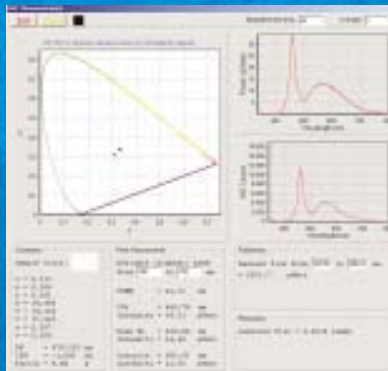
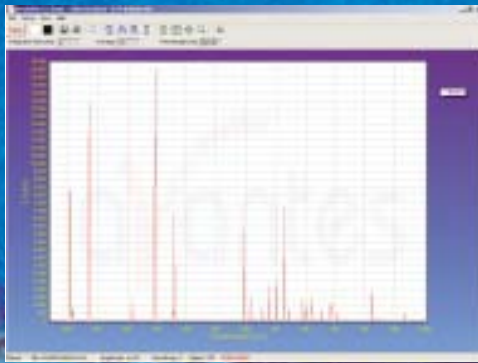


Software



Introduction

Since 2002 we have changed the name of the Avantes comprehensive software package to AvaSoft.

AvaSoft is a software package to control all Avantes product line spectrometers under Windows 95/98/ME and NT4.0, 2000, XP. AvaSoft software was developed in 1996 to support an increasing demand of data processing applications for spectroscopy.

Since 1996 more than once a year official upgrades have been released with many new features and options.

The newest version is AvaSoft 6.2, to be released in June 2004. In the following paragraphs the different AvaSoft software packages are presented:

- AvaSoft-Basic for controlling the Avantes spectrometers, doing basic data acquisition, save and display data in scope-, transmission-, absorption-, and irradiance mode.
- AvaSoft-Full version adds many options to the basic version, like history channel functions, auto-calibration, external triggering, etc.
- Application add-ons only available in combination with AvaSoft full software for color measurements, irradiance, chemometrics, oxygen measurements, process control and Export to Excel (XLS).

- Stand-alone AvaSoft software packages for pre-configured spectrometer systems, such as AvaSoft-Raman for the AvaRaman system, AvaSoft-FOM for full integration of the Fiber Optic Multiplexer, and AvaSoft-ThinFilm for the AvaThinFilm measurement system.
- Dynamic Linking Library (DLL) interface packages with functions for basic spectrometer control, color measurements and LED measurements.

The most recent release of AvaSoft can be downloaded free of charge from our website www.avantes.com.

The downloaded AvaSoft for AvaSpec-102/256/1024/2048 package can be used by customers who already have an AvaSpec spectrometer and want to upgrade their software version, but also by anyone who wants to try out the AvaSoft-FULL version and/or add-on applications. If AvaSoft is started without an AvaSpec spectrometer connected, it will switch automatically to simulation mode, in which all AvaSoft-FULL features and add-on applications (color, irradiance, chemometrics, process control, excel output) are available.

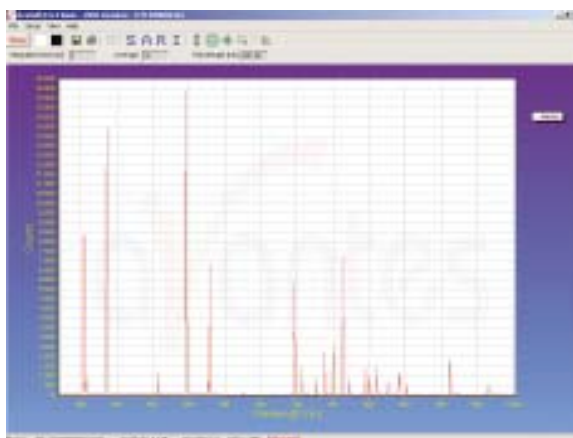
AvaSoft - Basic Software

AvaSoft-Basic, the standard software package that comes with each AvaSpec spectrometer system, is free of charge. AvaSoft-Basic features user friendly, mouse oriented pull down menus. Mouse clicks control movements of a data cursor for instantaneous readout of wavelength, pixel and y-axis magnitude. Mouse dragging is a fast and elegant way to zoom in both x and y direction at the same time.

Buttons in the main window are available for on-line/off-line spectral analyses (start/stop) and for easy saving of reference, dark and experiment spectra. Additional buttons are available for printing, changing the view to absorbance, transmittance, irradiance or raw scope data, rescaling the y-axis, set scale for x- and y-axis and peak/valley searching.

The user sets the data collection parameters, such as detector integration time, auto-dark correction, signal averaging and spectral smoothing in common dialog boxes. The saved graphical data can be exported to ASCII, to be read in by Excel and other data processing programs.

