



Mega-2100

Double Beam UV-Vis Spectrophotometer



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Compact & Easy vs. Highest Performance & Versatility!

Mega-2100 is the next-generation UV-Vis spectrophotometer with the highest resolution and the variable spectral bandwidth selection on its class. Meeting increasing demands as technology changes fast, the versatile software, advanced technology and wide range of accessories deliver the best solution to various challenges in your laboratory.



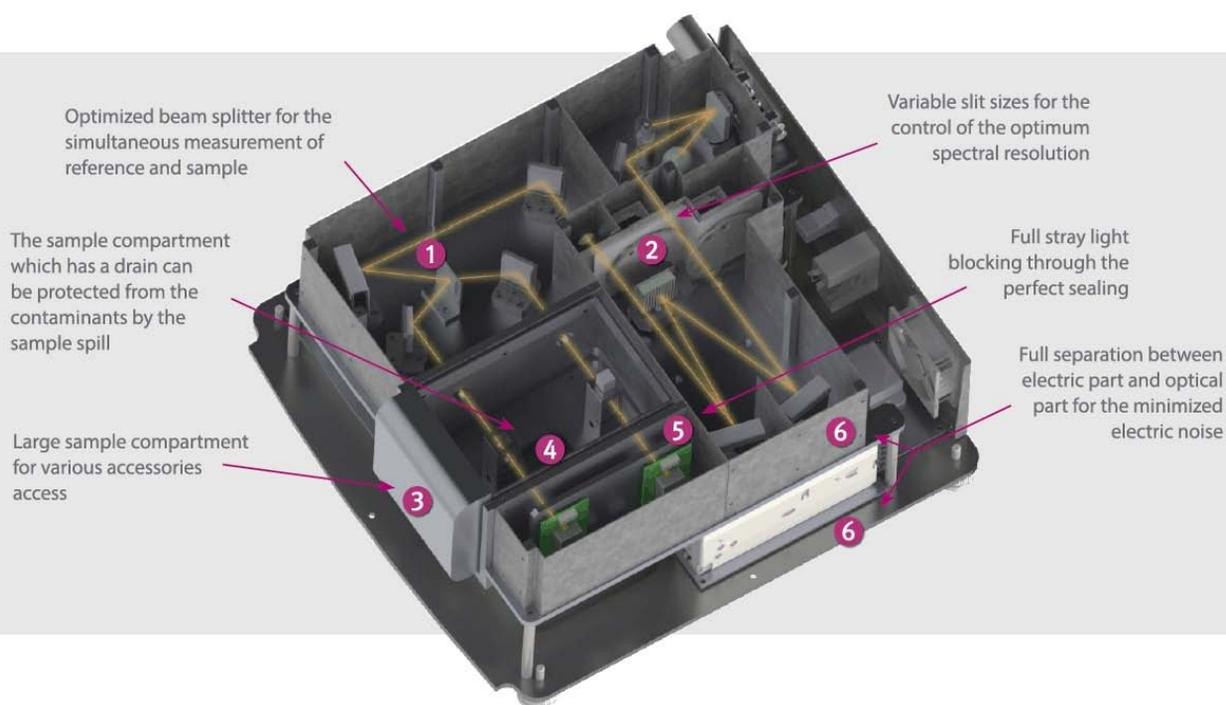
The variable spectral bandwidth capability from 0.5 nm to 20 nm provides the flexibility for applications to use various accessories such as integrating sphere without additional detectors and the optical fiber probe for reflectance measurement.

The 200 mm focal length Czerny-Turner monochromator ensures high-precision and high-resolution results. Automatic Self Diagnostics procedure during the System Initialization makes operators trust on its performance.

The Mega-2100 is the best choice for who needs a bench-top UV-Vis instrument for research job as well as QC / QA routine analysis with low cost-of-ownership.

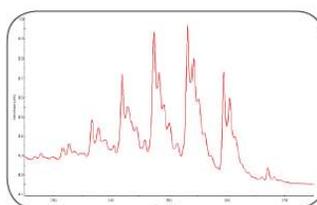
FEATURES

- Double - beam design provides exceptional stability and low drift
- Highest-resolution in its class, variable bandwidth for optimal instrument settings
- An optical design which optimizes the energy throughput for all sample types
- Versatile software and a complete line of accessories

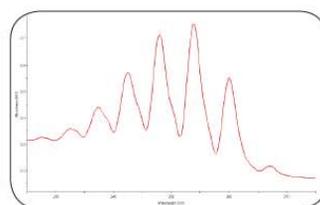


Spectrum of Benzene vapor

Benzene exhibits a sharp absorption bands near 250 nm. The benzene vapor spectra obtained using the Mega-2100 with 0.5 nm and 1 nm slit bandwidths show the high resolving performance of the system.



