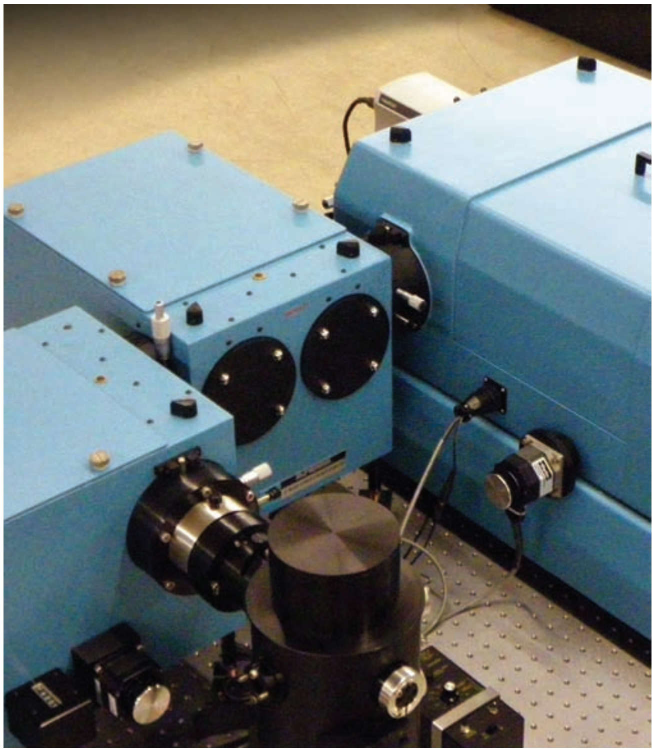
RAMAN COMMANDER TRIPLE SPECTROMETER



Work closer to Raleigh scatter with the Raman Commander. Fast f/4.8 aperture collects more precious photons. All reflective optical system works fine in the UV. The double subtractive 350mm focal length pre- monochromator is efficient. Many gratings are available and capable of getting you to within 20cm-1 and considerably less, depending on wavelength region and instrument settings.
The spectrometer stage can be a fast f/4.7 670mm focal length instrument when you need the most light. Alternately, specify the f/9.4 1330mm focal length instrument. The latter, McPherson Model 209, provides wonderful symmetrical line profiles and good spectral resolution of 0.3cm-1.
The Raman Commander is a research tool everyone can use. Reflective optics with optimized coatings are efficient in the ultraviolet (UV.) By pass the double subtractive pre-monochromator when the high resolution spectrograph stage alone fits the application. User friendly, accessible spectrometer ports and slit assemblies readily adapt to fiber accessories, macro sample chambers (refer to McPherson Model 125) as well as various microscope or reflective objective sample mounts.

Specifications

Focal Length	First stage: 350 mm, Second stage: 350 mm, Third stage: 670 mm (optional 1.33m)
Slit Locations	Axial or Lateral. Second entrance direct to Spectrograph stage. Double pre monochromator can also be used as stand alone double or single.
Slits	0.01 to 4 mm wide; 2 to 20 mm high
Slits (Subtractive intermediate)	0.025 to 10 mm wide; 0.025 to 10 mm high
Slits (Spectrograph entrance)	0.01 to 4 mm wide; 2 to 20 mm high
f / No.	f/4.8 (optional 9.4)
Dispersion	0.83nm/mm (optional 0.41nm/mm) with 1800g/mm, Spectrograph stage.
Resolution	1 cm^-1 at 500nm; 4 cm^-1 at 244nm (optional 0.3cm^-1 at 500nm; 1.2cm^-1 at 244nm)
Grating Size	(2X) 68*68mm and (1X) 120 x 140mm; select from many gratings including original (master) high fidelity holographic gratings
Drive Mechanism	Sine bar
Step Size	0.0002 nm
Wavelength Accuracy	+/-0.2-nm (on counter, with 1200 G/mm grating)
Wavelength Reproducibility	+/- 0.005 nm (with 1200 G/mm grating)
Focal Plane	50-mm, multiply dispersion by the width of detector for range
Wavelength Range	refer to grating of interest for range

To work through a wide range, eg. 185 to 1000nm efficiently, more than one grating may be required
**1 nanometer corresponds to about 170cm^{-1} at 240nm; 40cm^{-1} at 500nm; 15cm^{-1} at 750nm
*** Resolution relative to 500nm, scanned with 10um wide slits

