

Nicolet Evolution 100



UV-Visible Spectrophotometer



Nicolet Evolution 100 UV-Vis – A Versatile, High-Productivity Instrument

The Nicolet Evolution 100 UV-Vis spectrophotometer, from Thermo Electron Corporation, is a compact, versatile instrument that is ready to meet the day-to-day demands of your laboratory. For your QC or routine research applications, the Nicolet Evolution 100 UV-Vis is designed to deliver the performance you need. Built on proven technology, this instrument benefits from the optical technology used in our more advanced spectrophotometers – yet remains affordably priced to fit your budget.

The Nicolet Evolution 100 UV-Vis is an invaluable tool for the testing of a wide variety of samples with applications ranging from quality control, to environmental, to educational and more. This instrument is powerful enough to handle your laboratory needs – yet simple enough for technicians and students to use. Whatever your laboratory needs, whatever your workload, you can trust the Nicolet Evolution 100 spectrophotometer to provide the most versatile, cost-effective solution.

You will see these advantages:

- Superb stability, linearity and precision for accurate results
- A small footprint with a large sample compartment saves space and offers convenient sampling
- An extensive range of accessories to maximize sample throughput
- Local Control, or Local Control and PC-driven configurations to meet multiple lab needs
- An optical design which optimizes the energy throughput for all sample types



Meet Your Laboratory Challenges

The Nicolet Evolution 100 spectrophotometer is synonymous with simplicity yet offers expanded capabilities to handle more demanding applications. The proven optical design provides exceptional stability and ensures high quality data for the complete lifetime of the instrument.



Built to Last

- Precision die-cast aluminum chassis for robustness and stability
- Quartz-coated, sealed optics maintain performance throughout the instrument's lifetime
- Fewer moving parts improve reliability, reduce maintenance and running costs
- Sealed and chemically-resistant keypad withstands harsh laboratory environments
- External design discourages sample spillage

Standard Applications

- Scanning
- Fixed
- Quantification
- Concentration factor
- Ratio and Corrected Ratio
- Serial Wavelength
- Multiple Wavelengths (up to 20)
- Multi-component Analysis (MCA) up to 20 components
- Kinetics
- Parallel rate
- UVcalc™ advanced results calculation software

Local Control Software Improves Efficiency

- Password-protected user log-on with administrator-defined user privileges
- UVcalc software enables user-defined calculations to be built into methods
- On-board results generation eliminates the need for an external PC program or calculator
- Built-in electronic maintenance log stores over 400 user or service engineer events, such as lamp changes and preventative maintenance visits

Optional Enhancements

- VISION™ software offers complete flexibility and functionality in a PC environment
- Wide range of accessories to facilitate automated sampling
- Calibration accessories to verify instrument performance
- Thermostating accessories for life science and biological applications
- Unmatched range of single and multi-position sampling accessories
- Built-in printer saves space



Optional MiniSipper and SuperSipper™ accessories for increased sample throughput

Achieve Your Analytical Goals

The Nicolet Evolution 100 spectrophotometer is ideal for busy quality control laboratories that require productivity, durability and an abundance of features to perform virtually any UV-Vis analysis.

Software Flexibility

- Local Control software applications to customize methods
- Variable-speed scanning up to 3800 nm/min with a range of peak-picking options for easy identification purposes
- Auto-save and auto-print for faster results processing
- Alphanumeric sample identification with automatic increments for enhanced sample batch processing
- Comprehensive data manipulation prior to printing and saving

Sample Handling Capabilities

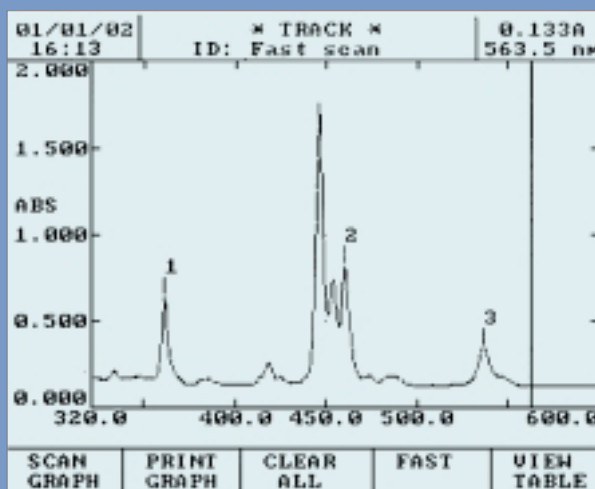
- A large, accessible sample compartment accommodates a wide variety of accessories
- A 7-position, thermostat-ready cell programmer is provided as standard

