Spectrophotometer

UV/VIS Spectrophotometer

Basic Functions:

Model	Optical System	Wavelength Range	Bandwidth	Photo-metry	QTY	MULT	KINS	Scanning	Bio
BK-V1000	Single Beam	325-1020nm	4nm	•					
BK-UV1000	Single Beam	200-1020nm	4nm	•					
BK-V1200	Single Beam	325-1020nm	4nm	•	•				
BK-UV1200	Single Beam	200-1020nm	4nm	•	•				
BK-V1600	Single Beam	320-1100nm	4nm	•	•	•	•		
BK-UV1600	Single Beam	190-1100nm	4nm	•	•	•	•		
BK-V1800	Single Beam	320-1100nm	2nm	•	•	•	•		
BK-UV1800	Single Beam	190-1100nm	2nm	•	•	•	•		
BK-V1900	Single Beam	190-1100nm	2nm	•	•	•	•	•	•
BK-UV1900	Single Beam	190-1100nm	2nm	•	•	•	•	•	•
BK-S360	Single Beam	190-1100nm	1.8nm	•	•	•	•	•	•
BK-S380	Single Beam	190-1100nm	1nm	•	•	•	•	•	•
BK-S390	Single Beam	190-1100nm	0.5, 1, 2, 4,5nm	•	•	•	•	•	•
BK-D560	Double Beam	190-1100nm	1.8nm	•	•	•	•	•	•
BK-D580	Double Beam	190-1100nm	1nm	•	•	•	•	•	•
BK-D590	Double Beam	190-1100nm	0.5, 1, 2,4, 5nm	•	•	•	•	•	•

UV/VIS Spectrophotometer

Features:

* Large LCD screen (128*64 Dots).
* Pre-aligned design ensures the user can change lamps conveniently.
* With SiO_2 coating optical mirror, reducing the pollution from outside fully.
* Environmental Deuterium lamp, preventing from Ozone inhalation.
* High-class grating, wholly hermetic light path design, ensures the super low stray light.
* Real-time monitoring the lifetime of Deuterium lamp and Tungsten lamp with advanced system.
* Wavelength calibration, wavelength setting, change lamp source and dark current calibration automatically.
* Optional PC Software to expand the applications to Quantitative, Multi-Wavelength and Kinetics.
* Widely used for Organic chemistry, Inorganic chemistry, Life sciences, food, Medicine and health, Agriculture, Geology, Metallurgy and Environment etc. fields.

Basic Fuctions:

* **Photometry**

  Test Abs, Transmittance by fixed wavelength.

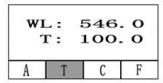
* **Quantitative**

  a. C Mode: EstablishC=K*A curve, test sample concentration.

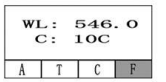
  b. F Mode: Establish A=K1*C+K0, test sample concentration.

  c. Display and save curve, test data (BK-V1200).

Photometry Mode



Con. Test C=K*A+B



Technical Parameters:

Model	BK-UV1000	BK-V1000	BK-UV1200	BK-V1200
Optical System	Single Beam, Grating 1200 lines/mm			
Wavelength Range	200~1020nm	325~1000nm	200~1020nm	320~1020nm
Spectral Bandwidth	4nm			
Wavelength Accuracy	±2nm			
Wavelength Repeatability	1nm		0.8nm	
Photometric Accuracy	±0.002A (0~0.5Abs), ±0.004A (0.5~1.0Abs), ±0.5% T (0~100% T)			
Photometric Repeatability	0.001Abs (0~0.5Abs), 0.002Abs (0.5~1.0Abs), ≤0.2% T (0~100% T)			
Stray Light	≤ 0.2 % T @ 360nm; 220nm		≤ 0.2% T @ 360nm; 220nm	
Stability	± 0.004A/h@500nm	±0.002A/h@500nm		
Noise	±0.001A			
Display	128*64 Dots LCD			
Photometric Mode	T, A, C, E			
Photometric Range	0~200%T, -0.301~3.0A			
Detector	Silicon Photodiode			
Light Source	Deuterium Lamp, Tungsten Lamp			
Input	Membrane Keypad			
Standard Accesseries	10mm glass cuvette*4 units 10mm quartz cuvette*2 units	10mm glass cuvette*4 units	10mm glass cuvette*4 units 10mm quartz cuvette*2 units	10mm glass cuvette*4 units
Optional Accessories	4-place Cell holder, Printer, Test tube holder, Deuterium lamp, Halogen lamp			
Power Supply	110/220V±10%, 60/50Hz			
Package Size(W*D*H) mm	560*430*320	560*430*320	560*430*320	560*430*320
Gross Weight(kg)	12	11.5	12	11.5

Spectrophotometric Colorimeter

Application:

Spectrophotometric colorimeter is widely used in plastic, electronic, painting, coating, ink, textile, garment, printing and dyeing, food, medical, cosmetic, industries, scientific research institutes, schools and laboratories. It can measure reflectance spectrum and other color index precisely. BCM-810 spectrophotometer not only can help to perform color matching and color management studies, but also can control product quality management accurately. The instrument is equipped with high-end color management software which can connect PC to achieve more extension functions.

Technical Parameters:

Model	BCM-810
Illumination/Observation System	d/8(diffused illumination, 8-degree viewing angle) Conforms to CIE No.15, GB/T 3978
Integrating Sphere Size	Φ58mm
Light Source	Combined LED sources
Sensor	Silicon photodiode array
Wavelength Range	400~700nm
Wavelength Pitch	10nm
Reflectance Range	0~200%
Measuring Aperture	Φ8mm
Color Space	CIE LAB, XYZ, Yxy, LCh, CIE LUV, LAB&WI&YI
Color Difference Formula	ΔE*ab, ΔE*uv, ΔE*94, ΔE*cmc(2:1), ΔE*cmc(1:1), ΔE*cmc(l:c), CIE2000ΔE*00, ΔE(h)
Other Chromaticity Data	WI(ASTM E313, CIE/ISO, AATCC, Hunter), YI(ASTM D1925, ASTM 313), Metamerism index (Mt), Color strength color stain, Color fastness
Data	Metamerism Index (Mt), Color Strength Color Stain, Color Fastness
Observer	2°/10°
Illuminant	D65, D50, A, C, D55, D75, F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12

