PERSEE ANALYTICS, INC.

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T8DS

UV/ VIS Spectrophotometer

Features

- Excellent performance: A high-performance diffraction grating spectrophotometer with a Czerny Turner Mounting with a Holographic Grating keeps stray to a minimum and offers excellent optical resolution over a wide spectral range. The use of photomultipliers as detectors offer exceptional sensitivity.
- Very Stable Baseline: The true double-beam optical array coupled with an efficient and well proven electronic control system ensures high stability and low background noise.
- High resolution: The double beam optical design coupled with a high specification holographic grating gives excellent wavelength separation and allows the user to examine wavelengths that are very close whilst providing excellent ratio to background noise.
- Accurate wavelength: The automatic wavelength control system and the automatic light sensors ensure wavelength accuracy and high performance of the instrument.
- Easy accessories replacement: The modular structure of the sample compartment enables the easy use of a wide range of optional accessories and ensures accurate analysis of various samples types.
- User-friendly serviceability: The user friendly design of the light source chamber for the deuterium lamp and tungsten halogen lamp allows easy light source replacement and simplified routine maintenance.
- Versatile application software: The UV-Win user friendly operating software operating on a Windows platform offers many operational and data processing capabilities. Thus presenting the user with a very versatile simple to use spectrophotometer system.
- The key components: All the components used in the T8DS are selected for their reliability and continued high performance.

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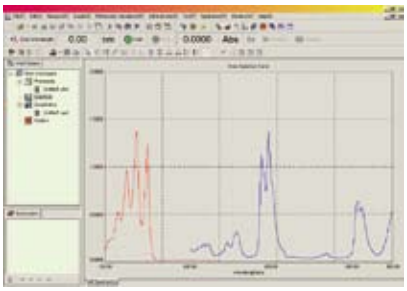
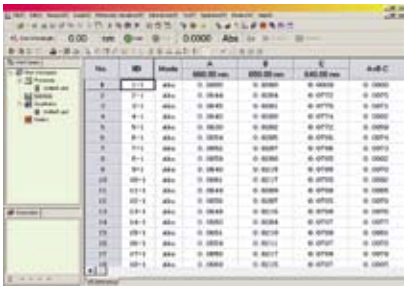
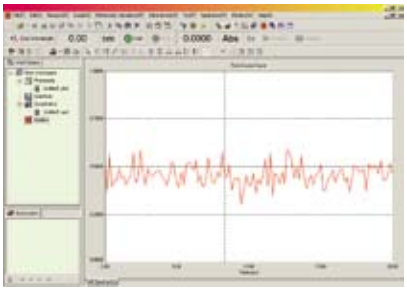
Functions



- The T8DS UV-Win applications software allows the simultaneous display of different measurement windows, toggling between different measurement modes can be achieved with ease. The Spectrophotometer and all accessories are under the control of UV-Win Software. A hard copy of data can easily be obtained and data can also be exported to other Windows based programs for further data manipulation.



- The multi-wavelength photometry can measure the absorbance and transmittance of samples using multiple wavelengths, average the measured values, and make calculations based upon operator derived factors and coefficients.



- Multi-channel measurement with colour display and printout, and various capabilities for data processing can meet the needs of most chemists. This module allows manipulation of information and data display, from spectra calculations to various transforms such as 1st - 4th derivative, smoothing, and logarithms. The data output for peak-picking and data-picking is also available.

- Creation of a standard curve is simple in quantitative analysis mode. This module has many powerful features such as determination of 1st - 4th Order curve coefficients, very accurate measurements can also be made on samples with nonlinear absorbance. The quantitative methods use single wavelength, two-wavelength, coefficient two-wavelength, three wavelength and 1st - 4th derivatives.

- Kinetic measurement can monitor the changes of absorbance and transmittance against time at 10 different wavelengths and can easily supply important information about the changes in a sample. This module allows manipulation of information and data display, from calculation of curves to various transforms, such as 1st-4th derivatives, smoothing, and logarithms etc. The data output of peak-pick and data-pick is also available.

- DNA and protein analysis is provided by a unique purpose designed program.

