

# SPECTROPHOTOMETERS

## BOECO SPECTROPHOTOMETER MODELS S-200 VIS & S-220 UV/VIS

The BOECO S-220 (UV/VIS) and S-200 (VIS) are high quality, compact, low cost measurement systems for daily analysis in education, QC and basic research.

### ► Compact single beam optics with full range scanning

The single beam optics are compact and bench space saving. The long life Hamamatsu Xenon lamp optics in the S-220 ensure quick and reliable performance and the Tungsten Halogen lamp used in S-200 also provide a reliable measurement.

### ► Color touch screen operation

The intuitive color touch screen operation provides simple access to an extensive range of functions. The touch screen is sensitive to stylus and laboratory gloves. Icon driven on-board software improves accessibility and the graphical display allows spectrum or standard curve to be shown on the screen. The forward and back quick key allows the user to proceed or swiftly return to the process. An enlarged data display for photometry measurement makes result reading easier.

### ► Various measurement modes

Operation modes include photometric, multiple wavelength analysis, spectrum scanning, time scan and kinetics; direct concentration results are included.

### ► Optional accessories

A variety of accessories are included such as test tube holder, flow cell with sipper, temperature control holder, long path length cuvette holder & multiple cell holder are available to enhance different application needs.

### ► Storage and data output

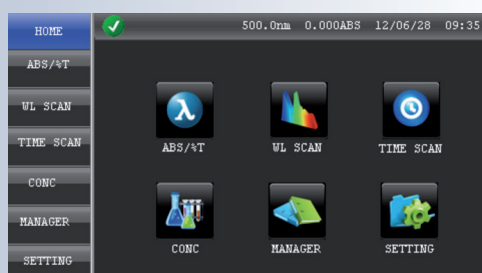
External storage with SD card and free downloadable PC Software MasterReport ([www.boeco.com](http://www.boeco.com)) allows data export to PC in compatible text or spreadsheet format for further data processing in the PC. Method and result storage is almost unlimited by exchanging SD card when needed. Printer options are available for direct result printing with graphics.

### ► Validation function

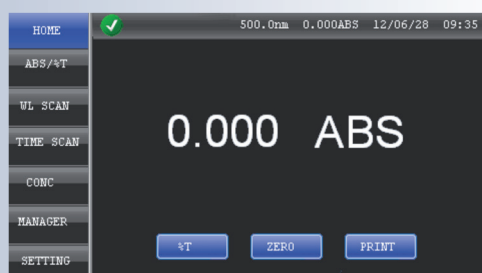
To ensure optimum instrument performance, self diagnosis functions are equipped in GLP/GMP feature for performance validation and auditing.



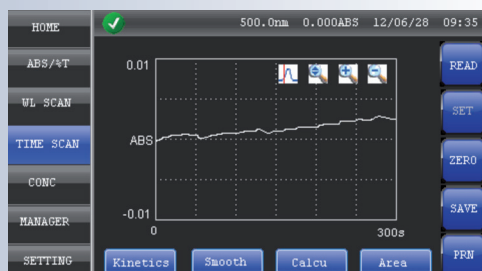
S-200  
S-220



MAIN MENU



LARGE DISPLAY MEASURE



TIME SCAN RESULTS AND DATA PROCESSING

Code	Description
BOE 8620000	Model S-200 Vis Spectrophotometer, single beam with full range scanning and color touch screen operation. Supplied with 10 x 10 mm cuvette holder
BOE 8622000	Model S-220 UV/Vis Spectrophotometer, single beam with full range scanning and color touch screen operation. Supplied with 10 x 10 mm cuvette holder

