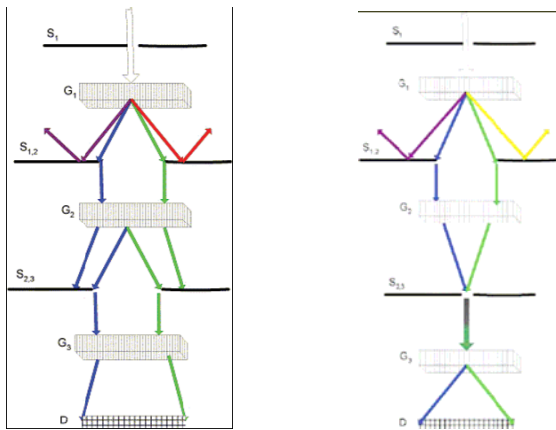


# STR-555/557/777

# Triple Raman Spectrometer

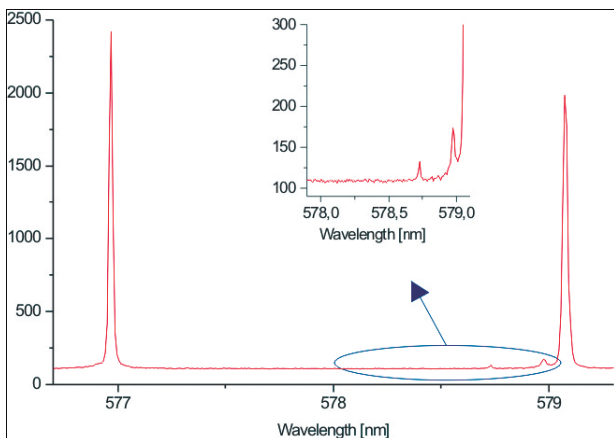
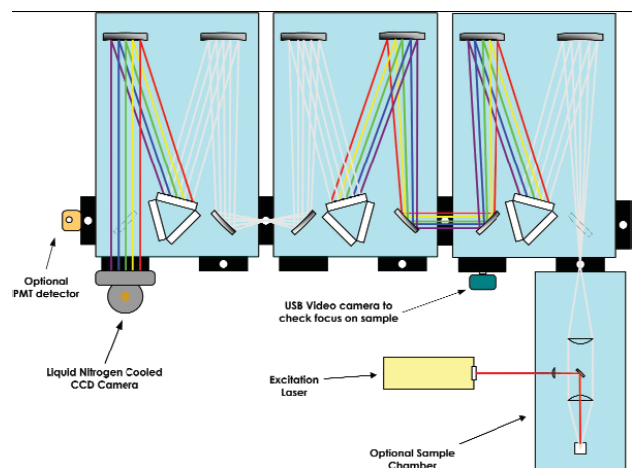
## Low Frequency Raman Bands are Measurable as Close as 5cm<sup>-1</sup> to the Laser Line

The stray light rejection of the triple subtractive mode enables low frequency measurements down to as close as 5cm<sup>-1</sup> to the Rayleigh line. The resolution of the triple additive mode allows for spectral resolutions of 0.008nm (0.22cm<sup>-1</sup>) @ 600nm with three 1800 g/mm gratings. Even higher resolutions are attainable using higher groove density gratings. The STR-777 has the highest resolution of any commercially available triple spectrometer in both additive and subtractive mode.

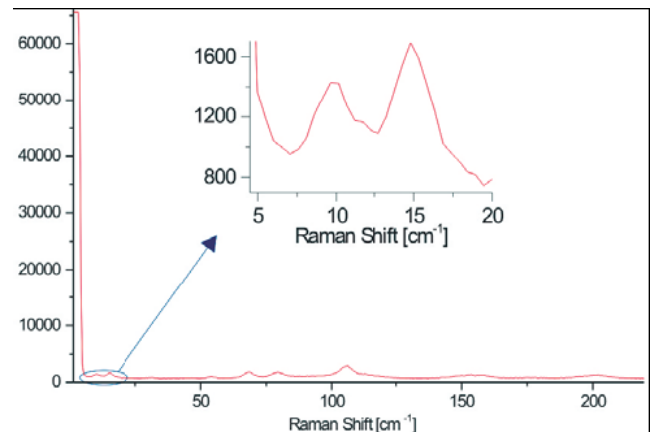


**Additive mode:** the gratings on all 3 stages contribute to positive light dispersion. (left figure)

**Subtractive mode:** Excellent stray light rejection with a CCD detector can be achieved when subtractive mode is used. (right figure)



**Additive mode high resolution data**



**Subtractive mode low frequency data**

## STR-555/557/777 Specification of Triple Raman System

### Laser

HeCd-X/Y	DL532-50, 100	Ar-50,100,2W	HeNe-17, 35	DL785-50,100,300
He Cd Laser X:325nm, 10,20,35,50mW Y:442nm, 40,55,75mW	Diode Green Laser 532nm 50, 100mW	Air Coolde Ar <sup>+</sup> Laser 488nm: B, 514nm: G 50, 100mW, 2W	He-Ne Laser 633nm 17, 35mW	Diode Near-IR Laser 785nm 50,100,300mW

Standard items with the laser are 3m optical fiber and laser to fiber coupler. Please consult us for additional specification.

