



Thermo Scientific Evolution 300
UV-Vis Spectrophotometer

Precision performance for advanced analysis

Life Science • Quality Control • Pharmaceutical
Materials Science • Biochemical

Thermo
SCIENTIFIC

Reliable, high-performance UV-Visible measurements

For over 60 years, customers in world-renowned research institutions, highly regulated QC laboratories and teaching institutions have relied on Thermo Scientific™ UV-Visible (UV-Vis) spectrophotometers. The Thermo Scientific™ Evolution™ 300 UV-Visible spectrophotometer is founded on the successful legacy of the Pye Unicam, Bausch & Lomb™, Phillips Scientific, and Thermo Scientific™ SPECTRONIC™ products.

Many customers today say they made their first absorbance measurement on a Thermo Scientific SPECTRONIC 20 spectrophotometer, a product introduced to the market in 1953. The Evolution 300 continues in this tradition by delivering the high level of performance, accuracy and precision you need for your UV-Vis applications.



Double-beam optical design for reliable results

The Evolution 300 spectrophotometer incorporates a high-performance optical design, versatile Thermo Scientific™ VISION™ software packages, and the highest quality accessories for the most demanding applications.

The systems offer a multitude of advantages for a wide variety of applications including:

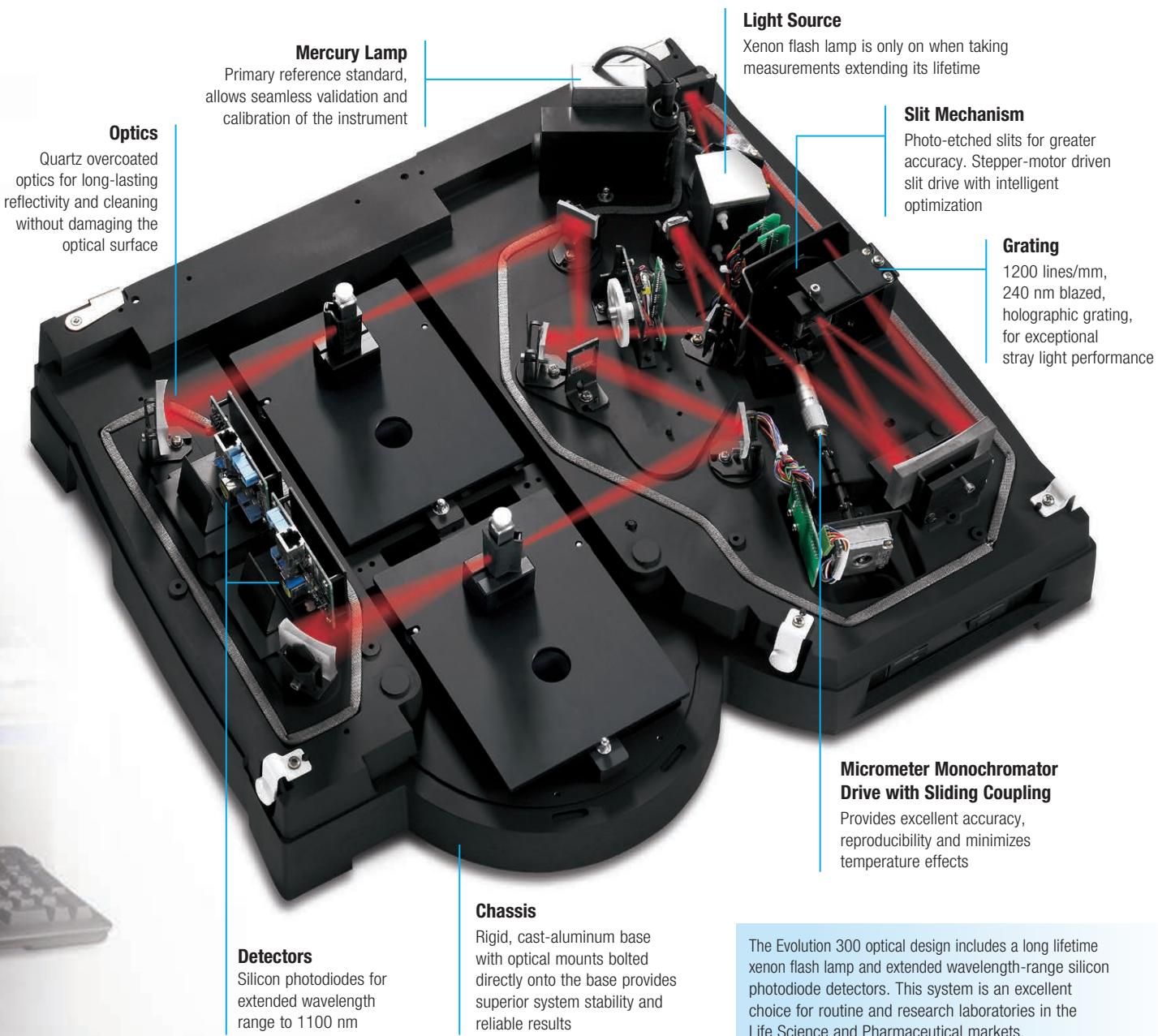
- Life Science and Biochemical
- Pharmaceutical and QC
- Material Science