New features in AvaSoft-6.2 basic are the options to set a grid for easier spectral analysis, a timer progress bar for long



integration times (>5 sec) and a new algorithm for detector saturation detection.

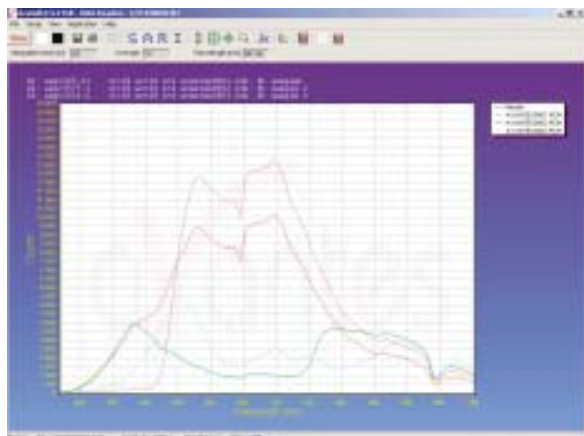
The most recent version of the AvaSoft-basic software can be downloaded from the website, if an upgrade to AvaSoft-Full is desired, please contact us for upgrade ordering information.

ORDERING INFORMATION

AvaSoft-Basic	Free Basic Spectrometer software for Windows95/98/2000/NT/ME/XP
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AvaSoft-Full



AvaSoft-FULL version needs to be ordered separately and has a lot of additional features (see table below) over the basic version. We strongly recommend to check our website www.avantes.com regularly for the newest upgrade.

In the table below, the options are summarized for the basic and full version of AvaSoft 6.2.

Option	Basic	Full
Editable data collection parameters, such as detector integration time, auto-dark correction, signal averaging, spline interpolation and spectral smoothing	X	X
Display data in scope-, transmittance-, absorbance-, or relative irradiance mode. Multiple spectrometer channels are displayed in the same graph, optional grid display.	X	X
Zoom-, (Auto)scale- and panning functions to expand quickly an interesting part of the spectrum (both X- and Y-axis) to the full graph	X	X
Mouse drag controls movement of a data cursor for instantaneous readout of wavelength- and y-axis magnitude. Peakfinder for moving cursor fast to nearest peak	X	X
Save spectra, and display online measurements against (multiple) saved spectra background. Print (multiple) spectra in color. Convert saved spectra to ASCII format in equidistance (nm) with start wavelength in nm	X	X
Help menu option to find quickly a description about any AvaSoft topic	X	X
History Channel Application, in which the output of (up to 8) user defined functions, integrals, peaks (intensity, wavelength) can be followed simultaneously against time. Functions can be entered in Visual-Basic script. Time series measurements can be saved/loaded and printed. Zoom- and panning functions can be applied to expand quickly an interesting part of the time series measurement to the full graph.		X
Auto Wavelength Calibration. In combination with a Mercury-Argon Light Source, a number of peaks can be detected automatically. These peaks are then compared with the wavelengths where they should have been detected, and a regression fit is performed to calculate the best wavelength calibration coefficients.		X
Correct for drift. If a master and one or more slave channel of about the same wavelength range are available, one of the channels can be used to correct the other channel data for changes in the light source. This option also works for the FOS-2-inline to correct for one channel spectrometer temperature fluctuations.		X
Automatic save spectra periodically (save a spectrum every x seconds)		X
External Trigger control to acquire (and save) spectral data only if a TTL signal is presented to a connector on the spectrometer. Also supports the AvaSpec-2048FT (Fast trigger) with optional integration time delay settings.		X
Convert spectra to J-CAMP format for further data processing e.g. in GRAMS32		X
Full Width Half Max calculations, online or on saved spectra. Graphically displayed		X
Integral calculations, online or on saved spectra, graphically displayed		X
Autoconfigure integration time: AvaSoft searches for an optimal integration time		X
Automatic Save Dark by TTL shutter.		X
Autodetect saturated pixels in a spectrum, optionally autocorrect inverted saturated pixels, optionally visualize saturated pixels and log saturated wavelength regions in time series.		X

Custom made modifications are possible, please contact us for more details.

ORDERING INFORMATION	
AvaSoft-Full	Full version Spectrometer software for Windows95/98/2000/NT/ME/XP
AvaSoft-NIR-RS232	Full version NIR-128-RS232 software for Windows95/98/2000/NT/ME/XP

AvaSoft Application Software - Color



The AvaSoft Color Application has been developed to perform on and off-line color measurements with a spectrometer system. It can be used for reflective color measurements, in earlier versions of AvaSoft called "color of object measurements". This application provides a precise way to perform color measurements using the basic principles and techniques defined by the International Committee on Illumination (CIE). The CIE 1976 L*a*b* color parameters are calculated, as well as other frequently used parameters, like Hue, Chroma and X, Y, Z.

