

AvaRaman Fiber-optic Raman System

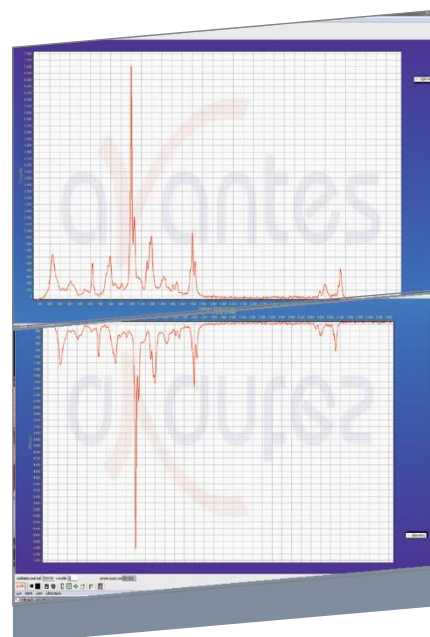
Raman spectroscopy is especially useful for reaction monitoring, product identification, remote sensing and the characterization of highly scattering particulate matter in aqueous solutions. Based on the principle discovered by Prof. Chandrasekhara Venkata Raman, it measures the result of the inelastic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

Avantes uses the high-sensitivity AvaSpec spectrometers in combination with a 532 nm, 633 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.

AvaRaman-TEC series spectrometers have a

three-stage Peltier cooling systems, which provides ΔT down to -30°C cooling to ambient for superior dark noise reduction, keeping the detector at a steady 5°C . Thanks to the PID controller, this temperature is stable within a 0.1°C bandwidth. 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-Raman and Panorama-Pro, please refer to the software pages in this catalog.



Technical Data

	AvaRaman-532	AvaRaman-532TEC	AvaRaman-785	AvaRaman-785TEC
	Non-cooled	Cooled	Non-cooled	Cooled
Signal to noise Ratio	200:1 for Benzene	200:1 for Benzene	200:1 for Benzene	300:1 for Benzene
Resolution*	$\pm 10 \text{ cm}^{-1}$	$\pm 6 \text{ cm}^{-1}$	$\pm 10 \text{ cm}^{-1}$	$\pm 6 \text{ cm}^{-1}$
Spectrometer	AvaSpec-ULS2048 with grating NC (535-752 nm), slit-50, DCL-UV/VIS	AvaSpec-ULS2048L-TEC with grating NC (535-752 nm), slit-25, DCL-UV/VIS TE-cooled	AvaSpec-ULS2048 with grating SI (785-1080 nm), slit-50, DCL-UV/VIS	AvaSpec-ULS2048L-TEC with grating SI (785-1080 nm), slit-25, DCL-UV/VIS-200 TE-cooled
Raman Shift	100-5400 cm^{-1}	100-5400 cm^{-1}	100-3500 cm^{-1}	100-3500 cm^{-1}
Laser output	532 nm, 50 mW	532 nm, 50 mW	785 nm, 500 mW, Class 3b	785 nm, 500 mW, Class 3b
Laser Wavelength	532 nm	532 nm	785 nm	785 nm
Laser Bandwidth	< 0.1 nm	< 0.1 nm	< 0.2 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

AvaRaman probes

AvaRaman-PRB-XXX

3/8" SS low-cost focusing probe with a 100 μm excitation fiber and 200 μm read fiber. Multiple focal lengths available (5 mm, 7.5 mm (standard), 10 mm). It can withstand 80°C. Manual shutter included, 1.5 m fibers.

Specify XXX=excitation wavelength

AvaRaman-PRB-FP-XXX

1/2" SS focusing probe with a 100 μm excitation fiber and 200 μm read fiber. Multiple focal lengths available (5 mm (standard), 7.5 mm, 10 mm). It can withstand 80°C. Specify XXX=excitation wavelength

AvaRaman-PRB-FIP-XXX

5/8" SS immersible focusing probe for in-situ measurements with a 100 μm excitation fiber and 200 μm read fiber. It can withstand 200°C.

Specify XXX=excitation wavelength

AvaRaman-PRB-FC-XXX

3/8" SS immersible process probe for in-situ measurements with a 100 μm excitation fiber and 200 μm read fiber. It can withstand 500°C and 3000psi, the probe optics provide complete background filtering.

Specify XXX=excitation wavelength

Ordering Information

Consisting of following elements:

- Solid state 500 mW laser 532 nm, FWHM 0.2 nm
- AvaSpec-ULS2048-USB2 Spectrometer with 1200 lines/mm grating set 535-752 nm, 50 μm slit, DCL-UV/VIS
- AvaSoft-Raman stand-alone software for the AvaRaman system, AvaRaman-GL-532 laser safety goggles

AvaRaman-532-USB2

Consisting of following elements:

- Solid state 500 mW laser 532 nm, FWHM 0.2 nm
- TE-cooled AvaSpec-ULS2048L-TEC-USB2 Spectrometer with 1200 lines/mm grating set 535-752 nm, 25 μm slit, DCL-UV/VIS
- AvaSoft-Raman stand-alone software for the AvaRaman system, AvaRaman-GL-532 laser safety goggles

AvaRaman-532-TEC-USB2

Consisting of following elements:

- Solid state 500 mW laser 785 nm, FWHM 2.5 nm
- AvaSpec-ULS2048-USB2 Spectrometer with 830 lines/mm grating set 785-1080 nm, 50 μm slit, DCL-UV/VIS
- AvaSoft-Raman stand-alone software for the AvaRaman system, AvaRaman-GL-785 laser safety goggles

AvaRaman-785-USB2

Consisting of following elements:

- Solid state 500 mW laser 785 nm, FWHM 0.2 nm
- TE-cooled AvaSpec-ULS2048L-TEC-USB2 Spectrometer with 830 lines/mm grating set 785-1080 nm, 25 μm slit, DCL-UV/VIS-200
- AvaSoft-Raman stand-alone software for the AvaRaman system, AvaRaman-GL-785 laser safety goggles

AvaRaman-785TEC-USB2

Different Raman probes available, please see table above

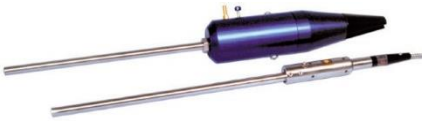


AvaRaman-SH-3/8"



AvaRaman-SH-1/2"

AvaRaman-Calibration



Other accessories

- Rugged sample holder for secure positioning of 3/8" Raman probes
- Rugged sample holder for secure positioning of 1/2" Raman probes
- PTFE White tile in holder for 3/8" Raman probe