**Specification**

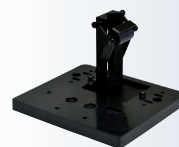
**S-200 Vis**

**S-220 UV/Vis**

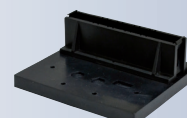
Wavelength Range:	320 to 1100nm	190 to 1000nm
Spectral Bandwidth:	6nm	5nm
Transmittance accuracy:	±0,5% T (NIST 930 Filter)	±1% T (NIST 930 Filter)
Transmittance repeatability:	0.2% T	0.5% T
Baseline flatness:	± 0.002 Abs (330-1090nm)	± 0.005 Abs (200-990nm)
Noise level:	≤ 0.001 Abs (500nm)	≤ 0.005 Abs (250 nm)
Baseline stability:	≤ 0.001 Abs/h (500nm) (after 2 hours warm up)	≤ 0.005 Abs/h (250nm) (after 2 hours warm up)
Stray light:	≤ 0.5% T	≤ 0.5% T
Wavelength controlled variable:	0.2nm	0,2nm
Wavelength accuracy:	± 1nm	± 2nm
Wavelength repeatability:	≤ 0,5nm	≤ 1nm
Wavelength scan speed:	2400nm/min (0,2 sampling interval without filter)	300nm/min (0,2 sampling interval without filter)
Wavelength move speed:	to any specified position within 1sec.	to any specified position within 1sec.
Absorbance:	-0.3 to 1.999	-0.3 to 1.999
Transmittance:	0 to 199.9%	0 to 199.9%
Spectrum Scanning:	Yes	Yes
Concentration:	-300 to 1999	-300 to 1999
Selectable Resolution:	1, 0.1, 0.01 or 0.001	1, 0.1, 0.01 or 0.001
Light source:	Tungsten Halogen lamp	pulsed-Xenon lamp
Detector:		Silicon photodiode
Display screen:		4,3 inches colorful touch LCD screen
Printer:		specified 80-column thermal printer (series port)
Metering mode:		Single beam
Memory:		SD card storage
Time Scan:		Graphical and calculated concentration value
Analysis:		Absorbance and wavelength of peaks and valleys
GLP:		Real time clock and calendar, Self Diagnosis
Size:		400 (W) x 280 (D) x 160 (H) mm
Power requirement:		AC, 100-240V, 50/60Hz
Power consumption:		100VA
Communication ports:		Serial printer port connects thermal printer USB port connects PC
		SD card port saves data and measurement methods
		Accessories port connects and controls serval options
Weight:		4 kgs

**Accessories**

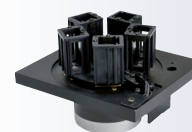
Code	Description
BOE 8620005	Test tube holder (only for S-200)
BOE 8622004	Rectangular long-path cuvette holder for cuvettes with 10, 20, 30, 50 and 100 mm path-length
BOE 8620003	Micro-cuvette holder, for cuvettes with centre height of 15 mm
BOE 8620020	Flow cuvette holder, incl. quartz glass flow cuvette of 150 µl
BOE 8620030	Set of Auto sample sipper and Flow cuvette holder with quartz glass flow cuvette of 150 µl
BOE 8622040	Electronic thermostat (Peltier element) TC cuvette holder (only for S-220, S-300)
BOE 8620050	Automatic 5 position cuvette holder
BOE 8620060	Thermo printer with 100V-240V AC power supply
BOE 8620001	Tungsten halogen lamp (S-200)
BOE 8622001	Xenon Lamp module (S-220, S-300)
BOE 8622070	UV DETECTIVE software to control and operate the spectrophotometer on a PC. The versatile software can control all spectrophotometer operations such as photometry, wavelength scans, time scans and more. Further functions include storage of methods programs, saving of numerical and graphical data, downstream data processing, data transfer to commercial spreadsheets such as Excel® and report generation



**TEST TUBE HOLDER**



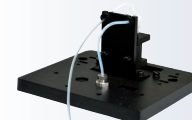
**LONG PATH CUVETTE HOLDER**



**5-PLACE AUTO SAMPLE HOLDER**



**ELECTRONIC THERMOSTAT HOLDER**



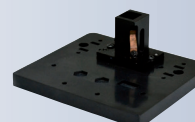
**FLOW CUVETTE HOLDER**



**SAMPLE SIPPER**



**THERMO PRINTER**



**MICRO CUVETTE HOLDER**

## BOECO LIFE SCIENCE SPECTROPHOTOMETER MODEL S-300

The BOECO S-300 life science spectrophotometer allows measurement of nucleic acid concentrations and purity (using ratio function) including protein concentrations. As a high quality spectrophotometer, the S-300 features touch screen operation packaged as a lightweight system with a compact footprint for life science and education related applications.



S-300

### ► Life Science Programs

The S-300 contains onboard functions for the quantification of nucleic acid, including dsDNA, ssDNA, RNA and Oligonucleotides. The purity of the nucleic acid can also be determined with the ratio A260/A280 calculation. Protein concentrations can be measured from a range of colourimetric assays such as Bradford, Lowry, Biuret and BCA. Standard calibration data and curves can also be displayed. Furthermore, proteins can be quantified at 280nm. Bacterial cell density at 600nm can also be measured under the OD600 cell culture optical density function. It can define a bacterial culture in exponential growth phase and at the most appropriate time for harvest or induction.

### ► Compact Optics with Full Range Scanning

The single beam optics are compact resulting in significant bench space saving. The long life Hamamatsu Xenon lamp optics system in the S-300 ensures quick and reliable performance.