These parameters can be displayed in a CIELAB chart or in a graph versus time. It is also possible to save the measured L*a*b* values online to a database and use one of the products from the database as a reference color. By comparing the measured L*a*b* values to the stored database values, color differences (ΔE_{Lab} , ΔL^* , Δa^* , or Δb^*) can be measured as well.

The color of an object can be expressed by the CIE 1976 (L*a*b*) color space. L* describes the lightness of the color. A positive value of a* describes the redness of the color, a negative a* the greenness. Similarly, yellowness or blueness is expressed by coordinate b*, which is positive for yellow and negative for blue. The L*a*b* values are derived from the CIE tristimulus values X, Y and Z of the sample (object) and the standard illuminant tristimulus values X_n , Y_n and Z_n .

The standard illuminant tristimulus values for X_n , Y_n , and Z_n are constant and depend only on the type of standard illuminant that has been chosen.

The CIE tristimulus values X, Y and Z of the color of an object are obtained by multiplying the relative power P of a standard illuminant, the reflectance R (or the transmittance) of the object, and the 1931 CIE standard observer functions x_n , y_n and z_n (2 degrees angle). The integral of these products over all the wavelengths in the visible spectrum (380 to 780 nm with a 5 nm interval) gives the tristimulus values.

Color Chart

The color chart display has following features:

- Display in CIELAB chart, the actual sample color as well as the reference color with the corresponding ΔE_{Lab} , ΔL^* , Δa^* , or Δb^* values are displayed and saved as well.
- The settings for the LAB chart display can be changed, such as no graphical display of reference and sample color in order to speed up the measurements.
- New additional option is to select the standard observer angle for 2° or 10°.
- The reference color can be saved to and loaded from a color database. This color database contains next to all color parameters a product ID and a display of the actual color. The database can be sorted alphabetically or on either value column.

Time series

The time series display has following features:

- Display in time series can be done for up to 8 functions.
- For each channel a color parameter (L*, a*, b*, hue, Chroma, X, Y, Z, ΔE_{Lab} , ΔL^* , Δa^* , or Δb^*) can be selected, also for each channel a different reference color can be selected, enabling the use as a color sorter.
- For each channel the time axis can be set to a different scale, allowing simultaneous display of long time and short time monitoring of the same parameter.
- For each channel the actual measured color, as well as the reference color (if in ΔE_{Lab} , ΔL^* , Δa^* , or Δb^* mode) are displayed.
- The saved time series data can be loaded again and displayed with extensive zooming and dragging options.

ORDERING INFORMATION

ORDERING INFORMATION	
AvaSoft-COL	Color application add-on software, to be ordered with AvaSoft-FULL
COLOR-DLL	32-bit DLL for Color application (see chapter COLOR-DLL)



AvaSoft Application Software - Irradiance



Radiated optical energy, as measured by Avantes line of spectrometers, can be quantified as a radiant flux, a measure in energy per second (Watts) radiated from a source. The radiated optical energy can then be correlated with human vision (photometry) as defined in the CIE to obtain a spectral luminous efficiency function to characterize the vision of an average human observer.

Both radiometric and photometric quantities can be measured with an irradiance calibrated Avantes spectrometer system. Radiometric quantities are radiant energy (in Joule), Radiant power or flux (in Watt) or irradiance (Watt per cm²). Related photometric quantities are luminous flux (lumen) or illuminance (lux or lumen per m²).

With the AvaSoft Irradiance Application it is possible to calculate the above parameters from the measured spectral distribution. A calibrated light source AvaLight-HAL-CAL or AvaLight-DH-CAL with known energy output (in $\mu\text{Watt}/\text{cm}^2/\text{nm}$) is used as a reference. This calibration can be performed, saved and loaded by the end user.

An other option is to have your Avantes spectrometer system calibrated in our irradiance calibration lab, so there is no need to have an additional calibrated light source. The calibration can be loaded into the AvaSoft-IRRAD software.

