

Simple, versatile UV-Vis solutions for life science



Innovation for tomorrow's challenges

In the dynamic field of Life Science, you need instrumentation and software that keeps up with your changing demands. From quantifying nucleic acids and proteins to performing thermal denaturation studies, the Thermo Scientific[™] Evolution[™] 260 Bio UV-Visible spectrophotometer with INSIGHT[™] software delivers the simplicity and versatility you need to meet your next challenge. Available in the language you prefer, with all of the tools you need to accelerate your work, the Evolution 260 Bio will keep you moving forward.



Speed-up your analysis with integrated Smart Accessories

Configuring your system couldn't be easier. Thermo Scientific[™] Smart Accessories[™] are hot-swappable and feature a cable-free, snap in design for convenience and consistency. INSIGHT software communicates directly with each accessory automatically initializing and displaying the appropriate software menus and status monitors on the screen.

- Precisely align accessories in seconds
- Eliminate manual set-up requirements
- Achieve experimental consistency

Choose from a line of Smart Accessories to meet your unique needs

- 7- and 8-cell changers automate repetitive, high throughput sample analyses
- Temperature control accessories protect your samples from environmental fluctuations and extend your experimental capabilities
- Smart Sippers eliminate time consuming sample transfer steps



Smart Sipper Accessory

Rotary 7-cell Changer



Simplify Your Work with a Personalized Home Screen

A customizable home screen conveniently puts your methods front and center for immediate access. Organize your laboratory with custom user groups, then hide or display applications and methods to match each group's needs and proficiency. Users can go directly to the methods they use every day and start collecting data immediately.

着 Home					
File Help					
SCIENTIFIC	INSIGHT 2 Group Bio Applications				
	Nucleic Acid	Pierce BCA	JOD(600)		
	Nucleic Acid Labels	Protein Bradford			
	Protein A280	Pierce Modified Lowry			
Home	Proteins & Labels	Pierce 660 nm Protein Assay			
My Data My Data Options	Live Display	Protein Biuret	DNA Melting		
System Settings					
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Instrument Status 💩			.:		

The Bio Applications home screen delivers one-touch access to the most commonly used life science methods.

Have confidence in your results with precise temperature control

Leverage the capabilities of precise temperature control for accurate and reliable measurements. Whether you are performing thermal denaturation/renaturation experiments or simply have a temperature-sensitive sample, we have a thermostatted accessory for you.

- Control the temperature of your samples at every stage of the experiment with a single or 8-cell Peltier system with temperature ranges up to 110 °C
- Monitor and record temperatures in up to eight sample locations with a Temperature Probe Hub
- Set parameters and interact directly with accessories throughout your sample analysis using INSIGHT software



Routine level simplicity with research quality results

Streamline your routine measurements with Bio applications

Simplify your routine assays with pre-programmed modules for nucleic acid and protein analyses. Bio Application modules guide you swiftly through commonly used methods in easy to follow steps. With INSIGHT Bio Application modules you can:

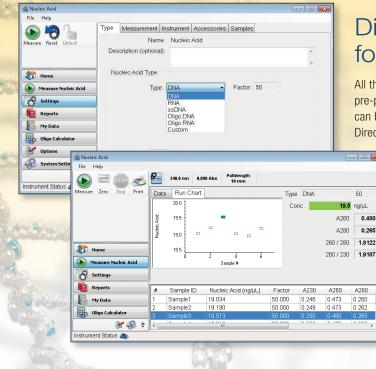
- Collect a full spectrum with each measurement for enhanced analysis and result reporting
- Eliminate calculation errors with automatically applied correction factors and user-defined equations
- Automatically save your data, export it in a portable format (XML, CSV, or TSV), or e-mail it to a chosen account for off-line data processing or storage
- Use the built-in Oligo Calculator to calculate molecular weight, extinction coefficients, concentration factors and melting points by entering specific nucleic acid sequences and characteristics, such as degree of phosphorylation

Quickly Measure and Preview Your Sample

The Live Display Feature of INSIGHT software offers walk up simplicity for real-time measurements or quick identification of a sample peak. Display your results in absorbance or transmittance mode and print them for your records.

