RX MODENA
A Fully Automated Clinical Chemistry Analyser

CAPABLE OF PERFORMING UP TO 1200 TESTS PER HOUR
THE RX MODENA IS A FULLY AUTOMATED, CLINICAL CHEMISTRY ANALYSER, THAT PROMISES TO REVOLUTIONISE YOUR LABORATORY.
The RX modena is a high throughput, floor standing clinical chemistry analyser, capable of performing up to 1200 tests per hour including ISE. With the ever expansive, unrivalled RX series test menu, the RX modena offers a winning combination for large multi-disciplinary laboratories. Icon based, interactive touch-screen technology offers an easy to use solution. The RX modena presents a new class of efficiency without compromising on the precision, reliability and accuracy that the RX series is famed for.

Extensive dedicated test menu, including: routine chemistries, lipids, antioxidants, cardiac and diabetes testing allows laboratories to expand their testing capabilities and bring more testing in-house reducing additional costs of sending tests out.

Direct, on-board, HbA1c testing capabilities provide many time saving benefits in the laboratory. As there is no incubation step required HbA1c tests can be performed immediately, performing QC and Calibration checks is quicker as only one assay is being tested, and offline calculations are not needed enabling faster recovery times.

The RX modena has two reagent pipettes and a sample pipette to ensure minimal carryover and reduce testing errors.

Dual five speed stirrers provide optimised mixing for each assay. Serum indices detect lipaemic, icteric and haemolytic samples.

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

Sensitive clot detection sensor detects clots such as fibrin at the sample pipette. On-board cuvette checking function ensures 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.
13 wavelengths (340nm – 800nm) can be generated via a diffraction grating ensuring a multitude of chemistries are possible on one system.

Continuous loading hatch allows samples to be analysed quickly and easily during a run, enhancing productivity.

Barcode readers for both sample and reagent identification.

STAT samples can be added and prioritised during a run saving time when it matters most.

Generation of Levey-Jennings charts, calibration curves and QC statistics for reliable results.

Users can view QC history.

7 different calibration options are available including: Factor, Linear, Point-to-Point, Log-Logit, Exponential, Spline and Spline 2.

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

Simple twice yearly preventative maintenance reduces the likelihood of analyser downtime.

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

Economic platform with low water consumption of only 20 litres per hour.
SYSTEM OVERVIEW

REAGENT CAROUSEL
The RX modena reagent carousel has 100 cooled positions for 50x70ml & 50x20ml reagent bottles. An automatic barcode will identify the reagents added to the carousel which will be cooled between 8°C and 15°C to allow for a greater on-board stability.

CUVETTES
On-board the RX modena there are 153 semi-permanent cuvettes with a life span of 3-6 months. Cuvette check function ensures that only clean and viable reaction vessels are used. The user will be notified when cuvettes are required to be replaced.

WASH STATION
A 7 stage washing process includes acid, alkali and pure water, wash steps. Stations 1-5 have liquid level sensors to prevent cuvette overflows. The washing unit washes cuvettes before and after measurement to ensure accurate results each time.

SAMPLE CAROUSEL
The RX modena has 94 sample positions available and up to 10 positions for calibrators & controls. STAT functionality allows for the addition of emergency samples when required. An on-board barcode scanner will identify the sample being tested.

MONITOR
Interactive touchscreen technology with Windows® based software allows the user to easily navigate through the analyser software. The RX modena monitor is attached to the analyser via an extendable arm and is fully adjustable for the users convenience whilst testing.

CONTINUOUS LOADING
Continuous loading is facilitated through a hatch on the analyser. The sample carousel is made up of removable baskets. The software will detect a free space for the user to insert the basket allowing samples to be added quickly and easily during a run.
## THE RX SERIES TEST MENU

