

M501 Single Beam Scanning UV/Visible Spectrophotometer



Telf.-21 7142066

Fax-21 7145674

WWW.ERT.PT

CamSpec

Camspec is proud to introduce the all new M501 single beam scanning UV/Visible spectrophotometer...



...more performance and features than you need at a price less than you expect.

Technical Specifications

Display	1/4 VGA 320x240 pixels backlit LCD
Light Sources	Tungsten-Halogen and Deuterium
Monochromator	Littrow type with 1200 lines/mm grating
Detector	Silicon Photodiode
Wavelength Range	190 - 1100nm
Wavelength Accuracy	± 1nm
Wavelength Resolution	0.1nm
Wavelength Repeatability	± 0.05nm
Noise	< 0.001A @ 500nm 0A
Zero Drift	< 0.002A per hour after warm-up
Baseline Flatness	± 0.002A
Bandpass	4nm
Stray Light (A.S.T.M.)	< 0.15%T @ 220nm and 340m
Photometric Accuracy	Better than 1% @ 0.5A, 1A, 2A
Photometric Range	-0.7 to 2.5A, 0 to 200%T, 0 to 9999 Conc
Printer Interface	Centronic parallel for eg HP Deskjet
Computer Interface	Bi-directional RS232C for PC control
Power Requirements	110/120V, 220/230V, 50/60 Hz, 110 VA
Dimensions	550 x 420 x 260mm
Weight	18kg

A 4-cell manual changer is fitted as standard. All instruments are supplied with 4 glass cells, 2 silica (UV) cells, as well as mains lead, dust cover and user manual.

Local Control Software

All methods are included, thus eliminating the confusion of software options



Basic Mode

Measures Absorbance, %T and Concentration with entry of Concentration Factor or the Concentration of the standard.

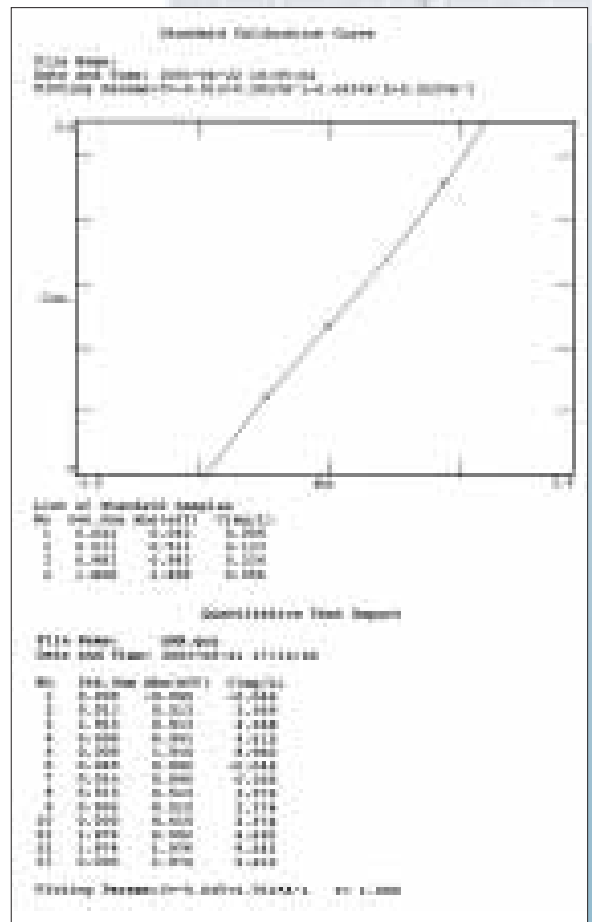
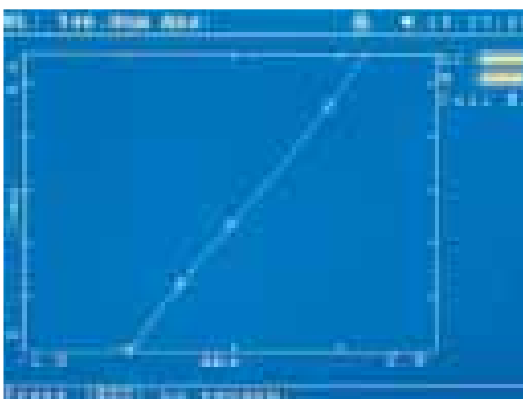
Units ug/mL, mg/mL, mg/L, g/L, ppb, ppm, %, I.U., mM/L, M/L, may be selected or other units may be entered via the keypad.

