

# BS-200E

## Chemistry Analyzer

### Technical Specifications

<b>System Function:</b>	Automatic, Discrete, Random Access STAT sample priority	<b>ISE Module (optional):</b>	Measure K <sup>+</sup> , Na <sup>+</sup> , Cl <sup>-</sup>
<b>Throughput:</b>	Constant 200 tests/hour (without ISE), up to 330 tests/hour with ISE	<b>Optical System:</b>	
<b>Principles:</b>	Absorbance photometry, Turbidimetry, Ion Selective Electrode technology	<b>Light Source:</b>	Halogen-tungsten lamp
<b>Methodology:</b>	End-point, Fixed-time, Kinetic, optional ISE Single/Dual reagent chemistries, monochromatic/bichromatic	<b>Photometer:</b>	Grating system, reversed optics
	Linear/non-linear multi-point calibration	<b>Wavelength:</b>	12 wavelengths, 340nm, 380nm, 412nm, 450nm, 505nm, 546nm, 570nm, 605nm, 660nm, 700nm, 740nm and 800nm
<b>Programming:</b>	Open system with user defined profiles and chemistry calculation System pack reagents ready to use	<b>Absorption range:</b>	0~3.3Abs (10mm conversion)
		<b>Resolution:</b>	0.0001Abs
<b>Reagent/Sample Handling:</b>		<b>Reaction System:</b>	
<b>Reagent/Sample tray:</b>	40 reagent positions, 40 sample positions in cooling compartment (2~12°C)	<b>Reaction rotor:</b>	Rotating tray, containing 80 cuvettes
<b>Reagent volume:</b>		<b>Cuvette:</b>	Reusable, optical length 5mm
<b>R1:</b>	10~350µl, step by 1 µl	<b>Reaction volume:</b>	150~500µl
<b>R2:</b>	10~200µl, step by 1 µl	<b>Reaction temperature:</b>	37°C
<b>Sample volume:</b>	2~45µl, step by 0.1 µl	<b>Temperature fluctuation:</b>	±0.1°C
<b>Reagent/Sample probe:</b>	Liquid level detection and tracking, vertical & horizontal collision protection and inventory checking	<b>Mixing System:</b>	Standalone mixing bar
<b>Probe cleaning:</b>	Automatic washing of interior and exterior Carry-over < 0.1%	<b>Cuvette Washing:</b>	8-step washing station with pre-heated detergent and water
<b>Automatic sample dilution:</b>	Pre-dilution and post-dilution Dilution ratio up to 1: 200	<b>Control and Calibration:</b>	
		<b>Calibration mode:</b>	Linear (one-point, two-point and multi-point), Logit-Log 4P, Logit-Log 5P, Spline, Exponential, Polynomial, Parabola
		<b>Control software:</b>	Westgard multi-rule, Cumulative sum check, Twin plot, L-J Chart
<b>Internal Bar Code Reader (optional):</b>	Used for sample and reagent scan Applicable to various bar code systems such as Codabar, ITF (Interleaved Two of Five), code128, code39, UPC/EAN, Code93 Bi-directional interface LIS transmission	<b>Operation Unit:</b>	
		<b>Operation system:</b>	Windows® XP Professional/Home SP2 or above Windows® 7
		<b>Interface:</b>	RS-232
		<b>Working Conditions:</b>	
		<b>Power Supply:</b>	AC 200~240V, 50/60Hz, ≤1500VA or AC 100~130V, 50/60Hz, ≤1500VA
		<b>Temperature:</b>	15-30°C for operation
		<b>Humidity:</b>	35-85% RH
		<b>Dimension:</b>	860mm (W) x700mm (D) x625mm (H)
		<b>Weight:</b>	130 Kg



# BS-200E

## Chemistry Analyzer

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	<b>mindray</b>

# BS-200E

## Chemistry Analyzer

Smart, Versatile, Easy

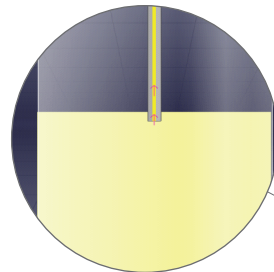
### Intelligent collision protection

- Vertical & horizontal collision
- Audible alarm
- Ensure operator safety



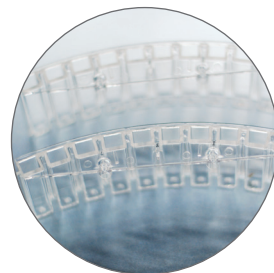
### Smart probe function

- Effective liquid level detection
- Liquid level tracking
- Prevent short sampling



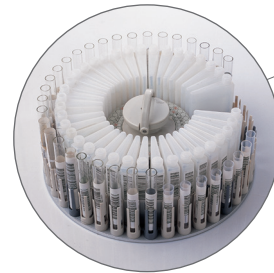
### Semi-permanent cuvettes

- Lower consumable cost
- Easy replacement
- Durable material, long lasting



### Reagent and sample cooling compartment

- 2~12°C continuous cooling
- Enhance reagent and sample stability



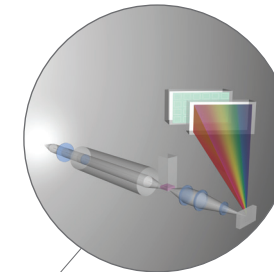
### Highly compatible reagent system

- Reagents, QC and CAL
- Metrological traceability



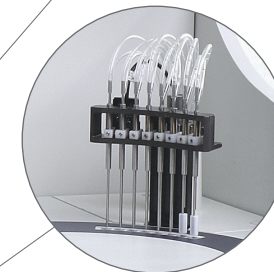
### Grating optic system

- 12 Wavelengths; up to 800nm
- Reversed optics
- Accomodate most chemistry assays



