AvaRaman Fiber-optic Raman System

AvaRaman

Raman spectroscopy is especially useful for reaction monitoring, product identification, remote sensing and the characterization of highly scattering particulate matter in aqueous solutions. Based on the principle discovered by Prof. Chandrasekhara Venkata Raman, it measures the result of the inelastic scattering of photons.

Avantes uses the high-sensitivity AvaSpec spectrometers in combination with a 532 nm or 785 nm laser to give you the best result for your Raman measurements. The spectrometers are appropriately configured according to the wavelength of the laser.

Now the AvaSpec-HERO is integrated in a Raman system as well.
Because of the lower dark noise (only 2 counts) you'll have a much better performance. The superior Signal to Noise ratio (800:1) is important when you're dealing with small signals, which is typically the case in raman,. Also when small process changes need to be monitored in time, the HERO is superior as the small change process will lead to a small change in signal which can be clearly discriminated by the excellent SN ratio. The higher NA optical bench results in a better sensitivity (Twice as high as the ULS2048L). This will lead to more photons impinging on the detector. Temperature control is very important in raman measurements to create stable results in time. Cooling to -10 °C for lowest noise performance and very stable cooling control (+-0.1 °C accuracy) is delivering accurate and reproducible results.
This all together provides you with a combination that is suitable for the more demanding applications (low light, better signal to noise, low noise ratio).

All AvaRaman systems are equipped with cooling systems. Cooling the detector down to -35°C cooling versus ambient, reduces the noise figures by a factor 2-3, enabling the usage of longer integration times to enhance the detection of small signals. All AvaRaman systems are delivered with special AvaSoft-Raman software. Complementary Panorama-Pro software is available for Raman interpretation and functional group assignment.

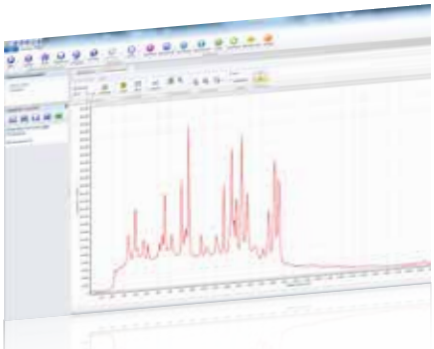
A selection of different probes is available to select the right one for your application. For more information on our software solutions including AvaSoft-FULL/Raman and Panorama-Pro, please check the software pages on the website.

Technical Data

	AvaRaman-532TEC	AvaRaman-532HERO-EVO	AvaRaman-785TEC
	Cooled	Cooled	Cooled
Signal to noise Ratio	200:1 for Benzene	800:1 for Benzene	300:1 for Benzene
Resolution*	10 cm^{-1}	10 cm^{-1}	17 cm^{-1}
Spectrometer	AvaSpec-ULS2048L-TEC with grating NC (535-752 nm), slit-25, DCL-UV/VIS TE-cooled	AvaSpec-HERO with HSC1200-0.75 (535-660nm), slit-25-FCPC, TE-cooled, Standard: replaceable slit	AvaSpec-ULS2048L-TEC with grating SI (785-1080 nm), slit-25, DCL-UV/VIS-200 TE-cooled
Raman Shift	100-5400 cm^{-1}	100-3650 cm^{-1}	100-3500 cm^{-1}
Laser output	532 nm, 50 mW	532 nm, 50 mW	785 nm, 500 mW, Class 3b
Laser Wavelength	532 nm	532 nm	785 nm
Laser Bandwidth	< 0.1 nm	< 0.1 nm	< 0.2 nm
Dimensions housing	240 (L) x 140 (W) x 250 (H) mm		

** typical resolution: higher resolution possible on request*

Pre-configured spectrometers can be shipped within 24 hours



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AVANTES enlightening spectroscopy