

## Thermo Scientific GENESYS 10S Bio

Accurate and convenient life science  
UV-Visible measurements

Designed for performance and reliability, the Thermo Scientific GENESYS 10S Bio UV-Visible spectrophotometer delivers accurate data from a compact instrument. The GENESYS 10S Bio offers pre-programmed methods for most common nucleic acid and protein assays. A variety of accessories adds convenience and versatility.



Your busy life science laboratory demands performance and flexibility – count on the Thermo Scientific GENESYS 10S Bio UV-Visible spectrophotometer to deliver. With stray light and noise specifications comparable to instruments two or three times the size and price, the GENESYS™ 10S Bio saves valuable bench space in your laboratory and leaves room for additional equipment. The 1.8 nm spectral bandwidth provides the optimum balance of sensitivity and resolution for your nucleic acid and protein assays. The GENESYS 10S Bio makes research quality measurements with routine simplicity.

### Affordable

The GENESYS 10S Bio delivers performance, accuracy and reliability in one easy to afford instrument. The efficient optical design

features a minimum number of optical surfaces in a true monochromator design for maximum energy throughput. The xenon lamp provides instant-on, UV-Visible measurements and is guaranteed for 3 years of continuous use.

### Software Enhanced Flexibility

Embedded software in the GENESYS 10S Bio provides pre-programmed assays for RNA/DNA concentration and purity estimation, direct and colorimetric protein concentration, cell growth, kinetics, and routine UV-Visible measurements. Application software programs, driven by USB connection to a computer, allow more sophisticated data collection, analysis and reporting. Whatever your needs, the GENESYS 10S Bio can be configured for your life science laboratory.



# Accurate, Reliable Performance for Life Science Laboratories

## Instant-On and Maintenance-Free Xenon Lamp

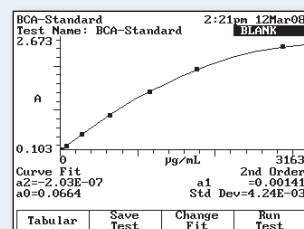
A high-intensity xenon lamp and dual-beam optical geometry empower the GENESYS 10S Bio spectrophotometer to deliver unsurpassed data quality. The lamp provides strong illumination from 190 to 1,100 nm – perfect for life science or pharmaceutical samples measured in the UV and near-IR measurements of microarray samples with fluorescent dyes. Guaranteed for three years of continuous use, the xenon lamp typically provides 5 to 7 years of maintenance-free performance. The lamp may not need replacing over the entire lifetime of the instrument, as it is only on when taking measurements. Other benefits of the xenon lamp include:

- **No warm-up time** – instant measurements
- **Cooler** – lamp does not raise the sample compartment temperature
- **Will not damage sensitive samples** – does not continuously expose sample to intense UV light

## Intuitive and Powerful Embedded Software

The easy-to-use embedded software is driven from an integrated, chemical-resistant keypad. Context sensitive SoftKeys™ ensure that routine measurements require only a few keystrokes. From simple nucleic acid concentration measurements to protein concentration and kinetics assays, the embedded software of the GENESYS 10S Bio delivers the answers you want in a convenient and easy-to-use interface. Pre-configured methods can be edited and then stored to personalize assay methods quickly. Example pre-configured methods include:

- Nucleic acid ratio and concentration (260/280 and 260/230)
- Direct protein at 280 nm and 205 nm
- Coomassie/Bradford (Standard and Micro)
- Lowry (Standard)
- BCA (Standard)
- Thermo Scientific Pierce Micro-BCA
- Pierce 600 nm Protein Assay
- Cell growth (with scaling factor)



DNA/RNA (260/280) 2:39pm 12Mar08

Test Name: DNA/RNA (260/280) Cell # 4

ID#	Abs 260nm	Abs 280nm	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 T or I to view data

Measure Samples

Protein Tests 15:22 30Jul09

Protein Conc. (280)

Coomassie/Bradford Std

Coomassie/Bradford Micro

Pierce 660nm Protein

Lowry-Standard

Pierce Modified Lowry

BCA-Standard

Pierce Micro BCA (tm)

Biuret

Protein Conc. (205)

Warburg-Christian

Press T or I to select

Stored Tests	Basic ATC

## Walk-up Simplicity

Not all UV-Visible measurements are complex – sometimes only a quick absorbance or percent transmission reading is necessary. A simple walk up screen which displays the selected wavelength and data makes these routine measurements fast and easy. The GENESYS 10S Bio is ready to provide accurate data instantly.