Method and Data Handling Versatility

- Integrated 1.44 Mb floppy disk drive and non-volatile memory provided as standard
- Unlimited storage of methods, data and curves with instant recall
- Easy transfer to our other UV-Vis instrumentation (Spectronic Helios, Nicolet Evolution and UV Series) or PCs for off-line data manipulation
- A multitude of data handling options
 - Save to built-in library or integral floppy disk-drive
 - Transfer to VISION PC software and other PC programs (in ASCII format)
 - Export to LIMS via RS232C
 - Print hard copies via built-in or external printer
- PC Control Software



Connectors for all output and sample handling accessories are supplied as standard to meet every scientist's reporting requirements and workload



Large, backlit VGA-quality graphics LCD; displays entire methods, calibration curves, spectra and data



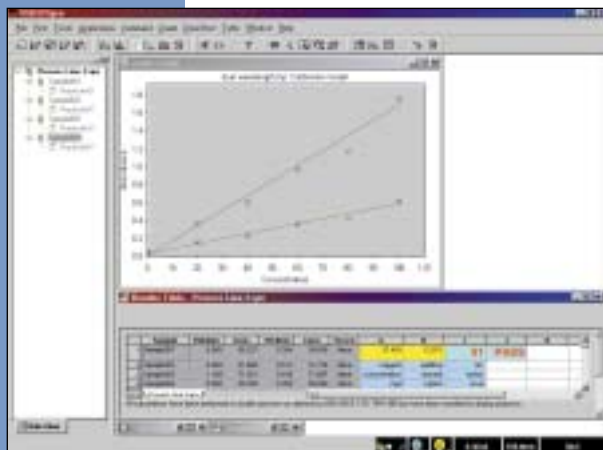
Fully automated, thermostat-ready cell changer, supplied as standard



Method and results data storage internally, or on integral floppy disk drive

VISION – Complete Suite of PC Software Options

Further enhance the productivity of your lab with the addition of powerful, easy-to-use VISION software to your Nicolet Evolution 100 UV-Vis spectrophotometer. Test setup, data collection, data manipulation, results presentation, regulatory compliance – all aspects of your analysis are easier with the VISION software series.



VISIONpro

- A comprehensive UV-Vis software package with scanning, single wavelength, multiple wavelength, quantification and multi-component analysis supplied as standard functions
- Advanced data manipulation for easy method development and results calculation
- Advanced spreadsheet results calculation
- Spectral overlay and manipulation for easy comparison
- Easy-to-use and customizable interface
- Complete report flexibility including methods, graphs, data, Microsoft® Word files, Excel spreadsheets and graphics
- Multiple languages
- Requires Microsoft Windows® 98, 2000, NT or XP

VISIONsecurity™

- A complete software package with advanced security options and VISIONpro functionality
- Meets all security requirements of regulated and quality control laboratories
- Provides tools required to achieve 21 CFR Part 11 compliance
- Electronic Signatures for data and method traceability
- Audit trails for data and method manipulation history
- Requires either Microsoft Windows 2000/NT, or 98/2000/NT/XP with an NT or 2000 network

VISIONlife™

- Life science module for VISIONpro and VISIONsecurity
- Kinetics for intensity change with time studies
- Parallel rate measurement for advanced enzyme system measurements
- Comprehensive manipulation and rate calculation options
- Enzyme kinetics and equation modeling

Additional software packages available for the Nicolet Evolution 100 UV-Vis include:

- Vision Auto™, used for automated analysis of multiple samples
- Vision Chroma™ for color measurement

Highlights of VISION Software Functions

- *Single wavelength*
- *Multiple wavelength*
- *Quantification*
- *Multi-component analysis*
- *Scanning*
- *Kinetics*
- *Parallel rate*
- *Advanced enzyme modeling*
- *Report composer*
- *Simple password protection*
- *Multiple security levels*
- *Permission setting for software areas*
- *21 CFR Part 11 tools*
- *Electronic Signatures*
- *Color measurement*
- *Autosampler control*

Extensive Selection of Sampling Accessories

Regardless of the level of automation, sample type or sample throughput, the Nicolet Evolution 100 spectrophotometer offers a wide variety of sample introduction systems to improve productivity and prolong the instrument's lifetime.

SuperSipper and MiniSipper

- Fast and reliable peristaltic pump-based sample-introduction systems
- Operate with 1 – 50 mm pathlength flowcells
- Software control of tubing calibration, programmable airgap, pumping mode and sample volume
- Exceptionally low cross contamination

The SuperSipper works with a choice of tubing, enabling it to operate with a wider range of solvents and acids.

