

BaySpec 便携式拉曼光谱仪



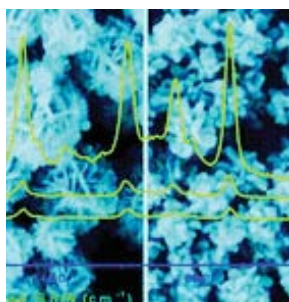
便携式拉曼仪

BaySpec 便携式拉曼光谱仪是一种针对小样品的分析仪器。其特点是对样品没有损伤的，非接触式的，无需样品的特殊准备即可测试。此仪器的具有高性价比，样品尺寸小等优势，可以扩展到液体测试，包括植物和晶体类的鉴别。



化学

- 进出材料的检测和认证
- 过程分析技术的在线检测
- 分析物理/化学性能的相互关系（分子量，粘度，玻璃转变温度等）
- 石油产品的鉴定和分析
- 树脂，石油化工产品，日用品的鉴定



生物

- 原位，对组织细胞样品的无接触测量，没有损坏，无需样品准备
- 细胞内部的化学成像
- 生物燃料的脂类含量
- 细菌探测
- 表面拉曼增强对低能级生物威胁的探测



国土安全防御

- IED/HME 爆炸物探测
- 未知物质
- 取证分析
- 边境巡逻审查



制药学

- 药物同质异性体/溶剂的探测和分类
- 药物晶体的鉴定
- 药片，胶囊，液体的含量分析
- 添加剂和辅料的质量保证和质量控制
- 高通量筛选的快速分析工具



取证鉴定

- 无损伤的，安全的药物和镇定剂的鉴定，证据的保存
- 爆炸品的鉴定
- 法医鉴定分析，包括纤维，毛发，颜料，墨水，纤维织物
- 有毒溶剂的鉴定



食品安全和农业

- 进口港的检查
- 农药和除草剂
- 师弟审查
- 细菌污染



地质学的

- 无损害的鉴定地质学材料
- 伪造的宝石
- 鉴定矿物和宝石的起源
- 评估采矿的前景和改变矿物



半导体和薄膜

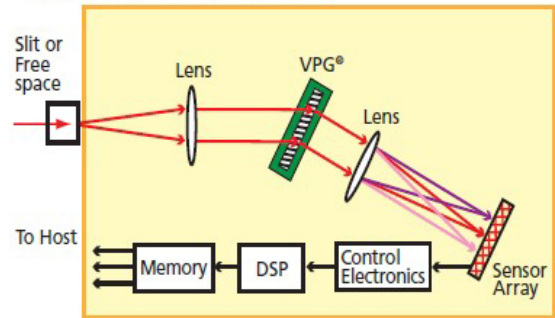
- 晶片的缺陷检查
- 薄膜镀层
- 在线过程
- 质量安全和质量控制

光栅的选择和波长区域

Agility 的光学设计核心部分是分散体相位光栅 (VPG) 光谱仪。由于 BaySpec 是光栅的制造商, 所以我们可以根据客户的需求, 提供最大分辨率和最可靠性能的频谱范围的光栅。完整频谱范围的测量, 都可以获得高的分辨率。

用户可以选择去掉一部分谐波区域 200-1850cm⁻¹, 或者选择扩展区域 100-3200cm⁻¹ 在组合的频谱带来获得重要的信息。

Dispersive Spectrometer Schematic



Schematic diagram of the core spectrometer engine based on a high-throughput transmission holographic Volume Phase Grating (VPG)

