



Colorimeters and UV/Visible Spectrophotometers



from
biochrom



WPA, Biochrom® Ltd

and UV/Visible Spectrophotometry



WPA Ltd was acquired by Biochrom® Ltd in 2002 because their range of colorimeters and innovative spectrophotometers provided a perfect extension for the Ultrospec and Libra range of UV/Visible spectrophotometers. Together, these brands address the market from hand-held colorimeters up to Pharmacopoeia compliant high-resolution products. The products are now designed and manufactured at the Biochrom® factory on the famous Cambridge Science Park in the UK.

UV/Visible Spectrophotometry is a popular analytical technique used in most laboratories for a whole host of applications and across the Biochrom® group there are products for every occasion. The guide below will assist with your WPA brand selection.

WPA BRAND SELECTION GUIDE

PRODUCT	LIGHT SOURCES	OPTICAL SYSTEM	INSTRUMENT PARAMETERS				COMMENT	
Colorimeters			Wavelength Range	Absorbance Range	Bandwidth	Stray Light		
	CO 7000	Tungsten	Filters	400, 440, 470, 490, 520, 550, 580, 590, 680, 700nm	-0.3 to 1.99A	40nm	<1%T at filter wavelength	Tropicalised colorimeter Ideal for use in hot, humid, remote locations for clinical/medical applications
	CO 7500	Tungsten	Filters	440, 470, 490, 520, 550, 580, 590, 680nm	-0.3 to 1.99A	40nm	<1%T at filter wavelength	Robust colorimeter that is ideal for schools and colleges
CO 8000	600nm LED	LED	600nm	-0.3 to 1.99A	40nm	<1%T at 600nm	Cell density meter for <i>E. Coli</i> and Yeast cell culture OD600 measurements	
Spectrophotometers								
S800	Tungsten	Single beam, Monochromator	330 – 800nm	-0.3 to 2.5A	7nm	<1%T at 340nm	Scanning visible instrument for education	
S1200	Tungsten	Single beam, Monochromator	330 – 800nm	-0.3 to 2.5A	7nm	<1%T at 340nm	Scanning visible instrument for QC and routine use	
Biowave DNA	Xenon	Dual channel, Monochromator	190 – 1100nm	-0.3 to 2.5A	5nm	0.5%T at 220 and 340nm	Dedicated life science product with stored routines for nucleic acid, protein and cell density measurements	
Lightwave II	Xenon	Dual channel, Monochromator	190 – 1100nm	-0.3 to 2.5A	5nm (3nm+ versions)	0.5%T at 220 and 340nm	Scanning instrument for general UV/Vis applications	
Biowave II	Xenon	Dual channel, Monochromator	190 – 1100nm	-0.3 to 2.5A	5nm (3nm+ versions)	0.5%T at 220 and 340nm	Life Science oriented product with stored routines for nucleic acid, protein and cell density measurements with software for general uv/vis applications	



The CO 7000 is a portable colorimeter designed for use by doctors and medical technologists in small and medium sized clinics. The unit has been tropicalised to protect it in hot and humid conditions, to 45°C and 70%, respectively. The 10 gelatin filters are encased in glass to prevent fungal growths appearing and the PCB has been conformally coated so that individual components are sealed to prevent corrosion. The instrument is powered by an internal rechargeable NiMH battery or by external power allowing it to be used where the power supply could be unreliable.

The CO 7000 is very easy to use as there are only three buttons and the wavelength required is selected by rotating an integral filter wheel. The filters at 400, 440, 470, 490, 520, 550, 580, 590, 680 and 700nm enable assays in the wavelength range 400 to 700 nm to be measured and the instrument has been designed as an "open" system so that test kits for clinical and medical applications from virtually any supplier may be used. Examples of

routine assays that may be measured in serum and plasma include Albumin, Cholesterol, Glucose, Creatinine, Total Protein, Urea and those in cerebrospinal fluid include Glucose and Total Protein*. The samples may be measured in either standard 10mm pathlength cuvettes (a minimum of 400µl is required) or in 10/12/16mm diameter test tubes (adapters are included with the instrument). There is a drain hole at the bottom of the cell compartment so that spillages do not affect the instrument.