Model	BCM-810
Display Data	Spectral value/Graph, Colorimetric value, Color difference value/Graph, Pass/Fail result, Color offset, Color simulation, Color index setting(ΔE*94, ΔE*cmc, ΔE2000), Tolerance prompt, Reverse prompt, Time setting, Language seting, Restore factory setting
Measurement Time	1.5s
Repeatability	Spectral reflectance: Standard deviation within 0.1%(400~700nm: within 0.2%) Colorimetric value: Standard deviation within ΔE*ab 0.04 (Measurement conditions: White calibration plate measured 30 times at 5 seconds intervals after white calibration was performed.)
Inter Instrument Agreement	Within ΔE*ab 0.2 (Average for 12 BCRA Series II color tiles)
Battery	Li-ion battery. 2800 times within 8 hours.
Lamp Life	5 years, more than 1.6 million measurements
Display	3.5 inch TFT LCD, Capacitive touch screen
Interface	USB/RS-232
Data Memory	1000 Standards, 15000 Samples
Ambient Temp.	0~40℃ (32~104°F)
Storage Temp.	-20~50℃ (-4~122°F)
Standard Accessory	Power adapter, Li-ion battery, Operating instruction, CD-ROM (Containing management software), Data line, White and black calibration cavity, Protective cover and wrist strap
Optional Accessory	Universal test components, Micro printer, Powder test box
External Size(W*D*H)	90*77*230mm
Package Size(W*D*H)	460*250*380mm
Net Weight	600g
Gross Weight	9.5kg
Notes	The specifications are subject to change without notice

BK-AA320N Atomic Absorption Spectrophotometer

Oil free air compressor
(standard accessories)

Features:

* **Build-in computer data processing and LCD display.**
* **Stability:** Double-beam system can automatically compensate the light source drift and wavelength drift caused by the variation of temperature and electronic circuit drift.
* **Quickly:** The cathode lamp does not need to be pre-heated for long time and sample can be analyzed immediately.
* **High precision of measurement:** Gas path system is equipped with precision pressure stabilizing and current stabilizing devices to reach stable flame and low noise. Specially designed fine light beam passes through the flame to ensure a high precision analytical test and low characteristic concentration.
* **High energy optical path.**
* **Long-life and anti-corrosive atomization system.**
* **Multi-functional analysis mode:** ① flame absorption, ② flame emission, ③ graphite furnace atomic absorption, ④ hydride generation.
* **Safe and reliable gas path system:** Special devices of quick gas conversion and safety protection can be used to analyze air-acetylene flame and extend the analytic elements to reach more than 60.

Technical Parameters:

Model	BK-AA320N
Wavelength Range	190~900nm
Wavelength Accuracy	≤±0.5nm
Wavelength Repeatability	≤0.3nm (single direction)
Spectral Bandwidth	0.2nm, 0.4nm, 0.7nm, 1.4nm, 2.4nm, 5.0nm
Grating	1800 lines/mm
Resolution	<40%
Base Line Stability	±0.004Abs/30min
Characteristic Concentration	≤0.04μg/ml/1% (Cu)
Detection Limit	≤0.008μg/ml (Cu)
Background Calibration	>30 times
Power Supply	220V, 50Hz
Package Size(W*D*H)	1250*795*765mm (Main instrument), 545*445*1385mm (Accessories)
Gross Weight	138kg (Main instrument), 56kg (Accessories)
Standard Accessories	RS232 serial port, Oil-free air compressor, Glass Atomizer, Cu Hollow cathode lamp, Atomizer unit Burner unit Dust cover, Water-separating gas filter, Titanium burner-10cm
Optional Accessories	Software, Model GA3202 HGA graphite furnace system, Hydride generator, Graphite tubes, Recirculating cooling water system, Hollow cathode lamp(Ag, Au, Ca, Cd, Cr ,Fe, Hg ,K ,Mg ,Mn, Na, Ni, Pb, Zn, AS, etc)

NIR Spectrophotometer

NIR spectrophotometer, mainly used for liquid samples qualitative and quantitative analysis, applies to gasoline, drinks, milk and other areas of nutrients, water chemistry and other physical properties of the rapid non-destructive analysis determination.

The instrument monitors the ambient temperature and humidity in real time and stores it in the spectrum file, which is convenient for users to check and optimize the measurement conditions.

Features:

* Single-channel whole spectrum scanning.
* Built-in high-quality PTFE reference module and polystyrene wavelength standard filter.
* Automatic reference calibration and monitoring wavelength.

Technical Parameters:

Model	BK-S430
Optical system	Grating monochromator
Wavelength Scanning Interval	8nm
Wavelength Range	900~2500nm
Wavelength Accuracy	≤ 0.2nm
Wavelength Reproducibility	≤0.05 nm
Stray Light	≤0.1%
Scanning Time	1 minute or adjustable
Noise	≤0.0005 Abs
Interface	USB
Standard Accessories	2*1cm quartz square sample cell , 2*1mm quartz micro sample cell
Optional Accessories	Laptop
Power Supply	110V/220±10%, 60/50Hz
Packing size	360*460*240mm
Gross Weight	12kg

BK-AA4530F Atomic Absorption Spectrophotometer

Standard Aeecssories:

Oil free air compressor

PC Workstation

Printer

Features:

* Completely controlled by PC, can flexibly select the flame and graphite furnace atomizer (optional).
* Integrated floated optical platform design improves the optical system shock resistance stable.
* Eight light stands can be changed automatically and preheat the eight lights meantime as well as optimize the working condition of the hollow cathode lamp.
* Position adjusting: the flame burner can be set on the best position automatically.
* Fully automated wavelength scanning and peak searching.
* Complete safety chains protection equipment: warning and automatic safety protection for the wrong burner connection, leakage of the gas, under voltage of air and the abnormal flameout.
* Deuterium lamp and self-absorption background calibration.
* Measuring method: flame absorption method and emission method.
* Result printing: parameter, data result and diagram.
* Data processing: more than 500 data self-storage and cut-off storage, the analyzed result is stored in EXCEL format.

Technical Parameters:

Model	BK-AA4530F
Wavelength Range	190~900nm
Spectral Bandwidth	0.1, 0.2, 0.4, 1.0 and 2.0nm
Wavelength Accuracy	≤±0.15nm
Wavelength Receptivity	≤0.04nm
Base Line Stability	≤0.002A/30min (Cu)
Characteristic Concentration	0.02μg/ml/1% (Cu)
Detection Limit	0.004μg/ml (Cu)
Measurement Repeatability	≤0.5%
Grating	1800 lines/mm
Inflamer	All-metal titanium burner
Atomizer	Efficient glass atomizer
Lamp Stand	8
D2 background Calibration	When the background is 1 A, the background ability should be deducted not less than 50 times; self absorption background deduction method
Power Supply	220V, 50Hz
Packing Size(W*D*H) mm	850*700*750 (Main instrument); 950*620*1020 (Accessories)
Gross Weight(kg)	105 (Main instrument); 100 (Accessories)
Standard Accessories	PC workstation; HP inkjet printer; Oil free Air compressor; Acetylene reducing valve; Cu Hollow cathode lamp; Air filter
Optional Accessories	Graphite Furnace 4510GF; Hollow cathode lamp(Ag, Au, Ca, Cd, Cr, Fe, Hg, K, Au, Mg, Mn, Na, Ni, Pb, Zn, Sb, etc)

Flame System:

Acetylene Air Burner	100mm
Ignition Dynamic Baseline Drift	≤0.006A/30min
Characteristic Concentration	≤0.025μg/ml/1%(Cu)
Related Standard Deviation of the Accuracy	≤0.5%(Cu, absorbance＞0.8A) (detection limit Cu≤0.008μg/ml)
Safety System	Can automatically cut off the gas when the pressure is not enough, the power is off, flameout and unconformity of the burner.

