Velox 1100

PDA UV-Vis Spectrophotometer

provides fast, reliable, and compact performance, making it ideal for quality control and assurance measurements in minimal space.

scinco

www.scinco.com

Velox 1100

PDA UV-Vis Spectrophotometer

Your Ultimate Analytical Tool

The Velox 1100 provides fast, reliable, and compact performance, making it ideal for quality control and assurance measurements in minimal space. It is designed for use in research, routine analysis, biochecmistry, and high-throughput applications, and is driven by straightforward and comprehensive software. With innovative UV-Vis solutions, the Velox 1100 delivers simplicity and capability that is second to none.

Fast Measurement

Photodiode array (PDA) detector technology allows for fast acquisition of full wavelength range (from 190 nm to 1100 nm) spectrum data almost simultaneously. Full-spectrum data for every standard and sample enables the user to create standard curves and examine samples at any wavelength at any time, which is a valuable tool for method development and sample analysis activities. The high-speed data acquisition also increases sample throughput and accelerates all of your analysis, making the Velox 1100 a time-saving solution for your UV-Vis spectroscopy needs.

Compact & Durable Design

The Velox 1100 features a small footprint, with a width of only 34 cm and weighing only 7 Kg. This has been achieved through the design of a new small pulsed xenon lamp and the use of a minimized spectrograph developed by SCINCO technology. The compact size of the system makes it easy to move to any location where it may be needed, and its low cost-of-ownership makes it an ideal choice for analytical and educational laboratories seeking to deploy multiple units. The durable design ensures reliable performance over an extended lifetime of use.

Premier Performance

The Velox 1100 features a reverse optical geometry that allows light of all wavelengths to pass through the sample. This optical configuration offers significant advantages in data acquisition and sample throughput for various applications and methods compared to traditional monochromator-based spectrophotometers.

The system's premier performance is well-suited for :

Quality control and assurance measurements

Multi-wavelength kinetics experiments

Routine to research life science applications

Coating and color application

In addition, the reverse-optical system, which has no moving parts, provides superior accuracy and repeatability. These instruments require less maintenance and offer longer intervals between qualifications.

Open Sample Compartment

Thanks to the reversed optical structure, the Velox 1100 allows for open sample compartment experiments without any stray-light effects. The sample compartment is easily accessible and supports a “Magnetic in Plate” type for various cell holders, enabling quick installation of a broad range of accessories. This feature allows users to easily switch between accessories and expand the application range of the spectrophotometer.

Pulsed Xenon Lamp

The adoption of the single light source provides increased reliability, durability and a seamless transition from UV to visible ranges.

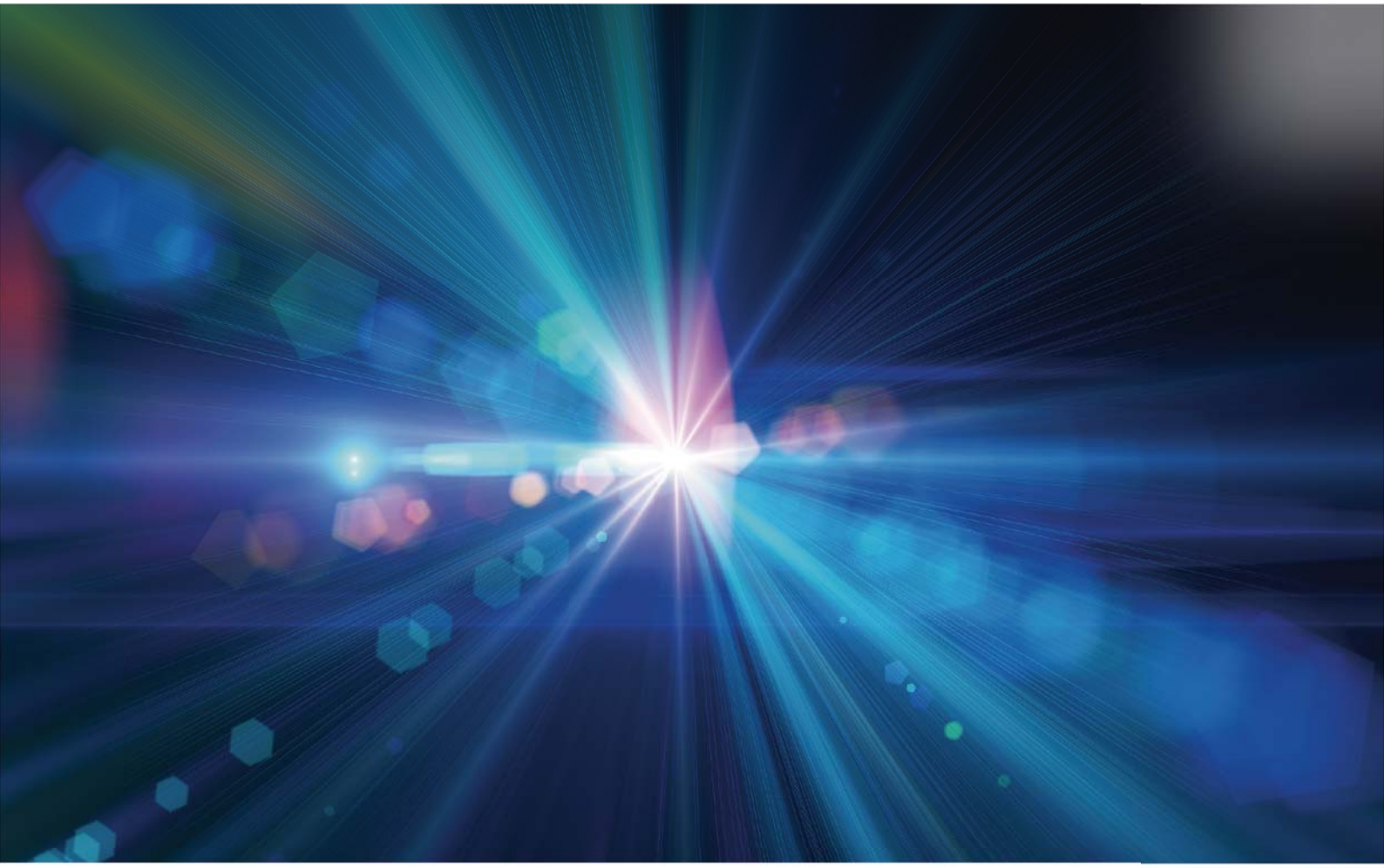
The newest xenon lamps, which are half the size of existing ones, ensure high stability, long lifetime and sufficient intensity.

