

RANDOX

RX MONACO

A fully automated clinical chemistry analyser



A PHOTOMETRIC THROUGHPUT OF 170 TESTS PER HOUR

» A CONVENIENT SOLUTION FOR LOW TO MID
VOLUME CLINICAL CHEMISTRY TESTING





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>> BENEFITS

The RX monaco is a fully automated, discrete, random access clinical chemistry analyser capable of performing **routine & specialised testing** and emergency **STAT sampling**. At optimal configuration, the RX monaco performs **170 photometric tests per hour** providing cost effective, high quality testing for small to medium sized laboratories. Customers can choose between a benchtop system or add a stand to suit their unique circumstances. The RX monaco combines robust hardware and intuitive software with the **world leading RX series test menu for unrivalled performance**.



TEST MENU & CONSOLIDATION

Expand your testing capabilities on one efficient platform

Extensive dedicated test menu, including; **routine chemistries, lipids, antioxidants, cardiac and diabetes testing** allows laboratories to expand their testing capabilities, **reducing additional costs** of sending samples to be tested externally.

A large number of chemistry tests can be carried out on one platform providing **consolidation opportunities and real cost savings**.



ACCURATE RESULTS

Achieve accurate patient results first time, every time

Single reagent and sample pipette with **digital liquid level detection** and **collision protection**.

Serum **indices** function detects lipaemic, icteric and haemolytic samples, **ensuring accuracy of results** and reducing the need for expensive repeats.

High quality results **save operator time** avoiding unnecessary additional costs of repeat testing reducing the possibility of patient misdiagnosis.



UNRIVALLED PERFORMANCE

Reliability ensures no interruption to workflow

On-board cuvette checking function ensuring only clean and viable reaction vessels are used.

Built in **inventory management** system automatically calculates remaining reagent volume and the number of tests available.

Superior performance means **minimal downtime** and swift **reporting of results**.



QUALITY CONTROL

Developed to improve
confidence in your results

Generation of **Levey-Jennings charts, calibration curves** and **QC statistics** for reliable results.
Users can view QC history.

Auto QC interval enables **automatic QC sampling** to ensure **reliable results**.

Unrivalled QC capabilities puts **patient safety** at the centre of your laboratory.



FLEXIBILITY & VERSATILITY

Increased functionality
maximises testing capabilities

12 wavelengths generated via diffraction grating (340-800nm) giving the RX monaco a wide range of testing capabilities ensuring a **multitude of chemistries are possible on one system**.

Rapid STAT testing is available via the emergency test functionality within the software.

Barcode readers for both sample and reagent identification. Windows® based software for **ease of use**.



COST SAVINGS

Smart technology designed
to avoid additional costs

Minimal maintenance required, just **2 preventative maintenance** services per year means **less down time**

Extensive test menu allows **consolidation** of testing, the ability to run specific proteins removes the need for a separate nephelometry system

Economic platform with low water consumption of only **5.5 litres per hour**.



RANDOX
LX

» SYSTEM OVERVIEW



REAGENT & SAMPLE CAROUSEL



A cooled carousel containing 66 user-definable positions are available for samples and 20ml and 70ml reagent bottles - dedicated reagents are available from Randox. Integrated barcode identification ensures smooth recognition of patient samples and reagents. The S/RPT pipette has liquid level detection and collision detection and is rinsed inside and out to prevent carryover.



CUVETTES



120 semi-permanent reaction cuvettes lasting for 3-6 months.
The reaction temperature is controlled by a water bath.



WASH STATION



A thorough 12 stage washing process with acid, alkali and pure water wash steps helps minimise contamination. The on-board cuvette checking function ensures only clean and viable reaction vessels are used. The combined reagent and sample pipette is rinsed inside and out with warm water to ensure effective cleansing.



MIXING SYSTEM



The mixing system comprises of a variable 5-speed Teflon coated stirrer to provide optimum mixing of sample, R1 and R2 to ensure best performance. The stirrer is automatically rinsed with purified water to reduce carryover.