Continuous display of the result means there is no need to press a button to read.



Quantitative

Up to 10 standard solutions may be used for a calibration.



There are 3 kinds of correction method:

- 1- Single wavelength
- 2- Iso-absorbance:

the absorbance at the measurement (peak) wavelength is measured relative to the absorbance at a second (valley) wavelength. This minimises the effects of cell differences and turbidity

- 3- 3 point:

the absorbance of the peak itself is measured by subtracting the calculated tangent joining the valleys each side of the peak

There is a choice of 4 methods for fitting a curve through the calibration points: Linear fit, linear fit through zero, square fit, cubic fit

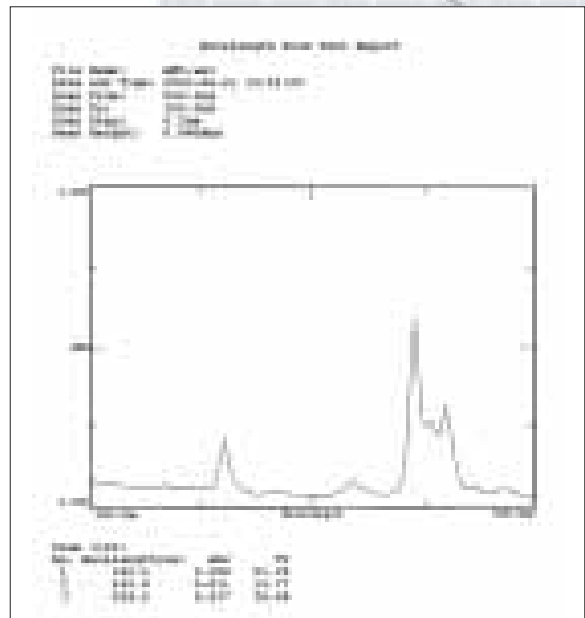
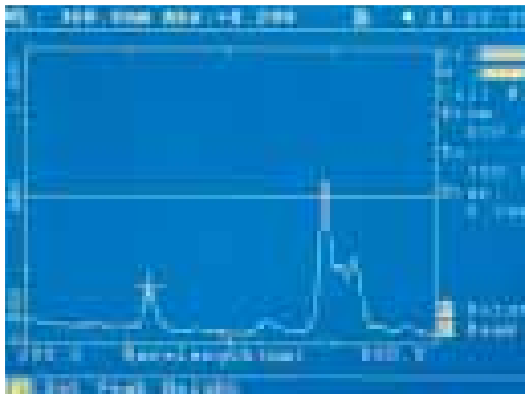
Wavelength Scanning

Precise control of filter and lamp changes means that their effects are not seen on the final scan.

Wavelengths are scanned from high to low so that the instrument waits at high wavelength. This minimises the degradation of UV sensitive samples.

The wavelength scan intervals are 0.1, 0.2, 0.5, 1, 2, 5nm, and Hi, Medium and Low scan speeds are available. Scan speeds vary from 75 to 1000 nm/min.

Post-run manipulation includes re-scaling both axes, curve tracking and peak picking.