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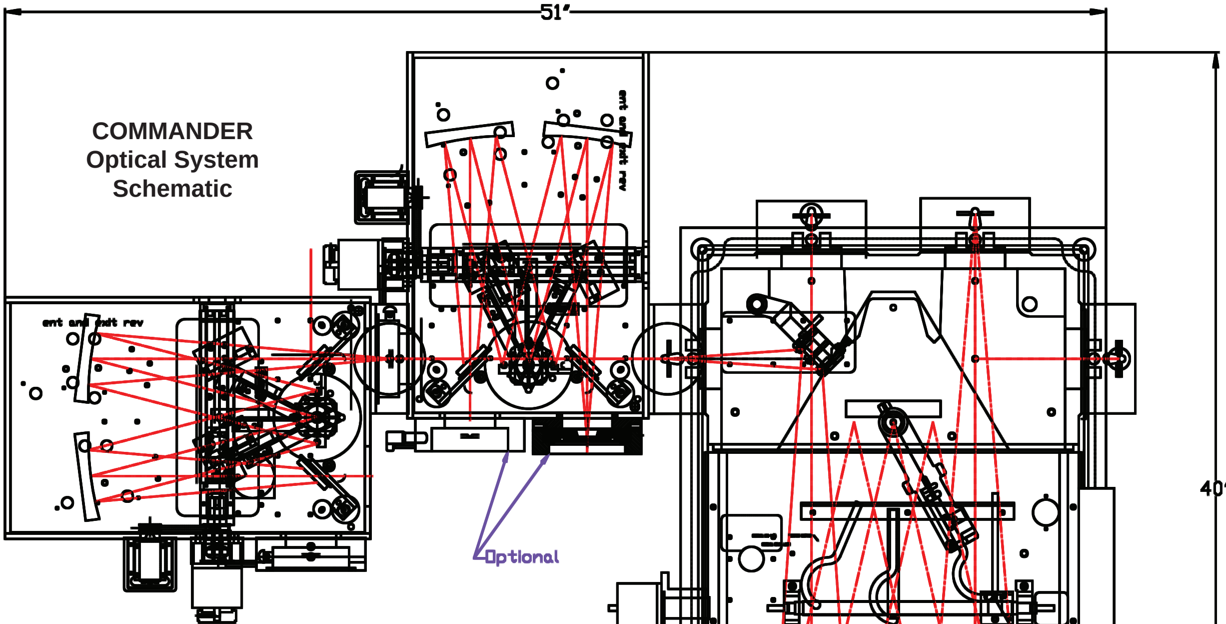
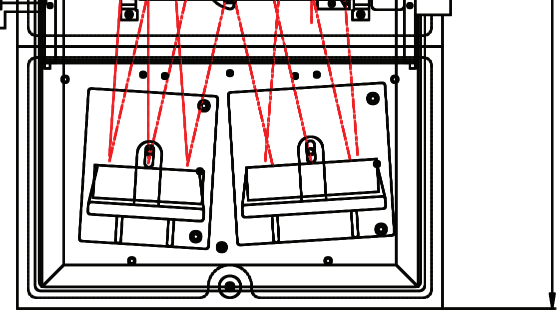




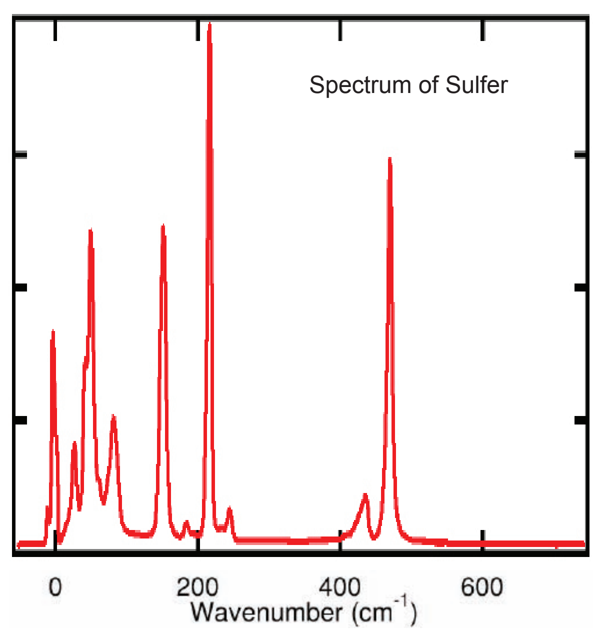
Exclusively reflective optics enables the Commanders' wide wavelength range without refocusing. The high performance subtractive double pre-monochromator selects band and determines edge formation. The pre-monochromator utilizes imaging optics for best efficiency. The slits are continuously adjustable, and together with the high precision drive system, flexibly tune the image location and optimize rejection. Diffraction gratings for the Commander may be ruled or holographic types. Masterpiece holographic gratings are available and exhibit high fidelity surfaces reducing scatter utmost.

f/4.7 Commander Performance

Grating	Mechanical Range (nm)	CCD Coverage[1] (nm)	Resolution[2] (cm-1)
300	0 to 6000	126	4.8
600	0 to 3000	63	2.4
1200	0 to 1500	32	1.2
1800	0 to 1000	21	0.8
2400	0 to 750	16	0.7
3600	0 to 500	11	0.5

f/9.4 Commander Performance

Grating	Mechanical Range (nm)	CCD Coverage[1] (nm)	Resolution[2] (cm-1)
300	0 to 6000	66	1.6
600	0 to 3000	33	0.8
1200	0 to 1500	16	0.4
1800	0 to 1000	11	0.3
2400	0 to 750	8	0.2
3600	0 to 500	5	0.16



[1] 1 nanometer corresponds to about 170cm^{-1} at 240nm; 40cm^{-1} at 500nm; 15cm^{-1} at 750nm

[2] Resolution relative to 500nm, scanned with 10um wide slits

Note: To work through a wide range, eg. 185 to 1000nm efficiently, more than one grating may be required