### ► Color Touch Screen Operation

The intuitive color touch screen provides simple access to an extensive range of function. The touch screen is sensitive to stylus or hands (with and without gloves). Icon driven on board software improves accessibility and the quick action keys are another convenience feature.

### ► Various measurement modes

In addition to the Lifescience program, the S-300 also features conventional spectrophotometer functions such as single/ multiple wavelength analysis, spectrum scanning, kinetics and concentration measurement.

### ► Optional accessories

A various selection of optional accessories is available such as flow cell with sipper, temperature control holder, long path length cuvette holder & multiple cell holder to enhance different application needs.

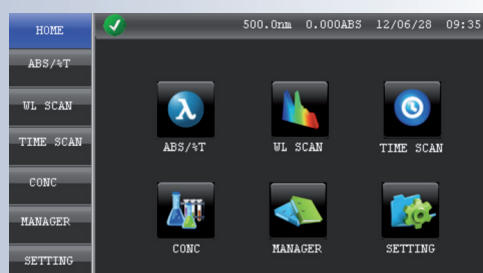
### ► Storage and data output

External storage with SD card allows data export to PC in compatible text or spreadsheet format. Free downloadable PC Software MasterReport ([www.boeco.com](http://www.boeco.com)) allows data export to PC in compatible text or spreadsheet format for further data processing in the PC.

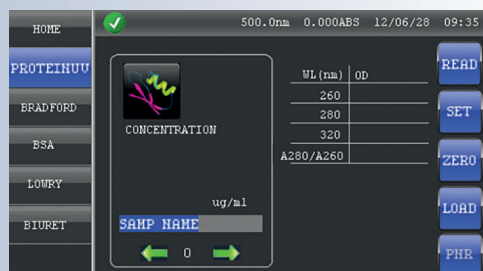
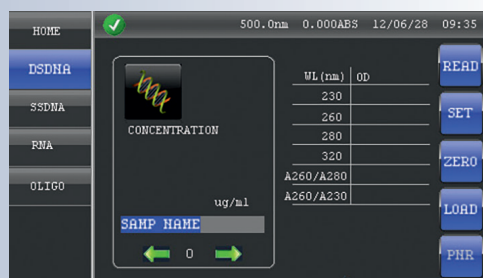
Method and result storage is almost unlimited by exchanging SD card when needed. Printer options are available for direct result printing with graphics.

### ► Validation function

To ensure optimum instrument performance, self diagnosis functions are equipped in GLP/GMP feature for performance validation and auditing.



MAIN MENUE



Code	Description
BOE 8630000	Model S-300 UV/Vis Life Science Spectrophotometer, single beam with full range scanning and color touch screen operation. Supplied with installed micro cuvette holder (centre height 15 mm) and with optional 10 x 10 mm cuvette holder and sample pack of 8 pcs. disposable UV Micro Cuvettes

Specification	S-300 UV/Vis
Wavelength Range:	190 to 1000nm
Wavelength Resolution:	0.2nm
Spectral Bandwidth:	5nm
Transmittance accuracy:	±1% T (NIST 930 Filter)
Transmittance repeatability:	0.50% T
Detection limit Concentration:	dsDNA 1.5 - 100µh/ml (for 100µl cell)
Noise level:	0.005 Abs (at 250 nm)
Stray light:	≤ 0.5% T at 220, 340 nm
Wavelength accuracy:	± 2nm
Wavelength repeatability:	≤ 1nm
Absorbance:	-0.3 to 1.999
Transmittance:	0 to 199.9%
Spectrum Scanning:	Yes
Concentration:	0 to 1999
Light source:	pulsed-Xenon lamp
Detector:	Silicon photodiode
Display screen:	4,3 inches colorful touch LCD screen
Printer:	specified 80-column thermal printer (series port)
Metering mode:	Single beam
Memory:	SD card storage
Time Scan:	Graphical and calculated reaction activity
Wavelegh Scan Analysis:	Absorbance and wavelength of peaks and valleys
GLP:	Real time clock and calendar, Self Diagnosis
Size:	400 (W) x 280 (D) x160 (H) mm
Power requirement:	AC, 100-240V, 50/60Hz
Power consumption:	100VA
Communication ports:	Serial printer port connects thermal printer USB port connects PC SD card port saves data and measurement methods Accessories port connects and controls serval options
Weight:	4 kgs

## TRAYCELL

The HELMA® TrayCell is a fibre-optic ultra-micro cell designed to the UV/Vis analysis of DNA/RNA and proteins. The dimensions of the TrayCell are equivalent to a standard cuvette in order to work in most spectrophotometers.