Innovative Smart Accessories™ deliver ease of use and increased productivity by providing:

- Snap-and-go installation
- Seamless software integration
- Serial number tracking for the regulated environment

System configuration choices offer the ultimate in flexibility for your laboratory. Choose from:

- Stand-alone Local Control version
- PC Control version
- Combination of both



Operational flexibility to fit your lab needs

The Evolution 300 offers the flexibility to choose a configuration suited to your needs: Local Control, PC software control, or both. Each of these configurations offers various levels of operational flexibility to fit the individual or multi-user laboratory environment.



The large, color display and tactile keypad make the Evolution Local Control system convenient and easy-to-use.

Local Control

The Local Control configuration offers complete instrument control, comprehensive method and data file manipulation, and saves valuable bench space. It can also be password protected preventing unwanted access from outside your laboratory.

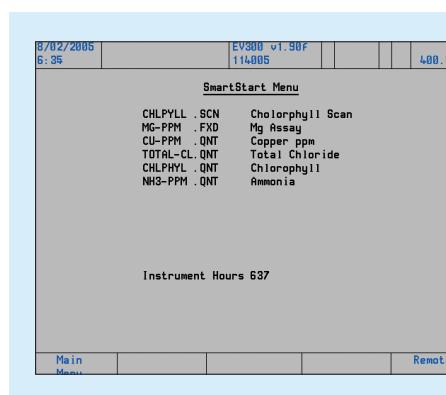
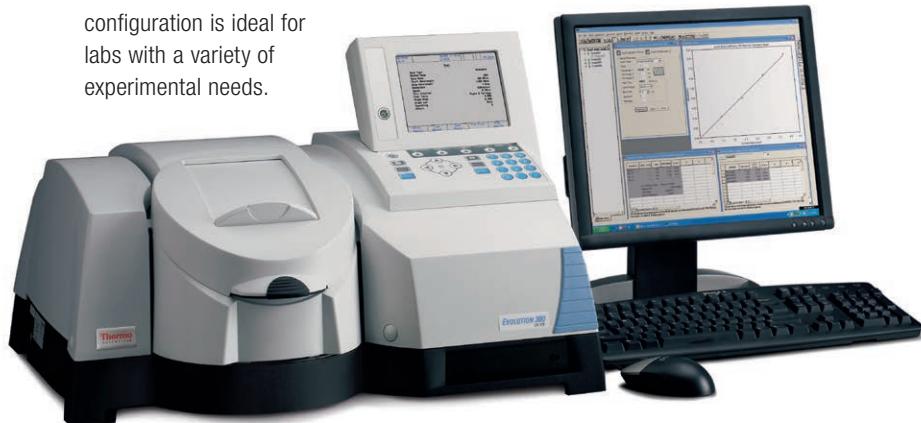
Local and PC Control

The Local Control with PC software control configuration gives you the freedom to choose the configuration that matches your experimental needs. For example, use Local Control for quick walk up measurements in a multi-user lab. Later, to run a kinetics experiment based on a method stored on a network drive, simply open VISION software, and switch the instrument to PC control. This configuration is ideal for labs with a variety of experimental needs.

PC Control

The PC Software Control configuration uses the powerful VISION suite of software to control the Evolution 300 instrument. This software allows you to collect, store, recall, and analyze your data using one convenient program. From QC quantitative analysis measurements to complex enzymatic assays, the right VISION software package is available for your application.

