

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) 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.

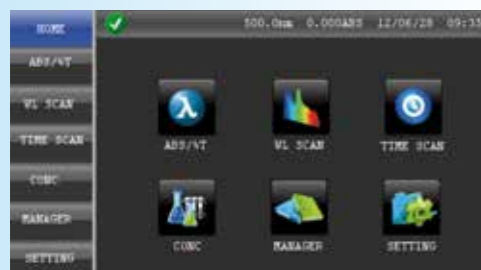
► Validation function

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

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



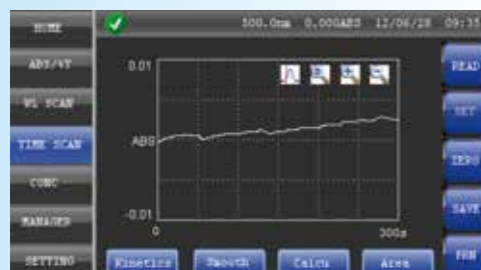
S-200
S-220



MAIN MENU



LARGE DISPLAY MEASURE



TIME SCAN RESULTS AND DATA PROCESSING

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:	± 0.002Abs (330-1090nm)	± 0.005Abs (200-990nm)
Noise level:	≤ 0.001 Abs (500nm)	≤ 0.005 Abs (250 nm)
Baseline stability:	≤ 0.001Abs/h (500nm) (after 2 hours warm up)	≤ 0.005Abs/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) 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

Weight:

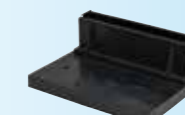
4 kgs

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)
BOE 8620050	Automatic 5 position cuvette holder
BOE 8620060	Thermo printer (with battery)
BOE 8620001	Tungsten halogen lamp (S-200)
BOE 8622001	Xenon Lamp module (S-220)



TEST TUBE HOLDER



LONG PATH
CUVETTE HOLDER



5-PLACE AUTO
SAMPLE HOLDER



ELECTRONIC THER-
MOSTAT HOLDER



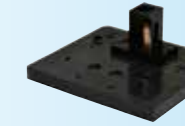
FLOW CUVETTE
HOLDER



SAMPLE SIPPER



THERMO PRINTER



MICRO CUVETTE
HOLDER

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 light path, PTFE lid, 2 pcs. / pack
BOE 204010	BOECO economic Macro cell, Quartz glass, 190-2500 nm 10 mm light 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

BOECO CLINICAL PHOTOMETER, MODEL PM-51

- ▶ Semi-automated photometric system
- ▶ Effective temperature regulation system
- ▶ Flexible cuvette concept, interchangeable flow-through or standard cuvette
- ▶ Reagent-open system with high capacity for programmable methods
- ▶ Teach-in capability for reagent application via touchscreen
- ▶ Minimum sipping volume 250 µl
- ▶ Double-secured liquid control with infrared bubble detector
- ▶ Future-proof operation, can easily be upgraded



Specification:

Type:	Semi-automatic, single-beam filter photometer
Light Source:	Halogen lamp - 12 V, 20 W with protection for lifetime
Wavelength:	340 nm - 800 nm
Wavelength Selection:	Automatic via 9-position filter wheel : 6 standard interference filters: 340 nm, 405 nm, 492 nm, 546 nm, 578 nm, 623 nm, 3 positions for optional filter of choice
Photometric Range:	0 - 2.5 Bel
Cuvette System:	Microflow cell: 32 µl, 10 mm light path interchangeable with normal standard cuvettes (macro or semi-micro, disposable or special optical glass) Temperature Control Internal Peltier element, temperature variable, pre-adjusted to 25 °C, 30 °C and 37 °C Equilibration time for aspirated reaction mixture to reach 37 °C from ambient temperature: 15 sec
Aspiration System:	Built-in peristaltic pump driven by stepper motor programmable aspiration volume controlled by infrared light barrier
Sipping Volume:	Minimum 250 µl, typically 500 µl up to 2000 µl Separate setting of aspirate volume and wash volume
Operator interface:	Touchscreen, for direct functions and alphanumeric inputs
Data Presentation:	Graphic display, White characters or symbols, blue background, lighted, resolution 240 x 126 dots.
Integrated Printer:	Thermal printer, 24 characters per line
Languages:	English, German, Spanish, French, Russian and Indonesian
Memory:	General operating software can be updated by PC Reagent open system with capacity for up to 231 programmable methods Import of data by touchscreen or PC Up to 50 non-linear calibration curves with max. 20 sets of points can be stored Up to 1000 results can be saved in memory automatically
Data Logging:	1 serial port for connection to an external printer or PC (bidirectional interface)
Signal Port:	▶ Absorbance
Measurement Procedures:	▶ Endpoint with standard, factor or multiple standards, with or without reagent blank and/or sample blank ▶ Bichromatic end point ▶ Kinetics with standard, factor or multiple standards, with or without blank ▶ Fixed time with standard, factor or multiple standards, with or without reagent blank ▶ Turbidimetry with optional timer function ▶ Single, double and triple determinations ▶ Curve fitting for non-linear standard curves ▶ Free hemoglobin in combination with optional interference filters ▶ Kinetic: variable from 3 - 19 deltas, time per delta 4 - 255 sec. ▶ Fixed time: variable from 0 - 65535 sec. Programmable from 0 - 65535 sec.
Measuring Time:	Programmable from 0 - 65535 sec.
Delay Time:	Range 100 VAC up to 240 VaACat 50/60 Hz
Mains Supply:	Length 33 cm x Width 34 cm x Height 18 cm
Dimensions:	Weight: 5,3 kg
Weight:	

Code	Description
BOE PM-51	BOECO photometer PM-51, with integrated printer, flow-through cell, standard cuvette adapter and filter wheel (340-405-492-546-578-623 nm), 90-264 V, 50/60 Hz