

# BS-600

## Chemistry Analyzer

### Technical Specifications

#### System function

Fully automated, discrete, random access,  
STAT, urine and homogeneous immunoassays;STAT sample priority  
Throughput: 600 photometric tests/hour, up to 770 tests/hour for ISE  
Measuring principles: Absorbance Photometry, Turbidimetry  
Methodology: End-point, 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 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 to255 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: 0~3.3Abs (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: Window 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



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# BS-600

## Chemistry Analyzer

### Accurate

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

### Economical

- Light-spot flattening optical system- lower the reaction volume to 100 $\mu$ L
- Minimum sample volume: 1.5 $\mu$ L

### Intelligent

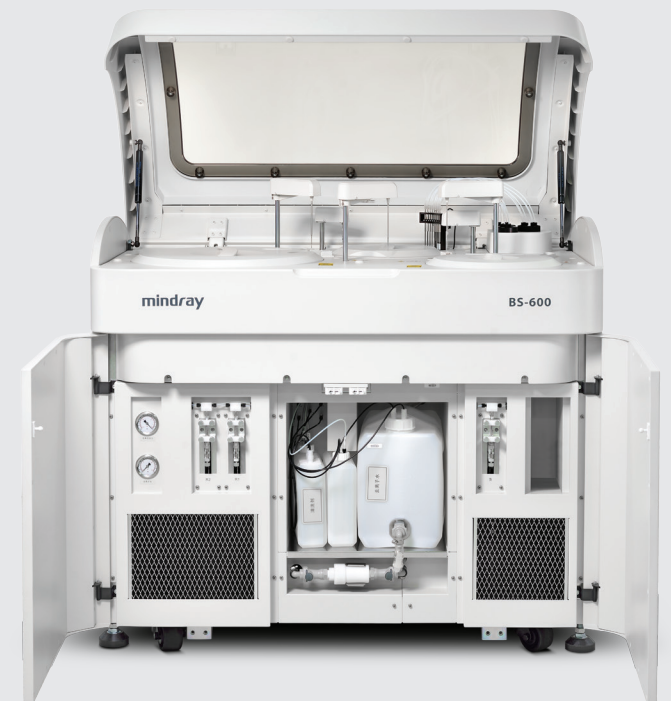
- Whole blood HbA1C testing\*
- Advanced software
- Easy maintenance

### 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 1.5 $\mu$ L
- Perfect match between instrumentation and dedicated reagents
- 100 $\mu$ L 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

# 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 offloading

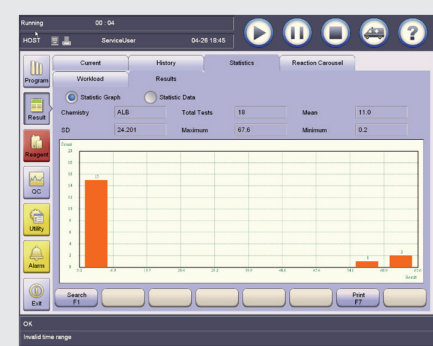
- Remaining time counter makes it easy for operator to follow the instructions

### Intelligent reagent management

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

### Reflex function

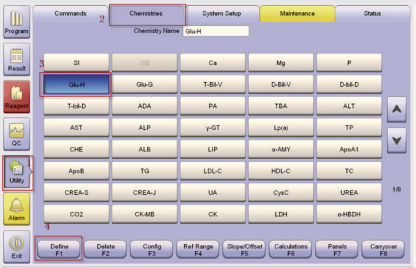
- Pre-defined reflexive assays will be performed automatically when preset criteria is met
- Each assay may involve multiple reflexive criteria
- Each criteria may initiate up to a maximum of 20 relevant assays