### 1 Xenon Flash Lamp

Long lifetime lamp is guaranteed for 3 years of continuous use.

### 2 Patented\* Out-of-Plane Monochromator Configuration

Enables maximum performance with a minimum footprint.

### 3 Reference Detector

Ensures the most accurate data is measured from each flash of the lamp.

### 4 Integrated 6-Cell Changer

Increase your sample throughput with the automation of this integrated cell changer.

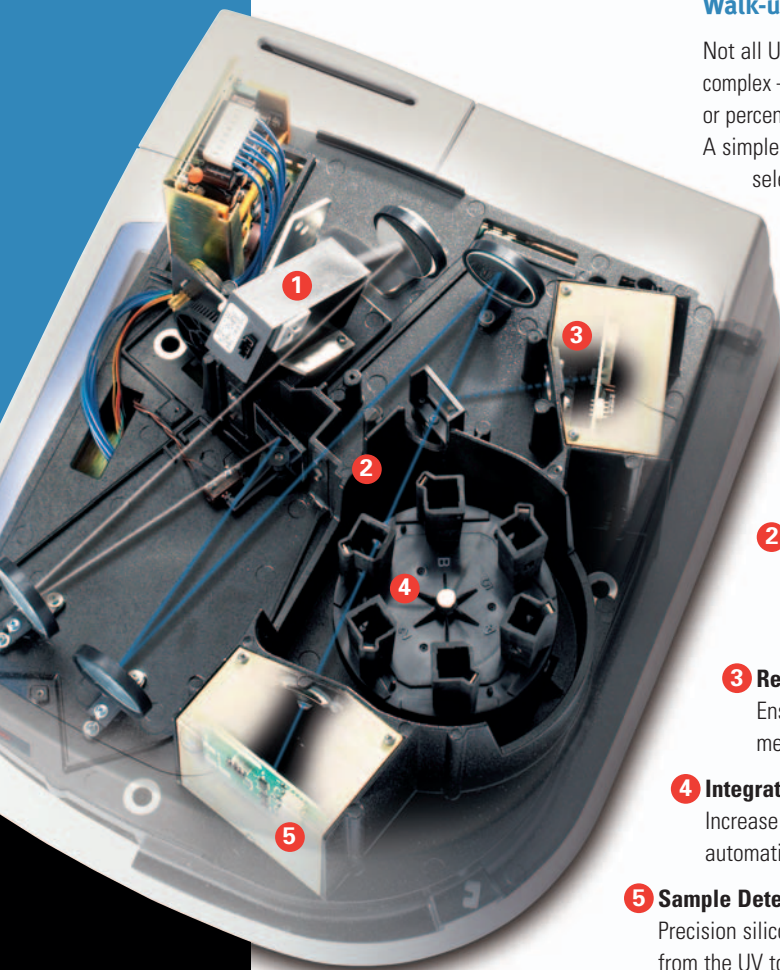
### 5 Sample Detector

Precision silicon detectors allow measurements from the UV to the near-IR.

## Accurate Dual-Beam Geometry

The dual-beam optical configuration allows the GENESYS 10S Bio spectrophotometer to deliver exceptional performance in a very compact footprint. In the dual-beam configuration the intense light from the xenon lamp is sent to both a sample and reference detector. Simultaneous measurement of the sample with real-time reference beam correction overcomes the shortcomings of traditional single-beam or array detector instruments and ensures:

- Each measurement is as accurate as possible – reference beam correction on each data point
- Superior photometric accuracy over long measurements – no drift
- Peaks do not shift as the scan speed changes





## Convenient Peltier Temperature Control

Peltier cell holders offer exceptional temperature stability and fast temperature transitions. The Air-cooled Peltier accessory for the GENESYS 10S Bio delivers superior performance in an easy-to-use configuration. Designed for life science assays, the Air-cooled Peltier accessory provides reliable temperature control from 20 to 60 °C with  $\pm 0.1$  °C accuracy and precision. It also includes magnetic stirring. Precision electronics allow thermal equilibrium to be reached rapidly inside the cell without exceeding the set point temperature, which can damage the sample.

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

## USB Connectivity

The GENESYS 10S Bio series spectrophotometers feature USB connections which allow you to:

- Connect to a computer for application software control and data analysis and storage
- Use a USB memory device to store methods and data in CSV format
- Print hard copy data reports directly to an external printer

Connecting to a desktop workstation or laptop computer has never been easier. Built-in software drivers immediately recognize the GENESYS 10S Bio series instruments and allow easy connection to application software. Use the entire capacity of your USB memory device to store method and data files — makes file transfer quick and easy. The GENESYS 10S Bio series instruments support inkjet and laser printers running up to HP® PCL 6.