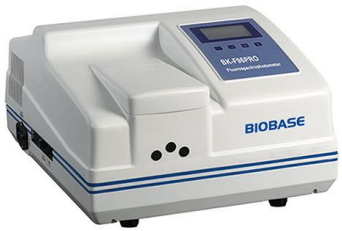
Graphite Furnace(Optional):

Max. Temperature	3000℃
Max Heating Speed	≥2000℃/S
Characteristic Quantity	Cd≤0.5*10^{-12}g Cu≤0.5*10^{-11}g
Accuracy	Cu≤3% Cd≤3%
Safety System	Over current protection Low air pressure alarm/protection; Low cooling water flow alarm/protection
Power Supply	220V, 50Hz
Consumption	7000W
Packing Size(W*D*H) mm	740*640*700
Gross Weight(kg)	90

Fluorescence Spectrophotometer

Applications:

Fluorescence analysis can provide information including excitation and emission spectrum, emission light intensity and measurement of life of emission light and polarization fluorescence etc and a wide lineal range of working curve.
This method has been used in: Medical science and clinical ,Pharmaceutical science and pharmacology,Biochemistry ,Food industry, Pollution and Organic and inorganic chemistry.



BK-F96PRO

BK-F93

Features for BK-F96PRO:

* Two operation modes fluorescence intensity and luminous intensity.
* 365nm exciting wavelength, Raman peak of water S/N ≥150.
* 10 stages emission spectrum scanning.
* Support off-line mode and on-line mode.

Features for BK-F93 :

* 1200 line diffraction grating emission monochromator.
* LED is a cold-light source with longevity, lower background & reliability, prevent from thermo-pollution.
* Automatic zero adjustment and automatic background subtraction.
* Eight stage sensitivity adjustment, Real time fluorescence value display and concentration print out,.Extra wide dynamic range of fluorescence value ensures accurate measurement of minute changes in micro samples.

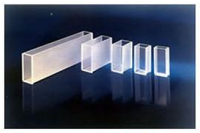
Technical Parameters:

Model	BK-F96PRO	BK-F93
Light Source	Hamamatsu 150W Xenon lamp	4 digits LED
Excitation filter	Interference optical filter a) Standard set is equipped with an interference optical filter of central wavelength at 365nm and 10nm bandwidth b) An optional interference optical filer of 25mm diameter of wavelength of 250~700nm can be provided on users demand.	LED options a) Standard set includes LED at wavelength 365nm b) The A set includes LED wavelength at 365nm, 376nm, 392nm, 405nm c) Customizable wavelength from 360nm to 600nm
Emission Monochromator	C-T diffraction grating (Em 200~900nm, bandwidth 10nm)	360~650nm (C-T diffraction grating)
Wavelength Accuracy	±1nm	±2nm
Wavelength Repeatability	≤0.5nm	≤1nm
Sensitivity	Raman peak of water in 1 cm quartz fluorescence cuvette with S/N≥150	$1*10^{-9}$g/ml (Standard aqua of the sulfuric acid Quinine, 12nm bandwidth)
Linear Measurement(r)	≥0.995	
Stability	better than 1.5%/10min	better than 3%/10min
Response Time	(0.1~4)s, 6 stages adjustable	(0.1~4)s
Fluorescence Display Value	0.00~600.00	0.00~250.00
Standard Accessories	365nm filter(Preassembled), 1 pc F96PRO software package, 1 pc USB interface, 1 pc Quartz fluorescence sample cell10mm, 1 pair	RS232 serial port, Glass fluorescence cuvette 10mm 1 pair
Optional Accessories	Fuses(2A/5A), 200-700nm interference optical filter (φ25mm) Quartz fluorescence sample cell10mm Multi-function fluorescent sample rack holder, Membrane sample rack, Powder sample rack, Sample cell jacket, Octave Filters 200uL microcentrifuge tube accessory Upconversion fluorescent accessory	Data processing software package (pack, for PC) Fuses(2A) Quartz fluorescence cuvette10mm Optional LED A Set includes: 365nm、376nm、392nm、405nm
Power Supply	AC110/220V±10%, 60/50Hz	
Package Size(W*D*H)mm	450*420 *310	380* 420 *240
Gross Weight(kg)	14	9

UV/VIS Spectrophotometer Accessories

 Single cell holder	 General cell holder	 5-100mm cuvette	 100-500ul micro cuvette
 Test tube holder	 Solid sample holder	 Deuterium lamp	 Halogen lamp
 4-place Cell holder	 Printer	 Water-jacketed cell holder	 Reflection accessory 5°
 Auto 8-cell changer	 Micro cell holder	 Water-jacketed cell holder	 Constant-temperature system

Standard Type Quartz Cuvette


Quartz cuvette 200/2700nm


SS/Q(With Stopper)


S/Q (With LID)

Features:

* Two polished windows, two walls, and an open top.
* The walls and bottom are polished inside and frosted outside.
* Thickness of windows and the base is 1.25mm.
* Teflon or glass lid and stopper.

Technical Parameters:

Type	Path Length(mm)	External Size(W*D*H)mm	Volume(ml)	NO. of LID	NO. of Stoppers
S/Q/I	1	12.5*3.5*45	0.4	1	/
S/Q/2	2	12.5*4.5*45	0.7	1	/
S/Q/5	5	12.5*7.5*45	1.7	1	/
S/Q/10	10	12.5*12.5*45	3.5	1	/
S/Q/20	20	12.5*22.5*45	7.0	1	/
S/Q/40	40	12.5*42.5*45	14.0	1	/
S/Q/50	50	12.5*52.5*45	17.5	1	/
S/Q/100	100	12.5*102.5*45	35.0	1	/
SS/Q/I	1	12.5*3.5*48	0.4	/	1
SS/Q/2	2	12.5*4.5*48	0.7	/	1
SS/Q/5	5	12.5*7.5*48	1.7	/	1
SS/Q/10	10	12.5*12.5*48	3.5	/	1
SS/Q/20	20	12.5*22.5*48	7.0	/	1
SS/Q/40	40	12.5*42.5*48	14.0	/	1
SS/Q/50	50	12.5*52.5*48	17.5	/	2
SS/Q/100	100	12.5*102.5*48	35.0	/	2

Flame Spectrophotometer

It is an analytical instrument based on emission spectrum principle,using the thermal energy of flame to make the certain element motivate luminescence to analyze the content of certain element in the material, widely used in the analysis and determination of agricultural fertilizer, soil, cement, ceramics and silicate industry and pathological studies of health care etc.