Color of light parameters can be expressed by the chromaticity coordinates x, y and z. These chromaticity coordinates are obtained by taking the ratios of the tristimulus values (X, Y and Z) to their sum. The tristimulus values X, Y and Z and

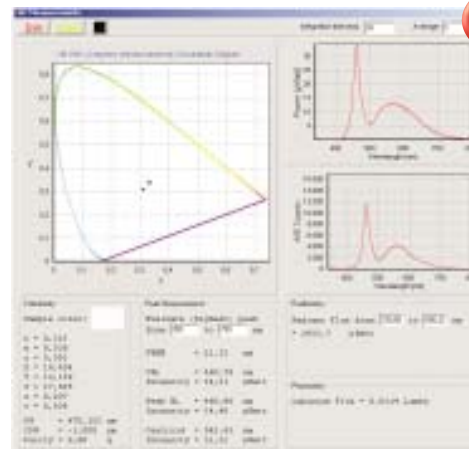
the spectral irradiance are computed in a wavelength range from 380 nm to 780 nm, using a 5 nm interval. These parameters, as well as the coordinates u and v and the color temperature of an external light source can be calculated and displayed in real-time.

The same experimental set up (spectrometer with fiber optics and cosine corrector or integration sphere) is used to calculate the intensity of the light.

The calculated output can be displayed and saved in two ways:

- In the main Window the data is displayed as spectral irradiance in $\mu\text{Watt}/\text{cm}^2/\text{nm}$ versus wavelength, like in the graph above. Further, the result of up to 10 of the following output parameters is displayed in a separate window: radiometric quantities $\mu\text{Watt}/\text{cm}^2$, $\mu\text{Joule}/\text{cm}^2$, μWatt or μJoule , photometric quantities Lux or Lumen, color coordinates X, Y, Z, x, y, z, u, v and color temperature.
- In Time Measurement mode, up to 8 functions can be displayed simultaneously versus time. For each function, a different radiometric, photometric or color coordinate output parameter and/or wavelength range may be selected, as well as a different spectrometer channel.

Special feature in the new AvaSoft-IRRAD 6.2 is the addition of the X-Y Chromaticity diagram, including parameters, specially useful for LED measurements, such as: Dominant Wavelength, Purity, Central Wavelength, Centroid, etc.



ORDERING INFORMATION	
AvaSoft-IRRAD	Irradiance application add-on software, to be ordered with AvaSoft-FULL
IRRAD-DLL	32-bit DLL for Irradiance/LED application (see chapter IRRAD-DLL)

AvaSoft Application software - Chemometry

NEW

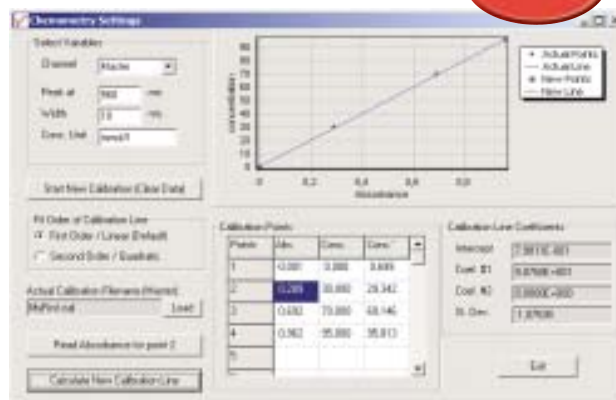
AvaSoft-CHEM has been developed to enable on-line concentration measurements with a spectrometer system. According to Lambert-Beer's law, there is a linear relationship between absorbance and concentration:

$$A = e \cdot c \cdot l$$

Where A is the absorbance (or extinction), e is the extinction coefficient of the compound to be measured, c is the concentration and l is the optical path length.

In practice, this relationship is only linear at reasonably low absorbance levels (say less than 2). The wavelength at which the absorbance is measured must be kept constant. If a few samples with known concentration are available, these can be used to measure the absorbance.

These absorbance values can be used in AvaSoft-CHEM to calculate a linear (or second order) calibration line. Then, this calibration line is used to measure the concentration of unknown samples or to measure a changing concentration versus time.



AvaSoft-Chem can display and save the calculated concentration in two ways:

- The concentration can be displayed on-line in a separate display window, for up to eight spectrometer channels (if available).
- Up to eight history channels functions can be selected to display and save concentration values against time. This application can be combined with the Excel and Process-Control applications.

ORDERING INFORMATION

AvaSoft-CHEM Chemometry application add-on software for concentration measurements, to be ordered with AvaSoft-FULL

AvaSoft Application software - Photon



AvaSoft-Photon has been developed to measure the spectral distribution of the number of photons in the light that is being investigated. Since the number of photons per nanometer is a huge number (even with very low light intensity), the number of Avogadro is used to express the number of photons in mols, or as in our application in μmols.