The PC Control configuration also allows users to collect data and distribute it to third-party applications for advanced processing and archiving.



SmartStart

Increase productivity with Thermo Scientific™ SmartStart™ feature in the local control. SmartStart lets you place your laboratory's most used methods and applications on the first menu screen displayed after switching on the instrument. With no requirement to navigate menus and reduced training requirements, the Evolution 300 Local Control fits perfectly in busy labs where users don't have to be experts.



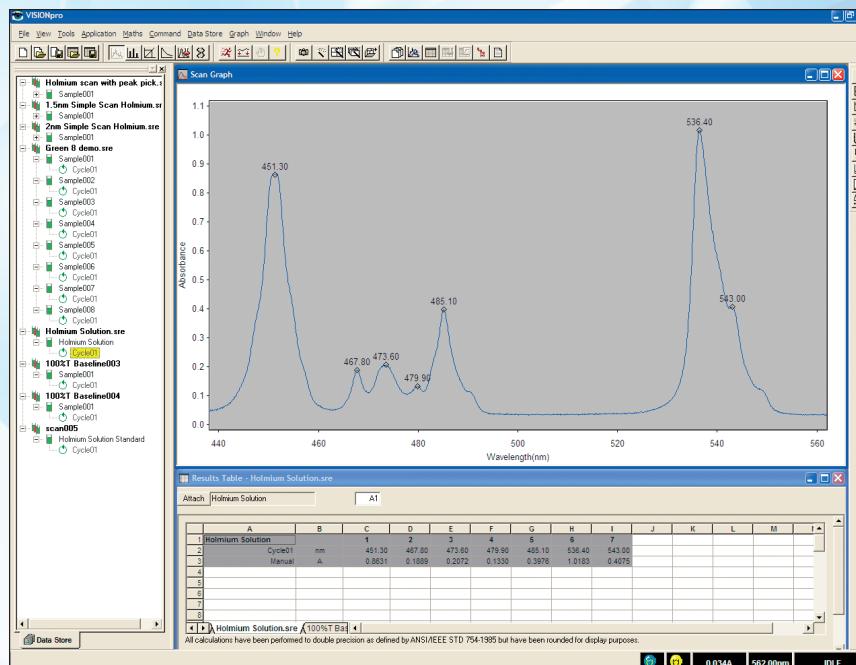
VISION Software Suite

VISIONpro

Thermo Scientific™ VISIONpro™ software is a flexible instrument control and data manipulation package designed for the general research and QC laboratory.

It features:

- Advanced scanning functionality for sample identification and method development
- Single and multiple fixed wavelength measurements complete with advanced reference wavelength correction
- Comprehensive quantitative analysis with UVcalc, an advanced results calculator tool for real-time data processing
- Powerful multicomponent analysis package offering simultaneous concentration analysis of multiple components
- Spreadsheet functionality in UVcalc automatically performs user-programmed calculations and provides complete flexibility to format your final results



The standard VISIONpro software offers advanced scanning, multiple fixed wavelength measurements, and multi-wavelength measurements with customized UVcalc. Quantitative analysis and multicomponent analysis applications are also included.

VISIONlife

Thermo Scientific™ VISIONlife™ is an optional module that integrates with either Thermo Scientific™ VISIONpro™ or VISIONsecurity™. VISIONlife adds:

- A sophisticated kinetics application supporting serial, parallel, and triggered rate modes
- Advanced kinetics analysis software with modeling for pre-defined enzyme behavior models ranging from basic Michaelis-Menten treatments to binding models such as Hill plots, Lineweaver-Burke and Eadie-Hofstee
- A DNA melting application that works with the Smart Peltier Thermostatted Single Cell Holder to deliver advanced control of the heating/cooling cycles and save valuable time in your DNA denaturation/renaturation assays
- A wide range of T_m calculation methods which can also be extended using UVcalc

