

BioMate 3

Convenient, accurate UV-Visible measurements for life science laboratories

Designed for performance and reliability, the Thermo Scientific BioMate™ 3 UV-Visible spectrophotometer delivers accurate data from a compact instrument. The BioMate 3 offers pre-programmed assay methods for the most common nucleic acid, protein, and cell culture methods. A variety of accessories adds convenience and provides Peltier temperature control, automation, and fiber optic sampling.



Thermo Fisher Scientific has an established reputation for producing quality spectrophotometers that spans over 60 years and over 650,000 units. This rich tradition includes notable instruments such as the AMINCO DW-2000 and the SPECTRONIC™ 20. Out of this experience in UV-Visible spectrophotometry comes the BioMate 3 – an instrument you can count on to meet the demands of your life science laboratory.

Hardware Designed for Performance

The patented optical design of the BioMate 3 provides a compact, high-performance system with very few moving parts. A xenon lamp gives balanced light over the full instrument wavelength range of 190-1100 nm. Guaranteed for 3 years of continuous use, the xenon light source will provide many years of maintenance-free performance.

The BioMate 3 features a dual-beam optical system that includes an internal reference detector. This optical configuration offers significant advantages over a single-beam or diode array instruments, including compensation for lamp intensity changes, less risk to samples that absorb in the UV, and better overall long-term stability.

Software Enhanced Flexibility

Embedded software in the BioMate 3 provides pre-programmed assays for RNA/DNA concentration or purity estimation, protein concentrations, cell growth, kinetics, or routine measurements.

For more intense applications, optional application software programs allow more sophisticated data collection, analysis, and reporting. Whatever your needs, research or routine, the BioMate 3 can be configured for your life science laboratory.



Accurate, Reliable Performance for Life Science Laboratories

Built-in Bioanalysis Software

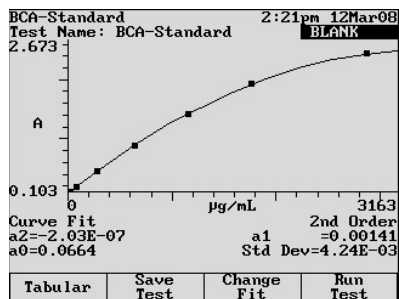
Are you tired of writing down absorption values from your spectrophotometer and working up the data in a notebook with a calculator or on a spreadsheet? The BioMate 3 offers timesaving, pre-programmed assays for fast, accurate results.

Nucleic acid concentration and purity estimations, protein concentration, and cell growth at 600 nm are all built into the BioMate 3. A flexible Oligo calculator feature for calculating molecular weight, theoretical T_m and oligo concentration factor is included. Other standard applications include single and multi-cell kinetics, wavelength scanning, and user-defined fixed wavelength measurements.

The built-in software is easy to modify for the needs of your laboratory. Simply change the parameters and save up to 120 methods to the internal memory.

Simplify the Routine

Simple, intuitive menus and graphical SoftKeys ensure that the most routine measurements can be accessed in only a few keystrokes. From the Protein Concentration menu, only 2 key presses are required to start a BCA protein concentration assay.



The unique SmartStart™ feature allows you to place the most frequently used methods on the first screen each time the instrument is turned on. *Only run three different assays in your lab?* Stop searching through menus and make them SmartStart tests. SmartStart makes training users simple and allows easy access to the laboratory tests you use every day.

Nucleic Acid Assays

The BioMate 3 provides all the necessary tests for determining the concentration and purity of nucleic acids. Nucleic acid concentrations can be determined by measuring at fixed wavelengths or by scanning. Scanning provides the added flexibility of visualizing the spectrum to look for possible contamination. All measurements can be baseline corrected to ensure the most accurate data, even with turbid samples.