Features:

* USB Interface(Except BK-FP640)
* LPG as burning gas
* Direct concentration read-out (Except BK-FP640)
* Measuring range adjustable
* 7 inch LCD touch screen
* Automatic Calculation of correlation coefficient(Except BK-FP640)
* Pre-selection of flame sizes
* Flameout protection device


Air Compressor

Technical Parameters:

Model		BK-FP640	BK-FP6410	BK-FP6430	BK-FP6431	BK-FP6440	BK-FP6450
Sensitivity	K	0.01ppm					
	Na	0.01ppm					
	Li	/	/	0.01ppm	/	0.1ppm	
	Ca	/	/	/	2ppm	2ppm	
	Ba	/	/	/	/	/	6ppm
Range	K	0~100ppm					
	Na	0~160ppm					
	Li	/	/	0~100ppm	/	0~100ppm	
	Ca	/	/	/	0~1000ppm	0~1000ppm	
	Ba	/	/	/	/	/	0-3000ppm
Linearity	K	0.195ppm (0.39~3.12) ppm					
	Na	0.69ppm (1.15~9.2) ppm					
	Li	/	/	0.15ppm(0.25~5)ppm	/	0.15ppm(0.25~5)ppm	
	Ca	/	/	/	3ppm(5~100)ppm	3ppm(5~100)ppm	
	Ba	/	/	/	/	/	9ppm
Llinearity Error	K	≤0.195ppm					
	Na	≤0.69ppm					
	Li	/	/	≤0.147ppm	/	≤0.147ppm	
	Ca	/	/	/	≤3ppm	≤3ppm	
	Ba	/	/	/	/	/	≤9.042ppm
MDL	K	≤0.156ppm					
	Na	≤0.184ppm					
	Li	/	/	≤0.105ppm	/	≤0.105ppm	
	Ca	/	/	/	≤2ppm	≤2ppm	
	Ba	/	/	/	≤60.28ppm	/	≤60.28ppm
Repeatability	1% CV for 20 consecutive samples						
Response Time	<8s						
Sample Uptake	<6ml/min						
Ambient Temp	10℃~35℃						
Humidity	≤85%						
Power Supply	AC110/220V±10%, 60/50Hz						
Consumption	250W						
Standard Accessory	Air compressor						
Package Size	770*560*390mm						
Gross weight	22kg						

Scanning UV/VIS Spectrophotometer

Features:

* Environmental Deuterium lamp, preventing from Ozone inhalation
* Socket-Type Deuterium lamp and Tungsten lamp
* SiO_2 coating optical mirror, reduces the influence from outside
* GLP self-check function:check the wavelength accuracy and Photometry accuracy, provide test report and power-off protection
* Wavelength calibration, wavelength setting, change lamp source and dark current calibration automatically

Basic Functions:

* **Photometry**
  Test Abs., Transmittance and Energy by fixed wavelength.
* **Quantitative**
  Linear fit and Linear fit through zero two modes
  a. Coefficient, Standard Sample input and Standard Sample read three modes to establish standard curve.
  b. Establish A=K1*C+K0, can search original data, graph curve, parameters settings.
  c. Can save 240 group curves, can test 240 data in each curve.
  d. Double wavelength, Triple wavelength test functions.
* **Kinetics**
  Used for time course scanning or reaction rate calculations△A/t, can search all data.
* **Multi-Wavelength**
  Can test Transmittance and Abs. with 8 different wavelengths at most.
* **Scanning**
  User can set the scan range from 190nm to 1100nm to test the max. Abs. peak value, can do derivation, arithmetical operations to the graph.
* **Biology**
  DNA/Protein, (Optional: UV, Lowry, BCA, CBB and Biuret)

Technical Parameters:

Model	BK-S360	BK-S380	BK-S390
Optical System	Single Beam, Grating 1200 lines/mm		
Wavelength Range	190~1100nm		
Spectral Bandwidth	1.8nm	1nm	0.5, 1, 2, 4, 5nm
Wavelength Accuracy	±0.3nm		
Wavelength Repeatability	≤0.2nm		
Photometric Accuracy	±0.002A (0~0.5Abs), ±0.004A (0.5~1.0Abs), ±0.3% T (0~100% T)		
Photometric Repeatability	0.001Abs (0~0.5Abs), 0.002Abs (0.5~1.0Abs), ≤0.1% T (0~100% T)		
Stray Light	≤0.04% T @ 360nm; 220nm		
Stability	±0.001A/h @ 500nm		
Baseline Flatness	±0.0015A		
Noise	±0.0004Abs		
Display	65 thousand true color 7 inch TFT LCD (480*800)		
Photometric Mode	T, A, C, E		
Photometric Range	0~200% T, -0.301~3.0A		
Detector	Silicon Photodiode		
Light Source	Deuterium Lamp, Tungsten Lamp		
Input	Membrane Keypad		
Output	USB Print and data output, Connect PC		
Standard Accesseries	10mm glass cuvette *4 units 10mm quartz cuvette *2 units,software		
Optional Accessories	Single cell holder, General cell holder, Test tube holder, Solid sample holder, Deuterium lamp, Halogen lamp, 4-place Cell holder, Printer, Water-jacketedcell holder, Reflection accessory 5°, Auto 8-cell changer, Micro cell holder, Water-jacketed cell holder, Constant-temperature system		
Power Supply	AC110V/220±10%, 60/50Hz		
Package Size(W*D*H) mm	740*570*440		
Gross Weight(kg)	25		

Double Beam Scanning UV/VIS Spectrophotometer

Features:

* Environmental Deuterium lamp, preventing from Ozone inhalation
* Real-time monitoring the lifetime of Deuterium lamp and Tungsten lamp
* Socket-Type Deuterium lamp and Tungsten lamp
* GLP self-check function:check the wavelength accuracy and Photometry accuracy, provide test report and power-off protection
* Wavelength calibration, wavelength setting, change lamp source and dark current calibration automatically
* SiO_2 coating optical mirror, reduces the influence from outside