The high-energy xenon flash lamp is only active during spectrum acquisition, ensuring years of worry-free operation and low cost of ownership. Additionally, it does not require warm-up time for measurement.

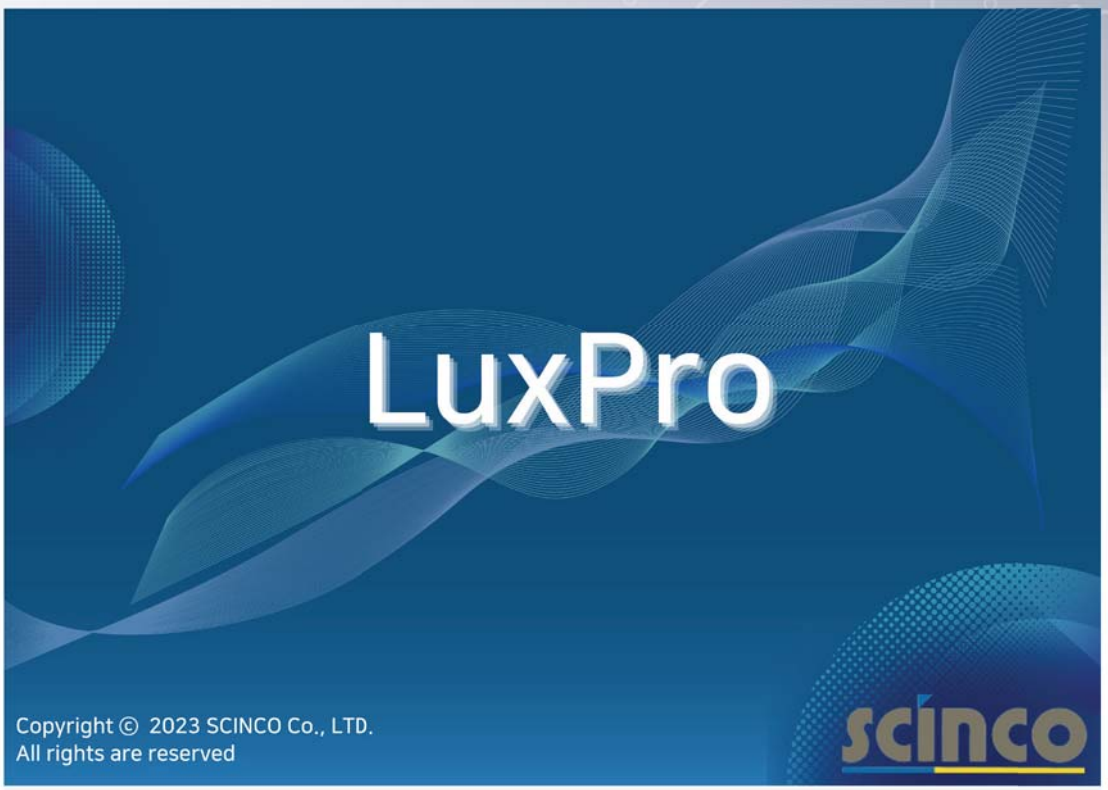
. Powerful for analyzing data in UV region such as water, environment and biological samples