DNA/RNA (260/280)			
Test Name: DNA/RNA (260/280) Cell # 4			
ID#	Abs 260nm	Abs 280nm	Abs Ref. ML
1	0.227	0.123	0.036
	Ratio	Conc. µg/mL	
Result	2.195	9.550	

Page 1 of 4, Sample 1
Press ↑ or ↓ to view data

Protein Assays

The BioMate 3 features automated methods for direct UV and colorimetric protein analysis saving valuable time and increasing lab productivity. With the push of only a few buttons, you are measuring standard assays like the Pierce BCA or a simple Coomassie assay. The calibration curve is automatically determined and sample measurements can begin immediately.

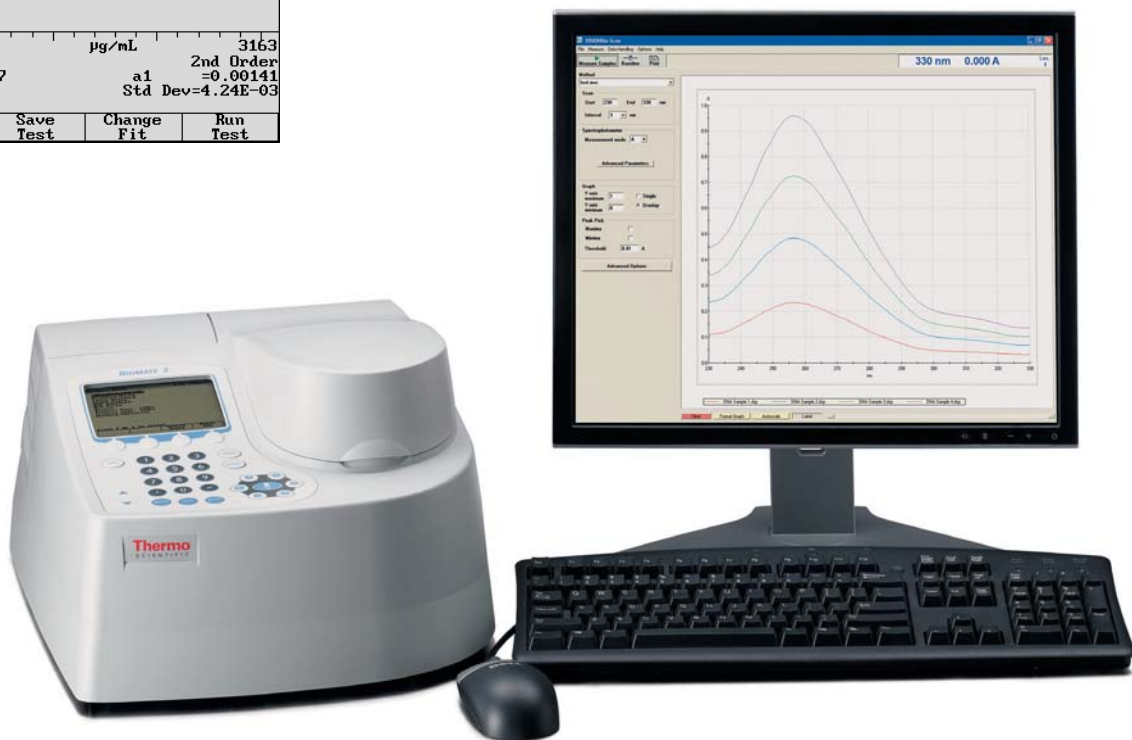
Protein Tests		2:28pm 12Mar08
Coomassie/Bradford Std		
Coomassie/Bradford Micro		
Lowry-Standard		
Pierce Modified Lowry		
BCA-Standard		
Pierce Micro BCA (tm)		
Biuret		
Protein Conc. (280)		
Protein Conc. (205)		
Warburg-Christian		

Press ↑ or ↓ to select

	Stored Tests	Basic ATC
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Small Volume Analysis

If you occasionally need to analyze small volume samples in addition to routine UV-Visible measurements, the nanoCell extends the measurement capabilities of your BioMate 3 to microliter samples. Analyze concentrated solutions without dilution. The interchangeable 0.2 mm and 1.0 mm pathlengths of the nanoCell allow for greater accuracy and sensitivity over a wide concentration range, identical to preparing 10- or 50-fold dilutions.



