AVANTES
enlightening spectroscopy

AVANTES

Spectroscopy measurement

BUNDLES

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Color measurement (small areas)

This bundle features an AvaSpec-ULS2048CL-EVO spectrometer that is tuned for visible light, making it ideal for color measurments. An illuminant A halogen light source for illumination and a reflection probe (with reflection probe holder) are included as well.

Typical applications:

- In-line reproducibility
- Analyzing small spots & lines

Spectrometer	AvaSpec-ULS2048CL-EVO	Grating BB (360-780 nm) 200 µm slit AvaSoft-Full & AvaSoft-Color
Light source	AvaLight-HAL-S-Mini	PS-12V/2.08A power supply
Fiber optics	FCR-7UVIR200-2 reflection probe RPH reflection probe holder	

Color measurement (surfaces)

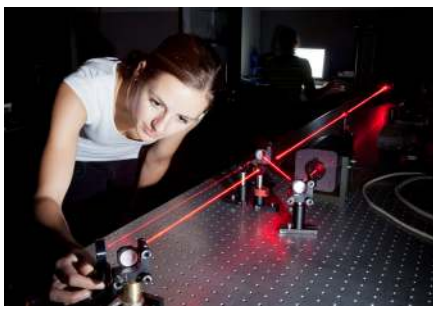
To measure color, wide angle diffused light from a sample is analyzed. This bundle includes a handheld 50 mm integrating sphere and a compact spectrometer. With this bundle, your measurements are free of the gloss-specular component. The measurement optics are placed under a 8º angle (D/8 SPIN).

Typical applications:

- Rough surfaces
- Textile and printed paper
- Fruits

Spectrometer	AvaSpec-ULS2048CL-EVO	Grating BB (360-780 nm) 100 µm slit AvaSoft-Full & AvaSoft-Color
Light source	AvaSphere-50-LS-HAL-12V	
Fiber optics	FC-UVIR200-2-ME	
Included	WS-2 white reflection tile	

AvaSpec-LaserChecker



This spectrometer/fiber combination allows you to quickly check the wave-length of your laser.

The AvaSpec-LaserChecker works in the 500-1000nm range with an optical resolution of 0.7 nm.

Simply catch the laserlight with the fiber and analyse your laserwavelength with analysis software AvaSoft 8.

Spectrometer	AvaSpec-Mini4096CL	Grating-MN600-1.00 (500-1000 nm) Resolution: 0.7 nm OSF-600 order-sorting filter 25 µm slit AvaSoft-Basic
Fiber optics	FC-UVIR200-1-ME	

Gemology

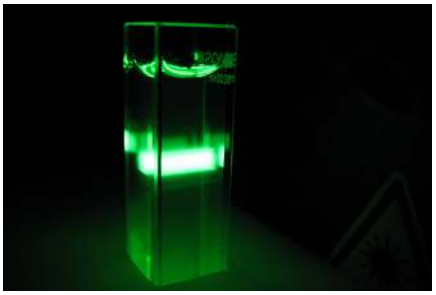
In gemology, there are two basic questions: “what are the characteristics of the stone I’m measuring?” and “are these characteristics natural? The easy way to answer these questions is with our gemology bundle. This bundle includes a sphere and a special gemology white reference tile to quickly categorize and validate gems.

Typical applications:

- Color
- Natural or artificial
- Artificial coloring

Spectrometer	AvaSpec-ULS2048CL-EVO	Grating VA (360-1000 nm) 25 µm slit DCL-UV/VIS-200 detector collection lens OSC order-sorting coating AvaSoft-Full
Fiber optics	FC-UVIR600-2	
Included	AvaSphere-50-LS-HAL-12V light sphere AvaSphere-50-HOLD sphere holder WS-2-GEM white reference tile	PS-12V/1.25A power supply

Fluorescence



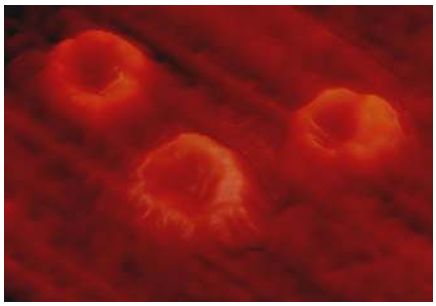
In spectroscopy, fluorescence is one of the more challenging setups, due to low fluorescent emission (about 3% of the excitation energy). The AvaSpec-ULS2048CL-EVO gives the highest sensitivity and the AvaLight-LED series provides excitation at the requested wavelength.