. No photo-degradation of samples

. Saving maintenance costs due to longer lifetime



LuxPro Software



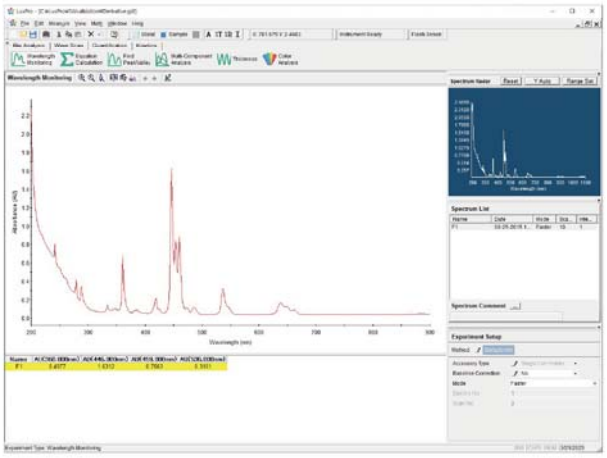
The LuxPro Software is a powerful tool for collecting and processing data across a wide-range of applications. It allows for easy creation and storage of methods, ensuring accurate, predictable, and reproducible results for researchers in the laboratory. The software provides complete control over instruments and accessories, along with robust data collection, analysis, and reporting capabilities. With a user-friendly graphical interface and convenient toolbars for navigation, it offers quick access to commonly performed tasks.

Standard tools include the Wavelength Monitoring Mode, which allows for full-spectrum and fixed wavelength analysis, supports user-defined equations, and advanced spectral processing features. Additionally, the Quantification Mode creates standard curves and determines concentration of samples at any wavelength.

General Mode

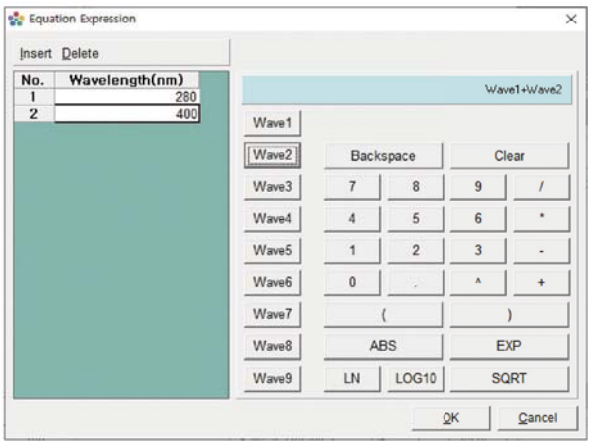
Wavelength Monitoring

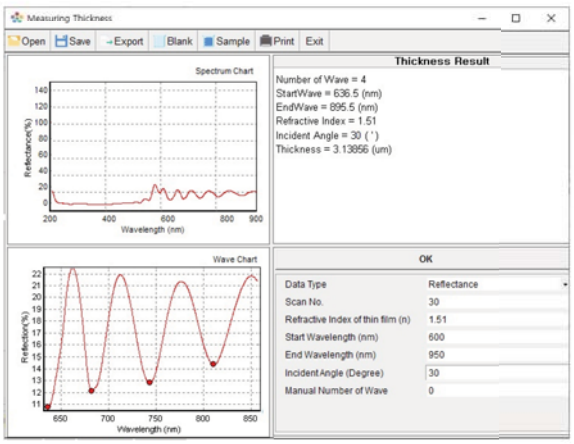
- Display the complete spectrum of the full wavelength range (190 ~ 1100 nm)
- Provide math functions such as Smoothing, Derivatives, Scalar Addition, Scalar Division, Scalar Multiplication, Log, Add, Subtract, and Average
- Allow export to Clip Board, CSV file, Excel file, BMP file, WMF file



Equation Calculation

- Enable users to enter a custom equation for data evaluation
- Support equation calculation with the use of +, -, /, *, ABS, Exp, LN, LOG10, and SQRT functions