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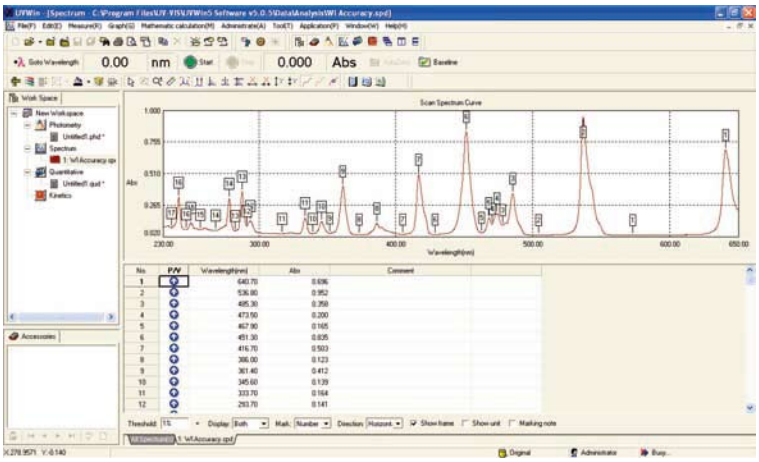
UV-Win is a powerful, intuitive software product used for connectivity to the PERSEE range of bench top UV-Vis Spectrophotometers.

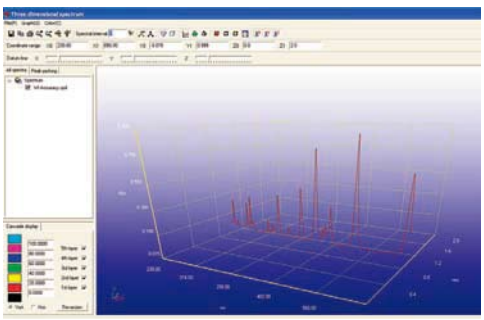
The UV-Win software offers complete instrument control along with data acquisition and a whole host of mathematical tools for interpretation of measurement results. The UV-Win software is separated into four key workspaces:

- Spectral Analysis
- Quantitative Analysis
- Kinetic Analysis
- Photometric Analysis

Spectrum Workspace

- Use the spectrum workspace to scan across a userdefined spectral range measuring in either absorbance or transmission.
- Use the “Peak Pick” tool to determine the wavelength at which peaks and valleys have occurred whilst also being able to determine their amplitude.
- View spectral overlay in the 3D display mode.
- Perform 1st, 2nd, 3rd and 4th order differentiation on sample scans for Derivative Spectroscopy.
- Export measurement data into Word, Excel, CSV and ASCII formats.
- Create method files for routine analysis whilst also being able to save measurement data.





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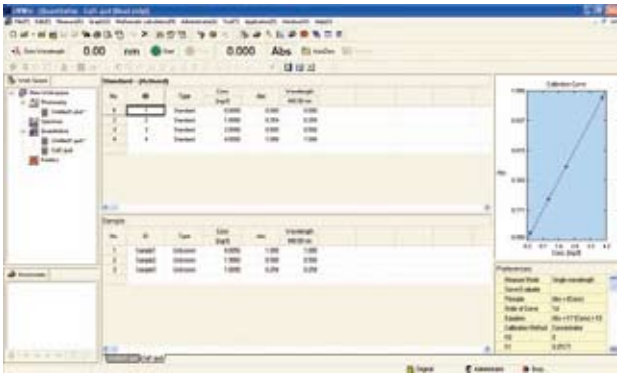
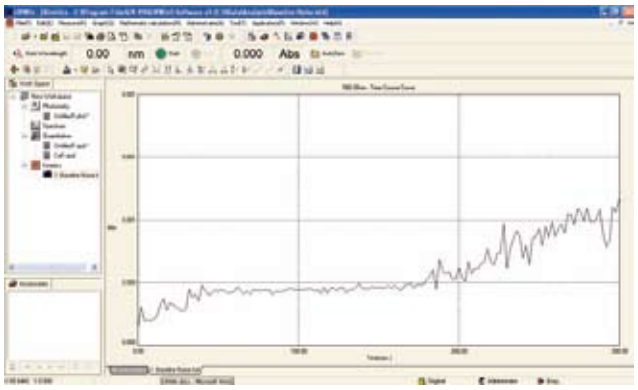
Quantitative Workspace

- Use the Quantitative workspace to determine the concentration of unknown samples.
- Create a calibration curve using a series of standard solution or by directly entering the coefficients for the calibration curve equation.
- Specify 1st, 2nd, 3rd and 4th order correlation for the best calibration curve fit.
- Set Quality Control monitors to take user specified action in the event of measurement results falling outside user defined limits.
- Export measurement data into Word, Excel, CSV and ASCII formats.
- Create method files for routine analysis whilst also being able to save measurement data.