VISIONsecurity

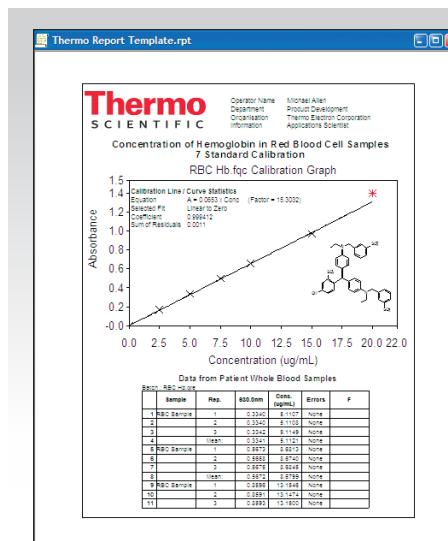
For laboratories requiring 21 CFR Part 11 compliance, Thermo Scientific VISIONsecurity sets the standard for UV-Vis instrumentation. With all the features of VISIONpro plus the capability to achieve 21 CFR Part 11 compliance for electronic records, VISIONsecurity offers:

- Multiple levels of access control for method and data security
- Audit trails and electronic signatures for records compliance
- Comprehensive integration into the Microsoft Windows® operating system for a solution that can be implemented on a single PC or enterprise-wide from a server location

VISIONlite ColorCalc

Thermo Scientific™ VISIONlite™ ColorCalc software offers a simplified stand-alone interface that delivers calculated color parameters quickly and easily. In applications ranging from lighting gels to waste-water, VISIONlite ColorCalc calculates the color values you need including:

- Tristimulus XYZ
- Chromaticity
- CIE L*a*b*
- Whiteness and yellowness indices
- APHA/Hazen/Pt-Co
- Gardner
- Iodine
- Many other methods and scales



Customized Reporting

The Report Composer in the VISION software suite offers complete freedom to configure your reports. Choose to include:

- Methods information
- Spectrum or Rate plots
- Tabular data
- Microsoft® Word files
- Microsoft Excel® spreadsheets
- Custom graphics such as your institutional logo

Link a report template to an application method and reports are automatically produced in your customized format.

Comprehensive solutions for life science biochemical applications

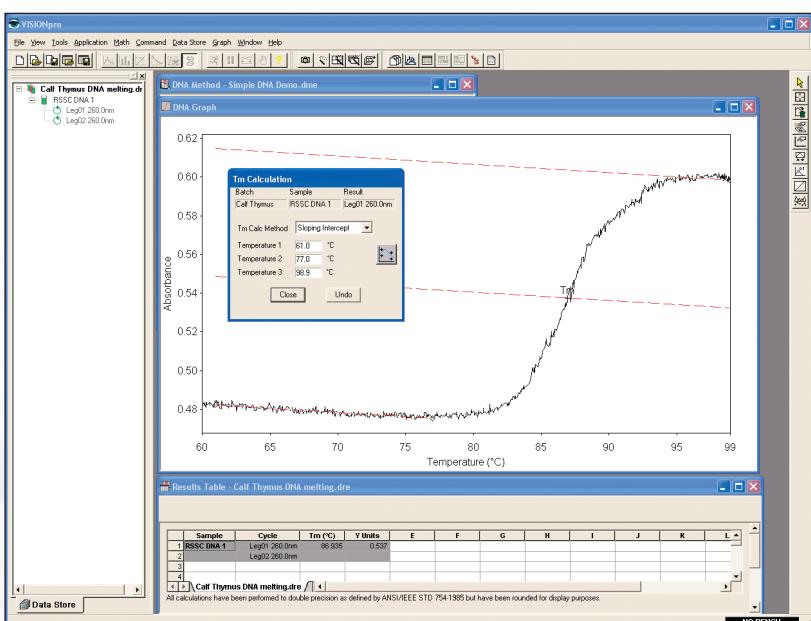
The Evolution 300 is the natural fit for any multi-user life-science research laboratory. Whether your users perform fast or routine assays, such as Nucleic Acid tests or more advanced studies, such as Michaelis-Menten kinetics or Thermal Denaturation/Renaturation assays, this instrument offers a configuration ideal for your laboratory.

Nucleic Acid Tests

All the standard tests for determining DNA purity in the presence of protein or phenol are included. DNA/RNA concentrations can be determined by simple ratios or by wavelength scanning. The wavelength scanning option allows the added flexibility of checking for potential contaminants.

Various quantitation methods are available to determine the concentration of purified double-stranded and single-stranded DNA and RNA. Based on user-entered factors, the instrument measures the absorbance of the DNA or RNA and calculates the appropriate concentration.

The Oligo (Calc Factor) function allows you to enter a specific oligonucleotide sequence and from a subsequent absorbance measurement the system calculates the %GC content, MW of the oligo, molar (pmol/ μ L) concentration of the sample and an estimate of the T_m value.