Find Peak / Valley

- Enable automatic or manual identification of up to 30 peaks or valleys

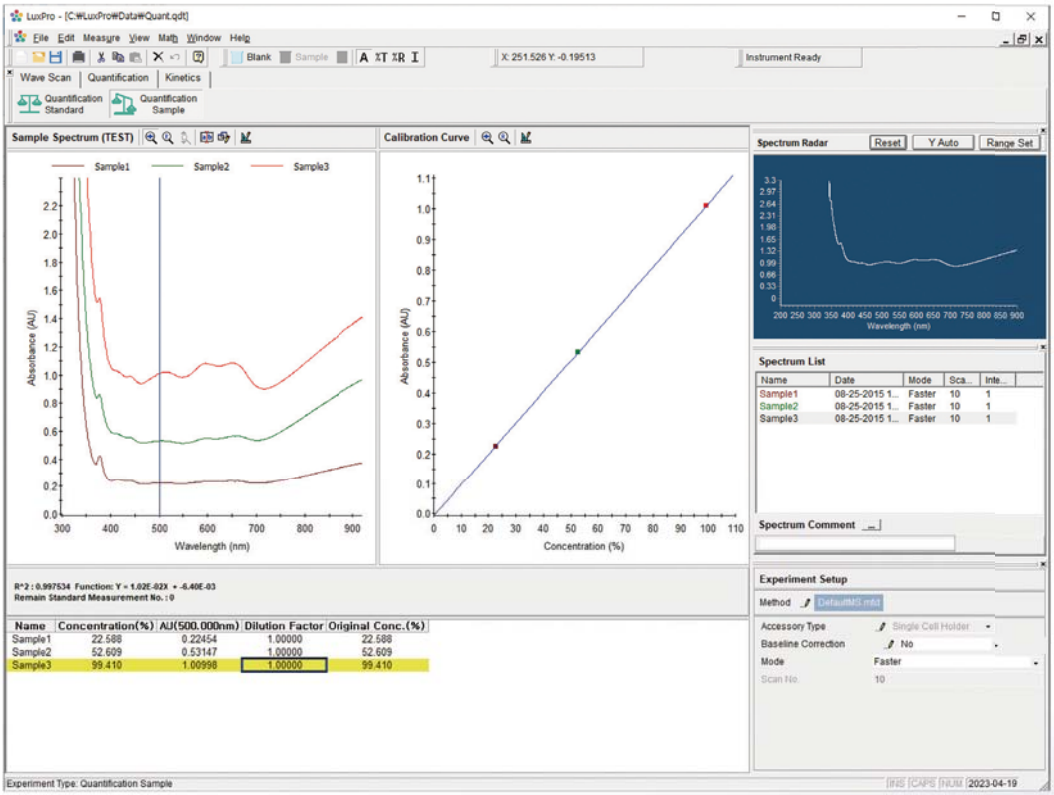
Thickness

- Measure the thickness of thin film coatings

Quantification Mode

Quantification Standard / Sample

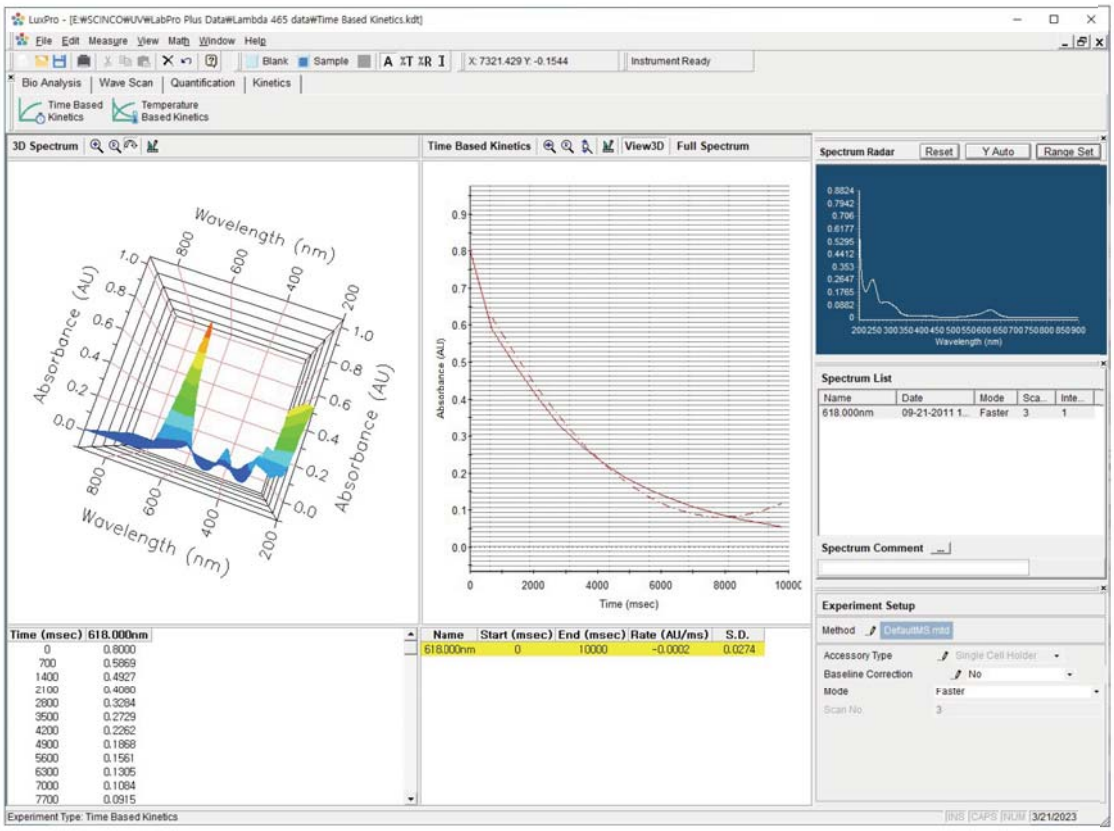
- Allow for user-specified concentration units
- Support First, Second and Third Order curve fit to data
- Provide Zero offset for Calibration Curve
- Perform automatic concentration calculation of unknown sample
- Enable changing the wavelength for making a calibration curve after standard sample measurements
- Allow for saving and opening calibration curves for reuse
- Enable calculating the original concentration by the dilution factor



Kinetics Mode

Time Based Kinetics

- Perform time-based analyses with Initial Rate, Zero Order, First Order, Delta AU calculations
- Extract data for rate calculation from a single wavelength (using multi-cell) or multiple wavelengths (using single cell)
- Visualize real-time overlay of the entire spectrum at every measurement