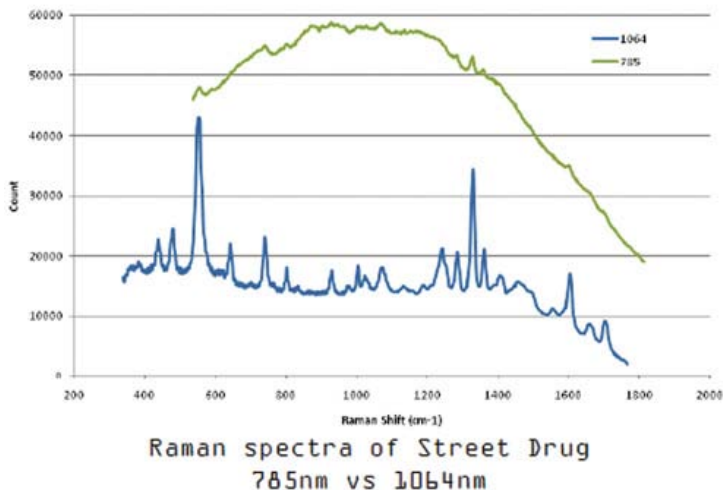
激发波长的选择, 新增 1064nm 作为选配

在拉曼设备的配置上面, 有些问题经常被问到: 哪种激发波长最好? BaySpec 提供多种激发波长的选项, 多种激光器波长可以使用, 所以技术人员可以针对不同的样品灵活地选择。对于许多样品, 特别是组织的和器官的特性, 荧光光谱特别适合。使用绿激光器 (532nm) 可以激发出荧光, 可以屏蔽掉一些潜在的光谱到一定程度, 不再可以检测到。这种情况下, 红外光谱 (633nm) 或者近红外光谱 (NIR785nm) 可以提供解决方案。由于较低的光子能, 红外光谱或近红外光谱不能促进电子转移, 所以拉曼散射很容易被检测到。

BaySpec 提供了独特的 1064nm 波长选项, 用于难以测量的样品。较长波长 1064nm 的激发是某些材料的首选波长, 包括大多数石油产品样品, 药品, 爆炸物和其他混合样品显示出很强的荧光性。

相反, 由于增加了从绿光, 红外到近红外波长的选择, 效率有所降低, 所以较长的测量时间和大功率的激光器则是必须的。

因此, 最实用的就是有若干激光波长可以有效的匹配各种样品特性。可能遇到的就是, 共振增强, 穿透深度, 或者荧光性。这是 Agility 双频系统独有的特性, 可以为各种样品提供很好的测量性能。





Specifications

Model	Agility™		
PERFORMANCE			
Wavelength Excitation	532 nm	785 nm	1064 nm
Wavelength Range	100 to 3500 cm ⁻¹	100 to 2300 cm ⁻¹	100 to 2300 cm ⁻¹
Resolution	8 to 10 cm ⁻¹	6 to 9 cm ⁻¹	15 to 18 cm ⁻¹
Stray Light	0.05%	0.05%	0.05%
Wavelength Calibration	Factory Calibrated	Factory Calibrated	Factory Calibrated
Integration Time	5 ms to 600 s	5 ms to 600 s	1 ms to 20 s
Dimensions: mm	305(d) x 380(w) x 168(h)	305(d) x 380(w) x 168(h)	305(d) x 380(w) x 168(h)
Weight	4.8 kg	4.8 kg	4.8 kg
Battery	Lithium ion	Lithium ion	Lithium ion
Battery Life	~4 hr	~4 hr	~4 hr
Charge Time (full capacity)	~6 hr	~6 hr	~6 hr
Power Consumption	<25 W	<25 W	<25 W
Power Source	AC 100-240 V; DC 11-24 V	AC 100-240 V; DC 11-24 V	AC 100-240 V; DC 11-24 V
Operating Ranges	0 to 45°C; 0 to 95% RH	0 to 45°C; 0 to 95% RH	0 to 45°C; 0 to 95% RH
OPTICS			
f/ number	f/2	f/2	f/2
Grating	Custom Volume Phase Grating (VPG)	Custom Volume Phase Grating (VPG)	Custom Volume Phase Grating (VPG)
LASER			
Power (adjustable)	0~50 mW	0~490 mW	0~490 mW
SAMPLING OPTIONS			
Fiber Probe	Coaxial, AR coated, filtered	Coaxial, AR coated, filtered	Coaxial, AR coated, filtered
Liquid Sample Holder	Holds 2 & 4mL std. vials	Holds 2 & 4mL std. vials	Holds 2 & 4mL std. vials
Pill Holder	Solid or liquid capsules	Solid or liquid capsules	Solid or liquid capsules
Solid Sample Holder	Upright or inverted options	Upright or inverted options	Upright or inverted options
DETECTOR			
Detector Array	2048 x 64 px CCD	2048 x 64 px CCD	Linear 256 px InGaAs
Cooling	TE cooled to -15°C	TE cooled to -15°C	TE cooled to -15°C
Cooling Time	<1 min	<1 min	<1 min
A/D Converter	16 Bit	16 Bit	16 Bit
COMPUTER			
Data Ports	USB 2.0	USB 2.0	USB 2.0
Trigger Modes	Software controlled	Software controlled	Software controlled
Operating System	Windows XP or 7 (32 or 64 Bit)	Windows XP or 7 (32 or 64 Bit)	Windows XP or 7 (32 or 64 Bit)
Wireless Connectivity	WiFi	WiFi	WiFi
Spectral Libraries	BaySpec Factory Library, user-defined, 3rd party options	BaySpec Factory Library, user-defined, 3rd party options	BaySpec Factory Library, user-defined, 3rd party options

