Dipl.-Ing. (FH) Thomas Fuchs
Engineer's Office for Applied Spectroscopy
Ingenieurbüro für Angewandte Spektrometrie

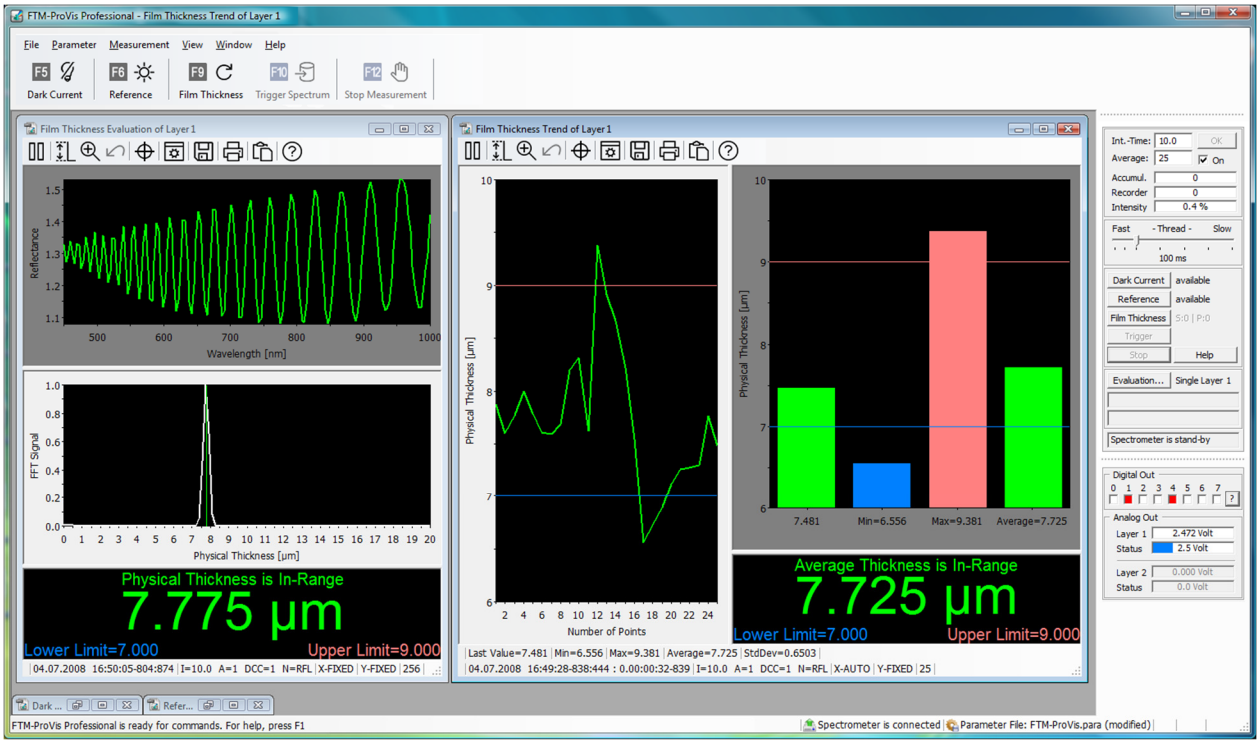
TranSpec

FTM-ProVis Professional

Software for In-Line Film Thickness Measurement and Process Control

FTM-ProVis Professional is based on our convenient FTM-ProVis Lite software package and has been extended especially for the needs of in-line film thickness measurement tasks of thin transparent layers using our **TranSpec** film thickness gauges.

The software supports single and 3-axes traverses for scanning thickness profiles on web coating machines. FTM-ProVis Professional reports thickness results and various measurement status information to digital and analog out-ports, by which a closed-loop process control can be achieved.



Exemplary screen layout of FTM-ProVis Professional

FTM-ProVis Professional uses an improved Fast-Fourier Transformation (FFT) algorithm to determine the film thickness from measured white-light interference spectra of thin transparent layers, which ensures high-precision results in the entire measurement range. The film thickness result is computed in real-time, can be displayed in various different on-line charts, logged to a text file and reported to analog ports.

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ZIP & City: 73430 Aalen - Germany
Street: Bischof-Fischer-Str. 108
Fon: +49 - 7361 - 97 53 28 0
Fax: +49 - 7361 - 97 53 28 5
Web: www.applied-spectroscopy.com
Email: sales@applied-spectroscopy.com

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FTM-ProVis Professional Software • Technical Specifications

January 2024, related to version 6.1, without guarantee, subject to changes

Minimum Hardware and Software Requirements

- Standard PC/Laptop with Windows 10 or Windows 11
- Monitor with at least Full-HD, higher resolution is recommended
- TranSpec Process Spectrometer with integrated Halogen (or Halogen/Deuterium) Spectral Lamp

General Description

- Multi-Threaded and Multiple Document Interface handling
- Shell registration for drag-and-drop of FTM-ProVis Professional document files
- Minimum requirement of resource and memory
- Programmed in Visual C++ by use of the Microsoft Foundation Classes (MFC)
- Consideration of the Microsoft Application Design Guide: menu toolbar, status bar, tool tips, on-line help
- Fully supports Windows themes and multi-monitor use
- Software documentation as detailed, color printed user's manual and PDF with many examples

Film Thickness Measuring Range

The film thickness range generally measurable with a TranSpec gauge is ~ 0.2 to 120 microns (~ 0.008 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 for each type of layer. Other factors which determine the measurable film thickness range are the refraction index (and its dispersion) of the layers to be measured.

High-Precision and Fast Evaluation Method, also for Double-Layers

- Evaluation of interference spectra with the help of a special Fast-Fourier-Transformation (FFT)
- Run time-optimized algorithm, evaluation time is less than a millisecond
- Special algorithm for highly accurate sub-pixel determination of the FFT peak position (film thickness result)
- Selectable spectral evaluation range of the interference spectrum
- Consideration of refraction index and dispersion (Cauchy Dispersion Correction)
- Selectable film thickness evaluation range in the FFT spectrum for fully automatic measurement of double layers

Various Options for Measurement and Visualization

- Supports triple axes scanning bridges in order to perform x/y/z-coordinate controlled, fully automatic measurements of rectangular film thickness profiles with up to 300 x 300 values per scan
- Supports single axis traverses for continuously scanning forwards/backwards in cross-direction of a web coater
- Supports multichannel fiber optics switches or real dual channel TranSpec spectrometer with two modules
- Supports 8-channel TTL out for reporting measurement status information and thickness high/low limits
- Supports 4-channel analog out (unipolar 0-10 volt) for reporting film thickness values and high/low limits
- Performs manually or fully automatic triggered measurement runs, trigger by timer, TTL input or traverse controlled
- Real-time representation of Interference and FFT spectrum during measurement
- Real-time representation of the film thickness results as trend and bar chart
- Real-time representation of 3D film thickness profile charts
- Logs up to 100,000 thickness results to read-shared text files, accessible by third-party software during measurement
- Logs up to 100,000 spectra as Spectra-Recorder, which permits a subsequent off-line film thickness re-evaluation
- Saves all your parameter settings into individual parameter files, password protection possible
- Quick access to last used Parameter and Spectra-Recorder files

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