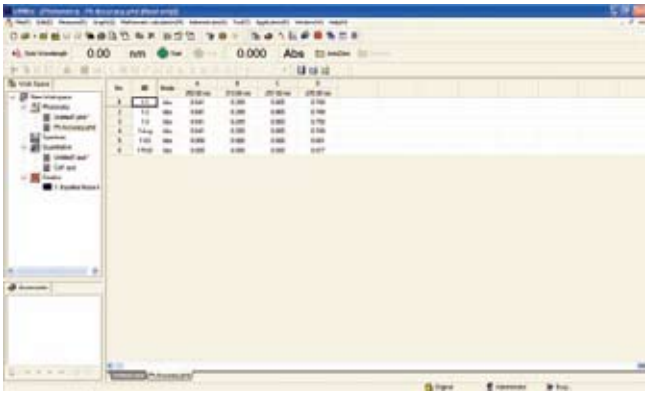
Kinetic Workspace

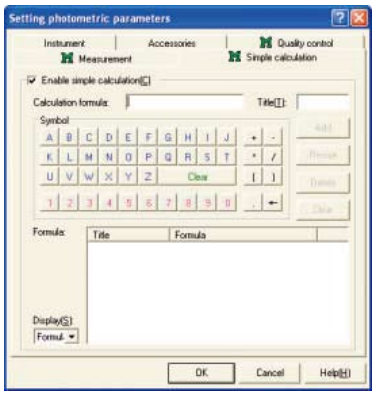
- Monitor the change of Absorbance or Transmission as a function of time for Enzyme type reactions.
- Use in conjunction with a Flowcell for sample introduction or Peltier water circulator for temperature control.
- Specify data intervals and acquisition time for up to 24 hour reactions.
- Export measurement data into Word, Excel, CSV and ASCII formats.
- Create method files for routine analysis whilst also being able to save measurement data.



Photometric Workspace

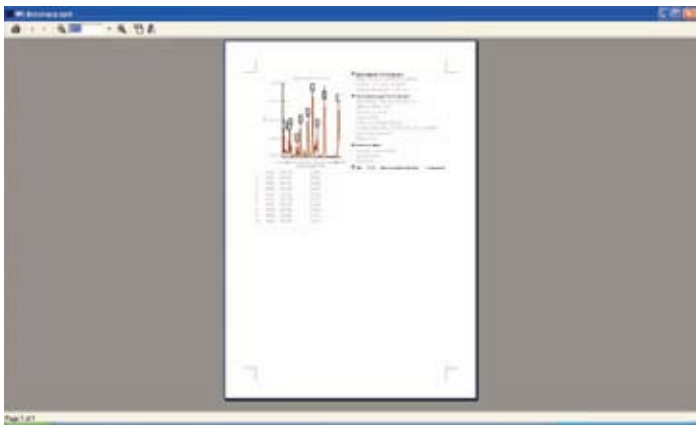
- Perform a series of sequential fixed wavelength measurements in either Absorbance or Transmission.
- Automate sample measurements by configuring the instrument cell changer.
- Calculate concentration of unknown samples quickly using the “Simple Calculation” option where complete calibration is not required.
- Automatically calculate statistics like standard deviation, relative standard deviation, and averages.
- Export measurement data into Word, Excel, CSV and ASCII formats.
- Create method files for routine analysis whilst also being able to save measurement data.





Reporting

- Produce reports for photometric, spectrum, kinetic and quantitative measurement data.
- Include or remove spectra, calibration curves along with samples measurement tables.



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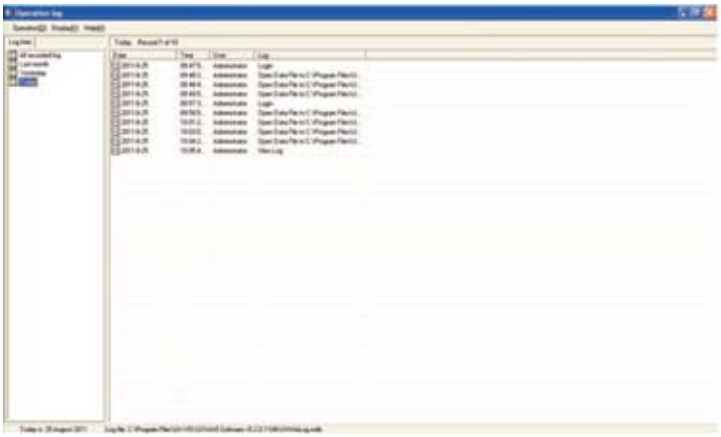
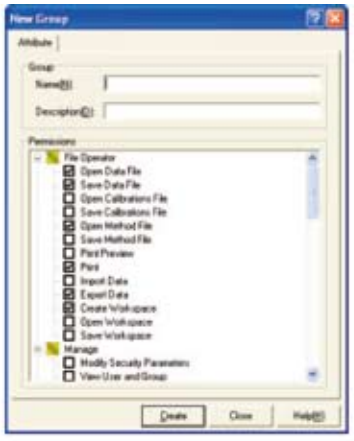
UV-Win GLP offers all of the features and functionality of UV-Win whilst also offering extensive Administrative capabilities along with a detailed audit trail.