The number of photons per nanometer can be calculated from the wavelength dependent photon energy, and the absolute light energy that is measured with AvaSoft-IRRAD. AvaSoft-PHOTON offers the following additional functionality compared to AvaSoft-IRRAD:

- A graphical view mode, in which the number of photons (in μMol/s/m²) is shown against wavelength. In this view mode, both online measurements and earlier saved irradiance spectra (files with extension *.irr) can be shown. Also the spectra that were saved in irradiance mode before the development of AvaSoft-Photon can be displayed in photon count mode.

- The irradiance output parameters have been extended with: μMol/s/m², μMol/m², μMol/s and μMol. These values can be calculated for each spectrum (including earlier saved graphs) that is displayed in the main window.
- In time series measurement, up to eight irradiance parameters can be selected to be monitored simultaneously against time. The photon counts parameters μMol/s/m², μMol/m², μMol/s and μMol have been added in AvaSoft-Photon. With AvaSoft-XLS these parameters can be exported online to Microsoft Excel. With AvaSoft-PROC, thresholds can be set and TTL output signals (onboard with AvaSpec-2048) will be generated if these thresholds are exceeded.
- The saved irradiance spectra can be converted to ASCII format with the menu option: File – Convert Graph – To ASCII. With AvaSoft-Photon, an extra column is added representing the photon counts in μMol/s/m².

ORDERING INFORMATION

AvaSoft-Photon Photon energy application add-on, to be ordered with AvaSoft-FULL



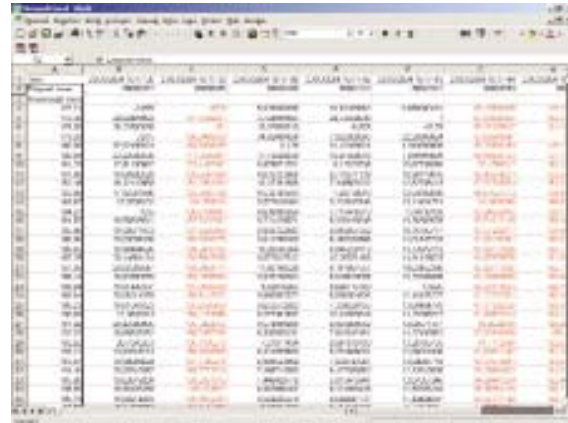
AvaSoft Application Software – Export to Excel

AvaSoft-XLS is an add-on application that enables Avasoft Full to output history channel data and/or complete spectra to Microsoft Excel.

It uses OLE (Object Link Embedding)-Automation, which is a technology that enables AvaSoft to remotely control Excel, opening sheets and copying data into cells. With AvaSoft-XLS two different modes are possible:

1. Exporting data online in a paste format to Excel workbooks, for each spectra or function output a new column or row is generated. At the end of a predefined number of scans the export is stopped and the Excel sheet(s) can be saved to a file.
2. Exporting data to a fixed position in a predefined Excel worksheet. Each spectrum or function output is copied to the same position as the previous spectrum or function output in an overwrite mode. The user can now address those data cells from another application, like Labview or Matlab and do on-line data processing and analyses.

On modern hardware, a data transfer speed to copy complete 2048 pixels spectra to Excel with as little as 50 ms overhead per scan can be reached.



The output functions to be exported can be history channel functions, color parameters (in combination with AvaSoft-COL), irradiance parameters (in combination with AvaSoft-IRRAD) and chemometric parameters (AvaSoft-CHEM). AvaSoft-XLS can be ordered as add-on to AvaSoft-Full for the AvaSpec, the AvaMouse and NIR-128-RS232.

ORDERING INFORMATION

AvaSoft-XLS

Export online to Excel add-on software, to be ordered with AvaSoft-FULL

AvaSoft Application software – Oxygen measurements



Avasoft-Oxygen has been developed to perform on-line absolute oxygen measurements with a spectrometer system. Oxygen probes are based on the quenching effect of oxygen on the fluorescence of a ruthenium complex.

For details on the oxygen measurement setup see section applications in the back of this catalog.

The AvaLight-LED-475 light source emits light with a wavelength of approximately 475 nm. Measurements of the fluorescence are performed at approximately 600 nm. A high signal corresponds with a low oxygen level and vice versa.

The oxygen concentration can be calibrated and measured for both dissolved oxygen (ppm) and oxygen in air (%).

The calculated oxygen level can be displayed and saved in two ways:

- The oxygen level can be displayed on-line in a separate display window, with up to eight channels.
- You can select up to eight history channels that can display and save oxygen levels against time. This application can be combined with the Excel and Process-Control applications.

ORDERING INFORMATION

AvaSoft-OXY

Oxygen application add-on software for oxygen concentration measurements, to be ordered with AvaSoft-FULL

AvaSoft Application Software - Process Control

The Process Control Application software allows the user to define minimum and maximum threshold values for the 8 time series functions. The time series functions can be the user defined functions, integrals or peak values (intensity, wavelength) as defined in the History application or, in combination with AvaSoft-CHEM, AvaSoft-COL and/or AvaSoft-IRRAD, the chemometrics, color and/or irradiance parameters.