### 8-step washing station

- Enable lengthy operator walk-away time
- High quality cuvette washing
- Ensure optimal cleanliness with pre-heated detergent and water



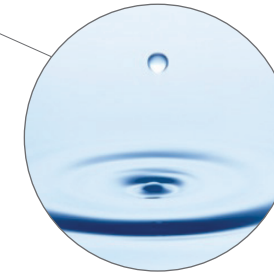
### Standalone mixing bar

- Effectively minimizes potential carry-over
- Innovative design
- Minimal maintenance; simple installation



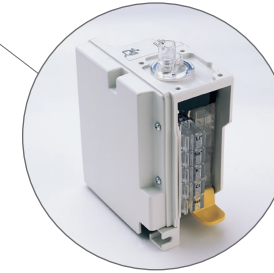
### 150 µl minimum reaction volume

- Lower reagent consumption
- Long term saving on reagent cost



### 3-channel integrated ISE module

- Na<sup>+</sup>, K<sup>+</sup>, Cl<sup>-</sup> electrodes
- Durable assemble
- Highly efficient electrolytes analysis



- Throughput: 200 tests per hour for chemistry
- Grating optical system with 12 wavelengths
- 8-step auto wash system with pre-heated detergent and water
- 80 semi-permanent cuvettes
- High efficiency standalone mixing bar
- 150µl minimum reaction volume
- Liquid level detection and tracking
- Vertical & horizontal collision protection
- Intuitive; user-friendly operation software
- Highly compatible reagent system : reagents, QC & Calibrators ready for use



Mindray solution for clinical chemistry

After more than 10 years of research and development on reagents, Mindray can now provide 48 parameters of dedicated reagents(more than 17 others are coming), covering hepatic, renal, cardiac, lipids, diabetes, pancreatitis, inorganic ions and immunalassays, etc.,together with original calibrators with metrological traceability as well as controls for BS-200E chemistry analyzer.



Calibrators with traceability:

Reference Method (Certified by 'Joint Committee for Traceability in Laboratory Medicine' (JCTLM))

- International Federation of Clinical Chemistry and Laboratory Medicine (IFCC)
- National Institute of Standards and Technology(NIST)
- Centers for Disease Control and Prevention (CDC, USA)
- American Association for Clinical Chemistry (AACC)

Reference Material

- Institute for Reference Materials and Measurements (IRMM) standards
- National Institute of Standards and Technology (NIST) standards
- World Health Organization (WHO) standards
- Japan Committee for Clinical Laboratory(JCCLS) standards

Chemistry Reagents

Hepatic Panel
Alanine Aminotransferase (ALT)
Aspartate Aminotransferase (AST)
Alkaline Phosphatase (ALP)
γ-GlutamylTransferase (γ-GT)
Direct Bilirubin (D-Bil) DSA Method
Direct Bilirubin (D-Bil)VOX Method
Total Bilirubin (T-Bil) DSA Method
Total Bilirubin (T-Bil)VOX Method
Total Protein (TP)
Albumin (ALB)
Total Bile Acids (TBA)
Prealbumin (PA)
Cholinesterase (CHE)
α-L-fucosidase (AFU)
5'-nucleotidase (5'-NT)

Renal Panel
Urea (UREA)
Creatinine (CREA) Modified Jaffé Method
Creatinine (CREA)Sarcosine Oxidase Method
Uric Acid (UA)
Carbon dioxide (CO2)
Microalbumin
β2-Microglobulin (β2-MG)
Cystatin C (CysC)
Retinol binding protein( RBP)

Cardiac panel
Creatine Kinase (CK)
Creatine Kinase-MB (CK-MB)
Lactate Dehydrogenase (LDH)
α-Hydroxybutyrate Dehydrogenase(α-HBDH)
Homocysteine (HCY)

Inorganic & Anemia
Iron (Fe)
Ferritin (FER)
Transferrin (TRF)
Calcium (Ca)
Magnesium (Mg)
Phosphate Inorganic (P)
Glucose-6-phosphate dehydrogenase (G6PD)

Lipid Panel
Total Cholesterol (TC)
Triglycerides (TG)
HDL-Cholesterol (HDL-C)
LDL-Cholesterol (LDL-C)
Apolipoprotein A1 (ApoA1)
Apolipoprotein B (ApoB)
Lipoprotein(a) [Lp(a)]

Immune Panel
Immunoglobulin A (IgA)
Immunoglobulin G (IgG)
Immunoglobulin M (IgM)
Complement C3 (C3)
Complement C4 (C4)

Diabetes Panel
Glucose (Glu) GOD-POD Method
Glucose (Glu) HK Method
Hemoglobin A1c (HbA1c)
Fructosamine (FUN)
β-Hydroxybutyrate(β-HB)

Rheumatism Panel
C-reactive protein (CRP)
Rheumatoid Factor (RF)
Antibodies Against Streptolysin O (ASO)

Pancreatitis Panel
α-Amylase (α-AMY)
Lipase (LIP)

Lung Panel
Adenosine Deaminase (ADA)
Angiotensin Converting Enzyme(ACE)