THE RX SERIES TEST MENU



CLINICAL

AUTOIMMUNE:

CRP
CRP Full Range (0.3-160mg/l)
CRP High Sensitivity
IgA
IgE
IgG
Rheumatoid Factor

BASIC METABOLIC PROFILE:

Calcium
CO₂ Total
Creatinine
Glucose
Urea

BONE PROFILE:

Alkaline Phosphatase
Calcium
Phosphorus
Total Protein

CARDIAC:

Cholesterol
CK-MB
CK-NAC
CRP
CRP Full Range (0.3-160mg/l)
CRP High Sensitivity
Direct HDL Cholesterol
Direct LDL Cholesterol
Homocysteine
Lipoprotein (a)
sdLDL
Triglycerides

COMPREHENSIVE METABOLIC PROFILE:

Albumin
Alkaline Phosphatase
ALT
AST (GOT)
Direct Bilirubin
Calcium
CO₂ Total
Creatinine
Glucose
Lactate
Total Bilirubin
Total Protein
Urea

DIABETES:

Cholesterol
Creatinine
Cystatin C
Direct HDL Cholesterol
Direct LDL Cholesterol
Fructosamine
Glucose
HbA1c (Direct)
Microalbumin
NEFA (Non-Esterified Fatty Acids)
Ranbut (D-3-Hydroxybutyrate)
Total Protein
Triglycerides
Urinary Protein

ELECTROLYTES:

Calcium
CO₂ Total
Magnesium

HAEMOLYTIC ANAEMIA:

G-6-PDH
LDH

HEPATIC FUNCTION:

Albumin
Aldolase
Alkaline Phosphatase
ALT
Ammonia
AST (GOT)
Bile Acids
Cholinesterase
Direct Bilirubin
Gamma GT
GLDH
IgA
IgG
Iron (UIBC)
LDH
sTfR
Total Bilirubin
Total Protein
Transferrin

INFLAMMATION AND INFECTION:

ASO
CRP
Lactate
Rheumatoid Factor

LIPIDS:

Apolipoprotein A-I
Apolipoprotein B
Apolipoprotein CII
Apolipoprotein CIII
Apolipoprotein E
Cholesterol
Direct HDL Cholesterol
Direct LDL Cholesterol
Lipoprotein (a)
sdLDL
Triglycerides

NEONATAL SCREENING:

CRP
CRP Full Range (0.3-160mg/l)
CRP High Sensitivity
IgE

NEUROLOGICAL DISORDERS (CSF):

IgA
IgG

NUTRITIONAL STATUS:

Albumin
Copper
Ferritin
Iron
Iron (UIBC)
Lipase
Magnesium
TIBC
Transferrin
Zinc

PANCREATIC FUNCTION:

Amylase
Glucose
LDH
Lipase
Pancreatic Amylase

RENAL FUNCTION:

Albumin
Ammonia
Calcium
Creatinine
Cystatin C
Glucose
HbA1c (Direct)
IgG
LDH
Magnesium
Microalbumin
Phosphorus (Inorganic)
Urinary Protein
Urea
Uric Acid



VETERINARY

Albumin
Alkaline Phosphatase
ALT (GPT)
Aldolase
Ammonia
Amylase
AST (GOT)
Bile Acids
Bilirubin
Calcium
Cholesterol

Cholinesterase (Butyryl)
CK-NAC
CO₂ Total
Copper
Creatinine
Canine CRP
Fructosamine
Gamma-GT
GLDH
Glucose
Iron (UIBC)

Lactate
Lactate Dehydrogenase
LDL
Lipase
Magnesium
NEFA (Non-Esterified Fatty Acids)
Phosphorus (Inorganic)
Ranbut (D-3-Hydroxybutyrate)
Ransel (Glutathione Peroxidase)
Total Protein
Triglycerides

Urea
Uric Acid
Urinary Protein
Zinc



TOXICOLOGY

THERAPEUTIC DRUGS:
Valproic Acid

DRUGS OF ABUSE:
Ethanol



PROTEINS

SPECIFIC PROTEINS:

Apolipoprotein A-I
Apolipoprotein B
Apolipoprotein CII
Apolipoprotein CIII
Apolipoprotein E
ASO

CRP
CRP Full Range (0.3-160mg/l)
CRP High Sensitivity
Cystatin C
Ferritin
Fructosamine

HbA1c (Direct)
IgA
IgE
IgG
Lipoprotein (a)
Microalbumin

Rheumatoid Factor
sTfR
Transferrin



RESEARCH

ANTIOXIDANTS:

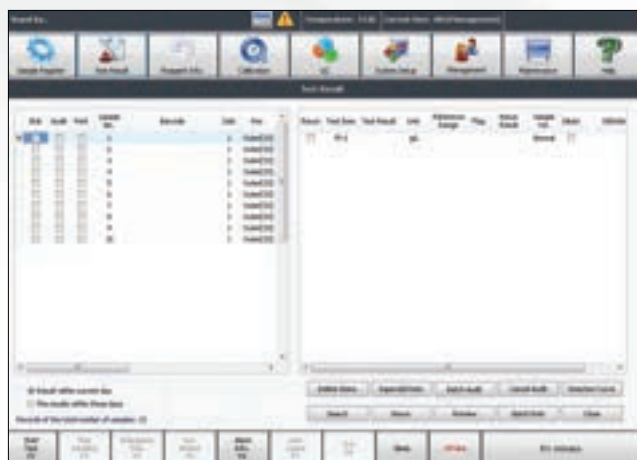
Albumin
Bilirubin
Ferritin
Ransel (Glutathione Peroxidase)
TIBC
Total Antioxidant Status
Transferrin
Uric Acid

FOOD AND WINE TESTING:

Acetic Acid
Ammonia
Copper
Ethanol
Glucose/Fructose
Malic Acid
TAS

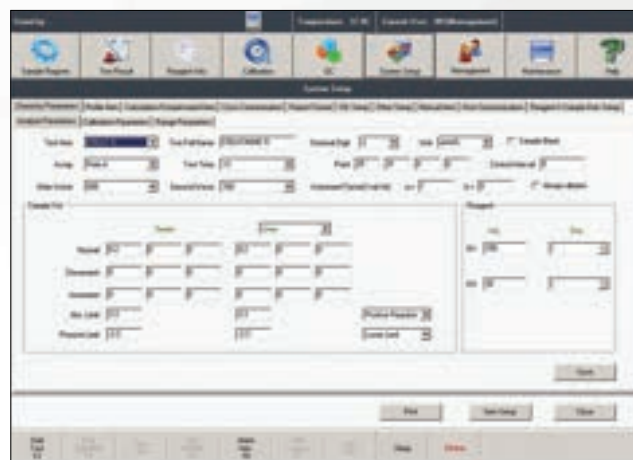
» SOFTWARE

The RX monaco is provided with familiar, Windows® based software and easily recognisable icons making it appealing and easy-to-use for all staff involved in its operation. Straightforward operation of the software results in minimal training requirements and enhanced productivity. The superior functionality of the quality control software generates Levey-Jennings charts and QC statistics for reliable patient results. LIMS (Laboratory Information Management System) connectivity is easily achievable via ASTM standard. Secure remote diagnostics is available to allow immediate support from expert technical and applications staff, anytime, anywhere.



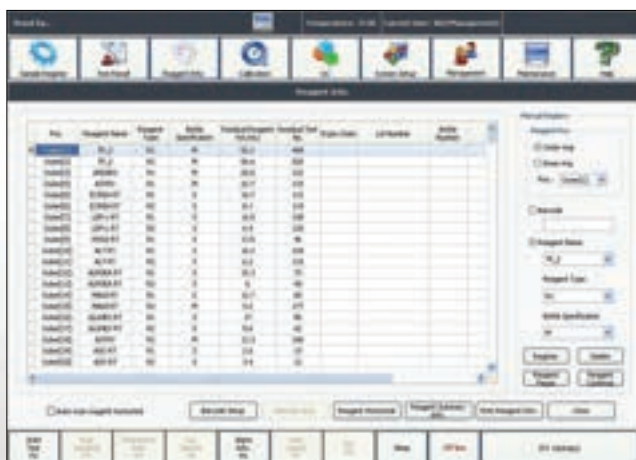
REPORTS

The operator can easily search for previous reports and view real time results status, including time left until completion. The report layout is fully customisable plus reports can be previewed, edited and printed as required.



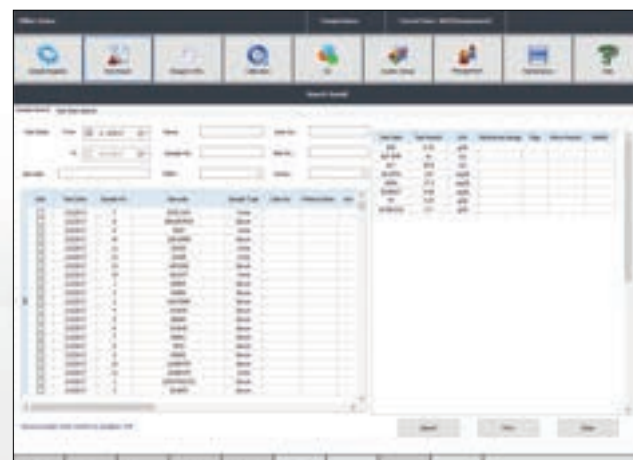
CHEMISTRY PARAMETERS

The chemistry parameters screen enables sample pre-dilution to be set up and re-running of assays as required. From this screen the operator can also access 3 sub menus: analyse parameters, calibration parameters and range parameters.