With no external circulating water required, an Evolution 300 spectrophotometer with the Smart Peltier accessory can reach a maximum temperature of 110 °C. This extended range provides added flexibility for making accurate T_m measurements on very long oligonucleotides.

Protein Concentration

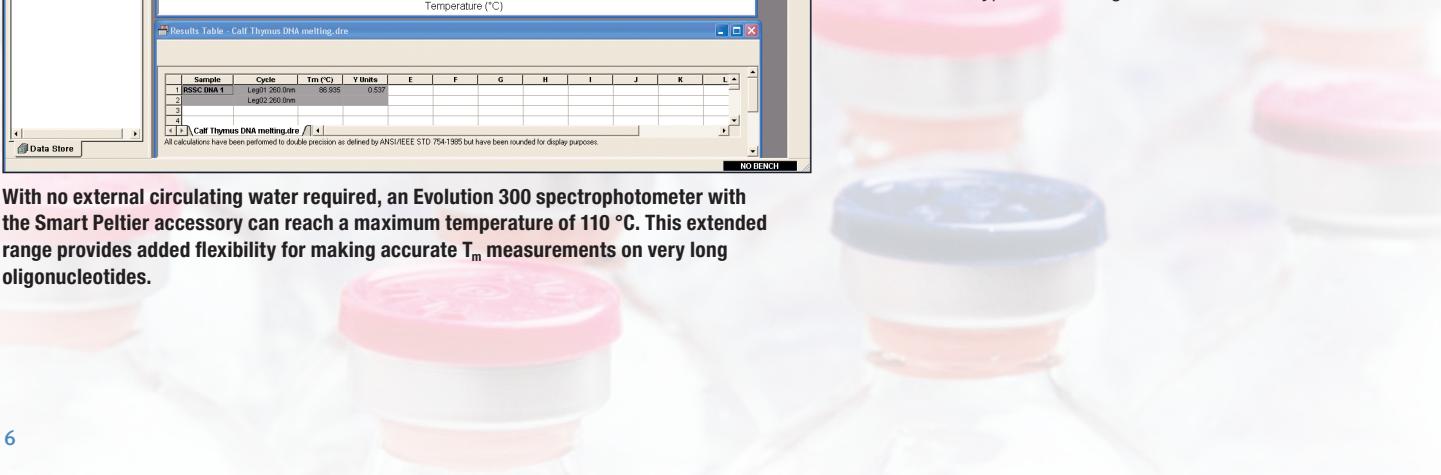
If your research involves the determination of protein concentration assays, the Evolution Local Control systems provide the standard protein assays at the push of a button.



All of the major, industry-standard protein concentration assays at your fingertips.

Thermal Denaturation/Renaturation

Whether your research examines short or long DNA or RNA sequences, duplexes or triplexes, an Evolution 300 with VISIONlife Thermal Denaturation/Renaturation system will meet all of your experimental needs. The system provides all the tools necessary to control complex heating and cooling profiles with user defined hold times and ramp rates down to 0.1 °C/min. Multiple built-in fitting algorithms are available to calculate the T_m value from all types of melting curves.





Kinetics

Both the Local Control and PC Control configurations cater to the user performing single or multi-cell double-beam kinetics. The Local Control color screen makes it easy to distinguish the individual results from multiple kinetics reactions. Up to seven active reference cuvettes can be used in a seven-sample/seven-reference configuration. For laboratories performing more complex assays, such as inhibitor studies, VISIONlife software provides calculations for the Michaelis-Menten K_m and V_{max} parameters using methods such as Lineweaver-Burke and Eadie-Hofstee.

All of the routine biological assays, including a built-in Oligo calculator, are accessible in only two keystrokes.

08/01/2005 09: 25	EV300 v1.90e 114005				546.00nm
<u>Main Menu</u>					
Scan					
Fixed					
Quantitation					
Kinetics					
Multicell	Biological Tests				
Biologi	Nucleic Acid Tests				
Library	Protein Tests				
Disk	Cell Growth				
Live Di	Oligo Calculator				
Instrument Hours 620					
Options	Utilities	Accessories			Remote

Complete tools for pharmaceutical and QC analysis

Quantitative Analysis Made Simple

The Evolution Quant application is available in both the Local Control and PC Control configurations. For very quick and simple quant analysis in a routine QC laboratory, the Local Control configuration with built-in, soft-key menu operation is an excellent choice. In a regulated environment, the Evolution series provides the tools to achieve 21 CFR Part 11 compliance.