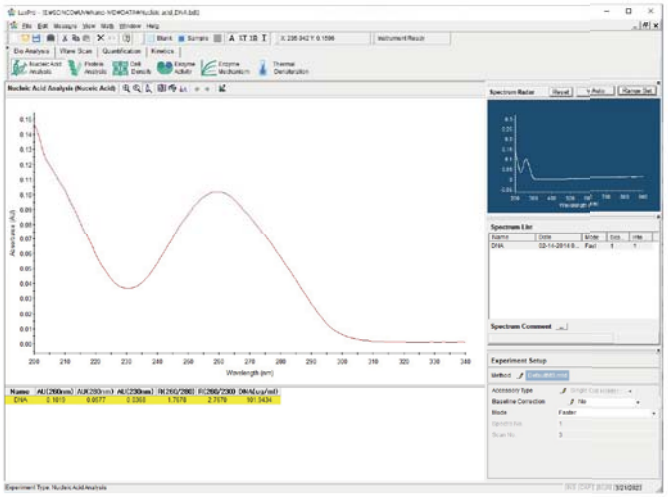
Temperature Based Kinetics

- Perform temperature-based analyses with a Peltier Temp. Control Unit (required)
- Analyze present data in 3D graphical displays with full zoom and rotation capabilities

Bio Mode

Nucleic Acid Analysis

- Automatic calculation of purity and concentration of nucleic acid (DNA, RNA, etc.)
- User-defined protein and nucleic acid factors



Protein Analysis

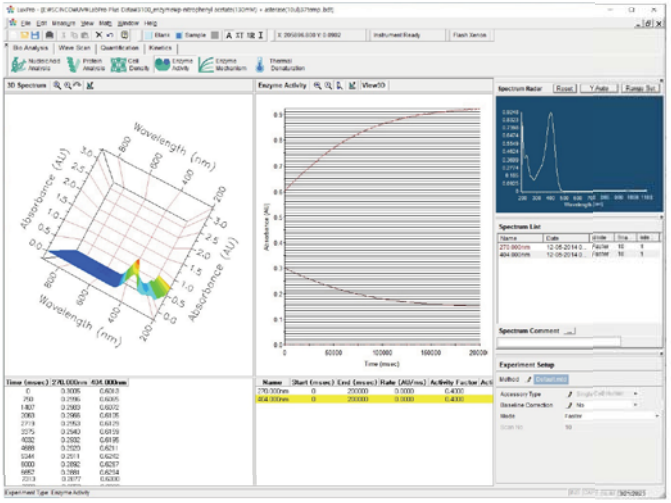
- Predefined protein method: Bradford, Bicinchoninate (BCA), Biuret, Lowry, Trinitrobenzene Sulfonate, Direct UV methods

Cell Density

- Calculation the cell count at 600 nm

Enzyme Activity

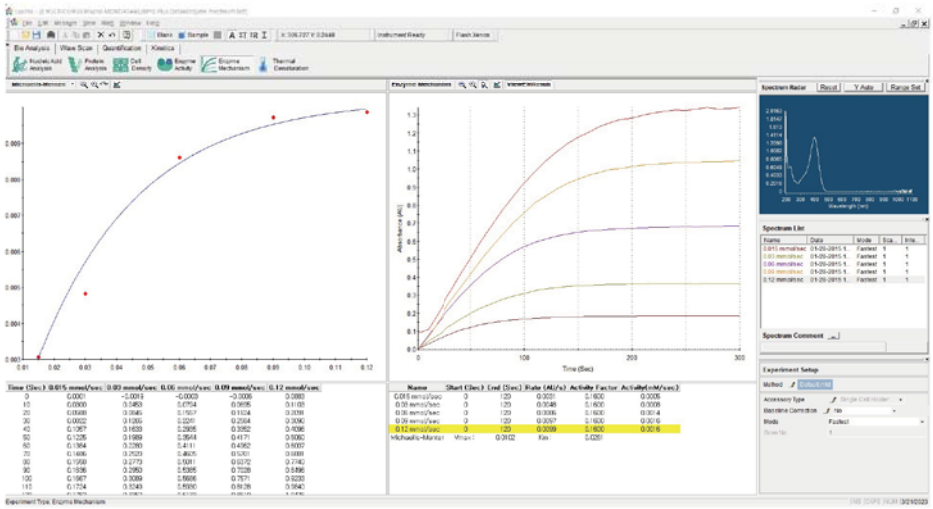
- Calculation of enzyme activity with user-specified activity factor
- Data presented in 3D graphical display