Convenient Peltier Temperature Control

Traditional recirculating water systems rely on the transfer of heat to a large volume of liquid, resulting in slow temperature transitions and poor long-term temperature stability. Peltier cell holders offer exceptional temperature stability and fast temperature transitions. The Air-cooled Peltier accessory for the BioMate 3 delivers superior performance in an easy-to-use configuration. Designed for biologically relevant assays that require temperature control at 25°, 37°, 40° and 50 °C, the Air-cooled Peltier accessory delivers reliable temperature control from 20° to 60 °C with ± 0.1 °C accuracy and precision. Precision electronics allow thermal equilibrium to be reached rapidly inside the cell without exceeding the set point temperature, which can damage the sample.

The Air-cooled Peltier accessory is less expensive than most recirculating liquid temperature controllers and delivers much better performance with absolutely no maintenance.



Enhanced Liquid Thermostatting

For temperature control with recirculating liquid, there is no better choice than the TPS-1500W Peltier Water Circulation Bath. Using a small volume (150 mL) of liquid, this accessory uses a Peltier for precise temperature control. If liquid recirculation is required for multi-cell experiments, look no further for performance. The sealed system and the small-volume of water used in the accessory allows accuracy to 0.05 °C. In addition to delivering powerful performance, this cost-effective accessory requires little to no maintenance.

Traceable Performance Verification

Built-in and software-based performance verification provides an easy, automated tool for checking the performance of your BioMate 3. In accordance with GLP, each verification report gives the time, date, and instrument serial number.

Thermo Fisher Scientific provides a traceable standard verifying DNA concentration and the 260/280 ratio. Available in sealed ampules or in a sealed quartz cuvette provides assurance that your instrument is accurate.

A NIST-traceable Green Dye standard is available for testing wavelength and photometric accuracy. This standard is available at 0.25, 0.5, 0.75, and 1.0 absorption values and is certified at 260, 414, and 620 nm.



Advanced Software Options

For general instrument control, teaching, and exporting ASCII data for advanced analysis, VISION/ite™ software delivers reliable data in an intuitive interface. Run multi-cell kinetics experiments or find peaks on wavelength scans.

For companies requiring user authentication, audit trails, electronic records, and signatures for 21 CFR Part 11 compliance, VISION/ite SE is the solution. User administration and software setup simple and IQ/OQ documentation is available.

For life science labs performing enzymatic food analysis, EnzLab is a convenient program to automate this analysis.

Accessories for Your Sample



TPS-1500W Peltier Water Circulation Bath



Water Thermostatted Single Cell Holder



VERSA Fiber Optic Probe



3-position Water Thermostatted Cell Changer



Air-Cooled Peltier



nanoCell



DNA Standard



Sipper



Green Dye Standard

Product Specifications

Specification	BioMate 3
Optical Design	Dual Beam (internal reference)
Spectral Bandwidth	5 nm
Light Source (typical service life)	Xenon (5+ years, 3 year warranty)
Detectors	Dual Silicon Photodiodes
Wavelength	
Range	190 - 1100 nm
Accuracy	± 1.0 nm
Repeatability	± 0.5 nm
Slew Speed	11,000 nm/min
Scanning Speed	200 - 2200 nm/min
Data Interval	1.0, 2.0, 3.0, and 5.0 nm
Photometric	
Range	-0.1 - 3.0 A; -0.3 - 125 %T; ± 9999 C
Readout	Absorbance, % Transmittance, Concentration
Accuracy	0.5% or 0.005A, whichever is greater, up to 2.0 A; DNA: ± 0.25 ng/µL; Protein: ± 0.005 mg/mL
Noise	< 0.001A at 0 A; < 0.002A at 2 A; peak-to-peak at 340 nm
Drift	< 0.001 A/hour
Stray Light	< 0.1%T at 220, 340, and 400 nm
Display	Graphical 320 x 240 pixel backlit LCD, 3.8 x 2.8 in
Keypad	Sealed Membrane Keypad
Data Storage	Up to 120 methods
Printer (optional)	40 column graphical printer (internal); parallel port output in HP PCL format (text and graphics)
Communications	Bi-directional RS232C; LIMS capable ASCII text output
Power Requirements	Selected automatically, 100/240V
Dimensions	30 W x 40 D x 25 H cm (11.8" x 15.7" x 9.8")
Weight	8.6 kg (19 lbs)
Warranty	1 year; lamp: 3-years of continuous use