- FULLY TROPICALISED AND PORTABLE
- READS ASSAYS IN THE WAVELENGTH RANGE 400 TO 700 nm USING MANY PROPRIETARY TEST KITS
- EASY, THREE BUTTON OPERATION; ON/OFF, REFERENCE AND TEST
- RECHARGEABLE BATTERY
- REGISTERED FOR IVD APPLICATIONS



CO 7000 Colourwave Medical Colorimeter

PORTABLE INSTRUMENTS FOR THE SMALL MEDICAL CLINIC

**TROPICALISED COLORIMETER
IDEAL FOR USE IN HOT,
HUMID, REMOTE LOCATIONS
FOR CLINICAL/MEDICAL
APPLICATIONS**



ORDERING INFORMATION

CO 7000 Medical Colorimeter (includes test tube adapter set) mains/rechargeable battery	80-3000-42
Spare lamp, CO 7000L	80-3000-55
Spare filter set, CO 7000F	80-3000-56

* Recommended methods for these routine clinical chemistry assays together with full details of reagents required, manual colorimetric procedures, calibrations and quality assurance may be found in "District Laboratory Practice in Tropical Countries, Parts 1 & 2 (2nd edition)" by Monica Cheesbrough from Cambridge University Press (or other similar publications).

4



**ROBUST
COLORIMETER
THAT IS IDEAL
FOR SCHOOLS
AND COLLEGES**



SMALL, INEXPENSIVE COLORIMETER FOR THE TEACHING ENVIRONMENT

CO 7500 Colourwave Educational Colorimeter

- DESIGNED WITH THE STUDENT USER IN MIND
- RUGGED, PORTABLE AND EASY TO USE
- EXTREMELY VERSATILE
- RECHARGEABLE BATTERY VERSION AVAILABLE



The CO 7500 is a value for money instrument that has been designed for use in educational establishments including sixth form colleges, secondary schools, technical schools and colleges. With a large, clear digital display and simple push button controls the instrument is ideal for students. The unit is compact and robust enough to withstand the rigours of the teaching environment and is available in mains only or mains / internal rechargeable NiMH battery versions.

The CO 7500 is easy to use. The eight filters at 440, 470, 490, 520, 550, 580,

590 and 680nm are encased in an integral filter wheel and the wavelength required is selected by rotating this until the relevant, colour coded, number is visible in the indicator window. The ergonomic design makes this very convenient and filters cannot be accidentally lost or damaged. With only five buttons (on/off, reference and test, convert between Absorbance and % Transmission readings and kinetics) the instrument is ideal for beginners. When used in kinetics mode to study rates of reaction the CO 7500 takes readings every second and these may be sent to a chart recorder via the analogue output or

results may also be downloaded directly to a PC or data logging system.

The samples may be measured in either standard 10mm pathlength cuvettes (a minimum of 400µl is required) or in 16mm diameter test tubes (adapters for 10/12mm test tubes are an optional accessory with the CO 7500). There is a drain hole at the bottom of the cell compartment so that spillages do not affect the instrument.



ORDERING INFORMATION

CO 7500 Educational Colorimeter, mains only	80-3000-43
CO 7500B Educational colorimeter, mains/rechargeable battery	80-3000-44
Spare lamp, CO 7500L	80-3000-59
Spare filter set, CO 7500F	80-3000-58
Test tube adapter set	80-3000-57
Serial lead	80-3001-00
S2000P printer, including lead	80-3000-94



The CO 8000 cell density meter is a small, portable and easy to use instrument for measuring the density of E.coli and yeast cells in suspension at 600nm and has been designed to give comparable readings to other spectrophotometers. Ideal for use in small research labs, where cultures may be grown in 200ml to 5 litre volume conical flasks, the CO 8000 may be taken to the area of the lab where the cells are grown or used in incubation cabinets or under anaerobic conditions.

Up to 99 results may be stored for subsequent recall, printing or download to spreadsheet. Since it can accept either 10mm pathlength cuvettes or tubes, the instrument may be used with Ehrlenmyer side arm flasks. In addition, cell culture spillages can be easily wiped from the smooth surface and then removed from the cell compartment area by pouring ethanol through the unit. Sterilization may be achieved by pouring through formaldehyde or ethylene oxide.

The instrument has rechargeable batteries

that are automatically charged when it is connected to the mains. This allows almost 1 month use under normal operating conditions when fully charged offering great flexibility and portability. A 600nm LED source in combination with a fibre optic is used to obtain the optical density measurement. The instrument may be linked via a serial lead to either a serial printer for hardcopy output or to a PC for download of results to spreadsheet.