Option: SDT: Step down transformer 440VAC -> 220VAC, 3 phase, 50/60Hz

### Imaging Spectrograph

	STR555	STR557	STR777
1 <sup>st</sup> , 2 <sup>nd</sup> Stage	Additive, Subtractive Mode: 500mm FL, f/5.9	Additive, Subtractive Mode: 500mm FL, f/5.9	Additive, Subtractive Mode: 750mm FL, f/9.8
3 <sup>rd</sup> Stage	500mm FL, f/5.9	750mm FL, f/9.8	750mm FL, f/9.8
Resolution*	Subtractive: 0.59cm <sup>-1</sup> Additive: 0.21cm <sup>-1</sup>	Subtractive: 0.39cm <sup>-1</sup> Additive: 0.17cm <sup>-1</sup>	Subtractive: 0.39cm <sup>-1</sup> Additive: 0.13cm <sup>-1</sup>
Low frequency	5cm <sup>-1</sup> (2cm <sup>-1</sup> at PMT)	5cm <sup>-1</sup> (2cm <sup>-1</sup> at PMT)	5cm <sup>-1</sup> (2cm <sup>-1</sup> at PMT)

Common items to the above are aberration corrected Czerny-Turner single spectrograph, 3 gratings (max. 9 gratings) and a Windows based computer with a data collection/processing software. Entrance slit : 10um ~ 3.0mm, RS232C/USB, optical fiber 3m.

Spectrum rangal: 200~2000nm (depend on grating), Raman shift : 5 ~ 5000cm<sup>-1</sup> L: w/o Grams 32/Al<sup>TM</sup> data processing software \* 1800g @500nm

### Cooled CCD camera

	100/400-F,B,B eXcelon,BR	256E	DU401/420A-UV,OE,BV,BR-DD	2KF,2KB(UV),2KB eXcelon
format	1340 X 100 (400) pixels, 20x20μm	1024 X 256 pixels, 26x26μm	401:1024 X 128 pixels, 26x26μm 420:1024 X 256 pixels, 26x26μm	2048 X 512 pixels, 13.5x13.5μm
QE	F: 45% B,B_eXcelon: 95% BR: 90%	E : 60%	UV: 45% OE: 55% BV, BR-DD: 90%	2KF: 40% 2KB,2KB eXcelon: 95%
Dark noise (e-/pixel/sec)	0.0025 typ for 100B, B_eXcelon 0.02 typ for 100BR at -80°C	0.003 typ for 256E at -75°C	0.002 typ for UV at -70°C 0.005 typ for BV at -70°C 0.003 typ for BR-DD at -90°C	0.001 typ at -75°C
Read noise	3 e- rms typ at 100KHz	6 e- rms typ at 100KHz	5 e- rms typ at 50KHz	3.5 e- rms typ at 100KHz
TE cooling	-75°C :400, -80°C: 100	-75°C	DU:-70°C(-85°C), DU-BR-DD:-80°C (-100°C)	-75°C

CCD type F/UV: front illuminated(FI) /w UV coat, B/BV:back illuminated(BI,BI\_eXcelon), BR-DD:BI deep depletion(DD), E: open electrode

ADC 16 bit, USB, wavelength range: 200-1050nm /w UV coat option, , TE cooling temperature: ( ) option

TE-PMT: Thermal electric cooling PMT detector (single channel) with housing, power supply, data collection unit

### Raman Sampling accessories

Optical microscope ST-BX51*	Remote Raman Probe RPM-XX
Confocal Raman optical microscope with < 1μm spatial resolution using x100 objective lens Raman probe with Raman filter set (1 wavelength)* <sup>2</sup> , halogen light (ref/trans), Objective lens : x10, x20LWD (WD=25mm), x40X(Near UV), x50, x100, CCD color video camera	>25mm working distance, spot size < 5um Raman filter set (1 wavelength)* <sup>2</sup>

Raman filter set is common for both optical microscope and remote Raman probe and is easily exchangeable to other laser lines.

\*M option : motorized revolver and halogen illuminator \*P option: Polarized Raman measurement, and observation \*<sup>2</sup> Please specify the excitation wavelength : 325nm ~150(30)cm<sup>-1</sup>, 488, 514.5, 532nm, ~50(10)cm<sup>-1</sup>, 633nm ~40(5)cm<sup>-1</sup>, 785nm ~30(5)cm<sup>-1</sup> ( ) Option, Please consult us for additional specifications.


### Options

Auto λ*	Cooling / Heating stage, DAC
Auto exchange unit for the Laser line and Raman optics unit Auto alignment function for max. 5 Laser lines and Raman optics.	THMS600 temperature range : -190°C ~ 600°C, He_Cryo : 5K ~ 450K DAC: Diamond Anvil Cell, up to 50Gpa, room temperature

\* Please specify the number of excitation laser.

Laser power meter: UCLPM up to 1W

\* UNF-XXX: Ultra Notch Filter: 488nm, 514.5, or 532nm, 10cm<sup>-1</sup>, 633nm, 785nm, 5cm<sup>-1</sup>

 <b>Attention</b>	Please read the instruction manual carefully before operating for safe and correct use.
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Features and specifications subject to change without notice.



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