Kinetics

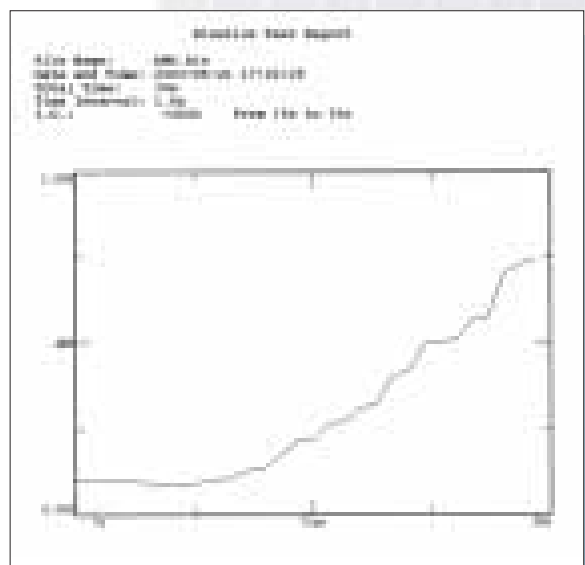
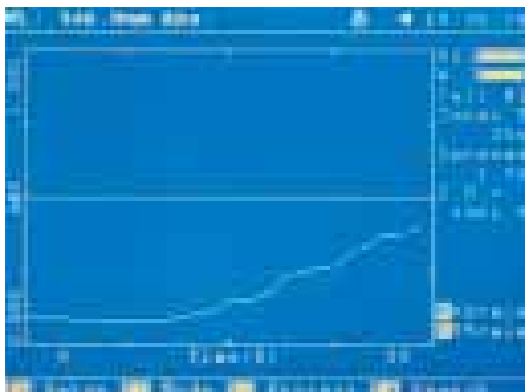
This mode may be used for time course scanning or reaction rate calculations.

Abs v time graphs are displayed on the screen in real time.

Wait times and measurement times up to 12 hours may be entered with date intervals of 0.5, 1, 2, 5, 10, 30 secs and 1 min.

Post-run manipulation includes re-scaling, curve tracking and selection of the part of the curve required for the rate calculation.

Rates are calculated using a linear regression algorithm before multiplying by the entered factor.



DNA/Protein

Concentration and DNA purity are calculated:
Absorbance ratios 260nm/280nm or 260nm/230nm
with optional subtracted absorbance at 320nm.

DNA Concentration

$$= 62.9 \times A_{260} - 36.0 \times A_{280} \text{ or } 49.1 \times A_{260} - 3.48 \times A_{230}$$

Protein Concentration

$$= 1552 \times A_{260} - 757.3 \times A_{280} \text{ or } 183 \times A_{260} - 75.8 \times A_{230}$$

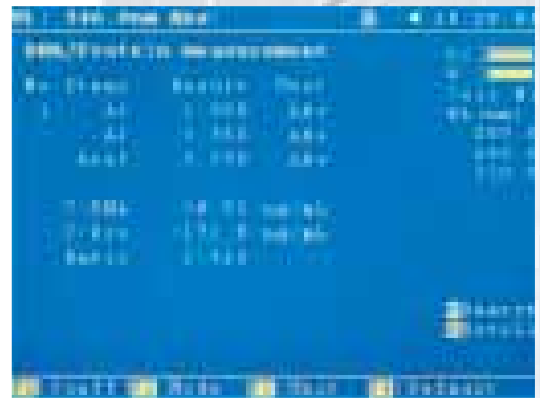
Other wavelengths and factors may be entered.

DNA / Protein Test Report

File Name: **APP.DNA**
Date and Time: **2003-09-23 16:10:48**

No	260.0nm	280.0nm	230.0nm	D-DNA	D-PRO	Ratio
1	1.088	0.568	0.276	26.89	-272.9	2.817
2	1.088	0.568	0.276	26.89	-272.3	2.816
3	1.083	0.568	0.276	26.71	-270.3	2.800
4	1.083	0.568	0.276	26.72	-270.7	2.802
5	1.088	0.568	0.276	26.87	-272.3	2.817