Bio Mode

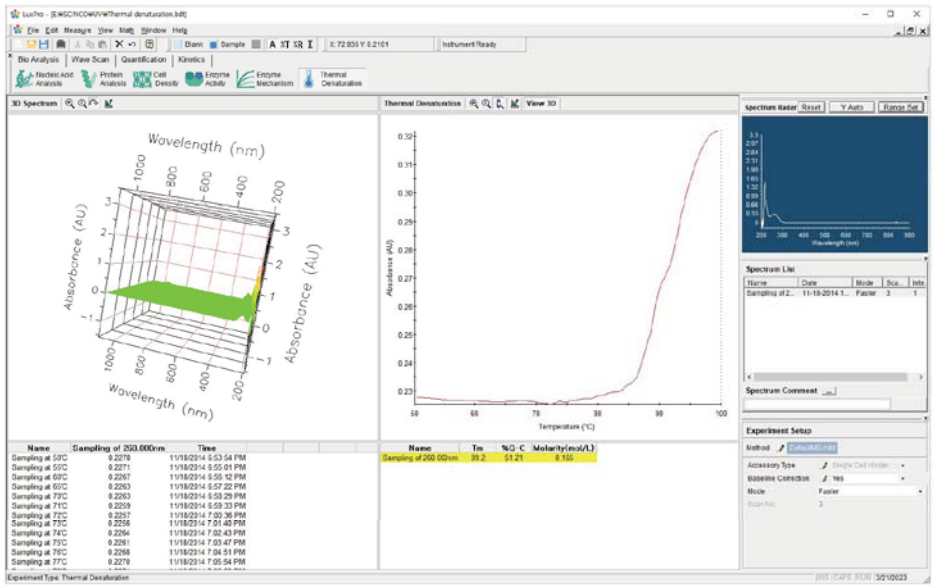
Enzyme Mechanism

- Measurement of reaction rate in enzyme-catalyzed reactions based on substrate concentration
- Calculation of Km, Vmax from each plot using Michaelis-Menten, Lineweaver-Burk, Hanes-Woolf, Eadie-Hofstee equations



Thermal Denaturation

- Temperature-based analysis at a specific wavelength with a Peltier Temp. Control Unit
- Temperature range : -5 ~ 100°C
- Calculation of Tm and %G-C with volume correction using a user-specified equation
- Data presented in 3D graphical display

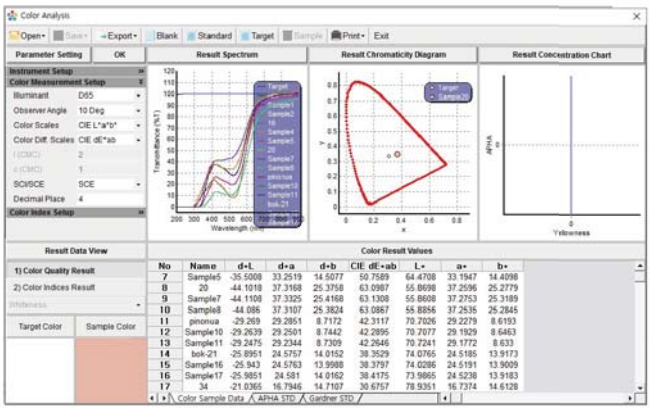


Other Functions

The Color Analysis Software calculates L*a*b* color and color difference between samples as △E, as well as individually as L*, a*, and b*. The Multi Component Analysis Software allows for analysis of complex solutions and mixtures, determining the concentration of individual components in unknown sample mixtures. Additionally, the Validation Software is designed to verify the instrumental performance using the Validation Wizard.

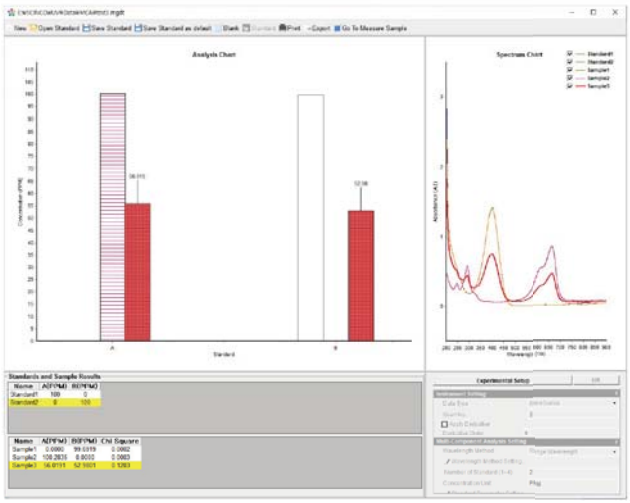
Color Analysis

- Color Difference Formula for measuring various Color Indices
- Provide the measurement of various Color Indices
- Yxy chromaticity diagram display



Multi Component Analysis

- Provide analysis of complex solutions and mixtures
- Determine the concentration of individual components in unknown sample mixtures
- Have the capacity to analyze up to 4 components
- Offer math functions such as Derivative and Baseline Correction