*Need a custom wavelength range? Contact our applications staff to help configure your optimized solution. +1 (408) 512-5928 or info@bayspec.com



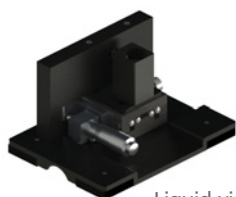
Specifications

Model	Agility™ Dual Band	
PERFORMANCE		
Wavelength Excitation	532 and 1064 nm	785 and 1064 nm
Wavelength Range	150 to 3000 cm ⁻¹ (532nm); 150 to 2150 cm ⁻¹ (1064nm)	150 to 2000 cm ⁻¹ (785nm); 150 to 2150 cm ⁻¹ (1064nm)
Resolution	10 to 12 cm ⁻¹ (532nm); 15 to 18 cm ⁻¹ (1064nm)	7 to 10 cm ⁻¹ (532nm); 15 to 18 cm ⁻¹ (1064nm)
Stray Light	0.05%	0.05%
Wavelength Calibration	Factory Calibrated	Factory Calibrated
Integration Time	5 ms to 600 s (532nm); 1ms to 20 s (1064nm)	5 ms to 600 s (785nm); 1ms to 20 s (1064nm)
Dimensions: mm	305(d) x 380(w) x 168(h)	305(d) x 380(w) x 168(h)
Weight	5.6 kg	5.6 kg
Battery	Lithium ion (86 Wh)	Lithium ion (86 Wh)
Battery Life	~3 hr	~3 hr
Charge Time (full capacity)	~6 hr	~6 hr
Power Consumption	< 30W	< 30W
Power Source	AC 100-240 V; DC 11-24 V	AC 100-240 V; DC 11-24 V
Operating Ranges	0 to 45°C; 0 to 95% RH	0 to 45°C; 0 to 95% RH
OPTICS		
f/ number	f/2	f/2
Grating	Custom Volume Phase Grating (VPG)	Custom Volume Phase Grating (VPG)
LASER		
Power (adjustable)	0~50 mW (532nm); 0~490 mW (1064nm)	0~490 mW
SAMPLING OPTIONS		
Fiber Probe	Coaxial, AR coated, filtered	Coaxial, AR coated, filtered
Liquid Sample Holder	Holds 2 & 4mL std. vials	Holds 2 & 4mL std. vials
Pill Holder	Solid or liquid capsules	Solid or liquid capsules
Solid Sample Holder	Upright or inverted options	Upright or inverted options
DETECTOR		
Detector Array	2048 x 64 px CCD; Linear 256 px InGaAs	2048 x 64 px CCD; Linear 256 px InGaAs
Cooling	TE cooled to -15°C	TE cooled to -15°C
Cooling Time	<1 min	<1 min
A/D Converter	16 Bit	16 Bit
COMPUTER		
Data Ports	USB 2.0	USB 2.0
Trigger Modes	Software controlled	Software controlled
Operating System	Windows XP or 7 (32 or 64 Bit)	Windows XP or 7 (32 or 64 Bit)
Wireless Connectivity	WiFi	WiFi
Spectral Libraries	BaySpec Factory Library, user-defined, 3rd party options	BaySpec Factory Library, user-defined, 3rd party

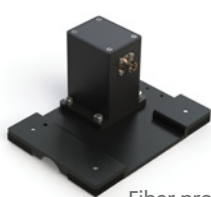
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Agility™ Quick-Change Sample Options

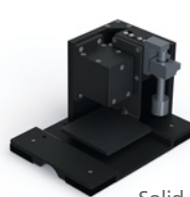
The BaySpec Agility™ series offers users the most versatile sampling options available, with a number of inserts that can be rapidly exchanged within the base system. These inserts maintain the precise optical alignment necessary to ensure high-quality spectral acquisition, and accommodate a number of sample types. These options include a vial holder (2 and 4 ml disposable glass vials supplied by BaySpec) for liquids, a fiber adapter for attachment of a remote fiber probe, a solid sample insert with upright or inverted configuration, and a pill holder for liquid and solid capsules.



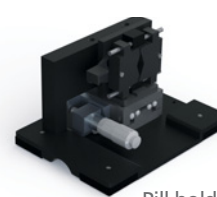
Liquid-vial insert



Fiber probe adapter



Solid sample insert



Pill holder