

MultiSpec® Pro II: Process Software for UV-VIS-NIR and Raman Spectroscopy

MultiSpec® Pro II is an improved new software bundle for laboratory and process applications. Incorporating current program environments and visualization schemes, a number of data acquisition modes, data processing and output options are provided. Five packages are offered, which range from a basic data acquisition tool to a process software, including status information and user management. Optional modules, including color determination, prediction of chemometric models and a number of process communication interfaces facilitate the adaption to required applications

[MultiSpec® Pro II Packages]

■ **Basic** MultiSpec® Pro II Basic has standard functionality and is offered for applications primarily requiring data acquisition, display and export of spectra.

■ **Standard** MultiSpec® Pro II Standard offers the complete functionality of data acquisition, graphical display and data storage/output. This version can be extended by additional modules, such as chemometrics or color determination.

■ **Agro** For customers working in agricultural environments, a specialized version is offered. This fulfils the requirements for easy use in field applications. Additional modules such as data logging of GPS positions and online prediction of chemometric models can be added optionally.

[Features]

- Method Management
- Optimized modular architecture based on .NET
- Flexible display of spectra, results and trendcharts, based on WPF architecture
- Easy adaption of customer specific modules
- Operation in Windows 7 | Windows 8.1 | Windows 10 [32- and 64-bit]
- Complete support of tec5 hardware for data acquisition
- Continuous measurements with automatic storage of spectral data and results

[Method Management]

Method Management was developed for spectrometer systems used in a batch-like environment with different products. This allows the administration of different settings for data acquisition, analysis, display and

[Additional Modules]

User Management

- User Management with user-configurable access control
- Log file for documentation of user log-in/log-out

Chemometric Modules

Quantitative predictions based on

- Unscrambler™ on-line prediction engine [OLUP] from CAMO**
- SL predictor from SensoLogic
- GRAMS™ PLSPlus/IQ predictor from Thermo Galactic
- S-PACT PeaXact
- Umetrics SIMCA-Q*

* Can be implemented on customer request.

** Currently OLUP X.2, newer versions can be adapted on request.

Note: Additional chemometrical software is required to create chemometric models.

Multi Channel Module

- Operation of multiple measurement channels

■ **Process** MultiSpec® Pro II Process offers the complete functionality of the Standard package plus additional process-oriented features, including user management and access control, cyclic dark current correction, lamp intensity monitoring, automatic adjustment of integration time and status signals.

■ **Raman** MultiSpec® Pro II Raman enables the acquisition of Raman spectra in Wavenumbers. The complete control of a Raman installation including the communication and control of the Laser cassette's safety features [Laser status, interlock].

- Graphical display of absorption, transmission and intensity data
- Various display modes, e.g. real-time charts
- Predictions based on linear regression
- Direct export of spectral data to ASCII or JCAMP format
- Support of Digital I/O for triggering, remote control and output of status messages, etc.
- System diagnostic tools and protocols

process communication according to various testing procedures. For systems with process interfaces, the methods can be switched remotely.

Color Module

- Color determination according to CIELAB, CIE94, CMC

Peak Finder Module

- Determination of peaks and valleys
- Output of the resulting wavelengths and the minimum/maximum values

Data Preprocessing Module

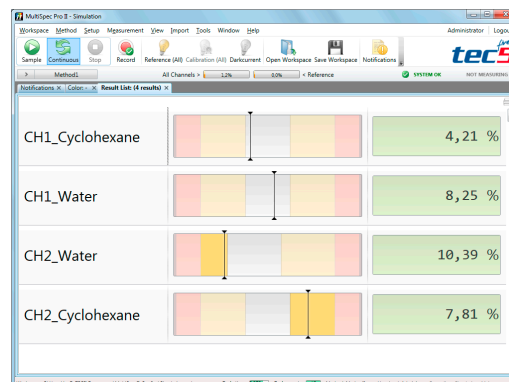
- Baseline correction and bubble/particle detection algorithm for stable process measurements

GPS Module

- Acquisition of data from GPS module via serial port unit needs to be compliant to NMEA standard

Process Interfaces

- Details on next page



[Functional Overview]

	MultiSpec® Pro II				
	Basic	Standard	Agro	Process	Raman
Method Management					
Administration of views and data processing, measurement parameters and results in one workspace file	–	•	•	•	•
Data Acquisition					
Supports tec5 electronics and spectrometer systems based on PCI, USB and Ethernet interfaces; single and continuous measurements; simultaneous referencing with 2-channel operation; automatic dark current correction; external shutter operation	•	•	•	•	•
Combining UV-VIS-NIR spectra from multiple detectors	•	•	•	•	•
Acquisition of Raman spectra	–	–	–	–	•
Data Evaluation					
Flexible setting of result values	–	•	•	•	•
Math parser for flexible calculation of results	–	•	•	•	•
Range monitoring	–	•	•	•	•
Graphical Display					
Display of intensity, absorption, transmission and dark current spectra	•	•	•	•	•
Extended graphical display for multiple spectra	•	•	•	•	•
Numerical result and chart display for selectable result values	–	•	•	•	•
Imports JCAMP and ASCII files for visualization	•	•	•	•	•
Data Export and Storage					
Manual and automatic export of spectral data to JCAMP and ASCII format [EXCEL-compatible]	•	•	•	•	•
Manual and automatic export of result data to ASCII format	–	•	•	•	•
System Diagnostics					
Online system control and visualization of multiple system parameters	•	•	•	•	•
Automatic system diagnostics and report generation	•	•	•	•	•
Automatic calculation of standard deviation	•	•	•	•	•
Additional Features					
User Management	–	Opt.	Opt.	•	•
Lamp intensity monitoring and status signals, optional Process Interface [*Raman version: Laser Control and Status]	–	–	–	•	[*]
Automatic adaption of integration time	–	–	•	•	•
Extension with additional modules	–	•	•	•	•

[Process Interfaces]

Standard Interfaces	Digital In	Digital Out	Analog In	Analog Out
MultiSpec System	2	2	–	–
Optional Interfaces	Digital In	Digital Out	Analog In	Analog Out
OPCDA Client	64	64	64 [Integer, real]	64 [Integer, real]
I/O PCI-6308	4	4	–	8
Profibus	64	64	64 [Word]	64 [Word]
Only one optional process interface can be selected				

[Hardware Requirements]

Operating System	Windows 7 [32- and 64-bit] Windows 10 [32 and 64 bit]
Processor/RAM	I3 or better, min. 3 GB RAM
HDD	At least 100 MB of free disk space
Graphics	XVGA, high color

| Fully functional 30-day trial versions are available for software evaluations