BS-800 Modular System
Clinical Chemistry Solution

Technical Specifications

System Function:
Throughput: 800 photometric tests/hour for standalone unit and single analytical unit of modular system, up to 600 tests/hour for ISE
From 800 to 3200 photometric tests/hour for modular system with different configurations

Sample Handling:
Sample tray: 140 positions including 25 cooling positions for calibrators and controls
SDM: 300 samples capacity with 30 racks
Sample volume: 1.5–35 µL, step at 0.1 µL
Sample probe: Liquid level detection, clot detection and collision protection

Reagent Handling:
Reagent tray: 120 positions in coaxial disks
Reagent volume: 15–300 µL, step at 0.5 µL
Reagent probe: Liquid level detection, bubble detection and collision protection

External Bar Code Reader (optional):
Used for sample and reagent programming
Applicable to various bar code systems including Codabar, ITF (Interleaved Two of Five), Code128, Code39, UPC/EAN, Codex;
Capable to communicate with LIS in a bi-directional mode

Reaction System:
Reaction volume: 100–360 µL
Operating temperature: 37˚C with ±1˚C fluctuation

Optical System:
Light source: Halogen tungsten lamp
Photometer: Reversed optics, grating photometry
Wavelength: 340nm, 380nm, 412nm, 430nm, 505nm, 546nm, 570nm, 605nm, 660nm, 700nm, 740nm, 800nm
Absorbance range: 0–3.4Abs (10mm conversion)

ISE Module (Optional):
Principle: Indirect K⁺, Na⁺, Cl⁻, with 22 µL sample aspiration

Control and Calibration:
Calibration mode: Linear (one-point, two-point and multi-point), Logit-Log 4P, Logit-Log 5P, Spline, Exponential, Polynomial, Parabola
Control rules: Westgard multi-rule, Twin plot

Operation Unit:
Operation system: Windows® XP Professional/Home SP2 or above Windows® 7
**BS-800 Modular System**

Clinical Chemistry Solution

BS-800 Modular System combines innovation and high performance into an integrated solution. With an expandable platform, an ever more complete line of chemistry reagents, as well as calibrators and controls, our new solution package can be tailor made to your needs. Innovative technologies built in also ensure your solution is accurate, convenient and cost-efficient.

**Modular System**

**BS-800**
Throughput: 800/1200T/H
Sample capacity: 140
Reagent capacity: 68

**BS-800M1**
Throughput: 800/1200T/H
Sample capacity: 440
Reagent capacity: 68

**BS-800M2**
Throughput: 1600/2400T/H
Sample capacity: 580
Reagent capacity: 136

**BS-800M3**
Throughput: 2400/3600T/H
Sample capacity: 720
Reagent capacity: 204

**BS-800M4**
Throughput: 3200/4800T/H
Sample capacity: 860
Reagent capacity: 272

**Total Solution for Clinical Chemistry**

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**Accurate**

- **High sampling precision**
  15~300 µL reagent sampling with step at 0.5 µL; 1.5~35 µL specimen sampling with step at 0.1 µL

- **Water circulation reagent cooling**
  Ensures a stable 2~8°C refrigeration temperature in reagent disk

- **Direct solid-heating system**
  Fast heating of reaction disk, ensures temperature is kept at 37°C with 0.1°C fluctuation

- **Effective mixer unit**
  Independent mixing units for reagents and samples. Three-head mixing bars improve performance. Two-grade washing reduces contaminants significantly

- **Intelligent clot detection**
  Can detect and differentiate between full-jam, half-jam, and bubbles, ensuring accurate sample aspiration

**Secure**

- **Collision protection**
  Vertical and horizontal collision protection for sample and reagent probes

- **Waterproof design**
  Waterproof cover for all electronic components with specialized channel on cover panel to direct water away

- **Maintenance guide**
  Easy for operator to perform maintenance procedures, with embedded guides to help users solve problems quickly

- **Covered sampling system**
  Sampling system is fully covered during testing to improve safety. Sample disk can be partially opened when necessary for convenience

- **Warning log**
  Extensive warning log lists detailed information for operator & service personnel to maintain the system

**Maintenance**

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Innovative

Coaxial reagent disk
Specialized coaxial reagent disk makes replacing reagents convenient while half cover design improves user safety

Reagent bubble detection
Able to detect bubbles in reagent bottles, as well as detect real liquid level before reagent aspiration

Dot light source
Dual-diaphram and dual-lens technologies enable dual-focus of forward light. These technologies create a high intensity, focused light which improves accuracy and decreases minimum reaction volume

Water quality monitor
Analyzes and monitors quality of deionized water via resistance principle, reducing possible contamination

Cost-efficient

• Large capacity
  140 sample positions, 300 additional sample positions via optional Sample Delivery Module (SDM), 68 onboard tests together with a reaction disk with 165 permanent glass cuvettes give users improved walk-away convenience

• Low reagent consumption
  100 µL minimum reaction volume reduces reagent cost. Unique design of reagent bottle minimizes residual volume

• One key STAT
  Perform STAT tests instantly with one key. Dedicated STAT sample disk and racks facilitate easier as well as prompt STAT testing

• Continuous reagent loading and unloading
  Two disk rotation buttons allow safe continuous loading and unloading during testing

• Indirect ISE
  Lower sample consumption and higher ISE measurement throughput, as well as cost-effective electrodes that support up to 60,000 tests (20,000 tests/electrode)
**Chemistry Reagents**

### Hepatic
- Alanine Aminotransferase (ALT)
- Aspartate Aminotransferase (AST)
- Alkaline Phosphatase (ALP)
- γ-Glutamyl Transferase (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)
- Adenosine deaminase (ADA) *
- α-L-fucosidase (AFU) *
- 5’-nucleotidase (5’-NT) *

### Renal
- 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) *

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

### Ferrum
- Iron (Fe)
- Ferritin (FER) *
- Transferrin (TRF) *
- Total iron binding capacity / unsaturated iron binding capacity (TIBC/UBC) *

### Lipids
- Total Cholesterol (TC)
- Triglycerides (TG)
- HDL-Cholesterol (HDL-C)
- LDL-Cholesterol (LDL-C)
- Apolipoprotein A1 (ApoA1)
- Apolipoprotein B (ApoB)
- Lipoprotein(a) (LP(a))

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

### Diabetes
- Glucose (Glu) GOD-POD Method
- Glucose (Glu) HK Meth
- Hemoglobin A1c (HbA1c)
- Fructosamine (FUN)

### Inorganic ions
- Calcium (Ca)
- Magnesium (Mg)
- Phosphate Inorganic (P)

### Rheumatism
- High sensitivity C-reactive protein (hs-CRP) *
- Rheumatoid Factor (RF)
- Antibodies Against Streptolysin O (ASO)

### Immune
- Immunoglobulin A (IgA)
- Immunoglobulin G (IgG)
- Immunoglobulin M (IgM)
- Immunoglobulin E (IgE) *
- Complement C3 (C3)
- Complement C4 (C4)
- C-Reactive Protein (CRP)

### Others
- Glucose-6-phosphate dehydrogenase (G6PD) *
- D-dimer*
- Angiotensin converting enzyme (ACE) *
- Retinol binding protein (RBP) *
- D3-hydroxybutyric acid (D3-HB) *

* Coming soon

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**Original 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

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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 immunologicals, etc., together with original calibrators with metrological traceability as well as controls for BS-800 Modular System chemistry analyzer.