

Monitoring Coating Processes in Vacuum Chambers

Layer thickness, composition, surface finish, light transmission, reflectance, polarization ability: these are some of the important parameters that need to be monitored during coating processes. They all are facilitated by spectroscopy and spectroscopic interferometry. Fiber-optics provide a versatile tool to measure in remote vacuum and clean room chambers.

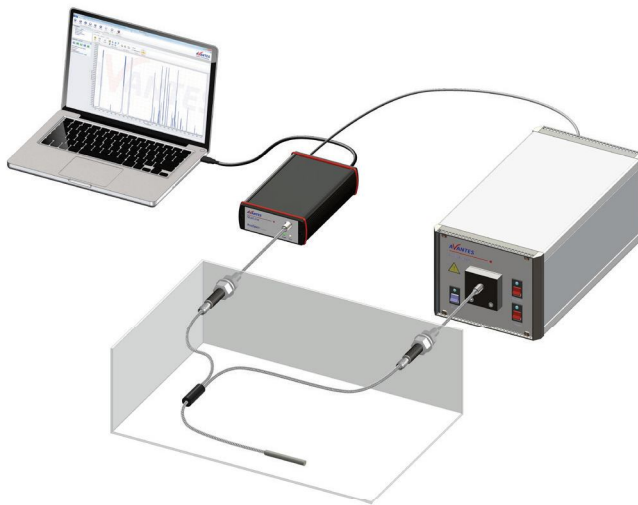
The illumination and detection can be organized at different fiber positions relative to the coating: to allow specular

reflection, diffuse reflection, transmission, polarization, interference, fluorescence and even Raman scattering to be measured. Fiber-optics can be arranged to either monitor several positions or to measure at different spatial positions or masking conditions simultaneously.

For on-line production environments, several fiber-optic sensors can be placed to monitor a production run. Ionic sources, such as plasma sources, can be monitored for spectral emission to confirm their con-

ditional efficiency during the operating process.

A typical application for a vacuum chamber system is monitoring an on-line coating process on a web. For this type of system a vacuum feed-through is used to transfer light into the vacuum area and then passes to the reflectance probe. The reflected light is passed through another vacuum feed-through to a spectrometer, AvaSpec-ULS2048-USB2 or SensLine instrument. The reflectance probe can be easily disconnected using the SMA interconnects. To compensate for fluctuations in the light source, a second channel can be added for light source reference measurements.



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.

The AvaSpec ULS2048L is the ideal companion for this setup.

Typical applications:

- Coating
- Plasma

... and many more

Order Information: Ava-Vacuum

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|---------------------------|---|
| Spectrometer | AvaSpec-ULS2048-USB2 Grating UA (200-1100 nm), 50 μm slit , DUV coating, DCL-UV/VIS, OSC-UA |
| Software | AvaSoft-Full and XLS or PROC add-on |
| Lightsource | AvaLight-DH-S-BAL Balanced deuterium-halogen light source |
| Fiber-optics | FCR-7UV200-2-ME reflection probe UV/VIS, 2 m, SMA FC-UV600-2 and FC-UV200-2 |
| Vacuum Feedthrough | FC-VFT-UV200 and FC-VFT-UV600 |