BioMate 3 Local Control Software Features

User Configurable	DNA ratio/concentration with or without scanning
Built-in Assay Methods:	(260/280 and 260/230)
	Direct nucleic acid concentration at 260 nm
	Direct protein at 280 nm and 205 nm
	Coomassie/Bradford (Standard and Micro)
	Lowry (Standard), Pierce® Modified Lowry
	BCA (Standard)
	Pierce Micro-BCA
	Biuret
	Warburg-Christian
	Cell growth (with scaling factor)
	Oligo calculator: molar absorptivity, molecular weight, factor and theoretical T_m
	Kinetics
	Absorbance, %T, Concentration
	Standard curve
	Absorbance ratio
	Absorbance difference
	Multiwavelength Fixed Wavelength Analysis
	Survey Scanning
	Performance Validation
	Multi-Cell Kinetics (with VISION/ite) software

Ordering Information

BioMate 3	Part Number
BioMate 3 with Single Cell Holder, 100/240V, US	335904-000
BioMate 3 with Single Cell Holder, 100/240V, Europlug & UK	335904-02
BioMate 3 with Single Cell Holder and Printer, 100/240V, US	335904P-000
BioMate 3 with Single Cell Holder and Printer, 100/240V, Europlug & UK	335904P-02
BioMate 3 with 6-cell Changer, 100/240V, US line cord	335905-000
BioMate 3 with 6-cell Changer, 100/240V, Europlug & UK	335905-02
BioMate 3 with 6-cell Changer and Printer, 100/240V, US	335905P-000
BioMate 3 with 6-cell Changer and Printer, 100/240V, Europlug & UK	335905P-02

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Austria +43 1 333 50340	France +33 1 60 92 48 00	Middle East +43 1 333 5034 127	UK +44 1442 233555
Belgium +32 2 482 30 30	Germany +49 6103 408 1014	Netherlands +31 76 579 55 55	USA +1 800 532 4752
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Accuracy and Performance for the Life Science Laboratory

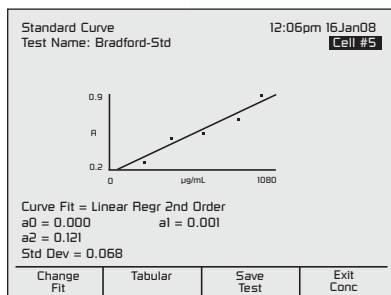
Simplify the Routine

Are you tired of writing down absorption values from your spectrophotometer and working up the data in a notebook with a calculator or on a spreadsheet? The BioMate 6 offers time-saving, pre-programmed assays for fast, accurate results.

Nucleic acid concentration and purity estimations, protein concentration, and cell growth at 600 nm are all built into the BioMate 6. A flexible Oligo calculator feature for calculating molecular weight, theoretical T_m and oligo concentration factor is included.

Simple, intuitive menus and embedded software driven by graphical SoftKeys ensure that most measurements can be accessed in only a few keystrokes. From the Protein Concentration menu, use a 3-step process to start a BCA protein concentration assay. The built-in software is easy to modify for the needs of your laboratory. Simply change the parameters and save up to 120 methods to the internal memory.

The unique SmartStart™ feature allows you to place the most frequently used methods on the first screen each time the instrument is turned on. *Only run three different assays in your lab?* Stop searching through menus to find them and make them SmartStart tests. SmartStart makes training users simple and allows easy access to the laboratory tests you use every day.