🚵 Live Display				
File Help				
Measure Zero Stop Print				
Set λ:				
Home Measure Live Display	Abs %T Fixed Scan Store Clear			
Instrument Status				

The Live Display module offers simplified data collection when a quick look is all you need.



Direct absorbance assays for your every day needs

All the standard tests you use to evaluate your samples are pre-programmed to make your life easier. Sample concentrations can be determined by simple ratios or by wavelength scanning. Direct absorbance assays include:

- Nucleic acid quantitation and purity ratios (A₂₆₀/A₂₈₀, A₂₆₀/A₂₃₀) of DNA, RNA, ssDNA and Oligos
- Protein quantitation and purity ratios (A_{260}/A_{280})
- Fluorescent dye incorporation of labeled nucleic acids and proteins
- OD₆₀₀ for cell cultures

Colorimetric assays for crude protein samples

When direct absorbance readings are not possible due to buffers or other highly UV-absorbing components, as seen in cell lysate and crude protein extracts, colorimetric assays are the method of choice for protein quantitation. The most common commercially available colorimetric assays are pre-programmed for you, eliminating tedious method configuration steps.

ASSAY	DESCRIPTION	WAVELENGTH(S)	COMPATIBILITY
Pierce 660 Assay	 Uses a proprietary dye for detection Designed to be faster and have a greater linear response than traditional assays Reaches a stable end point 	 Measured at 660 nm Normalized at 800 nm 	 Compatible with reducing agents, chelators and most detergents Requires compatibility reagent for use with SDS and most ionic detergents
Pierce BCA Assay	 Uses bicinchoninic acid (BCA) While this assay is linear over a wide concentration range, the calibration curves are best represented as second order Exhibits least protein to protein variation 	 Measured at 562 nm Normalized at 750 nm 	 Compatible with most detergents Not recommended for use with reducing agents, thiols and chelators
Pierce Modified Lowry Assay	 Uses cupric sulfate in alkaline solution Works with peptides (three amino acids or larger) Requires timed reagent addition and longer total assay time 	 Measured at 650 nm Normalized at 405 nm 	 Compatible with SDS Not recommended for use with reducing agents, chelators and most detergents
Bradford (Coomassie)	 Uses Coomassie Blue dye Simple and fast assay with ready to use formulation Color response is pH sensitive and temperature dependent Protein must be >3,000 Da 	 Measured at 595 nm Normalized at 750 nm 	 Compatible with most reducing agents and chelators Not recommended for use with detergents
Protein Biuret	 Uses cupric sulfate in alkaline solution Similar to Pierce Modified Lowry Assay, but requires more protein for the analysis 	 Measured at 545 nm Normalized at 750 nm 	 Compatible with most detergents Not recommended for use with ammonium salts

Thermo Scientific Protein Assays

Pre-programmed methods in the Evolution 260 Bio provide easy and automated analysis of protein concentration using the convenient Thermo Scientific[™] Pierce[™] BCA[™] Protein, Pierce Modified Lowry or Pierce 660 nm Protein Assays. Having your instrument and reagents working together helps ensure an accurate and reliable analysis every time.



To access our complete Protein Assay Selection Guide please visit www.thermofisher.com/proteinassays



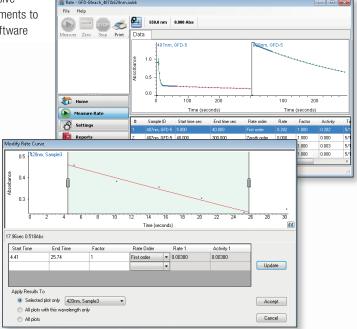
Thermo

Comprehensive tools for your kinetics research

Time and temperature based kinetics

Obtain accurate, reliable results quickly with comprehensive software and accessory solutions. From scanning experiments to stop-flow kinetics, the Evolution 260 Bio with INSIGHT software delivers maximum versatility to meet any need.