The Quant application can use the data from up to 50 standards (3 replicates each) to analyze 999 samples (3 replicates each). VISIONpro software provides automated weight and volume correction eliminating additional time-consuming calculations.

If your laboratory is performing analysis on mixtures, then the multicomponent analysis application, standard with VISIONpro, is ideal.

UVcalc for Automated User Calculations

If your analyses routinely demand automated calculations on experimental data, you will find the easy-to-use spreadsheet format of the UVcalc function beneficial. UVcalc allows you to enter and store the calculation formulas as you develop data acquisition methods. When the method is recalled, both the data acquisition and the calculations are performed automatically, saving valuable time.



Remote Fiber Optics Measurements

A remote fiber optic probe allows the user to perform absorption measurements inside almost any vessel. A simple rinse between each measurement makes sample carryover nonexistent. Increase sample throughput by taking light to any sample container instead of wasting time bringing the sample to the instrument in a cuvette or test tube.

Comprehensive Solutions for Regulatory Compliance

The US FDA Regulation 21 CFR Part 11 describes the criteria under which the FDA will consider electronic records equivalent to paper records and electronic signatures equivalent to handwritten signatures. This regulation applies to all GxP manufacturers and industries that are FDA-regulated.

VISIONsecurity software provides all the tools necessary to help your laboratory achieve 21 CFR Part 11 compliance.

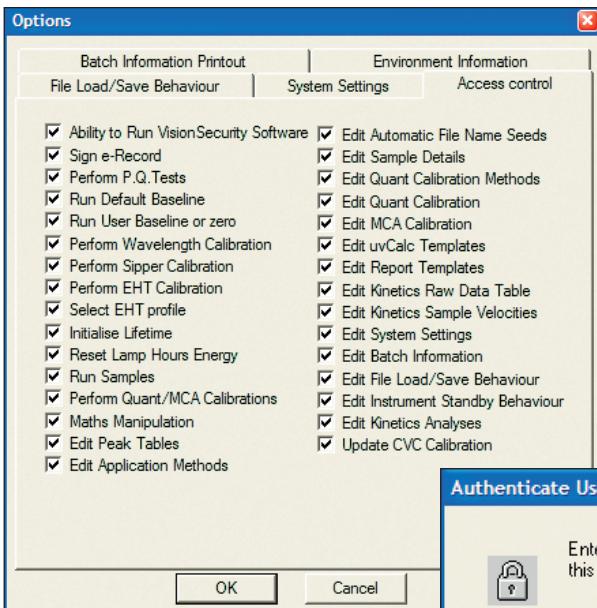
Whether compliance requires a manually inserted, traceable standard or fully automated intelligent verification, the Thermo Scientific proprietary Smart Calibration and Validation Carousels (CVC) traceable to NIST¹ or NPL² standards fully automate testing for:

- Wavelength accuracy/repeatability
- Photometric accuracy/repeatability
- Stray light
- Photometric noise
- Photometric stability
- Baseline flatness
- Resolution

To obtain the best possible accuracy across the entire wavelength range each instrument is factory calibrated at multiple wavelengths from the ultraviolet to the near-IR region using a mercury lamp. An optional mercury lamp accessory is available and user installable.

1. National Institute of Standards and Technology, USA

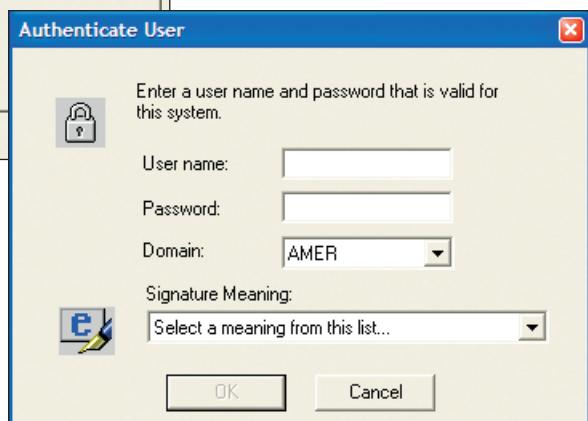
2. National Physical Laboratory, UK



VISIONsecurity not only has all of the acquisition, analysis, and reporting capabilities found in the VISIONpro software, but also has the tools necessary to control individual or group access to the instrument, data, and records. User authentication at start-up allows event audit trails, electronic signatures, and prevents use while the operator is away.