Advanced Data Collection and Analysis

Some life science UV-Visible assays require advanced software features and our capable VISION software is there to provide the power you need. Use the power of derivatives to uncover features hidden inside your data. Advanced scanning allows data to be acquired in 1st through 4th derivative mode or to be converted after acquisition.

Need even more power? Use OriginPro or GRAMS™ to analyze your life science data. From iterative curve fitting with custom equations to database searching, we have a software solution to deliver the results you demand. Simply export the data from VISION™ and import into any data analysis package

USB Convenience

Export your data right from the BioMate 6 to a USB memory device. Save time and make your data completely transportable. Use the VISION software to work up data later on a PC away from the instrument. A variety of USB printers are also supported by the BioMate 6 making it easy to get clear printed results from a local control instrument, no need for a computer.

Small Volume Analysis

If you occasionally need to analyze small volume samples in addition to routine UV-Visible measurements, the nanoCell extends the measurement capabilities of your BioMate 6 to microliter samples. Analyze concentrated solutions without dilution. The interchangeable 0.2 mm and 1.0 mm pathlengths of the nanoCell allow for greater accuracy and sensitivity over a wide concentration range, identical to preparing 10- or 50-fold dilutions.



Convenient Peltier Temperature Control

Traditional recirculating water systems rely on the transfer of heat to a large volume of liquid, providing slow temperature transition and poor long-term temperature stability. Peltier cell holders offer exceptional temperature stability and fast temperature transitions. The Air-cooled Peltier accessory for the BioMate 6 delivers superior performance in an easy-to-use configuration. Designed for biologically relevant assays that require temperature control at 25°, 37°, 40° and 50 °C, the Air-cooled Peltier accessory delivers reliable temperature control from 20° to 60 °C with ± 0.1 °C accuracy and precision. Precision electronics allow thermal equilibrium to be reached rapidly inside the cell without exceeding the set point temperature, which can damage the sample.

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Enhanced Liquid Thermostatting

For temperature control with recirculating liquid, there is no better choice than the TPS-1500W Peltier Water Circulation Bath. Using a small volume (150 mL) of liquid, this accessory uses a Peltier for precise temperature control. If liquid recirculation is required for multi-cell experiments, look no further for performance. The sealed system and the small volume of water used in the accessory allows accuracy to 0.05 °C. In addition to delivering powerful performance, this cost-effective accessory requires little to no maintenance.

Automated, Traceable Performance Verification

The Calibration Validation Carousel (CVC) provides automated performance verification, saving time and avoiding costly errors. Simply install the accessory, select which tests you want to run and the instrument and accessory does the rest. After recognizing a serial number, the CVC uses built-in traceable standards to check instrument performance according to USP protocols. In accordance with GLP, each verification test report gives the time, date, and instrument serial number.

Thermo Fisher Scientific provides a traceable standard verifying DNA concentration and the 260/280 ratio. This standard provides assurance that your instrument is providing accurate measurements.



Available as a stand-alone Local Control system or connected to a PC, the BioMate 6 provides all the tools necessary for reliable life science analysis.