- Collect a full spectrum with each measurement for enhanced analysis
- Get more data faster with an industry leading acquisition rate of 100 data points per second for single-cell measurements and 160 data-points per second using INSIGHT'S Dwell Time feature and a Smart Linear 8-cell Changer
- Analyze complex data sets with ease using multistaged curve fitting and consecutive reaction mode options for comprehensive data fitting
- Perform millisecond kinetic measurements with precise electronic triggering and our convenient stopped flow Rapid Mixing accessory
- Convert data into the format you need using sophisticated math analysis functions, including derivatives and smoothing
- Merge data sets into a single workbook to quickly and conveniently compare data from multiple experiments with our Merge Workbooks feature



A collection of versatile software tools provides complete control over your kinetics analysis.

Integrated solutions for DNA melting curves

Whether you are examining short or long DNA or RNA sequences, duplexes or triplexes, the Evolution 260 Bio DNA Melting system meets all of your experimental needs.

- Precisely control your experiment from beginning to end with multi-stage heating and cooling profiles featuring ramp rates from 0.4–20 °C/min.
- Calculate Tm values automatically using built-in fitting algorithms to address
 a wide variety of melting curves
- Choose from single and 8-cell Peltier options with ranges of 0–110 °C to meet the sampling requirements of your laboratory

Cost-effective, reliable performance

1 Easy Sample Access

Have your hands full? Use your elbow. Unique, quick release sample compartment lid uses a push-button release to slide the lid open for easy access to the sample compartment.

2 Optimized Cell Positioning

Our innovative cell holder includes horizontal and vertical positioning adjustments to optimize energy throughput. A stable support system ensures accurate positioning of the cell in the beam every time. A cell lifter makes removing cells easy. An optional cell holder with temperature control is also available.

3 Long-term Stability

Double-beam geometry is ideal for kinetics or any sample that might change over time during a measurement. Use the reference detector to monitor a control sample during data acquisition for greater stability of your long-term measurements.

4 Faster Scanning

Our precision monochromator drive delivers fast-scanning data collection with high-wavelength accuracy. Scan samples up to 6,000 nm/min. A 31,000 nm/min slew speed makes both scanning and non-scanning measurements faster.

5 Accurate Rapid Kinetics

Accurate kinetics measurements rely on precisely known zero-time data. Electronic in/out triggering provides the highest level of accuracy for rapid-mixing kinetics measurements.



6 Versatile Sampling Options

Large, room light resistant sample compartment provides maximum versatility and ease of use for your most challenging samples. The connections plate keeps external connections out of your working space. Hose connectors, a pass-through slit for cables, and the option to remove the plate entirely to accommodate insulated tubes provides ideal support for all available accessories.

Fingertip Control

The integrated keypad communicates with INSIGHT software to start measurements or launch CUE scripts and other applications using the four programmable buttons. Optional tablet control module provides a color touchscreen display with the power and flexibility of an external computer.

The Xenon Lamp

A green, economical solution for your laboratory

The xenon lamp in the Evolution 260 Bio provides you with excellent performance over the entire wavelength range of 190–1100 nm. The intense light of the xenon lamp in the UV region of the spectrum delivers added sensitivity for life science, environmental, and organic chemistry applications. Benefits of the xenon lamp include:

- Instant measurements with no warm-up time required
- Seven or more years of maintenance-free operation and a guarantee for three years of continuous use
- Minimized exposure of samples to UV effects by powering on only during measurements
- Does not heat the sample compartment, providing **enhanced temperature stability** and eliminating sample degradation issues seen with traditional lamp sources

Company name: Thermo Scientific fent Name: Wavength Accuracy (Holmium oxide) Djerator: Boane, Claire Date: Thurnday, April 11, 2013 9:51:59 AM (GMT-4 astrument: Evolution 201 Date: Thurnday 101 astrument: Evolution 201 (CV Serial number: USP - 31773 Vecessory hase serial number: ROT133902				
Measurement Description	High Limit	Low Limit	Measured	Result
Wavelength of 640.55 nm line	641.55	639.55	640.28	Pass
Wavelength of 536.63 nm line	537.63	535.63	536.46	Pass
Wavelength of 451.41 nm line	452.41	450.41	451.79	Pass
Wavelength of 361.31 nm line	362.31	360.31	361.80	Pass
Wavelength of 287.30 nm line	288.30	286.30	287.76	Pass
Wavelength of 241.21 nm line	242.21	240.21	241.73	Pass
CVC Serial number: USP - 31773 Accessory base serial number: ROT133902				
Accessory base serial number: ROT133902 Measurement Description[Standard deviation of 361 nm peak] Company name: Thermo Scientific Company name: Cherno Scientific Portarior: Reson. Chaire	High Limit 0.10	Low Limit	Measured	Result Pass
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Ensure consistency of your instrument performance

