

Turn-key Integrated Raman Probe

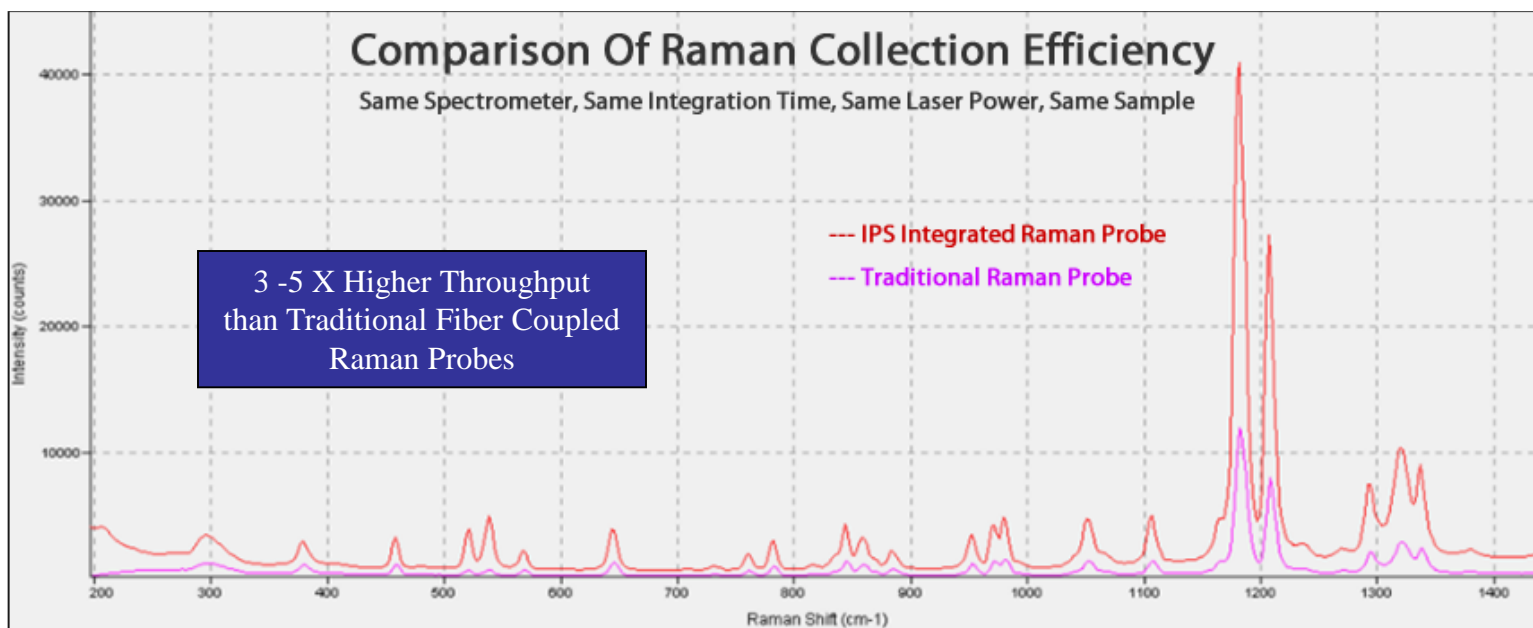


Features

- 3-5X Higher Throughput than Standard Raman Probes (sample dependent)
- 785 nm Standard Wavelength Stabilized Excitation Source (514.5 nm, 830 nm, 1064 nm available)
- High Throughput Optical Design with 65cm^{-1} Cut-on
- User Friendly Ergonomic Design
- Removable Distance Regulator¹ for Easy Sampling
- OEM Version Available

Innovative Photonic Solutions (IPS) is proud to introduce an ultra-high throughput Integrated Raman Probe. This novel device includes an integrated wavelength stabilized laser source with Raman filter packs, beam shaping optics and high efficiency Raman spectra collection optics. The probe interfaces with any fiber coupled spectrometer and simplifies operation and set-up.

The Integrated Raman Probe incorporates our wavelength stabilized hybrid external cavity laser (HECL) with a proprietary optical design to offer unmatched performance (typically 3 - 5x higher collection efficiency over traditional Raman probes). IPS's Integrated Raman Probe also comes complete with a UL/CE, and IEC compliant control box - providing a variety of power control options including modulation capability (TTL & analog) and a USB computer interface.



