

High Throughput Raman Probe



Innovative Photonic Solutions (IPS) is proud to introduce our Raman probe optimized to mate with IPS' multimode fiber coupled lasers to offer higher throughput and lower stray light. This probe has been designed to optimize collection efficiency for both single- and dual-wavelength laser sources which are utilized to capture both the fingerprint and stretch-bands of the Raman spectrum with a single spectrometer. The probe has a flexible design that allows IPS to optimize collection efficiency for low or high f# spectrometers, and customers can select the excitation wavelength, Raman cut-on wavenumber, sample working distance, and excitation & collection fiber type.

Standard Wavelengths

Applications

This Raman probe is designed for OEM Integration and is ideal for:

- High Resolution Raman Spectroscopy
- Portable Raman
- Process Raman

Key Features

- High Throughput
- Compact Design
- Removable Fibers
- Configurable Probe tips for both laboratory and immersion applications
- Embedded Teflon standard in shutter for reference measurement.
- Configurable working distance
- Configurable excitation optics of optimizing NA (0.18-0.55) for different excitation fibers.
- Configurable collection optics of optimizing NA (0.18-0.55) for different f# spectrometers.

532nm	785nm
638nm	860/1064nm
680/785nm	1064 nm

Specifications

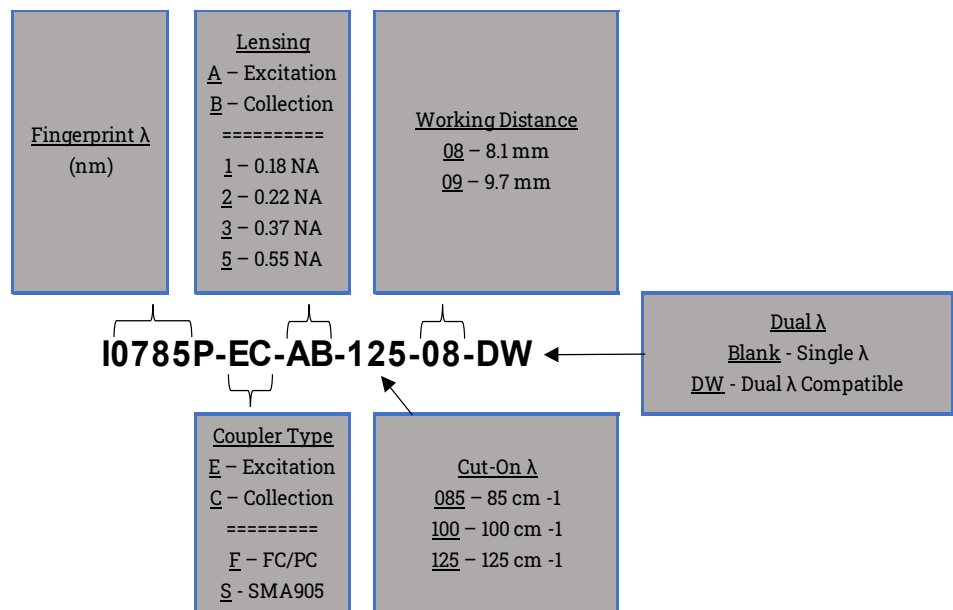


Parameter	Unit
Excitation Connector	FC/PC or SMA bulkhead connector (Call for options to match your spectrometer)
Collection Connector	FC/PC or SMA bulkhead connector (Call for options to match your spectrometer)
Excitation Fiber	105µm diameter, 0.22NA, FC/PC to FC/PC 1 meter length
Collection Fiber	200µm diameter, 0.22NA, SMA to SMA 1 meter length
Available Wavelengths	532 nm, 638 nm, 785 nm, and 1064 nm
Cut-on	85 cm ⁻¹ , 100 cm ⁻¹ or 125 cm ⁻¹
Shaft Material	316L Stainless Steel Standard
Fiber Bend Radius	2 Inches
Working Distances	8.1 mm & 9.7mm working distance standard (+/- 0.5mm) - Custom distances available upon request.
Operating Temperature	0 °C to + 50 °C
Storage Temperature	-20 °C to 80 °C
Humidity	0-80% non-condensing