### 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



### 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.



Original Quality Control



Auto Chemistry Analyzer

### Mindray solution for clinical chemistry



Original System Pack Reagent



Original Calibrators with Traceability

### 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

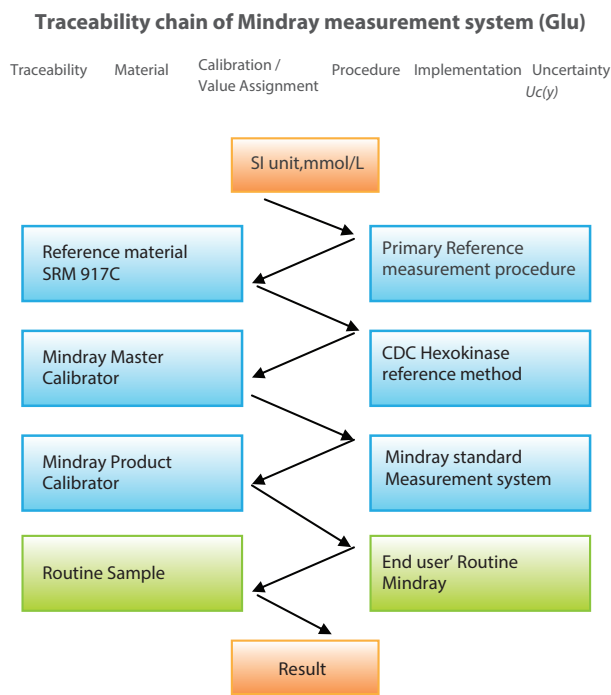
IRMM, Institute for Reference Materials and Measurements,EU

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

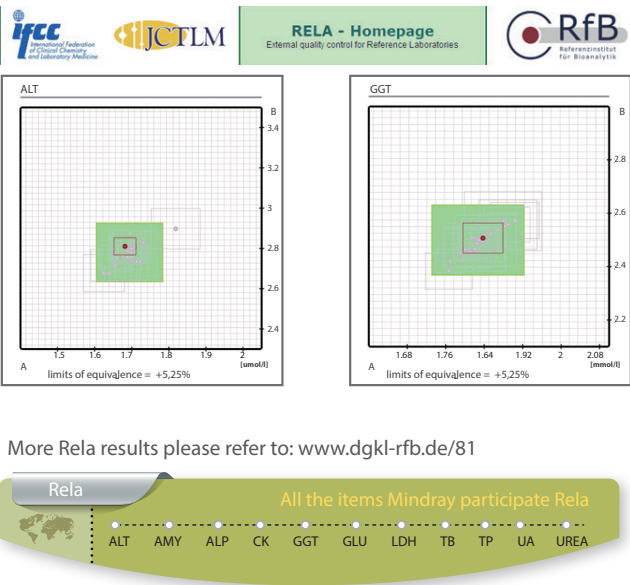


External quality assurance for reference measurement

Mindray participates RELA ( External quality control for reference laboratory ) and CAP ( College of American Pathologists external quality control )


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



College of American Pathologists

325 Waukegan Road, Northfield, Illinois 60093-2750

800-323-4040 • <http://www.cap.org>

Advancing Excellence

CAP Number: 7198395-01

Kit# 1

Institution: Shenzhen Mindray Biomed Elec Co Ltd

Attention: Lingxiang Liu MD

City / State: Hongkong HK CH 518055

Kit ID: 25733824

Kit Mailed: 6/3/2013

Original Evaluation: 7/8/2013

EVALUATION ORIGINAL

C-B 2013 Chemistry

CAP

CAP #: 7198395

Subspecialty : Routine Chemistry

Regulated Analyte	Proficiency Event 2012 3			Proficiency Event 2013 1			Proficiency Event 2013 2			Current Event Performance Interpretation	Cumulative CLIA '88 Performance Interpretation
	Test Event	Score	%	Test Event	Score	%	Test Event	Score	%		
ALT	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Albumin	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Alkaline Phosphatase	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Amylase	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
AST	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Bilirubin, Total	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Calcium, Total	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Chloride	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Cholesterol, Total	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Cholesterol, HDL	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Creatine Kinase	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Creatinine	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Glucose	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Iron, Total	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
LD	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Magnesium	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Potassium	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Sodium	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Protein, Total	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Triglycerides	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Urea Nitrogen	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Uric Acid	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful

Reagent menu

- 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)

- Immune Panel**
- Immunoglobulin A (IgA)
  - Immunoglobulin G (IgG)
  - Immunoglobulin M (IgM)
  - Immunoglobulin E (IgE)
  - 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)

- Cardiac panel**
- Creatine Kinase (CK)
  - Creatine Kinase-MB (CK-MB)
  - Lactate Dehydrogenase (LDH)
  - α-Hydroxybutyrate Dehydrogenase(α-HBDH)
  - High sensitive C-reaction protein( HS-CRP)
  - Homocysteine (HCY)
  - Myoglobin(MYO)
  - D-Dimer(D-Dimer)

- Inorganic & Anemia**
- Iron (Fe)
  - Ferritin (FER)
  - Transferrin (TRF)
  - Calcium (Ca)
  - Magnesium (Mg)
  - Phosphate Inorganic (P)
  - Unsaturated iron binding capacity (UIBC)
  - 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)]

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

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

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