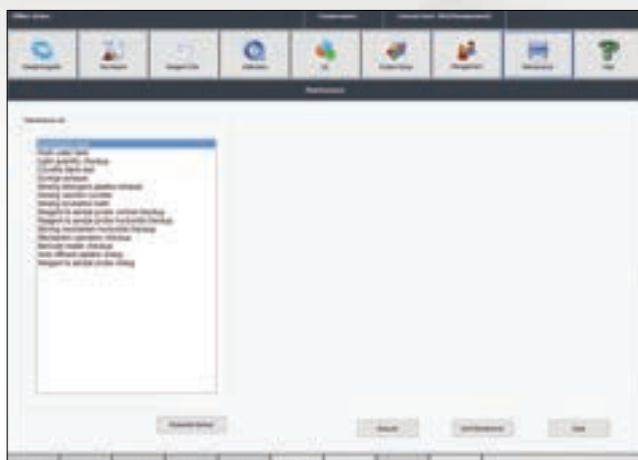
REAGENT INVENTORY

Remaining reagent volume is automatically calculated on-board alongside the number of tests available and stability of the reagents. Should insufficient volume remain for any reagent, an alarm will sound, allowing the operator to resolve the situation.



RESULTS

Results are easily retrievable via various search options, for example by date or by test item. Laboratory staff can download and print results or transmit results to the LIMS system for all relevant clinicians to view.



MAINTENANCE

The operator is instructed via easy to follow steps on how to carry out daily, weekly, monthly and periodic maintenance. Daily maintenance takes only 5 minutes to do. The analyser has a countdown timer to show when routine servicing is due.



QUALITY CONTROL

The QC screen generates Levey-Jennings charts for a visual performance assessment, plus easy identification of QC errors and emerging trends. QC multi rules can be applied to ensure quick detection of errors and minimal false rejection.



RUN MONITOR

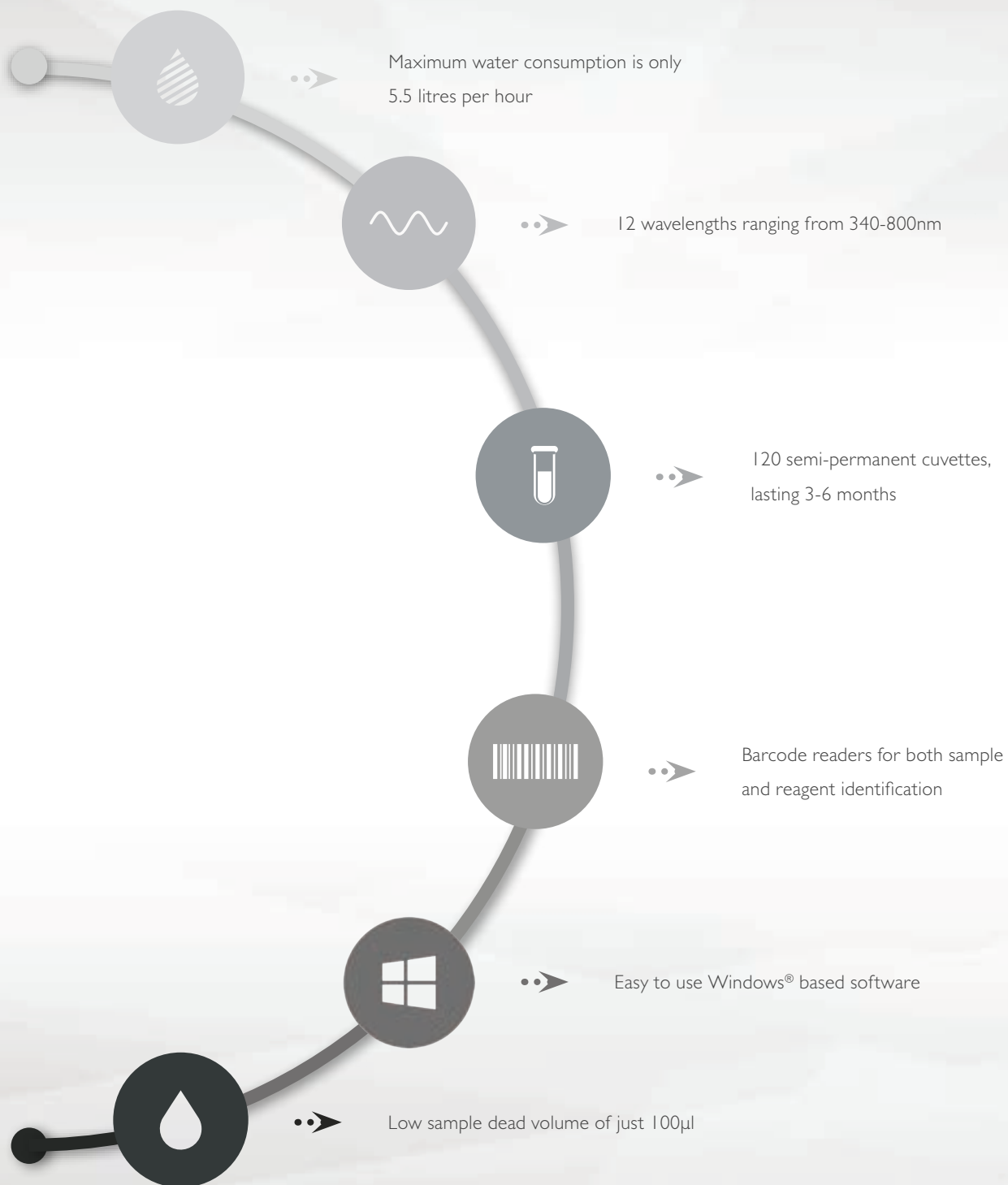
The run monitor displays full patient demographics. Users can view the status of samples in real time including time left to completion. This screen also indicates number of tests remaining before the run is due to finish.