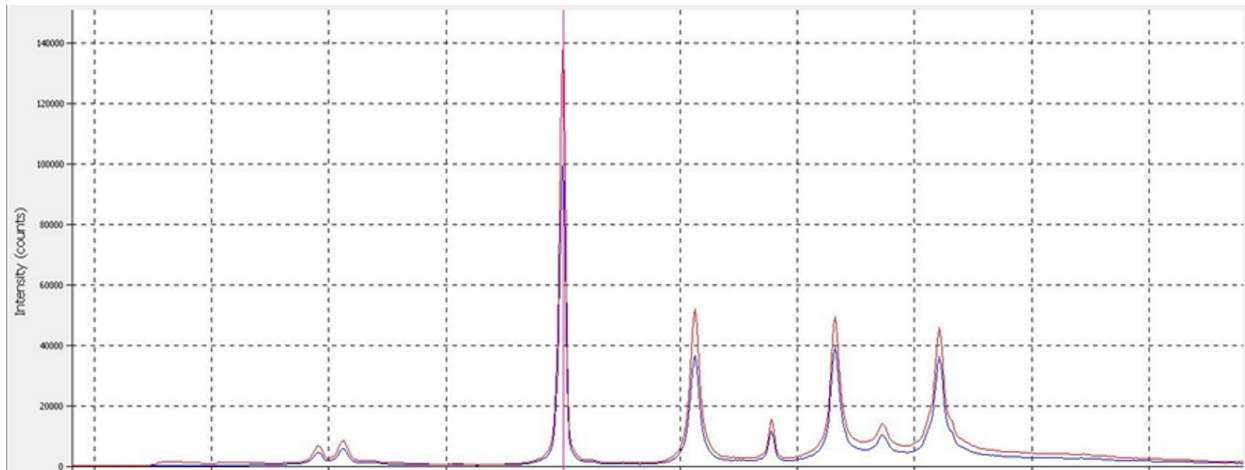
Raman Concatenation

Issues with strong fluorescence limit the use of Raman spectroscopy techniques and often force the use of longer excitation wavelengths to minimize the fluorescence background. The use of longer excitation wavelengths shifts the stretch band of the Raman spectra into low efficiency regions of the detection system and therefore forces the use of expensive deep cooled cameras and/or the sacrifice of long wavenumber spectral information. Raman concatenation is a technique that offers the ability to use longer excitation wavelengths and still collect the entire Raman spectrum without the need for expensive detection systems and/or long integration times, and at no increase in noise. Raman spectra are captured separately from each of the two excitation wavelengths and subsequently concatenated, or stitched together, to provide a single spectral scan encompassing the entire range of data, including the fingerprint and stretch regions. Furthermore, this technique offers both increased selectivity and enhanced discrimination between spectral features in the long wavenumber region of the spectra.