Basic Functions:

* **Photometry**
  Test Abs., Transmittance and Energy by fixed wavelength.
* **Quantitative**
  Linear fit and Linear fit through zero two modes
  a. Coefficient, Standard Sample input and Standard Sample read three modes to establish standard curve.
  b. Establish A=K1*C+K0, can search original data, graph curve, parameters setting
  c. Can save 240 group curves, can test 240 data in each curve.
  d. Double wavelength, Triple wavelength test functions.
* **Kinetics**
  Used for time course scanning or reaction rate calculations△A/t, can search all data.
* **Multi-Wavelength**
  Can test Transmittance and Abs. with 8 different wavelengths at most.
* **Scanning**
  User can set the scan range from 190nm to to test the max. Abs. peak value, can do derivation, arithmetical operations to the graph.
* **Biology**
  6 methods: DNA/Protein, UV, Lowry, BCA, CBB and Biuret.

Technical Parameters:

Model	BK-D560	BK-D580	BK-D590
Optical System	Double Beam, Grating 1200 lines/mm		
Wavelength Range	190~1100nm		
Spectral Bandwidth	1.8nm	1nm	0.5, 1, 2, 4, 5nm
Wavelength Accuracy	±0.3nm		
Wavelength Repeatability	≤0.2nm		
Photometric Accuracy	±0.002A (0~0.5Abs), ±0.004A (0.5~1.0Abs), ±0.3% T (0~100% T)		
Photometric Repeatability	0.001Abs (0~0.5Abs), 0.002Abs (0.5~1.0Abs), ≤0.2% T (0~100% T)		
Stray Light	≤0.04 T @ 360nm; 220nm		
Stability	±0.0003A/h @ 500nm		
Baseline Flatness	±0.0005A		
Noise	±0.0002Abs		
Display	65 thousand true color 7 inch TFT LCD(480 *800)		
Photometric Mode	T, A, C, E		
Photometric Range	0~200% T, -0.301~3.0A		
Detector	Silicon Photodiode		
Light Source	Deuterium Lamp, Tungsten Lamp		
Input	Membrane Keypad		
Output	USB Print and data output, Connect PC		
Standard Accessories	10mm glass cuvette *4 units 10mm quartz cuvette *2 units,software		
Optional Accessories	Single cell holder, General cell holder, Test tube holder, Solid sample holder, Deuterium lamp, Halogen lamp, 4-place Cell holder, Printer, Water-jacketedcell holder, Reflection accessory 5°, Auto 8-cell changer, Micro cell holder, Water-jacketed cell holder, Constant-temperature system		
Power Supply	AC110V/220±10%, 60/50Hz		
Package Size(W*D*H) mm	740*570*440		
Gross Weight(kg)	25		

UV/VIS Spectrophotometer

Features:

* With Si02 coating optical mirror, reducing the pollution from outside fully
* Wavelength calibration, wavelength setting, change lamp source and dark current calibration automatically
* With GLP self-check function, check the wavelength accuracy and Photometry accuracy
* PC Software to expand the applications to Quantitative, Multi-Wavelength and Kinetics, Spectrum Scanning, DNA/Protein test for PC Series

Basic Functions:

* **Photometry**
  Test Abs., Transmittance and Energy by fixed wavelength.
* **Kinetics**
  Used for time course scanning or reaction ratecalculations △A/t, can search all data.
* **Multi-Wavelength**
  Can test Transmittance and Abs. with 8 different wavelengths at most
* **Quantitative**
  Linear fit and Linear fit through zero two modes
  a. Coefficient, Standard Sample input and Standard Sample read three modes to establish standard curve.
  b. Establish A=K1*C+K0, can search original data, graph curve, parameters settings
  c. Can save 240 group curves, can test 240 data in each curve.
  d. Double wavelength, Triple wavelength test functions.

Technical Parameters:

Model	BK-UV1800 BK-UV1800PC	BK-UV1600 BK-UV1600PC	BK-V1800 BK-V1800PC	BK-V1600 BK-V1600PC
Optical System	Single Beam, Grating 1200 lines/mm			
Wavelength Range	190~1100nm		320~1100nm	
Spectral Bandwidth	2nm	4nm	2nm	4nm
Wavelength Accuracy	±0.5nm			
Wavelength Repeatability	≤0.3nm			
Photometric Accuracy	±0.002A (0~0.5Abs), 0.004A (0.5~1.0Abs), ± 0.5% T (0~100% T)			
Photometric Repeatability	0.001Abs (0~0.5Abs), 0.002Abs (0.5~1.0Abs), ≤0.2% T (0~100% T)			
Stray Light	≤ 0.05% T @ 360nm; 220nm		≤ 0.05% T @ 360nm; 220nm	
Stability	±0.001A/h @ 500nm			
Baseline Flatness	±0.002A			
Noise	±0.0005A			
Display	480*272 65 thousand true color TFT LCD			
Photometric Mode	T, A, C, E			
Photometric Range	0~200% T, -0.301~3.0A			
Detector	Silicon Photodiode			
Light Source	Deuterium Lamp, Tungsten Lamp			
Input	Membrane Keypad			
Output	USB Print and data output, Connect PC			
Standard Accesseries	10mm glass cuvette*4 units 10mm quartz cuvette*2 units		10mm glass cuvette*4 units	
Optional Accessories	Single cell holder, General cell holder, Test tube holder, Solid sample holder, Deuterium lamp, Halogen lamp, 4-place Cell holder, Printer, Water-jacketed cell holder, Reflection accessory 5°, Auto 8-cell changer, Micro cell holder, Water-jacketed cell holder, Constant-temperature system		4-place Cell holder, Printer, Test tube holder, Deuterium lamp, Halogen lamp	
Power Supply	AC110/220V±10%, 60/50Hz			
Package Size(W*D*H)mm	620*500*370	620*500*370	620*500*370	620*500*370
Gross Weight(kg)	18	18	16.5	16.5

Scanning UV/VIS Spectrophotometer

Features:

* With Si02 coating optical mirror, reducing the pollution from outside fully
* Adopted high-class grating with wholly hermetic light path design, to ensure the instrument has the super low stray light
* With GLP self-check function, check the wavelength accuracy and Photometry accuracy
* Real-time monitoring the lifetime of Deuterium lamp and Tungsten lamp with advanced system
* Wavelength calibration, wavelength setting, change lamp source and dark current calibration automatically

Basic Functions:

* **Photometry**
  Test Abs., Transmittance and Energy by fixed wavelength.
* **Quantitative**
  Linear fit and Linear fit through zero two modes
  a. Coefficient, Standard Sample input and Standard Sample read three modes to establish standard curve.
  b. Establish A=K1*C+K0, can search original data, graph curve, parameters settings.
  c. Can save 240 group curves, can test 240 data in each curve.
  d. Double wavelength, Triple wavelength test functions.
* **Kinetics**
  Used for time course scanning or reaction rate calculations △A/t, can search all data.
* **Multi-Wavelength**
  Can test Transmittance and Abs. with 8 different wavelengths at most.
* **Scanning**
  User can set the scan range from 190nm to 1100nm to test the max. Abs. peak value, can do derivation, arithmetical operations to the graph.
* **Biology**
  6 methods: DNA/Protein, UV, Lowry, BCA, CBB and Biuret.

