Product Specifications

BioMate 3
Convenient, accurate UV-Visible measurements for life science laboratories

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.

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.

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-Vis spectrophotometry comes the BioMate 3 – an instrument you can count on to meet the demands of your life science laboratory.

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.

Thermo Fisher Scientific

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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.

Part of Thermo Fisher Scientific
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 Tm 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.

**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.

**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.

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.

Enhanced Liquid Thermostating

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.
## BioMate 3 Life Science UV-Visible Spectrophotometer

**Optical Design**
- Dual Beam (internal reference)

**Spectral Bandwidth**
- 5 nm

**Light Source (typical lifetime)**
- Xenon (5+ years, 3 year warranty)

**Detector**
- 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 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 22, 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

**Languages**
- Software, output, and operator’s manual: English, French, German, Spanish, Italian (user selectable)

**Power Requirements**
- Selected automatically, 100 – 240 Volts

**Dimensions**
- 30 W x 40 D x 25 H (cm); 11.8 x 15.7 x 9.8 (in)

**Weight**
- 8.6 kg (19 lbs)

**Warranty**
- 1 year; lamp: 3-years of continuous use

### User Configurable Built-in Assay Methods:
- DNA ratio/concentration with or without scanning (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 Tm
- Kinetics
- Absorbance, %T, Concentration
- Standard curve
- Absorbance ratio
- Absorbance difference
- Multiwavelength Fixed Wavelength Analysis
- Survey Scanning
- Performance Validation
- Multi-Cell Kinetics (with VISIONlite) software

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