BS-600 Chemistry Analyzer

Technical Specifications

System function
Fully automated, discrete, random access, STAT, urine and homogenous immunoassay; STAT sample priority
Throughput: 600 photometric tests/hour, up to 770 tests/hour for ISE

Measuring principles: Absorbance Photometry, Turbidimetry
Methodology: Endpoint, Fixed-time, Kinetic, optional ISE

Single/Dual/Triple/Quadruple reagent chemistries, Monochromatic/Bichromatic
Programming: User defined profiles and calculation

Sample Handling
Sample tray: 90 positions for primary or secondary tubes and sample cups
Sample volume: 1.5~45 µl, step by 0.1µl
Sample probe: Liquid level detection, clot detection and collision protection
Probe cleaning: Interior and exterior automatic probe washing
Probe carry-over < 0.05%
Automatic sample dilution, Pre-dilution and post-dilution
Internal bar code reader (optional)
Sample/Reagent barcode reading – applicable to various bar code systems including Codabar, ITF (Interleaved Two of Five), code128, code39, UPC/EAN, Code93; Bi-directional LIS Interface transmission
ISE Module (optional)
Optional selection of K+, Na+, Cl- Throughput: Up to 255 tests per hour

Reagent Handling
Reagent tray: 80 positions in refrigerated compartment (2~10°C)
Reagent volume: 10~200µl step by 0.5µL
Reagent probe: Liquid level detection, collision protection and inventory check, reagent bubble detection
Probe cleaning: Interior and exterior automatic probe washing

Reaction System
Reaction rotor: Rotating tray, 124 cuvettes with automatic washing
Cuvette: Optical length 5mm
Reaction volume: 100~300µl
Operating temperature: 37°C
Mixing system: 2 independent mixers

Optical System
Light Source: Halogen-tungsten lamp
Photometer: Reversed optics, grating photometry
Wavelength: 340nm, 380nm, 412nm, 450nm, 505nm, 546nm, 570nm, 605nm, 660nm, 700nm, 740nm, 800nm
Absorbance range: 0~3.34Abs (10mm conversion)
Resolution: 0.0001Abs

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, Levy-Jennings, Cumulative sum check, Twin plot

Operation Unit
Operation system: Windows XP Professional or Windows 7 Professional or Windows 8
Interface: RS-232, Network Port, USB/parallel port

Working Condition
Power Supply: 220V, 50/60Hz ≤ 1700VA
Temperature: 15~30°C
Humidity: 35~85%
Water consumption: ≤28L/H, De-ionized water
Dimension: 1190mm(W)*1155mm(H)*720mm(D)
Weight: 300 Kg
**BS-600 Chemistry Analyzer**

**Accurate**
- Complete metrological traceability
- Highly precision sampling
- Reagent bubble detection

**Economical**
- Light-spot flating optical system- lower the reaction volume to 100µL
- Minimum sample volume: 1.5µL

**Intelligent**
- Whole blood HbA1C testing*
- Advanced software
- Easy maintenance

**Easy maintenance**
- All containers & maintenance kits are located in the front of the analyzer
- Easily accessible for part replacement, routine maintenance or troubleshooting

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

**Whole blood HbA1C testing**
- No need pretreatment of the sample
- Proven precision and specificity
- No interference from hemoglobin variants
- Traceable to IFCC/NGSP reference methods

**Cost-effective**
- Sampling precision up to 1.5µL
- Perfect match between instrumentation and dedicated reagents
- 100µL minimum reaction volume ensures more effective cost per test

**Lower carry over**
- High pressure washing for interior and water fall washing for exterior
- Carry over < 0.05%

* in development
Mindray solution for clinical chemistry

After more than 10 years of research and development on reagents, Mindray can now provide 61 parameters of dedicated reagents, covering hepatic, renal, cardiac, lipids, diabetes, pancreatitis, inorganic ions and immunoassays, etc., together with original calibrators with metrological traceability as well as controls for BS-600 chemistry analyzer.

User-friendly interface
- Touch screen
- Share the same platform with BS-2000 series and BS-800 series
- Real-time status monitoring between analytical unit and carousels

Convenient R/S continuous loading and unloading
- Remaining time counter makes it easy for operator to follow the instructions

Intelligent reagent management
- Real-time indicating the test number, inventory and expiry date
- Improve work efficiency

Reflex function
- Pre-defined reflexive assays will be performed automatically when preset criteria is met
- Each assay may involve multiple reflexive criteria
- Each criteria may initiate up to a maximum of 20 relevant assays

Test Summary
- Test summary report calibration, QC, sample, validation test and rerun tests can be generated
- Facilitate computation of total test costs
- Error Log Export function -facilitate error report to engineers
- Results Archive can be transferred to engineers for evaluation

Advanced software

Standard reference system
- Adopt JCTLM reference system
- IFCC primary method for enzyme, ID/MS method for substrate
- NIST, IRMM reference materials

JCTLM, Joint Committee On Traceability In Laboratory Medicine
NIST, National Institute of Standards and Technology, USA
IRMM, Institute for Reference Materials and Measurements, EU
IFCC, International Federation of Clinical Chemistry and Laboratory Medicine
Complete traceability process

Complete calibration hierarchy and traceability chain based on ISO standard (EN/ISO17511) from reference system to routine measurement system.

EQA for Mindray Reference laboratory —— Rela

Mindray reference laboratory has passed Rela for 6 continuous years.

EQA for Mindray Testing System —— CAP

Mindray testing system has passed CAP for 6 continuous years.

Reagent menu

- Hepatic Panel
  - 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)
  - α-L-fucosidase (AFU)
  - 5’-nucleotidase (5’-NT)

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

- Cardiovascular Panel
  - Cholinesterase (CHE)
  - Prealbumin (PA)
  - 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)

- 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)]

- Inorganic & Anemia
  - Iron (Fe)
  - Ferritin (FER)
  - Transferrin (TFI)
  - Calcium (Ca)
  - Magnesium (Mg)
  - Phosphate Inorganic (P)
  - Unsaturated iron binding capacity (UIBC)
  - Glucose-6-phosphate dehydrogenase (G6PD)

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

- Cardiovascular Panel
  - Cholinesterase (CHE)
  - Prealbumin (PA)
  - 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)

- 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)]

- Inorganic & Anemia
  - Iron (Fe)
  - Ferritin (FER)
  - Transferrin (TFI)
  - Calcium (Ca)
  - Magnesium (Mg)
  - Phosphate Inorganic (P)
  - Unsaturated iron binding capacity (UIBC)
  - Glucose-6-phosphate dehydrogenase (G6PD)

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

- Cardiovascular Panel
  - Cholinesterase (CHE)
  - Prealbumin (PA)
  - 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)

- 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)]

- Inorganic & Anemia
  - Iron (Fe)
  - Ferritin (FER)
  - Transferrin (TFI)
  - Calcium (Ca)
  - Magnesium (Mg)
  - Phosphate Inorganic (P)
  - Unsaturated iron binding capacity (UIBC)
  - Glucose-6-phosphate dehydrogenase (G6PD)

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

- Cardiovascular Panel
  - Cholinesterase (CHE)
  - Prealbumin (PA)
  - 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)

- 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)]

- Inorganic & Anemia
  - Iron (Fe)
  - Ferritin (FER)
  - Transferrin (TFI)
  - Calcium (Ca)
  - Magnesium (Mg)
  - Phosphate Inorganic (P)
  - Unsaturated iron binding capacity (UIBC)
  - Glucose-6-phosphate dehydrogenase (G6PD)