With continually changing requirements to keep your Evolution spectrophotometer up to regulatory standards, no supplier in the industry can provide a more comprehensive selection of calibration and verification tools.

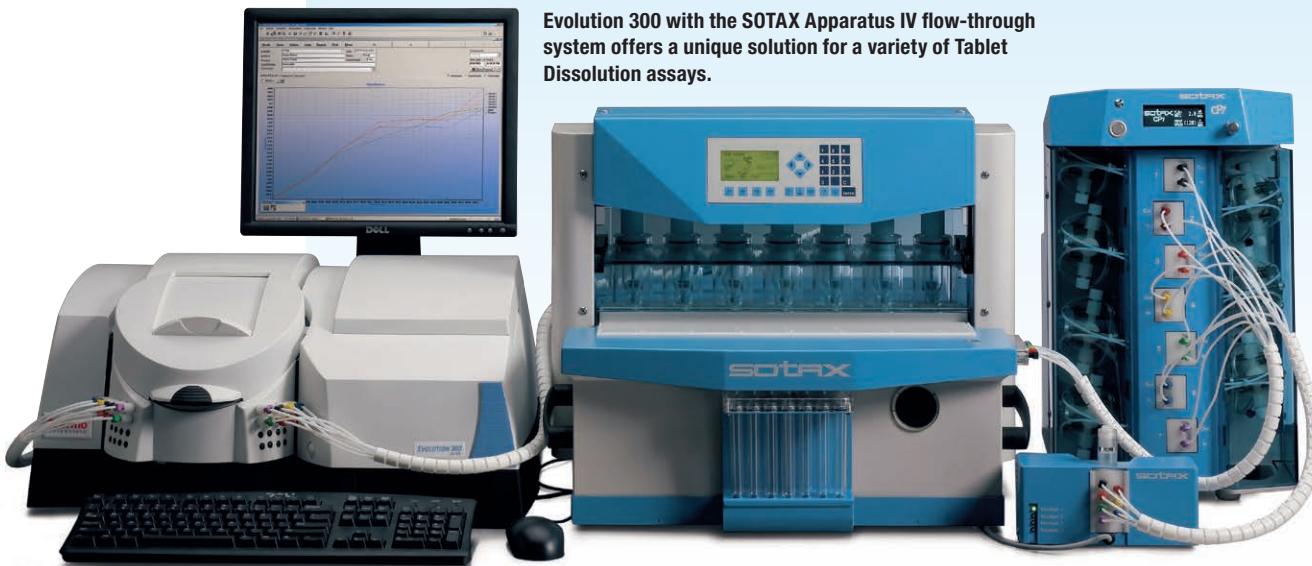


By replacing paper-based archival storage with electronic data storage and data transfer, the proper use of VISIONsecurity software with your Thermo Scientific spectrophotometer will help you pass FDA audits while reducing costs and increasing security.

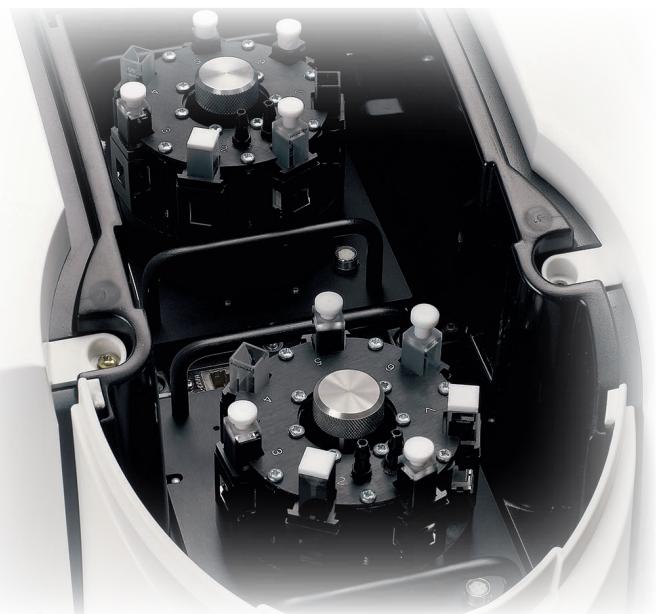
Tablet Dissolution

An important application where compliance issues are critical is in the testing of solid dosage forms. Thermo Fisher Scientific and SOTAX provide semi-automated and fully automated Tablet UV-Visible Dissolution testing systems. The system combination provides a complete and seamless solution for any dissolution laboratory.