Technical Parameters:

Model	BK-UV1900 BK-UV1900PC	BK-V1900 BK-V1900PC
Optical System	Single Beam, Grating 1200 lines/mm	
Wavelength Range	190~1100nm	320~1100nm
Spectral Bandwidth	2nm	
Wavelength Accuracy	±0.5nm	
Wavelength Repeatability	≤0.3nm	
Photometric Accuracy	±0.002A (0~0.5Abs), ±0.004A (0.5~1.0Abs), ±0.5% T (0~100% T)	
Photometric Repeatability	0.001Abs (0~0.5Abs), 0.002Abs (0.5~1.0Abs), ≤0.2% T (0~100% T)	
Stray Light	≤ 0.05% T @ 360nm; 220nm	
Stability	± 0.0008A / h @ 500nm	
Baseline Flatness	±0.002A	
Noise	0.0005Abs @ 500nm	
Display	480*272 65 thousand true color TFT LCD	
Photometric Mode	T, A, C, E	
Photometric Range	0~200% T, -0.301~3.0A	
Detector	Silicon Photodiode	
Light Source	Deuterium Lamp, Tungsten Lamp	
Input	Membrane Keypad	
Output	USB Print and data output, Connect PC	
Standard Accesseries	10mm glass cuvette*4 units 10mm quartz cuvette*2 units	10mm glass cuvette*4 units
Optional Accessories	Single cell holder, General cell holder, Test tube holder, Solid sample holder, Deuterium lamp, Halogen lamp, 4-place Cell holder, Printer, Water-jacketedcell holder, Reflection accessory 5°, Auto 8-cell changer, Micro cell holder, Water-jacketed cell holder, Constant-temperature system	
Power Supply	AC110V/220±10%, 60/50Hz	
Package Size(W*D*H)mm	620*500*370	620*500*370
Gross Weight(kg)	18	16.5

BK-P2S Digital Automatic Polarimeter
BK-P2B Automatic Polarimeter

Features:

* LCD Display
* Storage of three times results and calculation of average values
* Dark-colored sample can be measured
* Photoelectric test and automatic servomechanism control

Technical Parameters:

Model	BK-P2S	BK-P2B
Light Source	LED lamp	
Measuring Range	±45°(optical rotation) /±120°Z(sugar)	±45°(optical rotation)
Wavelength	589nm	
Readable Accuracy	0.001°(optical rotation)0.01°Z(sugar)	0.002°(optical rotation)
Measuring Accuracy	±(0.01+measurement value*0.05%)°(optical rotation) ±(0.03+measurement value*0.05%)°Z(sugar)	±(0.01+measurement value*0.05%)°
Repeatability	≤0.002°(optical rotation)	≤0.01°(optical rotation)
Test Mode	Optical rotation, sugar degree	Optical rotation
Test Tube	200mm, 100mm	
Sample Transmittance	＞1%	＞10%
Interface	RS232	
Power Supply	AC110/220V±10%, 50/60Hz	
External Size(W*D*H)	570*350*280mm	
Package Size(W*D*H)	730*480*470mm	
Gross Weight	36kg	

Disc Polarimeter

Features:

* Visual aim
* Manual measure
* Easy to operate

Technical Parameters:

Model	BK-P4
Light Source	Sodium lamp / LED
Wavelength	589.44nm
Measuring Range	-180° ~ +180°
Division Value	1°
Venire Readable Accuracy	0.05°
Magnifying Factor of the Magnifying Glass	4 X
Test Tube	200mm, 100mm
Power Supply	AC110/220V±10%, 50/60Hz
External Size(W*D*H)	440*110*230mm
Package Size(W*D*H)	600*220*400mm
Gross Weight	7.6kg

Optional Polarimeter Accessories

* **Micro Tube**
  With sample loading capacity less than 0.8ml and length of 50mm, suitable for BK-P2S,BK-P1 automatic polarimeter.
* **Heated Tube**
  Dedicated to BK-P2,BK-P3 for the length of about 100mm, the sample loading is 1.98ml; for length of 50mm, sample loading is about 0.99ml, and the non-corrosive type is optional to purchase.
* **Standard Quartz Tube**
  The only calibration equipment for standard polarimeter and optical Brix; with stable performance, less influence by the environment, and easy-to-use features, The loading of quartz tube includes±1°, ±5°, ±7°, ±34° and ±68°, for customer to choose accordingly.

Polarimeter

Polarimeter

Features:

* Automatic calibration function, to calibrate optical rotation via five standard points(BK-P810A, BK-P850A).
* Peltier temperature control; temperature range: 15~30℃, temperature accuracy: ±0.3℃(BK-P850, BK-P850A).
* 5.6″ color touch screen for displaying and operating, WINDOWS operating interface.
* Wide measuring range: optical rotation: ±89.99°, optical specific rotation: 259°Z.

Technical Parameters:

Model	BK-P810	BK-P810A	BK-P810Pro	BK-P850	BK-P850A	BK-P850Pro
Light Source	LED lamp					
Measuring Range	±89.99°, 259°Z					
Wavelength	589.3nm					
Readable Accuary	0.001°					
Measuring Accuracy	0.02°					
Repeatability	0.002°					
Sample Transmittance	＞0.1%					
Temp. Control Range	\			Built in Peltier, 15 -30℃, ±0.3℃		
Test Mode	Optical rotation, optical specific rotation, concentration, sugar scale Z					
Display	5.6'' color touch screen; (8'' color touch screen for BK-P810Pro/850Pro)					
Data Storage Capacity	1000sets; (8GB for BK-P810Pro/850Pro)					
Interface	RS232 or USB; Excel format and “Blue Ocean” format; (WI-FI for BK-P810Pro/850Pro)					
Atlas Duration	4 Hours only for BK-P810Pro/P850Pro					
Power Consumption	250W					
Power Supply	AC220V±10%, 50Hz					
External Size(W*D*H)	708*330*287mm					
Package Size(W*D*H)	840*455*445mm					
Gross Weight	30kg			40kg		
• “ A” in BK-P810A and BK-P850A mean automatic calibrate optical rotation.						

