SPECTRA SOLUTIONS, INC.
Innovation through Spectroscopy

Raman Process Probe

- **Swageable focusing, sealed lens shaft ideal for liquid immersion, pressure and vacuum applications**
- **High collection efficiency and effective laser line filtering**
- **Fused silica optics**
- **Fixed, single stainless steel optical fiber cable bifurcated at the distal end**

High throughput optics and a backscattering probe optical design are incorporated into our compact Raman probes, resulting in a highly efficient probe for Raman measurements.

- **Ideal for** Raman measurements of various samples including solids, liquids and gases
- **Available in** various laser excitation wavelengths in the visible to the near-infrared.
- **Narrow bandwidth bandpass filter** is utilized in the excitation optical train to filter out unwanted silica background generated by the excitation laser in the optical fiber.
- **High Rayleigh rejection long-pass edge blocking filter** (optical density >10^{-6}) is also incorporated in the collection optical train to prevent the laser line from being transmitted into the collection optical fiber.

FEATURES

- **Fully sealed probe** that can be used for very demanding Raman measurements, such as direct liquid measurements, pressure and vacuum applications.
- The probe body is **encased in a hard anodized aluminum housing** and fully sealed.
- The focusing lens shaft is made of **stainless steel with a step fused silica window compression** sealed at the tip with a Kalrezâ o-ring. Other o-rings are available including teflon and gold.
- The **focusing lens** is located inside the tube and behind the optical window.
- **A single stainless steel armor cable** encases both probe optical fibers and split at the distal end into single fiber cables.

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Specifications

Excitation Wavelength	405, 514, 532, 633, 670, 671, 785, 808 nm. Other wavelengths available
Spectral Range	100-4000 cm^{-1} (The ultimate range is spectrograph/detector dependent.)
Focal Length	9 mm standard (12, 15 & 18 mm optional) Note: Probe efficiency decreases with increasing focal length)
Spot Diameter at the Sample	100 microns for standard fiber (fiber core dependent)
Working Distance	7 mm for standard lens
Numerical Aperture	0.22 with standard lens
Probe Body Dimensions	1.3” diameter x 4.5” length
Probe Body Material	Hard anodized aluminum
Probe Body Seal	Buna-n o-ring
Probe Shaft Dimensions	3/8” diameter x 2” length (other lengths available)
Probe Shaft Tip Seal	Kalrez o-ring
Probe Shaft Material	316 stainless steel (other metals available)
Probe Shaft Window	fused silica or sapphire
Filter Efficiency	OD >6 at laser wavelength
Operating Temperature	0-325 ºC
Maximum Operating Pressure	6000 psi
Fiber Configuration	100/200 micron core standard, custom optical fiber cores available
Fiber Optic Cable	5 m reinforced stainless steel armor cable standard, custom lengths available
Coupling System	FC connector standard, SMA connector also available
Part Number	SPS-RP

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