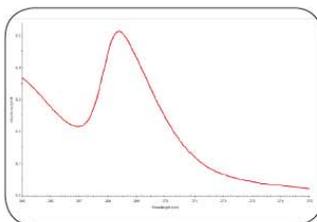
Bandwidth: 0.5 nm



Bandwidth: 1 nm

Spectrum of Toluene/Hexane Solution

The pharmacopoeia demands a ratio exceeding 1.6 between the peak and trough near 269 and 266 nm for a toluene solution in hexane. The ratio obtained from the Mega-2100 is 2.2.



LabPro® Duo SOFTWARE

LabPro® Duo is powerful software that controls Mega-2100 UV-Vis Spectrophotometer. It is a very useful, convenient and efficient tool to analyze the results from Mega-2100 system. LabPro® Duo enables the system to carry out complete experiments for the various applications.

It consists of modular structure, so you can select the functionality that you need and simply add to meet your various purposes. LabPro® Duo software includes Scan, Quantification, Kinetics, Simple Read and LabPro® Duo Bio software including Protein Analysis, Nucleic Acid Analysis and Cell Density is optionally supplied. Validation software and Security software are also added on user demand.

● Automatic Self-Diagnostics on initialization

The diagnostics procedure starts automatically whenever the system is turned on so this procedure enables slight malfunctions to be detected prior to a problem arising so that the system can be continuously operated in optimum conditions.



● Scan Mode

Scan mode measures photometric values of a sample in the selected wavelength range.

• Wavelength Monitoring

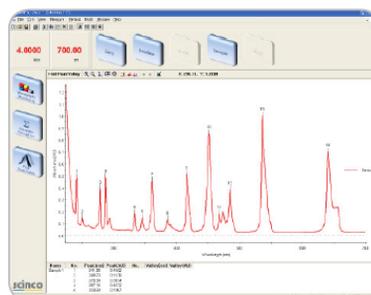
- Internal Reference
- Export to clip board, CSV file, Excel file, BMP file
- Zoom In / Out, Add / Edit Labels
- Math Functions

• Equation Calculation

- Allows the user to enter a support equation for the evaluation of data
- Support Equation: add, subtract, average, divide, ABS, Exp, LN, LOG10, SQRT

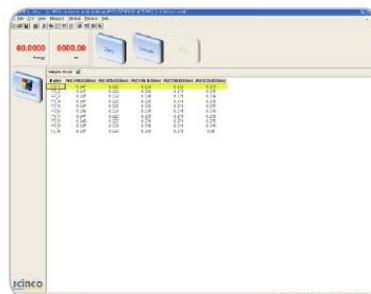
• Find Peak / Valley

- Find up to 30 of peaks or valleys automatically or manually



● Simple Read Mode

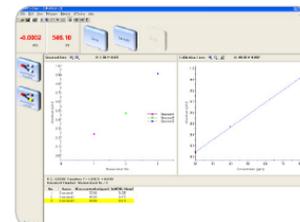
Simple Read mode measures the absorbance or transmittance of a sample at selected multiple wavelengths. The high speed slewing capability of the Mega-2100 enables rapid measurements.



● Quantification Mode

Quantification mode determines calibration curves and absorbance of standard samples and concentration of unknown samples. This program can automatically accommodate correlation coefficient and three types of calibration curves.

- Auto-calculation of unknown sample concentration
- Support Zero Offset of Standard Curve
- Concentration Unit: All units user-specifiable
- Calibration Curve Dimension: 1st, 2nd, 3rd
- Correlation Coefficient



● Kinetics Mode

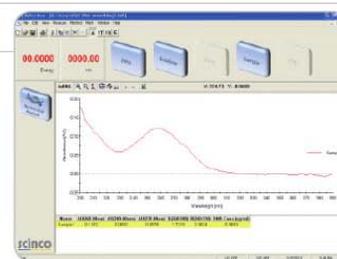
Kinetics mode measures the changes to a sample's absorbance, transmittance and reflectance value over time at a selected one wavelength in real time and obtains the reaction rate.

- Time Based Kinetics
- Real-time Display
- Calculation of Reaction Rate: Initial Rate, Zero Order, First Order, Delta AU

● Nucleic Acid Analysis Mode

Nucleic Acid Analysis mode measures the absorbance of a sample at 230, 260 and 280 nm to estimate concentration and purity of nucleic acid in liquid sample. RNA and DNA can be calculated by several methods.