With the AvaSpec 102/256/1024/2048 spectrometers, 8 on-board TTL-output signals are available that will respond to exceeding the user defined output range for the 8 time series functions. These TTL's can e.g. be connected directly to PLC's in an industrial environment.

For other spectrometer types that don't have the TTL-output signals on-board, like the NIR128-RS232 and the AvaMouse, an additional digital card is required. AvaSoft supports the PCI-6503-24IO with 24 digital outputs for this purpose. With this card, minimum and maximum thresholds can be monitored per history channel separately.



To convert the History Channel Functions output to an analog output signal (e.g. 0-10V), a DA card is available. AvaSoft supports the PC-AO-2DC card for this purpose (2 analog outputs, 8 digital).

ORDERING INFORMATION

AvaSoft-PROC	Process control application add-on software for AvaSpec 102/256/1024/2048, to be ordered with AvaSoft-FULL. Controls 8 on-board TTL output signals.
AvaSoft-PROC-X	Process control application add-on software, to be ordered with AvaSoft-FULL. Supports eXtra card (PC-6503-24IO or PC-AO-2DC).
PCI-6503-24IO	Digital IO board with PCI interface, to be used with AvaSoft-PROC-X
PC-AO-2DC	DA converter board with ISA interface, to be used with AvaSoft-PROC-X

AvaSoft-FOM Fiber Optic Multiplexer Control



AvaSoft-FOM has been written to integrate the Fiber Optic Multiplexer with a one channel AvaSpec spectrometer. A single spectrometer can be used to measure at 8 different locations sequentially.

AvaSoft-FOM includes all features of AvaSoft-full.

The software simulates an environment of one master and seven slave spectrometers, and repositions the multiplexer before each new measurement. At present, the maximum number of channels supported by AvaSoft-FOM is eight, as this is the current channel limit of AvaSoft.

For applications where the multiplexer is used without AvaSpec or when custom-specific software is written, the FOM-DLL interface software package is available.

AvaSoft-FOM and the Fiber Optic Multiplexer can be used with AvaSpec and with the NIR128-RS232 spectrometers. Multiplexing spectrometer channels is particularly for the NIR128-RS232 spectrometer a very interesting option, because this spectrometer is not available in a multi-channel version.

ORDERING INFORMATION

AvaSoft-FOM	Fiber Optic Multiplexer integration stand-alone Software
FOM-DLL	Interface DLL package for Fiber Optic Multiplexer (FOM-XX400-1x16 and FOM-XX400-2x8) for Windows-95/98, 2000, ME, NT, XP



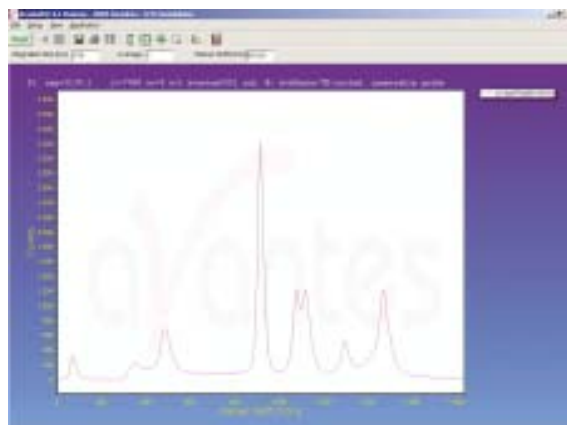
AvaSoft-Raman

AvaSoft-Raman software is a stand-alone software package, that comes with the AvaRaman system. The AvaRaman system is described in detail in the application section of this catalog.

The AvaSoft-Raman software features following options, next to most of the standard AvaSoft-full options:

- display of the wavelength axis in cm^{-1}
- Free choice to enter wavelength of the excitation laser peak
- Integration time progress bar to indicate integration time status

A useful feature in the AvaSoft-Raman software is the history channel functions to follow peak values or concentrations versus time.



The AvaSoft-Raman software can be optionally extended with the Process-control add-on and the Export to Excel add-on for on-line analyses and control.

