BS-120
Chemistry Analyzer

Technical Specifications

System Function:
- Automatic, discrete, random access, STAT sample priority

Throughput:
- Up to 100 tests/hour (without ISE), up to 300 tests/hour with ISE (3 ions)

Measuring principles:
- Absorbance photometry, turbidimetry, Ion Selective Electrode technology
- Single/dual reagent chemistries, monochromatic/bichromatic linear/non-linear multipoint calibration

Methodology:
- End-point, fixed-time, kinetic, optional ISE

Programming:
- Open system with user defined profiles and calculations

Reagent/Sample Handling:
- Reagent/Sample tray:
  - Up to 33 positions for sample, up to 35 positions for reagent;
  - 24 hour non-stop refrigerated compartment (4~15˚C)
- Reagent volume:
  - R1: 180~450μl, step by 1μl
  - R2: 30~250μl, step by 1μl
- Sample volume:
  - 3~45μl, step by 0.5μl
- Reagent/Sample probe:
  - Liquid level detection, collision protection and inventory checking
  - Automatic washing both interior and exterior
  - Carry-over < 0.1%
- Automatic sample dilution:
  - Pre-dilution and post-dilution
  - dilution ratio up to 1:150
- Dilution vessel:
  - Disposable cuvette

ISE Module (optional):
- Measure parameter: K⁺, Na⁺, Cl⁻

Reaction System:
- Reaction rotor: Rotating tray, containing 40 cuvettes
- Cuvette: Optical length 5mm
- Reaction volume: 180~500μl
- Reaction temperature: 37±0.1˚C
- Mixing system: Independent mixing bar

Optical System:
- Light Source: Halogen-tungsten lamp
- Wavelength: 340nm, 405nm, 450nm, 510nm, 546nm, 578nm, 630nm, 670nm
- Linear range: 0~3.5Abs

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, Cumulative sum check, Twin plot

Operation Unit:
- Operation system: Windows® XP Professional/Home SP2, Windows® 7 or above Windows® VISTA Home/Business
- Interface: RS-232

Working Conditions:
- Power Supply: AC 200~240V, 50/60Hz, 800W or AC 100~130V, 50/60Hz, 800W
- Temperature: 15~30˚C
- Humidity: 35~85%
- Water consumption: 2.5L/hour
- Dimension: Bench top: 690mm(W)x570 mm(D)x595 mm(H)
- Weight: 75 Kg
BS-120 Chemistry Analyzer

- High quality ISE module (optional)
- Measurements of $K^+$, $Na^+$, $Cl^-$
- 6 months shelf life
- High performance mixer design
- Avoid cross contamination
- Optimal homogenization in minimum time
- Thoroughly mixes after dispensing of sample or second reagent

- Disposable reaction cuvettes
- Disposable cuvettes to avoid carry-over and to save testing costs
- Automatic cuvettes blank testing to assure precise results

- Flexible sample/reagent tray
- Optional external reagent/sample bar code reader
- Up to 33 positions for sample, up to 35 positions for reagent
- Up to 20/10 virtual sample/reagent trays can be programmed
- 24 hour non-stop cooling with Peltier elements

- Dynamic and Real-time display of running status
- Running status of reagent/sample tray and reaction tray
- Real-time monitoring of reagent residual volume
- Real-time diagnosis of system working status

- Original reaction data record
- Real-time monitoring of reaction
- Bichromatic testing to avoid interference
- Simultaneously display primary and secondary wavelengths
- Detailed profile of alert messages

- Optimum calibration curve
- Linear curve types: One-point linear, Two-point linear and Multi-point linear
- Nonlinear curve types: Logistic-Log 4P, Logistic-Log 5P, Exponential 5P, Polynomial 5P and Spline

- BS-120 Chemistry Analyzer
- Discrete, random access, fully automated
- 100 tests per hour, up to 300 tests per hour with ISE
- Up to 33 onboard chemistries and 3 ions
- Refrigerated reagent compartment
- Flexible configuration for sample/reagent positions
- Automatic probe cleaning, liquid level detection & collision protection
- 8 wavelengths: 340–670nm
- Automatic dilution for abnormal sample
- External bar code reader (optional)
- Bi-directional LIS interface

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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 immunologicals, etc., together with original calibrators with metrological traceability as well as controls for BS-120 chemistry analyzer.

Chemistry Reagents

Hepatic
- 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)
- Adenosine deaminase (ADA)
- α-L-fucosidase (AFU)
- 5′-nucleotidase (5′-NT)

Renal
- Urea (UREA)
- Creatinine (CREA) Modified Jaffé Method
- Creatinine (CREA)/Sarcosine Oxidase Method
- 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)
- Myoglobin *

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

Pancreatitis
- α-Amylase (α-AMY)
- Lipase (LP)

Diabetes
- Glucose (Glu) GOD-POD Method
- Glucose (Glu) HK Meth
- 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) *
- Retinal binding protein (RBP) *
- D3-hydroxybutyric acid (D3-HB) *

* Coming soon

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

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)

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