CALIBRATION

The software displays the current valid calibration for each assay programmed, the reagent blank absorbance (if appropriate) and no calibration check interval shown. There are four calibration models available: 1 point, 2 point, multi-point and non-linearity method.

>> FEATURES AT A GLANCE



» ORDERING & CUSTOMER SUPPORT



In choosing to purchase the RX monaco from Randox you are partnering with a company that has over 40 years' experience in the IVD industry and clinical chemistry analyser placements in over 120 countries worldwide. Customers needs vary and Randox sales staff and distributor partners will work with your laboratory to create a bespoke package to suit your requirements. Randox Laboratories provide customers with an unrivalled technical support service.

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ORDERING INFORMATION

RX monaco analyser (benchtop)	RX5000
RX monaco analyser with stand	RX5001

For more information contact your local representative, or email us at:

theRXseries@randox.com



» SPECIFICATIONS

PHYSICAL DIMENSIONS

Height	517mm
Depth	752mm
Width	998mm
Weight	120kg

PERFORMANCE CHARACTERISTICS

Throughput	170 tests per hour constant speed
Analyser type	Fully automated, discrete, random access bench-top clinical chemistry analyser
Assay types	End-point, rate, 2 point assays
Maintenance	Daily maintenance – probe & mixer wash/water bath exchange/cuvette check

REAGENT & SAMPLE SYSTEM

Reagent & Sample capacity	Shared reagent & sample carousel with a total of 66 user defined positions (positions for reagents ≥ 3 , positions for samples ≥ 9)
Reagent cooling	5-15°C
Reagent & sample Identification	Internal barcode scanner
Reagent inventory	Test & report remaining reagent volume, linked to work list
Reagent & sample pipette	Single reagent & sample pipette with digital liquid level detection & collision detection function, rinsed inside & out (warm water rinsing)
Reagent container	20ml and 70ml
Sample type	Serum, plasma, urine
Sample volume	3-35 μ l (0.1 μ l increments)
Sample dead volume	100 μ l in primary tubes
STAT sampling	STAT priority function available

REACTION SYSTEM

Reaction time	13 minutes
Reaction volume	150-550 μ l
Stirring speed	Independent stirring after reagent injection (Teflon coated)
Temperature control	Water bath

Water consumption	6 litres per hour
Water requirements	NCCLS type 1 or 2 purified water supply at 0.5 bar pressure
Cuvettes	120 semi-permanent optical plastic cuvettes, 6mm optical path. Life span: 3-6 months
Cycle time	15 seconds

OPTICAL SYSTEM

Incubator temperature	37°C ± 0.1°C
Light source	Long life quartz halogen lamp (water cooled)
Detection principle	12 wavelengths generated via diffraction grating: 340, 380, 405, 450, 480, 505, 546, 570, 600, 660, 700, 800nm
Detector method	Direct absorbance in cuvette (monochromatic or bi-chromatic)
Wavelength accuracy	±2nm
Absorbance range	0 to 3.3 Abs