Peltier 1

- Peltier-controlled single-cell holder that accommodates 1 – 50 mm pathlength cells
- Temperature range 0 – 100°C, accuracy $\pm 0.1^\circ\text{C}$
- Includes stirrer

Peltier 178

- Peltier temperature controlled closed-system fluid circulator for use with a variable pathlength cell holder or 7-cell programmer
- Temperature range 20 – 60°C, accuracy $\pm 0.1^\circ\text{C}$

Variable Pathlength Cell Holder

- For cells with a 1 – 50 mm pathlength

Variable Pathlength Thermostatting Cell Holder

- For cells with a 1 – 50 mm pathlength
- Uses fluid thermostatting

Long Pathlength Rectangular Cell Holder

- For cells with a 100 mm pathlength

Long Pathlength Cylindrical Cell Holder

- For cells with a 50 – 100 mm pathlength

Combination Test Tube and Cell Holder

- For test tubes 75 – 100 mm high with a 10 – 16 mm diameter
- For cells with a 10 mm pathlength
- Ideal for water analysis in combination with reagent kits

Calibration and Validation

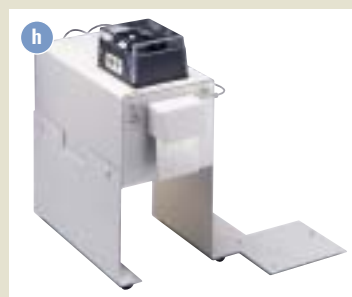
Calibration Validation Carousel (CVC)

The CVC automatically tests UV and visible wavelength accuracy, UV and visible absorbance accuracy, UV and visible stray light, resolution, noise and stability to specification.



Validator Log Book

- Installation Qualification/Operational Qualification (IQ/OQ) plans
- Specification Qualification/Design Qualification (SQ/DQ) details
- Analytical procedures
- Training and maintenance logs
- Incident report sheets



- a Calibration Validation Carousel
- b Peltier 178 and single cell holder
- c Combination test tube and cell holder
- d Variable pathlength and filter holder
- e MiniSipper
- f Peltier 1
- g Cylindrical cell holder
- h SuperSipper

Nicolet Evolution 100 UV-Vis Spectrophotometer Specifications

Optics/Performance	Guaranteed (Typical)
Type	Double-beam, quartz-coated optics
Bandwidth	0.2 nm
Scanning	Choice of speed and data interval
Wavelength Range	190 to 1100 nm
Wavelength Accuracy	± 1 nm (± 0.5 nm)
Wavelength Repeatability	± 0.2 nm (± 0.1 nm)
Detector	Photodiode
Display Type	VGA Graphics, LCD
Display Parameters	87 x 115 mm, Method parameters, spectra, calibration, rate and time drive curves, results
Photometric Accuracy	± 0.005 at 1A (± 0.0013A)
Photometric Repeatability	± 0.002 at 1A (± 0.001A)
Stability	< 0.001A/hr (< 0.0003A/hr)
Peak-to-peak Noise	< 0.0003A (< 0.0002A)
Stray Light	< 0.05%T at 220 nm & 340 nm (0.03%T)
Maximum Pathlength	100 mm
Output	
LIMS Support	
Recorder	0 – 1V/3 to 6A
Display Range	-3 to 6A
RS232C	Yes
Printer	Yes (Centronics), Built-in options
Accessories	
MiniSipper	Yes
SuperSipper Port	Yes
7-cell Programmer	Standard
Local Control	
Integral Software Available	Advanced Local Control with Scan, Fixed, Quantification, Rate, Serial wavelength, Multi-wavelength, and Multi-component Analysis (MCA) functions
Disk Drive (3.25" floppy)	1.44 Mb
Methods Storage	Floppy disk and non-volatile memory
Data Storage	Floppy disk and non-volatile memory
Advanced Results Calculation	UVCalc advanced results calculator
PC Software	VISION ^{pro} , VISION ^{security} , VISION ^{life} , VISION Auto, VISION Chroma
Dimensions (w x d x h), mm	455 x 395 x 215
Dimensions (w x d x h), inches	18 x 15.5 x 8.5
Weight	10 Kg (22 lbs)
Electrical Supply	100 – 240 V, 50 – 60 Hz

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FM 41499
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0521



Calibration
No. 0521.
Accreditation applies to
wavelength and
Absorbance filters.

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P/N 169-728300 9/03

BR-S0436

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