TranSpec

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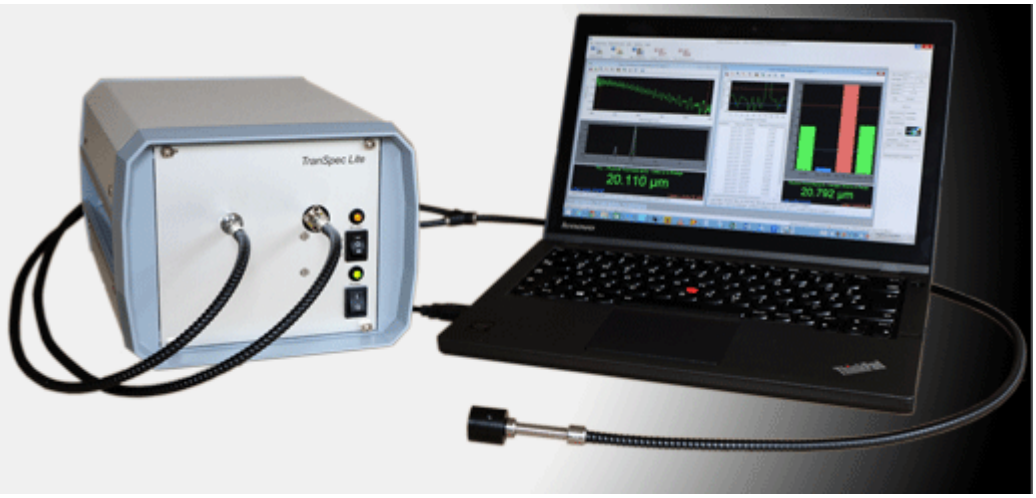
TranSpec Lite • Film Thickness Gauges

High-Precision Film Thickness

No Calibration Required • Free of Maintenance



The **TranSpec Lite** film thickness gauges use the white-light interference phenomenon for non-contact and non-destructive layer determination of transparent single or double layers in the range of around 0.8 to 120 micrometers (depending on the model). The TranSpec Lite instruments are designed for manually performed, but even though high-precise measurements in the lab.

TranSpec Lite - Desktop Spectrometer with integrated Halogen Spectral Lamp
Our TranSpec Lite spectrometer exclusively uses the high-innovative spectrometer modules of Carl Zeiss, Germany. With these modules, the entrance slit is imaged on a photodiode array (PDA) by means of an holographic created, concave diffraction grating. All optical components of the spectrometer module are firmly mounted together in one unit and permanently adjusted to each other, which means that there are no mechanically moveable parts at all. Thus, the TranSpec Lite spectrometer module is free-of-maintenance!

The integrated halogen lamp with automatic shutter control is designed to operate along with the spectrometer module in order to detect white-light interference spectra using a bifurcated fiber optics cable for your non-contact film thickness measurements.

FTM-ProVis Lite - Powerful Film Thickness Software
This very easy-to-use software package uses an improved Fast-Fourier Transformation (FFT) algorithm to determine the film thickness from measured white-light interference spectra of thin transparent layers, which allows high-precision results in the entire measurement range. The film thickness result is computed in real-time and can be displayed in various different on-line charts. FTM-ProVis Lite also permits the fully automatic and simultaneous measurement of double-layers.

Technical specifications on next page ►

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TranSpec Lite Film Thickness Gauges • Technical Specifications

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Minimum Hardware and Software Requirements

- Standard PC/Laptop with Windows 10 or Windows 11
- Graphics adapter with at least Full HD, higher resolution is recommended
- One available USB 2.0/3.x port

Mechanical Construction

- Desktop enclosures with 3U height, CE certificate, no cooling required
- Dimensions (H x W x D): ~ 150 x 195 x 265 mm, Weight: ~4.4 kg
- External power supply with 100/240 Volt auto-switch (in the scope of delivery)

TranSpec Lite - Desktop PDA-Spectrometers

- Industry standard FSMA connector for bifurcated fiber optics cable
- Spectrometer modules of Carl Zeiss, Germany, with holographic created concave diffraction grating
- Photodiode arrays with 1024, 512 or 256 pixels available, no cooling required
- Permanently adjusted module, no mechanically moveable parts, maintenance free!
- Module specific wavelength ranges:
  190-1020 nm (MC-UVNIR), 360-780 nm (MC-VIS), 600-1020 nm (MC-NIR) and 300-1100 nm (MS-VIS)
- Module specific spectral pixel interval: 0.8 nm (MC-UVNIR, MC-VIS and MC-NIR) or 3.2 nm (MS-VIS)
- Module specific spectral resolution: 2.4 nm (MC-UVNIR, MC-VIS and MC-NIR) or 10 nm (MS-VIS)
- Absolute wavelength accuracy: ≤ 0.3 nm typically
- Temperature drift: typically < 0.005 nm / Kelvin typically

TranSpec Lite - Integrated Halogen Spectral Lamp

- Industry standard FSMA connector for bifurcated fiber optics cable
- Integrated mechanical shutter, manually or automatically switched by software
- Special 7 Watt miniature halogen bulb with high luminance
- Spectral output range: ~ 350 to 1200 nm
- Typical lifetime of the bulb: 1500 hours

FTM-ProVis Lite - Film Thickness Software

- Multi-threaded MDI-Application, detailed online-help, color printed user's manual
- Evaluation of interference spectra with the help of a special Fast-Fourier-Transformation (FFT)
- New algorithm for high-precise sub-pixel determination of the FFT peak position (film thickness result)
- Accuracy typically within +/- 0.005 microns, repeatability typically within +/- 0.002 microns (standard WEG test)
- Real-time chart representation of Interference, FFT-Spectrum and Film Thickness Trend during measurement
- Consideration of refraction index and dispersion (Cauchy dispersion correction)
- Simultaneous measurement and film thickness evaluation of double layers possible
- Spectra recorder for data logging up to 100,000 thickness measurements

Film Thickness Measurement Range

The generally measurable thickness range is ~ 0.8 to 120 micrometer (~ 0.03 to 4.8 mil), but depends essentially on the assembled spectrometer module and the currently selected spectral evaluation range, which can be setup in the software individually. Other factors which determine the measurable film thickness range are the refraction index (and its dispersion) of the layers to be measured. The maximum film thickness ranges (as optical thickness) are approximately:

- TranSpec Lite MS-VIS-H ~ 0.8 to 25 microns (note: this model is not suitable for double-layer measurement)
- TranSpec Lite MC-VIS-H ~ 0.9 to 70 microns
- TranSpec Lite MC-NIR-H ~ 2 to 120 microns
- TranSpec Lite MC-UVNIR-H ~ 0.8 to 100 microns

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Certifications
NABL (CC-4436) ISO CRISIL