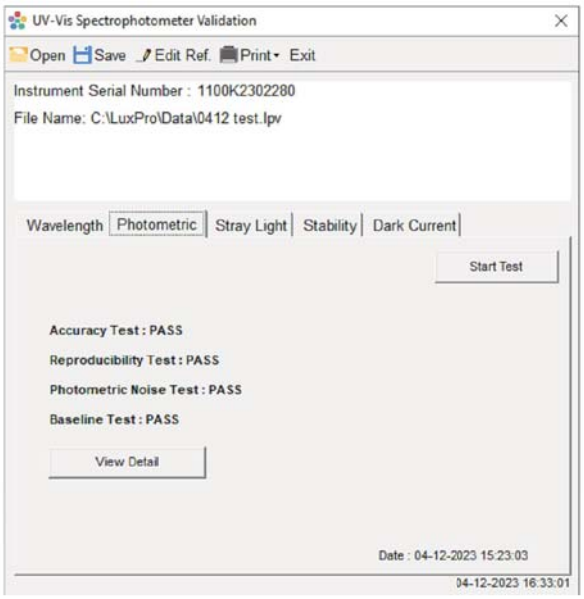


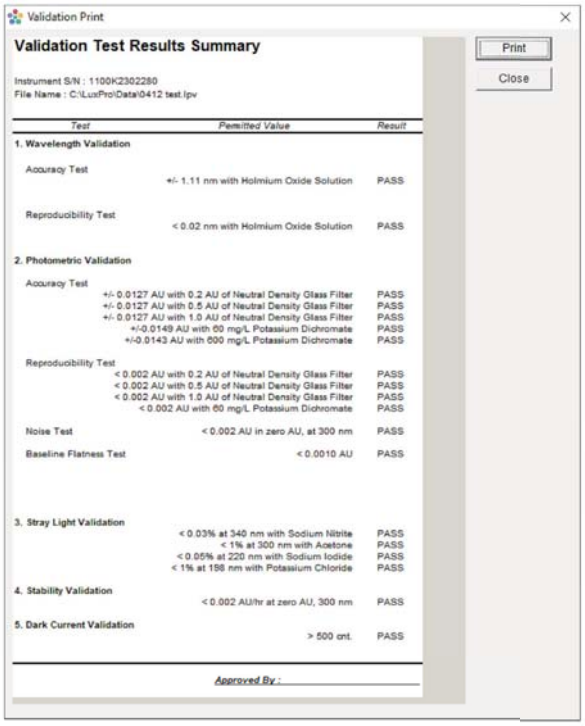
Validation

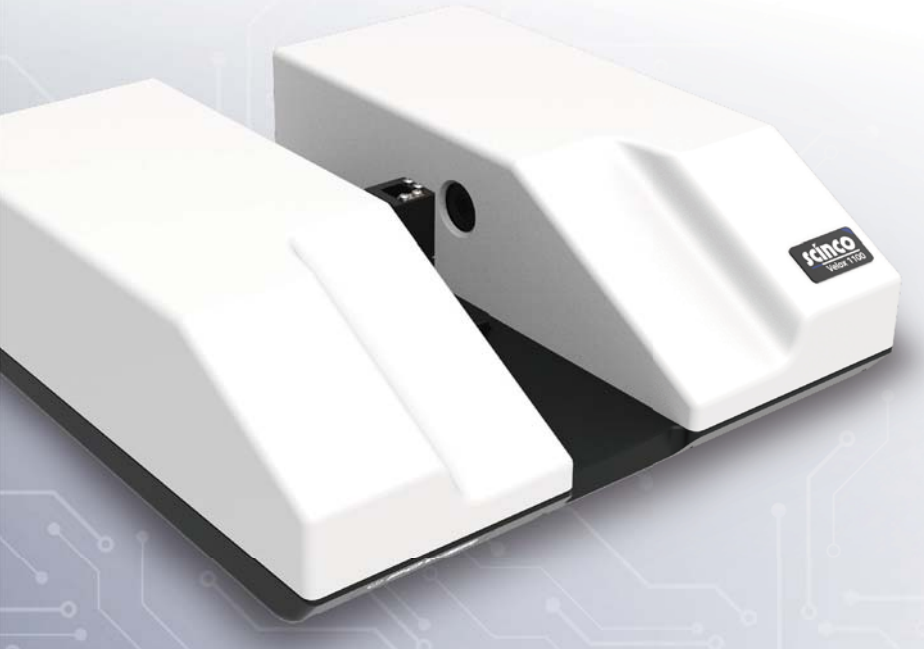
- Validation Software for LuxPro designed to verify instrumental performance using the Validation Wizard

- 4Q document covering Design, Installation, Operation, and Performance Qualification

- Photometric, Wavelength, Resolution, Stray Light, Stability and Dark Current Test are performed.







Specifications

Velox 1100	
Source Lamp	Xenon Flash
Detector	Photo Diode Array 512 Channels
Wavelength	Typical 190 ~ 1100 nm Measurement 200 ~ 900 nm
Spectral Resolution	2 nm
Beam Height	8.5 mm
Wavelength Accuracy	±1 nm (Holmium Oxide Solution NIST 2034)
Wavelength Reproducibility	< 0.02 nm
Photometric Range	-3.0 ~ 3.0 AU
Photometric Accuracy	± 0.01 AU with 60 mg/L Potassium Dichromate ± 0.01 AU at 0.2, 0.5, 1.0 AU Neutral Density Glass Filter
Photometric Reproducibility	<0.002 AU with 60 mg/L Potassium Dichromate <0.002 AU at 0.2, 0.5, 1.0 AU Neutral Density Glass Filter
Photometric Noise	< 0.002 AU at 0 AU, 300 nm
Photometric Stability	< 0.002 AU/h at 0 AU, 300 nm
Stray Light	< 0.03%T at 340 nm with Sodium Nitrite < 0.05%T at 220 nm with Sodium Iodide < 1.00%T at 198 nm with Potassium Chloride < 1.00%T at 300 nm with Acetone
Interface	USB
Dimensions	340 (W) x 320 (D) x 115 (H) mm
Weight	approx. 7 Kg
Power Requirements	100-240 V, 50/60 Hz
Environmental Requirements	Temperature: 15-35°C Humidity: up to 80% Non-condensing

Various Accessories

The Velox 1100 is equipped with a comprehensive line of accessories designed to accommodate both liquid and solid samples for a wide range of applications. These accessories are intended to assist you in assembling the optimal analytical system for your laboratory. With easy insertion and removal of accessories, you can quickly transition between experiments. The automated cell holders and solid sample accessories provide the necessary versatility to efficiently measure challenging samples. Whether you operate in a research or routine analysis environment, the Velox 1100's diverse accessories enable you to obtain the desired results.

