Ultrospec 2000 UV/Visible Spectrophotometer

Simple Lamp Change

The new source lamp assembly makes lamp changing extremely easy. There is no need to remove the instrument top cover - simply snap out the lamp compartment lid, slide out the lamp assembly and replace with a new one. No lamp adjustment is necessary since the lamps are pre-aligned, and a motorized lamp mirror optimizes for maximum energy throughput during calibration.

Ultrospec 2000 Applications

- Absorbance, transmittance and concentration measurements
- Absorbance ratio calculations
- Protein measurements
- BioSciences

Stored routines for DNA, RNA and oligonucleotide solutions with automatic measurement of A260, A280 and A320 (if background compensation is required) give rapid results of nucleic acid concentration in µg/ml and purity (A260/A280 ratio). The factors of 50, 40 and 33 are used for DNA, RNA and oligonucleotides, respectively; the default factor of 33 for oligonucleotides can be overwritten if required. A stored routine for the Christian Warburg* analysis of protein impurity in nucleic acid solutions measures A260, A280 and A320 (if background compensation is required) and then uses stored factors to calculate protein contamination in mg/ml. The default factors of 1.55 and 0.76 can be over written for different proteins if required. Ultrospec 2000 can be used for all standard protein determination assays.

Kinetics

The measurement of absorbance (or concentration directly if an appropriate factor is applied) as a function of time, either in minutes or seconds, can be readily performed. Data can be presented either as actual absorbance or as change in absorbance (delta Abs). Graphical results can be output to a chart recorder (synchronized) or output numerically to a printer.

Scanning

It is also possible to output a wavelength scan to a chart recorder (asynchronous) for simple routine checks on samples; alternatively, SWIFT applications software can be used in conjunction with a PC for more comprehensive measurements, including post run manipulations such as derivatives.

Utilities

A range of instrument utilities are accessible via the Function key. These include date / time, alphanumeric input, baseline creation / storage and diagnostic parameters such as lamp hour usage; all parameters are battery backed. The instrument can be set to print out these parameters in accordance with GLP requirements - very important in many aspects of laboratory record keeping. In addition, the Ultrospec 2000 keypad can be locked in a particular user mode, providing application security - useful in a teaching laboratory or other multi user environments.

Accessories

The spacious sample compartment is fitted as standard with an automatic 6-position cell changer. For samples requiring thermostatting, water heated and Peltier heated 6 position cell changers are available. For those users with a large number of samples, a Sipper accessory is available for easy automation. A wide range of single cell accessories, including an ultra microvolume cell holder, water and Peltier heated cell holders and an Electrically heated cell holder are also available.

Reliable

Ultrospec 2000 has been designed for ultimate reliability with a minimum of moving parts and high optical efficiency using a minimum of mirrors. A precision encoder embodied in the software ensures highly reproducible wavelength accuracy. A new approach to the wavelength drive enables a scanning speed of 6000 nm/minute to be achieved (patent pending).

At power up, Ultrospec 2000 goes through a sophisticated procedure that ensures the integrity of the wavelength calibration. The spectrophotometer has a parallel port for output of hard copy of annotated results to printer. In addition it has an RS232C interface for linking to a PC and use with the SWIFT applications software.

Specifications

Wavelength Range	190 to 1100 nm
Monochromator	1200 lines/mm concave holographic grating
Spectral Bandwidth	3 nm
Wavelength Accuracy	±1 nm
Wavelength Reproducibility	±0.5 nm
Light Sources	Tungsten halogen and deuterium arc
Detector	Silicon photodiode
Photometric Range	-3.000 to +3.000 A, 0.01 to 99999 concentration units, 0.1 to 200%T
Photometric Accuracy	±0.5% or ±0.003 A to 3.000 A, whichever is the greater
Photometric Reproducibility	0.5% of absorbance value
Stability	±0.002 A/hr at 0 A after warm up
Stray Light	< 0.025%T at 220 nm using NaI and < 0.025%T at 340 nm using $NaNO_2$
Analogue Output	100 mV per 1.000 A
Digital Output	9 pin RS232C serial and Centronics parallel
Sample Compartment Size	140 x 220 x 80 mm (5.5 x 8.6 x 3.2 in)
Dimensions, H x W x D	190 x 500 x 360 x mm (7.5 x 19.7 x 14.2 in)
Weight	13 kg (28.7 lb)
Power Requirements	100 to 240 VAC ± 0%, 50/60 Hz, 150 VA
Safety Certifications	CE 89/336/EEC (EMC directive); CE 73/23/EEC (LV directive); EN-61010-1 (IEC1010-1)

Catalog No.	Product
CGS 8162.39	Ultrospec 2000 UV/Visible Spectrophotometer