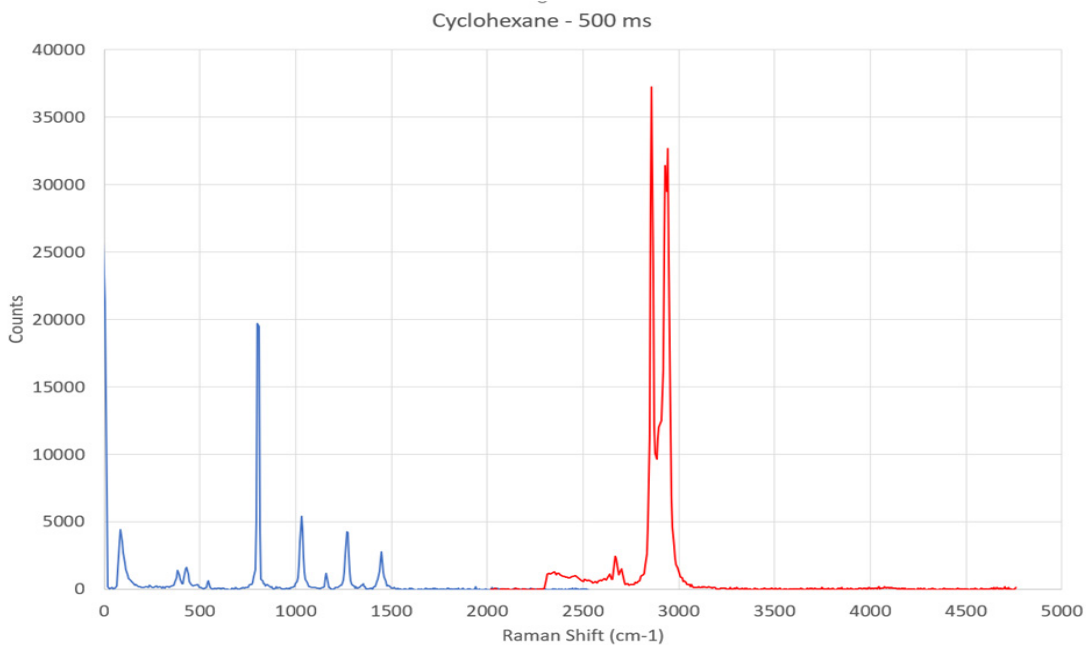
Part Schema



Selected Data



IPS Raman probe is shown in Red leading Raman Probe product shown in blue

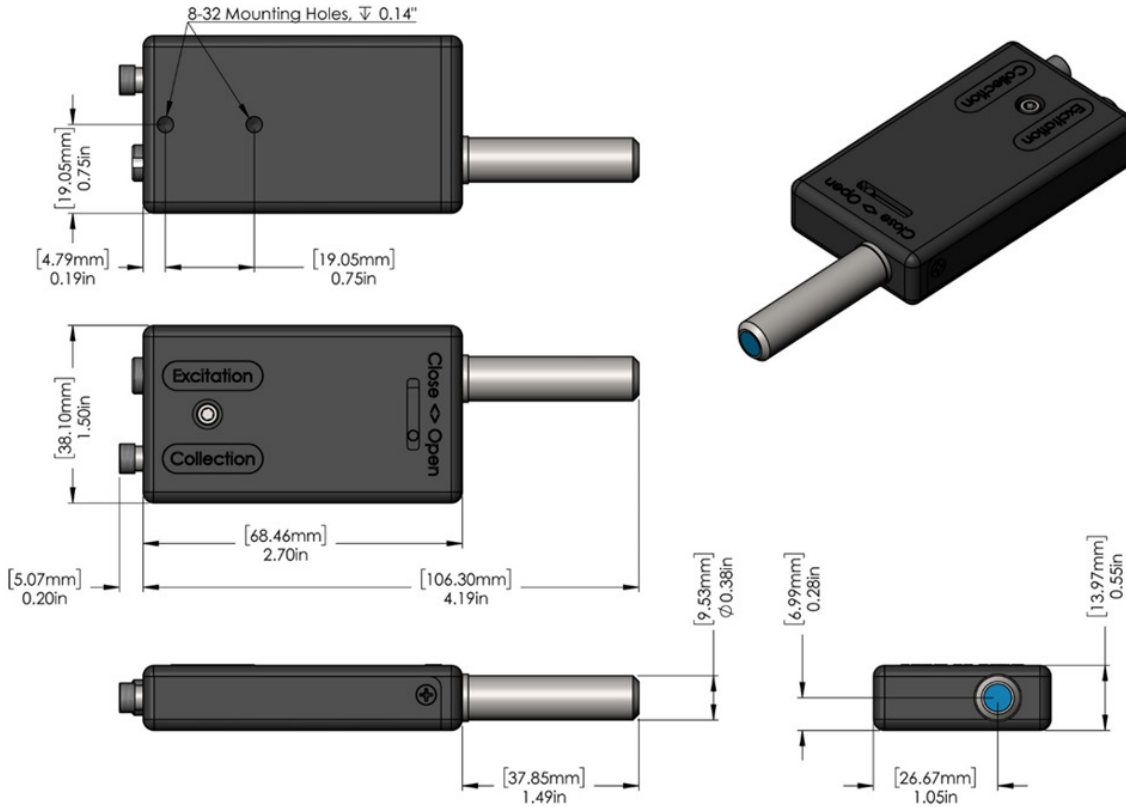


Raman concatenated spectrum (dual wavelength, single spectrometer) of cyclohexane

Custom Capability

- Multiple excitation wavelengths offered (808 nm, 830 nm available on request)
- SMA / FC-PC collection and excitation fiber connectors.
- Multiple cut-on wavelengths offered.
- Multiple excitation and collection numerical aperture collimation optics and fibers available.
- Single and Dual wavelength designs available.
- Immersion Probe Tips Available on Request.

Mechanical Drawings



Operational Notes

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