### CLINICAL

<table>
<thead>
<tr>
<th>AUTOIMMUNE:</th>
<th>Complement Component 3</th>
<th>Complement Component 4</th>
<th>CRP</th>
<th>CRP Full Range (0.3-160mg/l)</th>
<th>CRP High Sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTOIMMUNE:</td>
<td>IgA</td>
<td>IgE</td>
<td>IgG</td>
<td>IgM</td>
<td>Rheumatoid Factor</td>
</tr>
<tr>
<td>BASIC METABOLIC PROFILE:</td>
<td>Calcium</td>
<td>CO₂ Total</td>
<td>Chloride</td>
<td>Creatinine</td>
<td>Glucose</td>
</tr>
<tr>
<td>BONE PROFILE:</td>
<td>Alkaline Phosphatase</td>
<td>Calcium</td>
<td>Phosphorus</td>
<td>Total Protein</td>
<td></td>
</tr>
<tr>
<td>CARDIAC:</td>
<td>Adiponectin</td>
<td>Cholesterol</td>
<td>CK-MB</td>
<td>CK-NAC</td>
<td>CRP</td>
</tr>
<tr>
<td>CARDIAC:</td>
<td>Digoxin</td>
<td>Direct HDL Cholesterol</td>
<td>Direct LDL Cholesterol</td>
<td>HDL3</td>
<td>H-FABP</td>
</tr>
<tr>
<td>CARDIAC:</td>
<td>Albumin</td>
<td>Alkaline Phosphatase</td>
<td>ALT</td>
<td>AST (GOT)</td>
<td>Direct Bilirubin</td>
</tr>
<tr>
<td>CARDIAC:</td>
<td>ASO</td>
<td>CRP</td>
<td>CRP High Sensitivity</td>
<td>Lactate</td>
<td>Rheumatoid Factor</td>
</tr>
<tr>
<td>LIPIDS:</td>
<td>Apolipoprotein A-I</td>
<td>Apolipoprotein AII</td>
<td>Apolipoprotein B</td>
<td>Apolipoprotein CII</td>
<td>Apolipoprotein CIII</td>
</tr>
<tr>
<td>NEONATAL SCREENING:</td>
<td>CRP</td>
<td>CRP Full Range (0.3-160mg/l)</td>
<td>CRP High Sensitivity</td>
<td>IgE</td>
<td>Transferrin</td>
</tr>
<tr>
<td>NUTRITIONAL STATUS:</td>
<td>Albumin</td>
<td>Copper</td>
<td>Ferritin</td>
<td>Iron</td>
<td>Iron (UIBC)</td>
</tr>
<tr>
<td>PANCREATIC FUNCTION:</td>
<td>Albumin</td>
<td>Amylase</td>
<td>Alkaline Phosphatase</td>
<td>ALT</td>
<td>Ammonia</td>
</tr>
<tr>
<td>PHARMACOLOGY:</td>
<td>Vitamin D</td>
<td>Levothyroxine</td>
<td>Carvedilol</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Product availability may vary from country to country. Please check with your local Randox representative.
### VETERINARY

<table>
<thead>
<tr>
<th>Albumin</th>
<th>Cholesterol</th>
<th>Glucose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alkaline phosphatase</td>
<td>Cholinesterase (Butyryl)</td>
<td>Glycerol</td>
</tr>
<tr>
<td>ALT (GPT)</td>
<td>CK-NAC</td>
<td>HDL</td>
</tr>
<tr>
<td>Aldolase</td>
<td>CO2 Total</td>
<td>Iron (UIBC)</td>
</tr>
<tr>
<td>Amylase</td>
<td>Copper</td>
<td>Lactate</td>
</tr>
<tr>
<td>AST (GOT)</td>
<td>Creatinine</td>
<td>Lactate dehydrogenase</td>
</tr>
<tr>
<td>Bile acids</td>
<td>Canine CRP</td>
<td>LDL</td>
</tr>
<tr>
<td>Bilirubin</td>
<td>CRP</td>
<td>Lipase</td>
</tr>
<tr>
<td>Calcium</td>
<td>Fructosamine</td>
<td>Magnesium</td>
</tr>
<tr>
<td>Chloride</td>
<td>Gamma-GT</td>
<td>NEFA (Non-esterified fatty acids)</td>
</tr>
</tbody>
</table>

### TOXICOLOGY

**THERAPEUTIC DRUGS:**
- Carbamazepine
- Gentamicin
- Lithium

**DRUGS OF ABUSE:**
- Ethanol

### PROTEINS

**SPECIFIC PROTEINS:**
- Apolipoprotein A-I
- Apolipoprotein AII
- Apolipoprotein B
- Apolipoprotein CII
- Apolipoprotein CIII
- Apolipoprotein E
- ASO
- Beta-2 Microglobulin

**RESEARCH**

**ANTIOXIDANTS:**
- Albumin
- Bilirubin
- Ferritin
- Glutathione Reductase
- Ransel (Glutathione Peroxidase)
- Ransod (Superoxide Dismutase)
- TIBC
- Total Antioxidant Status

**FOOD AND WINE TESTING:**
- Acetic acid
- Ammonia
- Copper
- Ethanol

**BIOTECHNOLOGY:**
- Glutamate
- Glutamine

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The RX modena offers intuitive software through an interactive, Windows based touch screen display. This technology allows the user to easily navigate through the testing screens of the analyser, enabling easy access to information and control of operations from the main screen using informative tabs. Smart software automatically calculates remaining reagent volumes and the number of tests available, including their stability. The RX modena software is capable of connecting to LIMS (Laboratory Information Management System) via ASTM standard.