Multi-wavelength



Multi-Wavelength

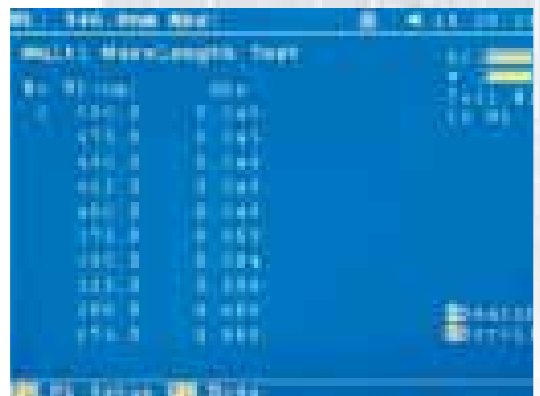
Up to 10 wavelengths may be entered, allowing the measurement of multiple wavelengths on a series of samples.

MULTI-Wavelength Test Report

File Name: **APP.MUL**
Date and Time: **2003-09-23 16:08:01**

No	230nm	260nm	280nm	320nm	260/280	260/230	280/230	260/320	280/320	Ratio
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Multi-wavelength



Performance Validation

- for the GLP compliant laboratory

The M501 may be automatically self-calibrated on switch-on, using the 656.1nm deuterium emission line. This may be repeated at any time.

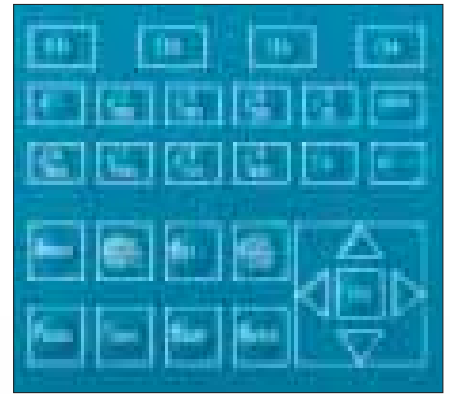
The wavelength accuracy may be checked using the "WL Validity" program (calibration standards required).

The absorbance accuracy at several wavelengths may be checked using the "Accu Validity" program.



Other Features

- The sealed and solvent-resistant tactile keypad has alphanumeric entry for user file names and user entry of units.
- The M501 has a real-time clock for date and time stamping of results
- Lamps may be turned off and the lamp usage may be monitored. The status of the lamps is always displayed on the screen.
- Full A4 print-outs of graphs and tables of results may be obtained using popular inexpensive printers such as an HP Deskjet.
- The Print-out button also allows the screen display to be printed at any time.
- Non-volatile memory provides storage for up to 30 methods/results. A method may be simply set up by selecting the type of measurement and pressing the LOAD button.
- When a spectrophotometer arrives at the measurement wavelength, blanking is required, so the M501 performs this automatically.
- The M501 has a large sample compartment (225mmx115mmx120mm high) which can accommodate an 8-cell changer and 100mm pathlength cells. The optical height is 15mm above the cell base.
- Accessories - a wide range of accessories will shortly be available including a peristaltic sipper and an 8-cell automatic changer.
- The large synthetic covers allow the M501 to run cool and this minimises warm-up effects.
- The absence of flat external surfaces or cooling vents discourages spillage onto or into the instrument.
- The rugged steel base and enclosed monochromator assembly ensure the calibration is stable for years of instrument use.



Camspec Limited has specialised in the design, manufacture and sales of UV/Visible Spectrophotometers since 1986. Camspec is an ISO 9001:2000 company and all instruments are individually checked using wavelength and absorbance standards calibrated by the National Physical Laboratory. The M501 fully complies with CE requirements for safety and ESD/EMC emission and susceptibility. All units are guaranteed for one year.



Camspec Ltd, 11 High Street, Sawston,
Cambridge CB2 4BG United Kingdom
Telephone: +44(0) 1223 836971
Fax: +44(0) 1223 836414
www.camspec.co.uk sales@camspec.co.uk



Rua Soeiro Pereira Gomes
Lote 5 - Cave Dta, Paivas
2845-387 Amora Portugal
Telf. 217142066 Fax. 217145674
info@ert.pt WWW.ERT.PT