Automatic Polarimeter

BK-P1/2

BK-P3

Features:

* LCD Display
* Photoelectric test and microcomputer control.
* Preheating is not needed. (Only for BK-P1 and BK-P2 Model).
* Dark-colored sample can be measure. (Only for BK-P1 and BK-P2 Model).
* Automatic repetition-measurement for 6 times, and calculation of average value and means square root.
* Sample chamber adopts constant temperature designing in order to reduce the temperature heating influence.

Technical Parameters:

Model	BK-P1	BK-P2	BK-P3
Light Source	LED lamp		Sodium lamp
Measuring range	±45°(optical rotation) /±120° Z(sugar)		
Wavelength	589nm		
Readable Accuracy	0.001°(optical rotation)		0.001°(optical rotation) 0.01°Z(sugar)
Measuring Accuracy	±0.01°(-15°≤ optical rotation≤ +15°) ±0.02°(optical rotation＜ -15°or optical rotation ＞ +15°)		±(0.01+measurement value*0.05%)°(optical rotation)
Repeatability	0.002°(optical rotation)		≤0.003°(optical rotation)
Sample Transmittance	＞1%		/
Temperature Control Range	/	15~30℃	/
Temperature Accuracy	±0.5℃		/
Test Mode	Optical rotation,specific rotation, concentration,sugar degree		
Test Tube	200mm, 100mm	200mm, 100mm, 100mm (Constant Temperature tube)	200mm,100mm
Interface	USB&RS232		RS232
Power Supply	AC110/220V±10%, 50/60Hz		
External Size(W*D*H)	690*370*280mm		570*350*280mm
Package Size(W*D*H)	850*500*470mm		730*480*470mm
Gross Weight	38kg		36kg

ABBE Digital Refractometer

Features for BK-RZT:

* Full automatic measuring
* Touch Screen
* LCD temperature display, automatic correction and saving the data
* Standard RS232 and USB interface

BK-RZT

Features for BK-R2S:

* Hard glass prism
* Standard RS232 interface
* Measure the Brix of sugar solution
* Visual aim and LCD display
* Automatic correcting of the effect of temperature on the Brix
* Measuring refractive index nD of transparent or translucent liquid and solid substances.

BK-R2S

Technical Parameters:

Model	BK-RZT	BK-R2S
Measuring Range	1.30000~1.70000nD Brix: 0-100%	1.3000~1.7000nD Brix: 0-100%
Measuring Resolution	±0.00001nD Brix: ±0.01%	±0.0001nD
Measuring Accuracy	±0.0002nD Brix: ±0.1%	±0.0002nD Brix: ±0.1%
Test Mode	8	/
Temperature Control Range	0~60℃	0~50℃
Temperature Resolution	0.1℃	
Temperature Accuracy	0.5℃	
Interface	RS232, USB	RS232
Display	7″ LCD touch screen	LCD
Prism	Hard glass	
Power Supply	AC110/220V±10%, 50/60Hz	
External Size(W*D*H)	340*200*110mm	210*110*310mm
Package Size(W*D*H)	500*330*220mm	370*240*470mm
Gross Weight	9kg	12kg

Portable Refractometer

Application:

Low Range: fruit juice, tomato juice, cola and most kinds of beverage
Middle Range: concentrated fruit juice, canned food, sugar solution inclusions, sauce, ketch up, seasoning and many kinds of industry fluids
High Range: liquid sugar, honey etc.

They can be used for industry fluid testing, such as for vegetable oils, industry, and many other chemical liquids or laboratory use fluids

Technical Parameters:

	Model	Range	Minimum Scale	Package Size(W*D*H)	Gross Weight
Brix	BK-PR5	0~5%	0.1%	155*25*40mm	0.15kg
	BK-PR10	0~10%	0.1%		
	BK-PR18	0~18%	0.1%		
	BK-PR20	0~20%	0.1%		
	BK-PR32	0~32%	0.2%		
	BK-PR50	0~50%	0.5%		
	BK-PR60	0~60%	0.5%		
	BK-PR62	28~62%	0.2%		
	BK-PR82	45~82%	0.5%		
	BK-PR92	58~92%	0.2%		
	BK-PR80	0~80%(1 ranges)	0.5%		
	BK-PR90	0~90%(1 ranges)	0.5%		
Honey	BK-PRN3	58~92% Brix	0.5% Brix		
		38~43 oBe'	0.5 oBe'		
		12~27% Water	1% Water		
Salinity	BK-PRA1	0~100‰	1‰		
		1.000~1.070	0.005		
	BK-PRA2	0~28%	0.2%		
	BK-PRA3	0~35%	0.5%		
	BK-PRA4	0~40 PPT	1‰		
	BK-PRS1	0~100‰ Salinity	1‰		
		1.000~1.070	0.005		
		0~10% Brix	0.1%		
	BK-PRS2	0~28% Salinity	0.2%		
		0~32% Brix	0.2%		

Portable Pulse Oximeter

BK-PO1

BK-PO2

Features:

* Monitor SpO2, Pulse Rate & Temperature.
* Audio and visual alarm when the parameter range is exceeded or the sensor is off.
* Common AA alkaline batteries, support 7 consecutive working hours(only for BK-PO1).
* Built-in rechargeable Li-ion battery, up to 15-hour running time(only for BK-PO2).
* Bluetooth wireless is very convenient to realize reviewing the measurements in big screen via connecting PC and to upload history data to PC for review, printing or storage (only for BK-PO2).
* Unique software for remote monitoring via synchronous data transfer (only for BK-PO2).

Technical Parameters:

Model	BK-PO1	BK-PO2
Display	LED	LCD
SpO2	Patient range: adult, child and neonate	
	Measurement range: 35%~99%	0%~100%
	Resolution: 1%	
	Accuracy: 2% (70%~99%); unspecified (0%~69%)	
Pulse Rate	Measurement range: 30bpm~250bpm	0bpm~250bpm
	Resolution: 1bpm	
	Accuracy: 2bpm	
Temperature (only for BK-PO2)	Channel: 1	
	Input: body surface thermal-sensitive resistor temperature sensor	
	Range: 0℃~50℃	
	Resolution: 0.1℃	
	Accuracy: 0.2℃	
Power Supply	Common 1.5V AA alkaline batteries (only for BK-PO1) D.C. 3.7V/3000mAH Li-ion rechargeable battery (only for BK-PO2)	
Standard Accessories	Oximeter main unit, Adult finger SpO2 sensor	Oximeter main unit, Adult finger SpO2 sensor, Skin surface skin TEMP probe, USB communication cable, Bluetooth radio, VSDV/Guardian/Bluetooth software disk
Package Size(W*D*H)	220*150*70mm	
Gross Weight	1.0kg	

Refractometer

Refractometer

Application:

BK-R670 Automatic Refractometer includes high-performance CCD light-sensitive part, can accurately and efficiently process sample analysis tests through unique signal acquisition, analysis and processing technology.

