25 ºC-+45 ºC | -25 ºC-+45 ºC | -25 ºC-+45 ºC | -25 ºC-+45 ºC |
| Dimensions (cm): | 36 x 29 x 11 | 36 x 29 x 11 | 36 x 29 x 11 | 36 x 29 x 11 |
| Weight (kg): | 3.6 | 3.6 | 3.6 | 3.6 |