1 – Distance regulator available only for 9 mm working distance. 9 mm working distance is optimal if using IPS sample holder.

Integrated Raman Probe Technology & Specifications

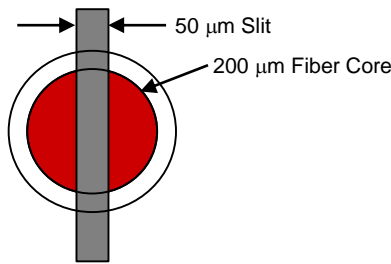
Underlying Technology

IPS's Integrated Raman Probe offers higher collection efficiency as compared to traditional fiber probe approaches by optimizing the probe design in the following manner:

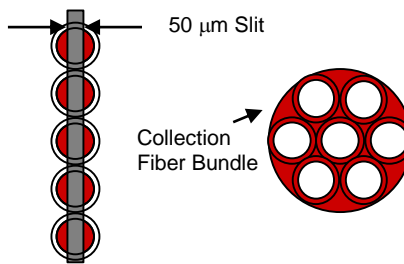
- IPS integrates the laser directly inside the probe head, eliminates fiber coupling losses and allows for beam shaping in order to optimize both laser power and power density on the sample which maximizes Raman signal.
- IPS utilizes a custom designed rectangular core fiber which increases both the coupling efficiency into both the fiber and the spectrometer.

Comparison of Loss at Fiber/Slit Interface & at Entrance to Collection Fiber (circle to line)

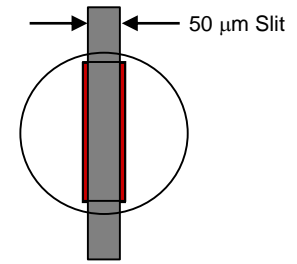
Traditional 200 micron core Fiber Probe



Circle to Line Collection



IPS Integrated Raman Probe Collection



Raman signal is vignettted (thrown away) or not collected in red shaded regions detailed above

Parameter	Unit
Excitation	Integral 785 nm wavelength stabilized laser <0.15 nm FWHM bandwidth (514.5 nm, 830 nm and 1064 nm available)
Collection	1.5 m long proprietary high throughput fiber
Cut-on	65 cm ⁻¹ cut-on
Electronic Connection	DB9 cable with safety interlock
Power Control	Manual power adjustment knob, Analog / TTL modulation via BNC connector, or MicroUSB
Power Supply	3 - 5 A max, 5VDC
Shaft Material	316L Stainless Steel
Fiber Bend Radius	4 inches
Working distances	3 mm, 4 mm, 6.5 mm, and 9 mm standard (+/- 0.5 nm) - Custom distances available upon request
Operating Temperature	15 degrees C to 35 degrees C
Storage Temperature	- 20 degrees C to + 80 degrees C
Humidity	0 - 80% non-condensing

Parameter	Unit	Min	Typ	Max	Notes
Output power stability	%		± 1		
Peak wavelength	nm	784.5	785	785.5	
3 dB bandwidth (FWHM)	nm		0.1	0.15	
Operating Temperature Range (Case)	Deg C	15		35	Case Temperature
Power Consumption	W		3	7	Case temp between 15 and 35 deg C
Wavelength Stability	Seconds			180	Cold Start - to < 1 wavenumber
				1	Warm Start - to < 1 wavenumber
				3	Warm Start - to < 0.1 wavenumber

Standard 785 nm Integrated Raman Probes

Min. Power (mW)	Laser Type	Connector	Working Distance	Part Number
100	Single-Mode	SMA	3 mm	I0785SP100-T030S
			4 mm	I0785SP100-T040S
			6.5 mm	I0785SP100-T065S
			9 mm	I0785SP100-T090S
350	Multi-Mode	SMA	3 mm	I0785MP350-T030S
			4 mm	I0785MP350-T040S
			6.5 mm	I0785MP350-T065S
			9 mm	I0785MP350-T090S
450	Multi-Mode	SMA	3 mm	I0785MP450-T030S
			4 mm	I0785MP450-T040S
			6.5 mm	I0785MP450-T065S
			9 mm	I0785MP450-T090S

Part Numbering Schema