- SMALL, PORTABLE AND DEDICATED CELL DENSITY METER THAT MAY BE USED WHERE CELLS ARE ACTUALLY CULTURED
- MEASURES AT 600nm USING A LONG LIFETIME LED SOURCE
- EASY TO USE, EASY TO CLEAN, EASY TO STERILIZE
- RECHARGEABLE BATTERY THAT WILL LAST UP TO ONE MONTH

CO 8000 Biowave Personal Cell Density Meter

RAPID, LOW COST CELL DENSITY MEASUREMENT, ANYTIME, ANYWHERE

CELL DENSITY METER FOR
E. COLI AND YEAST CELL
CULTURE OD MEASUREMENTS



5

ORDERING INFORMATION

CO 8000 Personal Cell Density Meter
mains/rechargeable battery

80-3000-45

Cells (all 10mm pathlength) Ordering Guide

DESCRIPTION	PART NUMBER
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Disposable cells

Acrylic, pack of 100 (volume 2.5ml)	80-2004-53
Polystyrene, pack of 100 (volume 1.5ml)	80-2084-11
UV plastic, semi-micro, pack of 100 (min. volume 750µl)	80-3000-77
UV Plastic, ultra-micro, pack of 100 (fill volume 80µl)	80-3000-81

Glass cells

Standard rectangular with lid (volume 2.5ml)	80-2003-87
Semi micro with lid (min. volume 750µl)	80-2004-15

Quartz cells

Standard rectangular with lid (volume 2.5ml)	80-2002-58
Semi micro with lid (min. volume 750µl)	80-2002-77
Micro with lid (min. volume 400µl)	80-2002-95
Ultra-micro (fill volume 70µl)	80-2103-69
Ultra-micro (fill volume 15µl)	80-3000-83

Matched cells

Glass, 8 matched standard rectangular with lid (volume 2.5ml)	80-2109-83
Quartz, 2 matched standard rectangular with lid (volume 2.5ml)	80-2099-89
Quartz, 2 matched semi micro with lid (min. volume 750µl)	80-2100-13
Quartz, 2 matched micro with lid (min. volume 400µl)	80-2100-25
Quartz, 8 matched standard rectangular with lid (volume 2.5ml)	80-2109-80
Glass, 8 matched cells with lid	80-2109-81
Quartz, 8 matched micro with lid (min. volume 400µl)	80-2109-82

All products are CE marked and comply with relevant legislation, including EMC and low voltage directives.

Biowave DNA, Biowave II and Lightwave products have a two year warranty and a warranty on lamp life of three years.

All other WPA instruments have a one year warranty.

As part of our policy of continuous instrument development, we reserve the right to alter specifications without notice.

Technical Specifications

Light source, optical system, wavelength range, absorbance range, bandwidth and stray light at 340nm are shown at the front of this brochure. Other parameters are shown below:

PARAMETER	COLORIMETERS (CO7000, CO7500, CO7500B, CO8000)
Stored methods	n/a
Wavelength accuracy	n/a
Photometric reproducibility	± 0.02A at 1A using cuvettes
Photometric accuracy	< ± 0.05A at 1A using Neutral Density Filters
Outputs	RS 232 digital (CO7500, CO7500B, CO8000) 0-2V for 0-2A, 0-1.99V for 0-199%T (CO7500, 7500B)
Dimensions (W x D x H)	150 x 180 x 60 mm
Weight	0.6 kg

	SPECTROPHOTOMETERS S800, S1200
Stored methods	99 (S1200)
Wavelength accuracy	± 2nm
Photometric reproducibility	± 0.002A at 0-0.5A, 546nm
Photometric accuracy	± 0.003A at 0-0.5A
Outputs	RS232C Analogue 0- 2V
Dimensions (W x D x H)	215 x 270 x 120mm
Weight	<2 kg

	SPECTROPHOTOMETERS BIOWAVE DNA
Stored methods	9
Wavelength accuracy	± 2nm
Photometric reproducibility	± 0.002A at 0-0.5A, 546nm
Photometric accuracy	± 0.003A at 0-0.5A
Outputs	USB, SD card option
Dimensions (W x D x H)	260 x 390 x 100mm
Weight	<4.5 kg

	SPECTROPHOTOMETERS LIGHTWAVE II, BIOWAVE II
Stored methods	90
Wavelength accuracy	± 2nm
Photometric reproducibility	± 0.002A at 0-0.5A, 546nm
Photometric accuracy	± 0.003A at 0-0.5A
Outputs	USB, Bluetooth® option, SD card option
Dimensions (W x D x H)	260 x 390 x 100mm
Weight	<4.5 kg



11



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Pricing on any accessories shown can be found by keying the part number into the search box on our website.

The specifications listed in this brochure are subject to change by the manufacturer and therefore cannot be guaranteed to be correct. If there are aspects of the specification that must be guaranteed, please provide these to our sales team so that details can be confirmed.

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Please contact us if this literature doesn't answer all your questions.