Evolution 300 with the SOTAX Apparatus IV flow-through system offers a unique solution for a variety of Tablet Dissolution assays.



Smart Accessories for enhanced productivity



The Evolution 300 UV-Vis supports Smart Accessories with auto-intelligence. All configurations allow hot-swapping of powered accessories and automatically recognize and initialize each accessory upon installation. Snap the accessory in place and the appropriate software menu for that accessory appears on the screen. All other accessory software menus are hidden, eliminating possible confusion.



Smart Thermostatted Rotary 7-Cell Changer

Smart Sipper Accessory



Smart Peltier Thermostatted
Single Cell Holder



Smart Thermostatted Linear
8-Cell Changer



8-Cell Peltier System



Temperature Probe



Temperature probe for Smart Accessories – monitor the temperature inside the cuvette from within VISION software



Thermostatted Single Cuvette Holder



Single Cell Peltier System



RX2000 Rapid Mix Accessory



Smart Calibration Validation Carousel (CVC)

Kinematic mounts preserve alignment

Kinematic mounts allow easy interchange of accessories and ensure reproducible alignment each time the fiber-coupler or reflectance accessories, such as the Praying Mantis, are removed and re-installed.



VeeMAX Variable Angle 30°–80°
Specular Reflectance Accessory

15°, 20°, 30°, 45°, and 60° Specular
Reflectance Accessories

Praying Mantis Accessory



Test Tube and Vial Holder



1 Inch Square Vial Holder



Adjustable Microcell
Holder

Solid Sample Holder



The Solid Sample Slide Holder positions accessories supplied on standard 2-inch x 3-inch slides. Shown with a Universal Sample Holder and optional second slide holder.

Laboratory Solutions Backed by Worldwide Service and Support

Tap into our expertise throughout the life of your instrument.

Thermo Fisher Scientific offers professional support through our worldwide network of highly trained and certified engineers.

In many nations, Unity™ Lab Services, part of Thermo Fisher Scientific, offers direct support. Elsewhere, our partner companies' engineers receive the same factory training as our Unity engineers and stand ready to provide you with the same high level of service and support.

Put our experts to work for you to provide the services you need from system installation and training to technical support.

Ask your Thermo Scientific sales representative about available product support services designed to keep your instrument in peak operating condition.



www.thermoscientific.com

©2013 Thermo Fisher Scientific Inc. All rights reserved. ISO is a trademark of the International Standards Organization. Bausch and Lomb is a registered trademark of Bausch and Lomb, Inc. Microsoft, Excel and Windows are registered trademarks of Microsoft Corporation. All other trademarks are the property of Thermo Fisher Scientific and its subsidiaries. Specifications, terms and pricing are subject to change. Not all products are available in all countries. Please consult your local sales representative for details.

Thermo Electron Scientific Instruments LLC,
Madison, WI USA is ISO Certified.



Africa +43 1 333 50 34 0
Australia +61 3 9757 4300
Austria +43 810 282 206
Belgium +32 53 73 42 41
Canada +1 800 530 8447
China +86 21 6865 4588

Denmark +45 70 23 62 60
Europe-Other +43 1 333 50 34 0
Finland/Norway/Sweden
+46 8 556 468 00
France +33 1 60 92 48 00
Germany +49 6103 408 1014

India +91 22 6742 9494
Italy +39 02 950 591
Japan +81 45 453 9100
Latin America +1 561 688 8700
Middle East +43 1 333 50 34 0
Netherlands +31 76 579 55 55

New Zealand +64 9 980 6700
Russia/CIS +43 1 333 50 34 0
Spain +34 914 845 965
Switzerland +41 61 716 77 00
UK +44 1442 233555
USA +1 800 532 4752

BR52546_E 12/13M

Thermo
SCIENTIFIC
Part of Thermo Fisher Scientific