CALIBRATION & QC

Calibration principle	1 point, 2 point, multi-point, non-linearity method
Quality control	QC interval, monthly QC

OPERATING SYSTEM

External output	Standard RS-232C interface
Software	Windows®

POWER REQUIREMENTS

Power supply	240 VAC 50Hz/60Hz
Power output	650VA

» THE RX SERIES



A semi-automated clinical chemistry analyser with the ability to run flow cell or cuvette mode. The RX misano offers 9 wavelengths spanning 340-700nm as standard, with an optional 280nm. A large 7" touch screen monitor responsive even when wearing lab gloves allows the user to easily navigate through the testing screens of the analyser. USB port allows to import Randox-defined test menus and export patient, QC and calibration results.



A fully automated, random access, benchtop clinical chemistry analyser with a throughput of 270 photometric tests per hour, increasing to 450 with the optional ISE unit. There are 12 wavelengths spanning 340-800nm and the RX daytona+ provides liquid level, clot and crash detection. Software is windows based and STAT sampling is available via an emergency loading port. The RX daytona+ offers superior performance for mid volume laboratories.



A fully automated, random access benchtop clinical chemistry analyser with a photometric throughput of 400 tests per hour increasing to 560 including ISE. There are 12 wavelengths spanning 340-800nm and the RX imola provides liquid level, clot, crash and bubble detection. Software is windows based and STAT sampling is available via an emergency loading port. The RX imola offers efficiency for medium sized laboratories.



A fully automated, random access, floor standing clinical chemistry analyser with a photometric throughput of 800 test per hour, increasing to 1200 including ISE. There are 13 wavelengths spanning 340-800nm and a fully automated onboard, haemolysis function for running HbA1c. Accurate results are supported by liquid level, clot, and crash detection.

The operating system utilises a modern touchscreen interface and Windows® icon based software.

RANDOX - A GLOBAL DIAGNOSTIC SOLUTIONS PROVIDER

Randox has been supplying laboratories worldwide with revolutionary diagnostic solutions for over 40 years. Our experience and expertise allow us to create a leading product portfolio of high quality diagnostic tools which offer reliable and rapid diagnosis. We believe that by providing laboratories with the right tools, we can improve healthcare worldwide.

REAGENTS



Randox offers an extensive range of third-party diagnostic reagents which are internationally recognised as being of the highest quality; producing accurate and precise results. At Randox, we re-invest significantly in R&D to ensure we meet the ever-changing needs of the laboratory. Consequently, Randox offer a range of novel and superior performance assays, including: sdLDL-C, Lipoprotein (a), Copper and Zinc. Applications are available detailing instrument-specific settings for the convenient use of Randox Reagents on numerous clinical chemistry analysers.

INTERNAL QUALITY CONTROL



Acusera third party quality controls are made using the highest quality material of human origin, ensuring they react like a real patient sample. With more than 390 analytes available across the Acusera range we can uniquely reduce the number of controls required while reducing costs and time. Our product range includes clinical chemistry, immunoassay, urine, immunology and more. Qnostics molecular controls for infectious disease testing are designed to meet the demand of today's molecular diagnostics laboratory while effectively monitoring the entire testing process. Our whole pathogen molecular controls comprise hundreds of characterised viral, bacterial and fungal targets.

EXTERNAL QUALITY ASSESSMENT



RIQAS is the world's largest international EQA scheme with more than 76,000 participants worldwide. 37 comprehensive, yet flexible programmes cover a wide range of clinical diagnostic testing including chemistry, immunoassay, cardiac, urine, serology and more. Our programmes benefit from a wide range of concentrations, frequent reporting, rapid feedback and user-friendly reports. QCMD, our range of EQA programmes for molecular infectious disease testing, features a whole pathogen matrix making them a true test of patient sample analysis. With access to over 90 programmes including blood borne viruses, respiratory diseases, multi-pathogen infections and more, there is something for every laboratory.

EVIDENCE SERIES



In 2002, Randox invented the world's first, Biochip Array Technology, offering highly specific tests, coupled to the highly sensitive chemiluminescent detection, providing quantitative results instantly changing the landscape of diagnostic testing forever. The Randox Evidence Series of multi-analyte immunoanalyser's provide an unrivalled increase in patient information per sample offering diagnostic, prognostic and predictive solutions across a variety of disease areas with a highly advanced clinical and toxicology immunoassay test menu including cardiac, diabetes, drugs of abuse, metabolic, renal and stroke markers.

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