Single Cell Holder

Water Jacketed Single Cell Holder

Variable Pathlength Cell Holder

Reflectance Module Accessory

Advanced Transmission Holder

8-Position Multi-Cell Holder

Water Jacketed 8-Position Multi-Cell Holder

Auto Sipper

Peltier Temp. Controller

Peltier Temp. Single Cell Holder

Nano Stick

Nano Stick
for Velox 1100

Micro Volume Sample Measurement

The Nano Stick is a specialized sampling device designed by SCINCO for measuring micro volumes of samples, as low as 2 µL, in life science laboratories. Its simple design makes it easy to use, quick to clean, and provides better accuracy by reducing sample volume. The Nano Stick is particularly useful for analyzing DNA, RNA, and protein samples and offers a complete solution for these types of experiments.

Features

. Simple analysis with an innovative solution

. Compatible with the majority of UV-Vis. Spectrophotometers

. Provides superior accuracy and reproducibility

. Allows sample size as small as 2 µL, conserving precious samples

. Durable design

Nano Stick-S makes the process as simple as pipette, measure, and wipe clean. By reducing sample waste and providing greater accuracy, Nano Stick-S offers a complete solution to analyze DNA, RNA and proteins.

Pipette the Reference / Sample in turn.

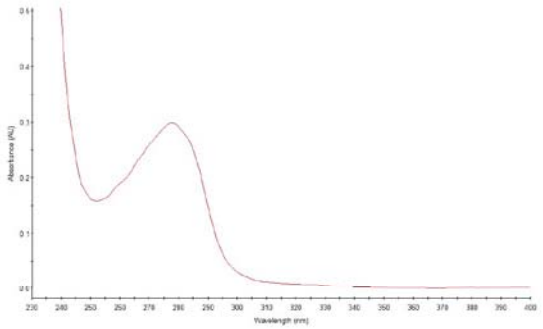
Assemble the upper plate to the other half.

Measure and Collect data.

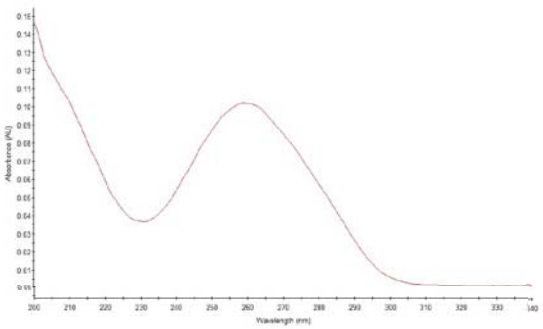
Simply wipe clean for next sampling.

Applications

- DNA and RNA measurement
- DNA Quantification
- Protein Concentration Measurement
- High Concentration Sample Measurement
- Micro-volume Sample Measurement



BSA spectrum



ds DNA spectrum

Specifications

Nano Stick	
Pathlength	0.5 mm
Physical Dimensions	12.5 x 12.5 x 60 mm (WDH)
Beam Height (Z-Dimension)	8.5 mm
Minimum Sample Volume	2 µl
DNA Detection Limit	1.1 ng/µl
DNA Maximum Concentration	3000 ng/µl
DNA Reproducibility at 100 ng/µl	±1.0 ng/µl
DNA Reproducibility at 1000 ng/µl	±3.0 ng/µl
Protein Detection Limit	0.06 mg/ml
Protein Maximum Concentration	100 mg/ml
Protein Reproducibility at 2 mg/ml	±0.02 mg/ml
Protein Reproducibility at 10 mg/ml	±0.05 mg/ml

Ordering Information

ORDERING INFORMATION (0.5 mm pathlength)	
NS-S/0.5/8.5/BK	Nano Stick-S, Z 8.5, Black
NS-S/0.5/8.5/BL	Nano Stick-S, Z 8.5, Blue
NS-S/0.5/8.5/R	Nano Stick-S, Z 8.5, Red
NS-S/0.5/8.5/G	Nano Stick-S, Z 8.5, Gold
NS-S/0.5/8.5/S	Nano Stick-S, Z 8.5, Silver

Warranty

One-year full warranty provided for the complete system

scinco

SCINCO

627, Bongeunsa-ro, Gangnam-gu, Seoul 06083 KOREA **Tel** +82-2-2143-8200 **Fax** +82-2-2143-8355

R&D Center / Daejeon Office

746, Daedeok-daero, Yuseong-gu, Daejeon 34055 KOREA **Tel** +82-42-610-7400 **Fax** +82-42-610-7500

www.scinco.com scinco@scinco.com