ORDERING INFORMATION

AvaSoft-Raman

Raman stand-alone Software for the AvaRaman system

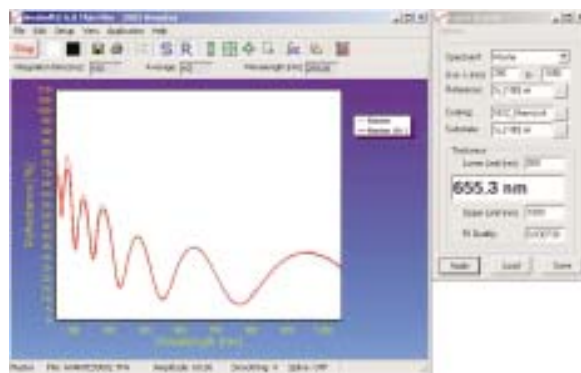
AvaSoft-Thinfilm

AvaSoft-Thinfilm software is a stand-alone software package, that comes with the AvaThinfilm system. The AvaThinfilm system is described in detail in the application section of this catalog.

The AvaSoft-Thinfilm software calculates a layer thickness from the reflection interference spectrum for optical transparent layers with known optical parameters.

Two methods for thin film calculations are implemented in the AvaSoft-Thinfilm software, the Fast Fourier Transform (FFT) method and the best fit optimization algorithm (match spectrum). With the FFT method the frequency of the interference pattern is determined, this method is mostly used for thick layers. With the match spectrum optimization method the best fit is determined for various thickness calculations. Fitting parameters are available for quality of fit monitoring and to speed up the data processing.

A comprehensive database of the optical parameters n and k of substrates and coatings is implemented in the software and includes products for important application fields as semiconductor and coatings.



The AvaSoft-Thinfilm supports multiple channels and 8 time series for layer thickness and fit quality.

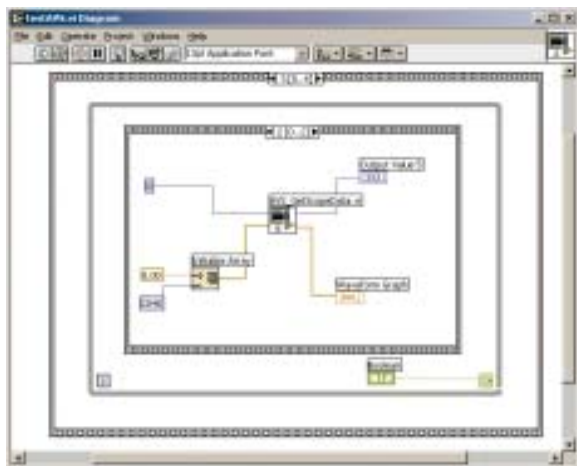
The AvaSoft-Thinfilm software can be optionally extended with the Process-control add-on and the Export to Excel add-on for on-line analyses and control.

ORDERING INFORMATION

AvaSoft-Thinfilm

Thin film stand-alone Software for the AvaThinfilm system

Dynamic Linking Library (DLL) Interface packages



AS-161-DLL Windows Interface Package for AvaSpec 102/256/1024/2048 spectrometers

The AS-161-DLL is the Windows Interface DLL-Package for Windows 95/98/2000 and Windows NT/ME/XP that allows you to easily write custom software solutions for AvaSpec-102, AvaSpec-256, AvaSpec-1024 and AvaSpec-2048 spectrometers.

The software contains functions that can be grouped into three categories:

1. Setting/Getting the hardware parameters from the spectrometers EEPROM. This group includes functions to set- and get the number of spectrometer channels, the wavelength calibration per channel, gain and offset values per channel, and a function to specify the pixelrange for data transfer per channel
2. Functions for data acquisition to get the spectra into your application
3. Functions to communicate with other devices by using TTL signals. The AvaSpec-102/256/1024/2048 spectrometers contain a 15-pin digital IO connector: 1 ground, 1 digital-in which is predefined for external hardware trigger, 1 programmable digital-in, 1 digital-out fixed at 1kHz, 1 digital-out to control a pulsed light sources (XE-2000), and 10 programmable digital-out signals. The AS-161-DLL package includes functions to control the TTL's of this external IO connector.

The interface package also includes a number of sample programs developed to show you how to write your programs. The sample programs were developed in Visual C++, Visual Basic, Delphi, Borland C++ and LabView. The sample programs provide an excellent starting point to write your own applications.

AS-161-Linux drivers for AvaSpec 102/256/1024/2048 spectrometers

A special set of designated Linux drivers for the AvaSpec 102/256/1024/2048 spectrometers can be downloaded for free from our website www.avantes.com. These driver routines are available in source code.

NIR-DLL Windows Interface Package for NIR128-RS232 spectrometers

The NIR-DLL is the Windows Interface DLL-Package for Windows 95/98/2000 and Windows NT/ME/XP that allows you to easily write custom software solutions for the NIR128-1.7-RS232 spectrometer. The software contains functions for getting information that is stored in the EEPROM, data acquisition and temperature stabilization. A sample program was developed in Delphi. Example source code in other programming languages (C++, LabView, Visual Basic) can be supplied on request.