Features:

* Cloud service system, connecting cloud database with instruments;
* 7" LCD touch screen and innovative WINDOWS software interface
* 2 USB ports, RS232 port and internet port for connecting printer or internet, U disk and SD card port for data exporting.
* Perfect measuring prism
  Measuring prism is made of high hardness sapphire glass, of excellent properties against corrosion and scratches, free for clean and durable.
* Ultra long life light source
  It adopts High brightness LED lights with service life exceeding 100000 hours
* Auto temperature control system
  It adopts Peltier temperature control system, make sure the whole testing with accuracy and constant temperature.

Technical Parameters:

Model	BK-R670
Refractive Index Measuring Range	1.30000~1.70000nD
Measuring Error	±0.0001nD
Measuring Resolution	0.0001/0.00001nD(Optional)
Brix Measuring Range	0~100%
Measuring Error (Brix)	±0.1%
Measuring Resolution (Brix)	0.1%/0.01%(Optional)
Temperature Control Mode	Peltier temperature controller
Temperature Display Range	10~85℃
Temperature Control Range	5~70℃
Temperature Control Accuracy	±0.05℃
Interface	RS232, USB, Ethernet interface
Data Storage Capacity	4G
Display	7" TFT LCD touch screen
Consumption	45W
Power Supply	AC110/220V±10%, 50/60Hz
External Size(W*D*H)	365*300*150mm
Package Size(W*D*H)	480*410*310mm
Gross Weight	10kg

Portable Digital Refractometers

PDR-series

PDR-F series

Features:

* Wide choice-over 20 models available
* Automatic temperature compensation
* Automatic power management
* With IP65 verification of waterproof and dustproof (only PDR-F series)

Technical Parameters:

Model	Scale	Range	Min. Reading	Accuracy	Temp. Range	Temp. Precision	Power Supply	Packing Size (W*D*H)mm	G.W. (kg)
PDR-35	Brix (%)	0~35%	0.1	±0.2	0°C~40°C (32°F~ 104°F)	± 0.5°C(1°F)	2 x AAA (1.5V)	135*65*40	0.3
	Refractiv Index	1.3330~1.3900	0.0001	±0.0003					
PDR-45	Brix (%)	0~45%	0.1	±0.2					
	Refractiv Index	1.3330~1.4098	0.0001	±0.0005					
PDR-85	Brix (%)	0~85%	0.1	±0.5					
	Refractiv Index	1.3330~1.5100	0.0001	±0.0003					
PDR-92	Brix (%)	58~92%	0.1	±0.2					
	Refractiv Index	1.4370~1.5233	0.0001	±0.0003					
PDR- HN1	Brix (%)	58~92%	0.1	±0.2					
	° B, e	38~43	0.1	±0.2					
	Water (IHC2002)	13~25	0.1	±0.2					
	Refractiv Index	1.4370~1.5233	0.0001	±0.0003					
PDR-HN2	Brix (%)	58~92%	0.1	±0.2					
	° B, e	38~43	0.1	±0.2					
	Water (IHC2002)	17~27	0.1	±0.2					
	Refractiv Index	1.4370~1.5233	0.0001	±0.0003					
PDR-A1	Salinity	0~28%	0.1	±0.2					
	Ref ractiv Index	1.3330~1.3900	0.0001	±0.0003					
PDR-S1	Brix (%)	0~35%	0.1	±0.2					
	Salinity	0~28%	0.1	±0.2					
	Refractiv Index	1.3330~1.3900	0.0001	±0.0003					

Technical Parameters:

Model	Scale	Range	Min. Reading	Accuracy	Temp. Range	Temp. Precision	Power Supply	Packing Size (W*D*H)mm	G.W. (kg)
PDR-R1	SERUM P. (g/dl)	1.000~1.050	0.001	±0.001	0°C~40°C (32°F ~104°F)	± 0.5°C(1°F)	2 x AAA (1.5V)	135*65*40	0.3
	URINE SP.G	0~12g/dl	0.1	±0.1					
	Refractiv Index	1.3330~1.3900	0.0001	±0.0003					
PDR-R2	SERUM P. (g/dl)	0~14g/dl	0.1	±0.1					
	URINE SP.G (dog)	1.000~1.060	0.001	±0.001					
	Refractiv Index	1.3330~1.3900	0.0001	±0.0003					
PDR-R3	SERUM P. (g/dl)	0~14g/dl	0.1	±0.1					
	URINE SP.G (cat)	1.000~1.060	0.001	±0.001					
	Refractiv Index	1.3330~1.3900	0.0001	±0.0003					
PDR-L1	Alcohol	0~60%v/v	0.1	±0.3					
PDR-L2	Alcohol	0~60%w/w	0.1	±0.5					
PDR- FWN1	Brix (%)	0~35%	0.1	±0.2					
	VOL AP (%)	0~22%	0.1	±0.2					
	Oe (Germany)	30~150	1	±1					
	KMW	0~25	0.1	±0.2					
PDR-FWN2	Brix (%)	0~35%	0.1	±0.2					
	VOL AP (%)	0~22%	0.1	±0.2					
	Oe (Germany)	30~150	1	±1					
	KMW	0~25	0.1	±0.2					
PDR-FWN3	Brix (%)	0~35%	0.1	±0.2					
	VOL AP (%)	0~22%	0.1	±0.2					
	Oe (Switzerland)	0~150	1	±1					
	KMW	0~25	0.1	±0.2					
PDR-FK1	Soybean milk concentration	0~35%	0.1	±0.3					
PDR-FC1	Glycol	32~-50°F	0.1 °F	±1 °F					
	Propanediol	32~-50°F	0.1 °F	±1 °F					
	Battery fluid	1.00~1.50sg	0.01 sg	± 0.01 sg					
	Glass water	32~-40°F	0.1 °F	±1 °F					
PDR-FC2	Glycol	0~-50°C	0.1°C	±1 °F					
	Propanediol	0~-50°C	0.1 °C	±1 °F					
	Battery fluid	1.00~1.50sg	0.01 sg	± 0.01 sg					
	Glass water	0~-40°C	0.1 °C	±1 °C					