Typical applications:

- Dye identification
- Fluorescent lamps
- Diagnosis of malignancies
- Fluorescent labeling

Spectrometer	AvaSpec-ULS2048CL-EVO	Grating VA (350-1000 nm) 200 µm slit, DCL-UV/VIS-200 detector collection lens, OSC order-sorting coating AvaSoft-Full
Light source	AvaLight-LEDxxx	PS-12V/1.0A power supply
Fiber optics	FCR-UVIR200/600-2-IND FCR-FLTIP-IND	

Biomedical



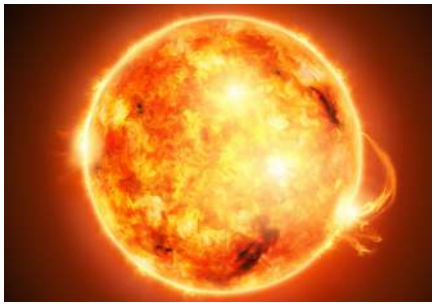
Spectroscopy helps achieve the goal of realizing non-intrusive measurement devices. This bundle non-invasively measures concentrations of unknown samples or changes in concentration over time.
This bundle is meant for R&D usage.

Typical applications:

- Oxygen in blood
- Hemoglobin
- Microvascular circulation

Spectrometer	AvaSpec-ULS2048CL-EVO	Grating NB (500-1000nm) 50 µm slit OSF-475 order-sorting filter AvaSoft-Full and AvaSoft-Chem
Light source	AvaLight-HAL-S-Mini	PS-12V/2.08A
Fiber optics	FCR-7UVIR200-2-MS-PK-S	

High-resolution plasma measurement



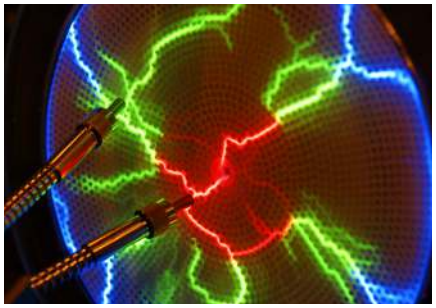
Plasmas are known for many emission peaks, located closely together. To separate these peaks, Avantes has developed multichannel spectrometers. This 200 to 960 nm quad-channel spectrometer boasts an optical resolution of 0.22-0.28 nm, four times better than a standard AvaSpec-ULS2048CL-EVO covering the same range. In AvaSoft spectroscopy software, the four channels are combined as if you were working with only one spectrometer.

Typical applications:

- Semiconductor industry
- Solar cells
- Razor blades
- Fusion reactors
- Glass & coatings

Spectrometers	4-channel desktop housing 4 x AvaSpec-ULS2048CL-EVO	Gratings: • UC (200-450 nm), 0.28 nm • VC (450-680 nm), 0.26 nm • NC (660-830 nm), 0.24 nm • NC (820-960 nm), 0.22 nm All channels come with 10 µm slit, DCL-UV/VIS-200 detector collection lens & OSF-600 order-sorting filter (where needed)
Fiber optics	FC4-UVIR400-2-ME	
Software	AvaSoft-Full SPECline-A	

Extreme high-resolution plasma measurement



For even higher resolution than the above-mentioned quad-channel spectrometer, this version features eight channels, with an optical resolution of up to 0.09 nm. The wavelenght range is 200-1070 nm, which means it detects from ultraviolet, through visibile, up to near-infrared light.

The system is delivered in a 19" rack-mountable enclosure.

Typical applications:

- Semiconductor industry
- Solar cells
- Razor blades
- Fusion reactors
- Glass & coatings

Spectrometers	8-channel 19" rackmountable enclosure 8 x AvaSpec-ULS2048CL-EVO	Gratings: • UE (200-300 nm), 0.13 nm • UE (300-390 nm), 0.12 nm • UE (380-460 nm), 0.11 nm • UE (460-530 nm), 0.10 nm • VE (530-588 nm), 0.09 nm • VE (570-620 nm), 0.09 nm • NC (620-780 nm), 0.24 nm • NC (780-930 nm), 0.22 nm All channels come with 10 µm slit, DCL-UV/VIS-200 detector collection lens & OSF-600 order-sorting filter (where needed)
Fiber optics	FC8-UVIR400-2 multi-furcated fiber	
Software	AvaSoft-Full SPECline-A	

UV/VIS/NIR absorbance

Designed for broadband measurements, this UV/VIS/NIR absorbance bundle features a high-power deuterium halogen light source with integrated shutter and a variable dip probe. A versatile bundle to measure absorbance in most circumstances.

Typical applications:

- Colorization of fluids
- In-line measurements
- Color of liquids in test tubes and flasks

Spectrometer	AvaSpec-ULS2048CL-EVO	Grating UA (200-1100 nm) 25 µm slit DCL-UV/VIS-200 detector collection lens OSC-UA order-sorting filter AvaSoft-Full
Light source	AvaLight-DH-S	

Irradiance/spectroradiometry

Irradiance means measuring how much light reaches a specific place. In this bundle, a cosine corrector is included to collect light from a 180 degree angle, so measurements are precise. The comprehensive AvaSoft-Irrad allows fully calibrated, traceable radiometric and photometric measurements.

Typical applications:

- Solar lighting
- Environmental & general lighting

Spectrometer	AvaSpec-ULS2048CL-EVO	Grating UA (200-1100 nm) 25 µm slit DCL-UV/VIS-200 detector collection lens OSC-UA order-sorting filter AvaSoft-Full & AvaSoft-Irrad Irrad-CAL-UV/VIS
Fiber optics	FC-UVIR200-2-ME-FC/SMA	
Included	CC-VIS/NIR	

LED light measurement

More and more countries are banning incandescent lamps from being sold, hugely boosting LED sales. Avantes supplies the needed tools for the photometric and radiometric measurement of LED lights.
The spectrometer is irradiance calibrated to obtain absolute values.