NIR-Windows- DLL Windows Interface Package for NIR128/256/512-USB spectrometers

The NIR-Windows- DLL is the Windows Interface DLL-Package for Windows 95/98/2000 and Windows NT/ME/XP that allows you to easily write custom software solutions for the NIR128/256/512-USB spectrometers. The software contains functions for getting information that is stored in the EEPROM, data acquisition and temperature stabilization.

NIR-Labview- Driver Interface Package for NIR128/256/512-USB spectrometers

The NIR-Labview-Driver is the Windows Interface DLL-Package for Windows 95/98/2000 and Windows NT/ME/XP that allows you to easily write custom software solutions for the NIR128/256/512-USB spectrometers under Labview. The software contains functions for getting information that is stored in the EEPROM, data acquisition and temperature stabilization.

FOM-DLL Windows Interface Package for Fiber Optic Multiplexer

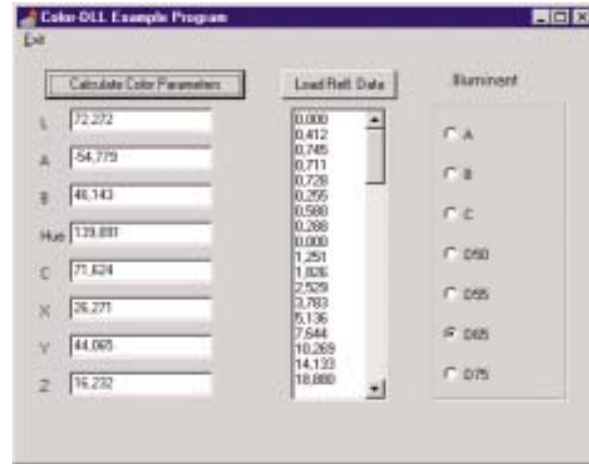
The FOM-DLL is the Windows Interface DLL-Package for Windows 95/98/2000 and Windows NT/ME/XP that allows you to easily write custom software solutions for the Fiber Optic Multiplexer. The software contains functions for to control the position in the multiplexer to one of the 16 positions, to travel to the stepmotor's reference position, and to request status information. Example source code developed in Visual C++, Delphi, Borland C++ and LabView that demonstrate how to use these functions is included in the software package.

Color-DLL

The Color-DLL is a routine to calculate the color parameters L^* , a^* and b^* as well as their hue angle (h^*) and Chroma (C^*) and X, Y, Z values from an array of reflection values, representing the reflectance values between 380 and 780 nm with a 5 nm interval. It runs under Windows 95/98/2000 and Windows NT/ME/XP.

Besides the reflectance array, the function requires another input variable: the illuminant. A choice can be made between 7 different illuminants: A, B, C, D50, D55, D65 and D75.

Example programs in Delphi, Labview and Visual C++ are provided with the software package.



Irradiance-DLL

The Irradiance-DLL is a routine to calculate both radiometric and photometric parameters from an array of irradiance values ($\mu\text{W}/\text{nmcm}^2$).

These parameters include: radiometric quantities $\mu\text{Watt}/\text{cm}^2$, $\mu\text{Joule}/\text{cm}^2$, μWatt or μJoule , photometric quantities Lux or Lumen, color coordinates X, Y, Z, x, y, z, u, v and color temperature. Specific parameters, specially useful for LED measurements, are also included, such as: Dominant Wavelength, Purity, Central Wavelength, Centroid. It runs under Windows 95/98/2000 and Windows NT/ME/XP.

ORDERING INFORMATION

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AS-161-DLL	Interface DLL package for AvaSpec-102/256/1024/2048 for Windows-95/98, 2000, ME, NT, XP
AS-161-Linux	Linux interface package software for AvaSpec-102/256/1024/2048 spectrometers
NIR-DLL	Interface DLL package for NIR-128-1.7-RS232 for Windows-95/98, 2000, ME, NT, XP
NIR-Windows- DLL	Windows Interface Package for NIR128/256/512-USB spectrometers
NIR-Labview- Driver	Interface Package for NIR128/256/512-USB spectrometers
FOM-DLL	Interface DLL package for Fiber Optic Multiplexer (FOM-XX400-1x16 and FOM-XX400-2x8) for Windows-95/98, 2000, ME, NT, XP
COLOR-DLL	DLL to calculate color coefficients, for Windows-95/98, 2000, ME, NT, XP
IRRAD-DLL	32-bit DLL for Irradiance/LED application for Windows-95/98, 2000, ME, NT, XP