Accessories for Your Sample



TPS-1500W Peltier Water Circulation Bath



7-cell Changer with Thermostatting Kit



Water-Thermostatable Single Position Cell Holder



Combination Test Tube and Cell Holder



Variable Pathlength Cell Holder



100 mm Pathlength Cylindrical Cell Holder



Holder for 1" Square Hach Cells and Accuvac Ampule



CETAC Autosamplers



Calibration Validation Carousel



SuperSipper



DNA Standard



NanoCell



Single Cell Peltier

Product Specifications

Specification	BioMate 6
Optical Design	Double-beam, Seya-Namioka Monochromator
Spectral Bandwidth	2 nm
Light Source (typical service life)	Deuterium: 1,000 hours Tungsten: 2,000 hours
Detectors	Dual Silicon Photodiodes
Scan Ordinate Modes	Abs, %T, Intensity, 1-4 Derivative
Wavelength	
Range	190 - 1,100 nm
Accuracy	± 1.0 nm
Repeatability	± 0.2 nm
Slew Speed	3,800 nm/min
Scanning Speed	1 - 3,800 nm/min
Data Interval	0.2, 0.5, 1.0, 2.0, 4.0, 10.0 nm
Photometric	
Range	-0.1 - 200 %T -0.3 - 3.0 A 0 - 9999 C
Readout	Absorbance, % Transmittance, Concentration
Accuracy	0.005A at 1A
Noise	< 0.0002 A, 500 nm, RMS
Drift	< 0.001 A/hour (after warm-up)
Stray Light	< 0.05 %T at 220, 340 and 400 nm
Display	VGA-Quality LCD, 4.5" x 3.3"
Keypad	Sealed Membrane Keypad
Peak Picking	Peaks, Valleys, Pks & Valleys, Zero Crossovers, Ratio, Corrected Ratio, Pk height
Fixed Wavelength (up to 20 wavelengths)	Abs, %T, Conc (Factored Absorbance)
Quantitation (up to 20 standards and 3 replicates)	Linear, Direct Linear, Quadratic and Direct Quadratic
Rate (up to 100 minute kinetic runs)	Display up to 7 kinetics curves per run
Multicomponent	Up to 20 components with up to 20 scan wavelengths
Printer (optional)	USB compatible printers
Communications	Bi-directional RS232C, USB output for printers and storage
Power Requirements	100 - 240 Volts
Dimensions	45.5 W x 39.5 D x 21.5 H cm (18" x 15.5" x 8.5")
Weight	10 kg (22.1 lb)
Warranty	1 year

BioMate 6 Local Control Software Features

Nucleic acid 260/280 and 260/230 ratio with or without scanning
Direct nucleic acid concentration at 260 nm
Direct protein concentration at 280 and 205 nm
Colorimetric Protein Assays: Coomassie/Bradford, Lowry, Pierce® Modified Lowry, BCA, Pierce Micro-BCA, Biuret, Warburg-Christian
Oligo Calculator: molar absorptivity, molecular weight, factor and theoretical T _m
Multi-cell Kinetics
Cell Growth (with scaling factor)
Wavelength Scanning
Fixed Wavelength Analysis
Performance Verification Tests

Ordering Information

BioMate 6	Part Number
BioMate 6 UV-Visible spectrophotometer, 120/240V	9423BIO1102E

Optional Software and Accessories

Optional Software and Accessories	Part Number
VISION _{pro} software	10040101
VISION _{life} software	10040201
VISION _{security} software	10040301
VISION _{lite} ColorCalc Advanced	869-124400
EnzLab	10041001
EnzLab SE	869-127100
GRAMS A/I 8.0	869-126900
Origin Pro 7.5	869-127000
TPS-1500W Peltier Water Circulation Bath	222-238800
7-Cell Changer with Thermostating Kit	9423UV53400E, 9423UV52210E
Water Thermostatable Single Position Cell Holder	9423UV52200E, 9423UV52210E
Combination Test Tube and Cell Holder	9423UV52250E
Variable Pathlength Cell Holder, 1-50 mm pathlength	9423UV51200E
100 mm pathlength Rectangular Cell Holder	9423UV51240E
100 mm pathlength Cylindrical Cell Holder	9423UV51210E
Micro Cell Holder	9423UV52400E
4-Rack Autosampler (ASX-520)	222-239700
2-Rack Autosampler (ASX-260)	222-239800
CVC (NIST-traceable) for BioMate 6	9423UV61460E
CVC (NPL-traceable) for BioMate 6	9423UV61400E
SuperSipper	9423UV64250E
nanoCell Accessory (0.2 and 1.0mm pathlength)	222-230300
Peltier Cell Holder + Temperature Controller (BioMate 6)	222-238200
Certified DNA Standard (sealed cuvette)	268-831300

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