Administration

- Administrative settings can be made where Analysts may require conformity to GLP/GMP/GRP.
- Create User groups specifying exactly what actions they are able to perform.
- Add New Users to custom User Groups to determine their privilege settings.
- Automatically log software activity in an Audit Trail.
- Use Password control to ensure Users are logged in for instrument usage.





Certification

UV-Win GLP has been evaluated and tested by a third party software validation specialist. As a result it was found that UV-Win GLP offers all of the features and functions required for use in compliance with the guidance specified in:

- 21CFR Part 11- Electronic Records; Electronic Signatures
- Guidance for Industry Part 11, Electronic Records; Electronic Signatures — Scope and Application, August 2003

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Spectrophotometer Liquid IQ/OQ Qualification Package

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The purpose of the Qualification Package is to offer both laboratory analysts and regional distributors the flexibility to perform a full installation, operation and performance qualification on spectrophotometers manufactured by PERSEE ANALYTICS, INC.

The work instructions within the qualification workbook have been developed with considerations of the requirements of the European Pharmacopoeia to ensure compliance with good laboratory practice.

The documentation supplied with the package guides the user through the qualification as it offers detailed instructions on how to carry out the tests, document and record results, and perform any necessary corrective action. The package is comprehensive and offers all the materials required to complete the qualification.

The contents of the package are as follows:

- Holmium Oxide Solution – For determining the wavelength accuracy (NIST srm 2034)
- Potassium Dichromate Solution – For determining the photometric accuracy (NIST srm 935a)
- Potassium Chloride – For determining the stray light @ 200nm
- Sodium Iodide – For determining the stray light @ 220nm
- De-Ionised Water – Reference solution
- Two 10mm path length Quartz Cuvettes – To perform the validation
- Certificate for Solutions
- Qualification Workbook containing, Qualification Worksheets
- CD containing Qualification Workbook

NOTE: UV-Win software is a mandatory requirement for performing instrument qualification

Optional Accessories

- **PS19-2** T8DS Sipper Pump Accessory (Pump, Tubing, Casette, Front Panel, Flow Cell)
- **CH19-1** T8DS Fixed Position 10mm Constant Temperature Cell Holder
- **PTC-2** Peltier Module
- **DS19-1** T8DS Adjustable Angle Solid Sample Holder
- **S19-1** T8DS Solid Sample Holder
- **ST19-1** T8DS Standard Fixed Position 10mm Path Length Cell Holder
- **MN19-1** T8DS Manual 8 Position Cell Changer (Fixed Reference Position)
- **LS19-1** T8DS Universal 5-100mm Path Length Cell Holder (Sample & Reference)
- **MH19-1** T8DS Micro Cell Holder
- **MH19-2** T8DS Ultra Micro Cell Holder
- **MR19-1** T8DS Specula Reflectance Accessory
- **IS19-1** T8DS Integrating Sphere (Diffuse Reflectance)
- **TR19-1** T98DS Test Tube Holder 13-16mm Variable


Sipper pump


Fixed position constant-temperature cell holder


Peltier


Adjustable angle solid sample holder


Solid sample holder


Manual 8-cell holder


Long pathlength cell holder


Micro cell holder


Ultra Micro cell holder


Specular reflection accessory


Integrating sphere


Test tube holder

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Specifications

Instrument Type	T8DS
Optical System	Double beam
Scan SpeedSelectable	Selectable
Wavelength Range	190~900nm
Wavelength Accuracy	± 0.3nm
Wavelength Reproducibility	≤ 0.1nm
Spectral Bandwidth	0.1, 0.2, 0.5, 1.0, 2.0, 5.0nm
Photometric Mode	Transmittance, Absorbance, Energy Concentration, All Using UVWin Software
Photometric Range	-4.0~4.0Abs
Photometric Accuracy	±0.002A (0~0.5A), ±0.004A (0.5~1.0A), ±0.3%T (0~100%T)
Photometric Reproducibility	±0.001A (0~0.5A)
Photometric Noise	±0.0004A (500nm) 30min warm-up
Baseline Flatness	±0.001A (200~850nm)
Baseline Stability	±0.0008A/h (500nm, 0Abs), 2hr warm-up
Stray light	≤ 0.01%T (220nm Nal, 340nm $NaNO_2$)
Standard Functionality	No stand alone function
Cell Holder	Fixed position sample and reference
Detector	Photo multiplier tube
Light Source	Tungsten Halogen and Deuterium arc lamps
Display	No display
Printer	Not available
PC Interface	RS232
Software Support	UV-Win
Power Supply	Switchable 120~230VAC 50~60Hz
Weight	43Kg
Dimensions (Width, Depth, Height)	545mm, 580mm, 270mm

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