Ensure the accuracy and reliability of your QA/QC data while improving the efficiency of your laboratory with automated performance verification.

- Save your analyst's time, improving the productivity of your laboratory, with automated PV testing
- Eliminate transcription activities and return results that are ready for sign-off when tests are complete
- Ensure compliance to industry guidelines and regulations for industrial and pharmaceutical laboratories with traceable standards and your choice of configuration options

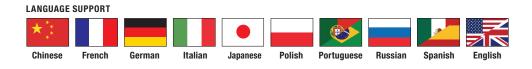
Routine analysis of microvolume samples

The Evolution 260 is a life science research instrument for all your advanced applications. If your workflow includes quantifying 1–2 µL of extracted DNA, RNA or protein, then the Thermo Scientific[™] NanoDrop[™] One Microvolume UV-Vis spectrophotometer is the ideal solution. Obtain answers in seconds – pipette, measure, know!

- Identify common contaminants
- Obtain corrected concentrations
- Information alerts with guided technical support
- Touchscreen control saves bench space
- · No dilutions needed with wide dynamic range
- USB, Ethernet and Wi-Fi data transfer

For more information on Thermo Scientific NanoDrop products, please visit www.thermofisher.com/nanodrop





www.thermofisher.com/uv-vis

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Thermo Scientific Evolution 201, 220 and 260 Bio UV-Visible Spectrophotometers

Reliability, versatility and convenience move you from samples to answers faster

From routine QA/QC measurements to complex research studies, the Thermo Scientific™ Evolution™ 200 Series UV-Visible (UV-Vis) spectrophotometers with Thermo Scientific™ INSIGHT™ and CUE™ software are designed to deliver the performance you need with the ease of use you desire, assuring high quality results user after user.



The Evolution 200 Series UV-Visible spectrophotometers offer unrivaled features and performance with a modern, doublebeam design; large, room-light resistant sample compartment; and complete line of accessories. INSIGHT software streamlines your workflows and provides maximum support for all your analytical needs with comprehensive and versatile Fixed, Scan, Quant and Rate applications.

Evolution 201 features a 1.0 nm spectral bandwidth for high-resolution data in routine quality control and basic research applications.

Evolution 220 increases the versatility of your system with a selectable bandwidth option for a wider variety of applications. Use with fiber optic probes and integrating spheres for optimal performance with these accessories.

Evolution 260 Bio adds the convenience of pre-programmed Bio Applications for increased productivity in your life science laboratory.

Reliable Performance

Evolution spectrophotometers deliver high-performance and reliability in a convenient, economical design.

- Double-beam optics provide long-term stability during data acquisition
- Instant-on Xenon flash lamp eliminates warm-up requirements and is guaranteed for 3 years of continuous use, typically lasting seven or more years
- Optional Calibration Validation Carousel (CVC) offers hands-free performance verification to ensure accuracy and minimize instrument downtime
- Compliance with U.S. and European pharmacopoeia specifications for UV-Visible spectrophotometers

Versatile Sampling

Evolution spectrophotometers offer an extensive selection of accessories for the measurement of almost any sample type, including solids, liquids and diverse sample sizes and compositions.

- Snap-in, auto-recognition of Thermo Scientific[™] Smart Accessories[™] allows users to quickly and reliably move between experiments in a multi-user laboratory
- Seamless software integration with sippers, cell changers or autosampler accessories increases productivity for high-throughput applications
- Fiber probe coupler and integrating sphere accessories with integrated detectors and customized beam profiles minimize light loss and maximize photometric performance

Convenient Software Options

From samples to final report, INSIGHT quickly guides you through each step of your analysis.