► **Efficient accessory**  
for your spectrophotometer

► **Extremely flexible and cost-effective solution**  
for the analysis of very small sample volumes (0,7 - 5µl)

► **Ideal for biomolecular laboratories**  
to perform the analysis of nucleic acids and proteins in very small volumes



Specification	TrayCell 105.810-UVS
Window material:	Quartz SUPRASIL
Wide/depth	12,5 x 12,5 mm
Height:	59,5 mm
Volume:	0,7 - 5 µl
Light path:	0,2 mm or 1 mm (± 0,02) depending on the cap
Max. temperature:	50 °C
Centre height:	15 mm
Fibre optic cable:	built-in, not exchangeable UV/Vis low solarisation 190 nm - 1.100 nm



Code	Description
HEL 105810-A3-V1-46	TrayCell 105.810-UVS, centre height 15 mm
HEL 665-703-1-40	TrayCell Cap 665.703, 1 mm Light path
HEL 665-704-0.2-40	TrayCell Cap 665.704, 0,2 mm Light path

## CUVETTES

### Disposable Cuvettes:

Code	Description
BRA 759007	Disposable Macro Cuvettes, PS, Window: 10 x 35 mm; 10 mm light path Filling volume: min 2,5 / max 4,5 ml grouped by mold cavity number, neutral packing Wavelength: From 340 to 900 nm Packing: 100 pcs./box, 1000 pcs./carton
BRA 759017	Disposable Semi-Micro Cuvettes, PS, Window: 4,5 x 23 mm; 10 mm light path Filling volume: min 1,5 / max 3,0 ml grouped by mold cavity number, neutral packing Wavelength: From 340 to 900 nm Packing: 100 pcs./box, 1000 pcs./carton
BRA 759170	BRAND Disposable UV Macro Cuvettes, Filling volume: min 2,5 / max 4,5 ml grouped by mold cavity number, Wavelength: From 220 to 900 nm, 10 mm light path, pack of 100 pcs.
BRA 759150	BRAND Disposable UV Semi-Micro Cuvettes, Filling volume: min 1,5 / max 3,0 ml grouped by mold cavity number, Wavelength: From 220 to 900 nm, 10 mm light path, pack of 100 pcs.
BRA 759220	BRAND Disposable UV Micro Cuvettes, Center height 15 mm, Vol. 70 µl up to 550 µl, Wavelength: From 220 to 900 nm, 10 mm light path, pack of 100 pcs.

### Optical and quartz glass Cuvettes:

Code	Description
BOE 104010	BOECO economic Macro cell, Optical glass, 340-2500 nm 10 mm lighth path, PTFE lid, 2 pcs. / pack
BOE 204010	BOECO economic Macro cell, Quartz glass, 190-2500 nm 10 mm lighth path, PTFE lid, 2 pcs. / pack
HEL 6030-10-10	HELLMA Macro Cuvette 6030-OG without lid, Optical glass, 360-2500 nm. 10 mm light path
HEL 6030-UV-10-531	HELLMA Macro Cuvette 6030-UV without lid, Quartz glass, 260-2500 nm, 10 mm light path
HEL 6040-10-10	HELLMA Semi-Micro Cuvette 6040-OG without lid, Optical glass, 360-2500 nm, 10 mm light path
HEL 6040-UV-10-531	HELLMA Semi-Micro Cuvette 6040-UV without lid, Quartz glass, 260-2500 nm, 10 mm light path
HEL 100-10-20	HELLMA Macro Cuvette 100-OS with PTFE lid, Optical glass, 320-2500 nm, 10 mm light path
HEL 100-20-20	100-OS with 20 mm light path
HEL 100-50-20	100-OS with 50 mm light path
HEL 100-100-20	100-OS with 100 mm light path
HEL 100-10-40	HELLMA Macro Cuvette 100-QS with PTFE lid, Quartz glass, 200-2500 nm, 10 mm light path
HEL 100-20-40	100-QS with 20 mm light path
HEL 100-50-40	100-QS with 50 mm light path
HEL 100-100-40	100-QS with 100 mm light path
HEL 105-202-15-40	HELLMA Ultra-Micro Cuvette 105.202-QS with PE stopper, Quartz glass, 200-2500 nm 10 mm light path, Centre height 15 mm Chamber volume 50 µl, Filling volume 70 µl



MACRO



SEMI-MICRO



MICRO



BOE 104010



HEL 6030-OG



HEL 6030-UV



HEL 6040-OG



HEL 6040-UV



HEL 100-OS/10



HEL 100-OS/100



HEL 105.202-QS