- Calculation type
RNA, ssDNA, dsDNA, oligo DNA, Warburg-Christian and Kalb and Bernlohr



● Cell Density Mode

Cell Density mode measures the absorbance of a sample at 600 nm to estimate concentration of cell in liquid sample. The cell concentration is automatically calculated with input dilution factor.

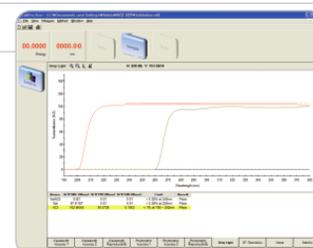
● Protein Analysis Mode

Protein Analysis mode determines calibration curves of standard samples and estimate concentration of protein samples.

- Assay type: BCA, Biuret, Bradford, Lowry (normal, low and high) and TNBS

● Validation

- 4Q document for the Design, Installation, Operation and Performance Qualification
- Automatic Validation Wizard
- Photometric, Wavelength, Resolution, Stray Light, Stability and Dark Current Test



● Security Software

Security software for LabPro® Duo has been developed to meet the requirements of 21 CFR Part 11 for electronic records and electronic signatures, specified by the US FDA, to guarantee the reliability and conformity of the system for the Pharmaceutical, Food and Environmental Industries.

APPLICATIONS

- **Pharmaceutical / Clinical / Cosmetics**

Used in R&D and QC



- **Analytical Chemistry**

Identification and detection of compound in research centers / universities / laboratories

- **Biochemistry / Genetics**

Quantification of cell, nucleic acid and protein

- **Dye / Ink / Paint**

QC in the development and production of dyeing reagents / inks / paints Analysis of intermediate dyeing reagents

- **Environmental / Agriculture**

Quantification of organic materials and heavy metals in freshwater / seawater / atmosphere / soils

- **Metals / Films**

Semiconductors, mining industry and metal refining

- **Petrochemical**

ACCESSORIES

A complete line of accessories for Mega-2100 will help you implement various experiments in your laboratory. Accessories are easy to install and remove for quick turn to the next experiments.

Mega-2100 UV-Vis Spectrophotometer with its various accessories delivers the maximum versatility to fulfill required complex conditions to wide research areas across most industries.



Integrating Sphere



Advanced Transmittance Holder



Reflectance Module



Variable Pathlength Cell Holder



6-Position Multicell Holder



Nano Stick



Auto Sipper



Autosampler

Others

. Water Jacketed Single Cell Holder / Water Jacketed Multi Cell Holder

. Optical Fiber Probe

. Others are available upon request

SPECIFICATIONS

| | |
|-----------------------------|---|
| Model | Mega-2100 |
| Light Source | Deuterium and Tungsten Lamp |
| Monochromator | Blazed holographic grating with 1200 gr/mm, Czerny-Turner with 0.2 m focal length |
| Detectors | 2 Silicon Photodiodes |
| Photometric System | Double Beam Optics |
| Wavelength Range | 190 ~ 1100 nm |
| Spectral Bandwidth | Variable (0.5, 0.75, 1, 2.5, 5, 10, 20 nm) |
| Data Interval | 0.05, 0.1, 0.5, 1, 2 nm |
| Wavelength Accuracy | ±0.1 nm at D2 peak at 656.1 nm, ±0.3 nm for entire range |
| Wavelength Reproducibility | ±0.1 nm |
| Photometric Range | -4.0 ~ 4.0 Abs |
| Photometric Accuracy | ±0.002 Abs (0 to 0.5 Abs) ±0.004 Abs (0.5 to 1.0 Abs) |
| Photometric Reproducibility | ±0.001 Abs at 0.5 Abs |
| Stray Light | <1.0% (198 nm KCl) <0.02% (220 nm NaI) <0.02% (340 nm NaNO ₂) |
| Baseline Stability | <0.0003 Abs/h (700 nm, after one hour warming up) |
| Baseline Flatness | ±0.0005 Abs (After one hour warming up) |
| Noise Level | <0.00005 Abs (at 700 nm, RMS) |
| Maximum Scan Rate | 3000 nm/min |
| Maximum Slew Rate | 8000 nm/min |
| Dimensions | 495 (W) X 500 (L) X 270 (H) mm |
| Weight | 20 kg |
| Interface | USB |
| Power Requirement | 100 ~ 240 V, 50/60 Hz, 200 VA |
| Environmental Requirement | Temperature : 15 ~ 35°C Humidity : 30 ~ 80% |

Warranty

One year full warranty provided for the complete system.

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All configurations and specifications are subject to change without notice.

“Scientific Instrument Company”



Mega-2100

Highest Performance and Versatility



S-3100

Highest Flexibility, Productivity and Performance



Mega Array

Affordable and Small Footprint



Nano-MD

Dedicated Bio & Life Science

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