- INSIGHT software offers comprehensive tools for data collection, analysis and reporting for Fixed, Scan, Quant and Time- or Temperature-based Rate experiments
- INSIGHT Bio software adds pre-programmed bio applications for routine nucleic acid and protein concentrations, colorimetric assays, labeling efficiency and DNA melting for life science laboratories
- INSIGHT Security software provides all the tools you need to achieve 21 CFR Part 11 compliance in the pharmaceutical industry
- INSIGHT Auto software provides connectivity and seamless integration of supported autosamplers for increased efficiency in high-throughput environments





Guaranteed Performance Specifications

		Evolution 201 UV-Visible Spectrophotometer	Evolution 220 UV-Visible Spectrophotometer	Evolution 260 Bio UV-Visible Spectrophotometer		
Optical Design		Double-beam with sample and reference cuvette positions; Czerny-Turner Monochromator	Double-beam with sample and reference cuvette positions; Application Focused Beam Geometry; Czerny-Turner Monochromator	Double-beam with sample and reference cuvette positions; Application Focused Beam Geometry Czerny-Turner Monochromator		
Spectral Bandwidth(s)		1.0 nm	Variable: 1.0 nm; 2.0 nm; AFBG Microcell optimized; AFBG Fiber optic optimized; AFBG Materials optimized	Variable: 1.0 nm; 2.0 nm; AFBG Microcell optimized; AFBG Fiber optic optimized; AFBG Materials optimized		
Light Source		Xenon Flash Lamp, 3-year warranty (7 years typical lifetime)				
Detector		Dual Silicon Photodiodes				
Scan Ordinate Mo	odes	Absorbance, % Transmittance, % Reflectance, Kubelka-Munk, log (1/R), log (Abs), Abs*Factor, Intensity				
Wavelength	Range		190–1100 nm			
	Accuracy	±0.5 nm (541.9, 546.1 nm mercury lines) ±0.8 nm (full range 190–1100 nm)				
	Repeatability	≤0.05 nm (546.1 nm mercury line, SD of 10 measurements)				
Scanning Speed		<1 to 6000 nm/min; variable				
Data Intervals		10, 5, 2, 1.0, 0.5, 0.2, 0.1 nm				
Photometric	Range	>3.5 A				
	Display Range	-0.3 to 4.0 A				
	Accuracy – Instrument*	1A: ±0.006 A 2A: ±0.010 A Measured at 440 nm using neutral density filters traceable to NIST				
	Repeatability	±0.0002 A				
	Noise	0A: ≤0.00015 A 1A: ≤0.00025 A 2A: ≤0.00080 A 260 nm, 1.0 nm SBW, RMS				
	Drift (Stability)	<0.0005 A/hr 500 nm, 1.0 nm SBW, 1 hour warm-up				
Stray Light		KCl, 198 nm: ≤1% T Nal, 220 nm: ≤0.05% T NaN0₂, 340 nm: <0.05% T				
Baseline Flatness		±0.0010 A 200–800 nm, 1.0 nm SBW, smoothing				
Keypad		Sealed Membrane				
Local Control Option		Optional tablet control module				
Dimensions ($W \times D \times H$)		62.2 × 48.6 × 27.9 cm (24" × 19" × 11")				
Weight		14.4 kg (32 lb)				
Electrical Supply		100–240 V, 50–60 Hz, selected automatically 150 W maximum				

Pharmacopoeia Compliance Testing (Guaranteed Performance Specifications)

Resolution (Toluene in Hexane)	≥1.8 A	
Photometric Accuracy (60 mg/L K ₂ Cr ₂ O ₇)	±0.010 A	
Stray Light	≤1%T at 198 nm: KCI; ≤0.05%AT at 220 nm: Nal, KI	
Wavelength Accuracy	± 0.5 nm 541.9, 546.1 nm Hg emission lines, ± 0.8 nm full range	
Wavelength Repeatability	≤0.05 nm, repetitive scanning of 546.1 nm Hg emission line	

* Relative to the calibrated value for a neutral density filter

www.thermofisher.com/uv-vis

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