Typical applications:

- Irradiance
- Illuminance
- Radiometric & photometric flux
- Luminous intensity
- Color coordinates

Spectrometer	AvaSpec-ULS2048CL-EVO	Grating VA (350-1000 nm) 25 µm slit DLC-UV/VIS-200 detector collection lens OSC order-sorting coating AvaSoft-Full & AvaSoft-Irrad Factory-calibrated system for irradiance IRRAD-CAL-VIS
Fiber optics	FC-UVIR600-2-ME-FC/SMA	
Included	AvaSphere-50-IRRAD AvaSphere LED adapter	

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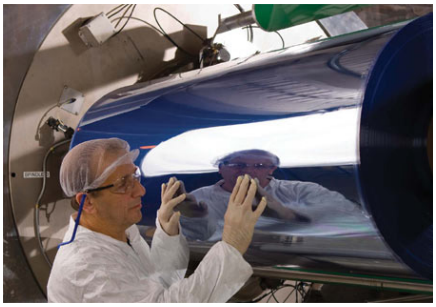
Thin film measurement



This bundle was especially designed for single-layer thin film measurements, with a light source, a reflection probe and a stage and standard included. The setup can measure thin films ranging from 10 nm up to 50 µm with a resolution of 1 nm and supports UV, VIS and NIR measurements from 200 up to 1100 nm.

Typical applications:

- Semiconductor industry
- Solar panels
- Coatings

Spectrometer	AvaSpec-ULS2048CL-EVO	Grating UA (200-1100 nm) 100 µm slit DCL-UV/VIS-200 detector collection lens OSC-UA order-sorting coating AvaSoft-ThinFilm
Light source	AvaLight-DHc	PS-12V/1.0A
Fiber optics	FCR-7UVIR200-2-ME reflection probe	
Included	ThinFilm stage & standard	

Vacuum

Two vacuum feed-throughs are included in this bundle: one with a 200 µm fiber cable and one with a 600 µm diameter. Also the needed reflection probe and a deuterium halogen light source.

Typical applications:

- Coating
- Plasma

Spectrometer	AvaSpec-ULS2048CL-EVO	Grating UA (200-1100 nm) 50 µm slit OSC-UA order-sorting coating DCL-UV/VIS-200 detector collection lens AvaSoft-Full
Light source	AvaLight-DH-S	
Fiber optics	FCR-7UVIR200-2-ME reflection probe FC-UVIR600-2 & FC-UV200-2	
Included	FC-VFT-UVIR200 & FC-VFT-UVIR600 4 interconnects	

Avantes Raman bundles

Raman spectroscopy allows you to obtain a so-called “spectral fingerprint” of all kinds of materials, which provides information to identify molecules with.

Avantes offers three different Raman bundles to provide the right setup for your application.

Typical applications:

- Analysis of liquids, powders, tablets and gels
- Measurement through (semi-)transparent packaging
- Mineralogy & gemology
- Identification of raw materials
- Pharmaceuticals

Ordering Information

AvaRaman-A

For basic applications. Based on an uncooled spectrometer, this is the entry bundle for reasonably strong signals.

- Range: 150 cm^{-1} - 3600 cm^{-1}
- Resolution: 6 cm^{-1}
- Spectrometer based on an AvaSpec-ULS2048L-USB2 set for 788-1100 nm, slit-25, DCL-UV/VIS-200 detecor collection lens, FC-PC connector
- Also including: AvaLaser785 (incl. probe), AvaRaman software: Panorama Light
  Optional: replaceable slit (add –RS)

AvaRaman-B

For demanding applications. Based on the cooled version of the spectrometer offered in the bundle Ava-Raman-A. Cooling enables you to work with longer integration times, yet keeping the thermal noise limited.

- Range: 150 cm^{-1} - 3600 cm^{-1}
- Resolution: 6 cm^{-1}
- Spectrometer based on an AvaSpec-ULS2048LTEC-USB2 set for 788-1100 nm, slit-25, DCL-UV/VIS-200 detector collection lens, FC-PC connector
- Also including:
  AvaLaser785 (incl. probe) and AvaRaman software: Panorama Light
  Optional: replaceable slit (add –RS)

AvaRaman-D

For the most challeging applications. This bundle uses the AvaSpec-Hero for detection. The high-end, cooled back-thinned detector, low-noise electronics and optical bench with high numerical aperture results in excellent signal-to-noise ratio and dynamic range.

- Range: 100 cm^{-1} - 3000 cm^{-1}
- Resolution: 10cm^{-1}
- Spectrometer based on an AvaSpec-HSC1024x58TEC-EVO set for 788-1020 nm, slit-25, FC-PC connector, replaceable
- Also including:
  AvaLaser785 (incl. probe) and AvaRaman software: Panorama Light

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