## More Flexibility with Application Software

For complete control of the instrument and accessories, the Thermo Scientific VISION<sup>lite</sup> software offers dedicated applications for scanning, fixed wavelength analysis, quantitative analysis and multi-cell kinetics. VISION<sup>lite</sup>™ software makes data collection, storage, export and reporting fast and simple.

## Traceable Performance Verification

Built-in and software-based performance verification provides an easy, automated tool for checking the performance of your GENESYS 10S Bio. In accordance with GLP, each verification report gives the time, date, and instrument serial number. Thermo Fisher Scientific provides a certified standard verifying DNA concentration and the 260/280 ratio. Available in a sealed quartz cuvette, this standard provides assurance that your instrument is accurate.



## GENESYS 10S Bio Specifications

Optical Design	Dual Beam – Internal Reference Detector
Spectral Bandwidth	1.8 nm
Light Source (Typical Lifetime)	Xenon Flash Lamp (5 years, 3 years guaranteed)
Detectors	Dual Silicon Photodiodes
Wavelength	
Range	190 – 1100 nm
Accuracy	± 1.0 nm
Repeatability	± 0.5 nm
Slew Speed	11,000 nm/min
Scan Speed	1 – 4200 nm/min
Data Interval for Scanning	0.2, 0.5, 1.0, 2.0, 3.0, 5.0 nm
Photometric	
Linear Range	Up to 3.5 A at 260 nm
Display	-0.5 – 5.0 A; -1.5 – 125 %T; ± 9999 C
Accuracy	± 0.005 A at 1.0 A 0.010 A K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub>
Noise	< 0.00025 at 0.0 A; < 0.00050 at 1.0 A; < 0.00080 at 2.0 A; RMS at 260 nm
Drift	< 0.0005 A/hr
Stray Light	< 0.08% T at 220, 340 nm (NaI, NaNO <sub>2</sub> ); < 1.0% T 198 – 200 nm (KCl)
Display	Graphical with LCD backlight; 9.7 x 7.1 cm (3.8 x 2.8 in.)
Keypad	Sealed Membrane with tactile response keys
Printer (optional)	40 column Internal (text and graphics); External USB printer (HP PCL 3.0 and greater)
Connectivity	USB Type A port for USB memory device (front panel) USB Type B port for optional computer connectivity (rear panel) USB Type A port for external printer (rear panel)
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)
Power Requirements	Selected Automatically 100 – 240 V; 50 – 60 Hz

## Local Control User Configurable Built-in Assay Methods: Software Features

Nucleic Acid ratio and concentration (260/280 and 260/230)
Nucleic Acid ratio and concentration with scanning (260/280 and 260/230)
Direct nucleic acid concentration at 260 nm
Direct protein concentration (280 and 205 nm)
Coomassie/Bradford (Standard and Micro)
Lowry (Standard), Pierce Modified Lowry
BCA (Standard), Pierce Micro-BCA™
Pierce 660 nm Protein Assay
Biuret
Warburg-Christian
Cell growth (with scaling factor)
Oligo calculator: molar absorptivity, molecular weight, factor and theoretical T <sub>m</sub>
Fast, Full-range Scanning
Kinetics
Absorbance, %T, Concentration
Standard curve
Absorbance ratio
Absorbance difference
Multiwavelength Fixed Wavelength Analysis
Performance Validation
Multi-Cell Kinetics (with VISION/ite) software

## Accessories for Every Sample

From our nanoCell accessory for occasional small volume measurements to our Air-cooled Peltier cell holder for precise temperature control, we have all of the accessories you need for a complete life science UV-Visible system.



## Supplied as Standard

- GENESYS 10S Bio spectrophotometer
- 6-position cell changer
- Single cell holder
- 100 – 240 V Automatic Power supply
- AC power cord
- Spare fuses
- Protective plastic cover
- USB memory device
- USB cable

## Ordering Information

Description	Part Number
GENESYS 10S Bio, 1 and 6 position cell holder, US	840-207700
GENESYS 10S Bio with Printer, 1 and 6 cell holder, US	840-207800
GENESYS 10S Bio, 1 and 6 position cell holder, EU/UK	840-209300
GENESYS 10S Bio with Printer, 1 and 6 position cell holder, EU/UK	840-209400

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