REPORTS
The operator can easily search for reports and view real time results status, including time left until completion. The RX modena has a high capacity storage of 30,000 patient reports.

CHEMISTRY PARAMETERS
The chemistry parameters screen enables pre-sample dilution to be set up and re-running of assays as required. The user may set up to 20 different test profiles and define the order of analysis.

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 alert will appear, allowing the operator to resolve the situation.

RESULTS
Results are easily searchable via various search options, for example sample type or sample category. Laboratory staff can download and print results or transmit results to the LIMS system for all relevant clinicians to view.
QUALITY CONTROL
The QC screen generates Levey-Jennings charts and calibration curves allowing for a visual performance assessment plus easy identification of QC errors and emerging trends. QC multi rules can be applied to ensure high error detection and minimal false rejection.

RUN MONITOR
The run monitor displays full patient demographics. This screen indicates the number of tests and time left until completion. The operator can add emergency STAT samples from this screen.

MAINTENANCE
Maintenance on the RX modena is fast and effective. There are several simple steps to carry out daily, weekly and monthly. Less than 5 minutes daily maintenance is required.

CALIBRATION
The software displays the current valid calibration for each assay installed, the reagent blank absorbance (if appropriate) and the calibration check interval. There are 7 calibration models available: Factor, Linear, Point to point, Log-logit, Exponential, Spline & Spline 2.
FEATURES AT A GLANCE

- Economic platform with water consumption of less than 20 litres per hour at peak usage
- Fully automated on-board haemolysis function for HbA1c testing
- Automatic wake up and sleep functionality including programmable daily maintenance
- Continuous loading hatch allows samples to be analysed quickly and easily during each run
- 153 cuvettes on-board with cuvette check function
- Interactive touch-screen technology with Windows® based software
ORDERING & CUSTOMER SUPPORT

In choosing to purchase the RX modena analyser from Randox you are partnering with a company that has over 35 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.

ORDERING INFORMATION

| RX modena analyser | RX9000 |

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

theRXseries@randox.com
# Specifications

## Physical Dimensions

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>1150mm</td>
</tr>
<tr>
<td>Depth</td>
<td>850mm</td>
</tr>
<tr>
<td>Width</td>
<td>1300mm</td>
</tr>
<tr>
<td>Weight</td>
<td>&lt;300kg</td>
</tr>
</tbody>
</table>

## Performance Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Throughput</td>
<td>1200 tests per hour including ISE</td>
</tr>
<tr>
<td></td>
<td>800 photometric tests per hour</td>
</tr>
<tr>
<td>Analyser accreditation</td>
<td>CE marking &amp; FDA in progress</td>
</tr>
<tr>
<td>Analyser type</td>
<td>Compact fully automated random access floor standing clinical analyser</td>
</tr>
<tr>
<td>Assay types</td>
<td>End point, 2 point end, rate, 2 point rate and ISE</td>
</tr>
</tbody>
</table>

## Reagent & Sample System

<table>
<thead>
<tr>
<th>System</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reagent capacity</td>
<td>Removable tray with 100 cooled positions (50 positions for 70ml bottles and 50 positions for 20ml bottles)</td>
</tr>
<tr>
<td>Reagent identification</td>
<td>Automatic barcode reagent identification</td>
</tr>
<tr>
<td>Reagent inventory</td>
<td>Calculation of remaining reagent volume and tests available, alert for shortage, expired reagent and expired calibration</td>
</tr>
<tr>
<td>Reagent pipette</td>
<td>Dedicated twin reagent micropipette with liquid level sensor and crash detection, rinsed inside and outside with purified water</td>
</tr>
<tr>
<td>Sample addition</td>
<td>Immediate sampling interruption for addition of samples via removable panel</td>
</tr>
<tr>
<td>Sample capacity</td>
<td>Removable tray with 94 positions for samples, 10 positions for controls and calibrators</td>
</tr>
<tr>
<td>Sample dead volume</td>
<td>150µl in standard or primary tubes, 100µl in paediatric cups</td>
</tr>
<tr>
<td>Sample dilution</td>
<td>Pre-dilution and automatic re-assay with diluted, reduced or increased sample volume</td>
</tr>
<tr>
<td>Sample identification</td>
<td>Barcode sample identification</td>
</tr>
<tr>
<td>Sample pipette</td>
<td>Dedicated sample micropipette with liquid level sensor, clot detection and crash detection</td>
</tr>
<tr>
<td>Sample tube Size</td>
<td>Multiple primary tube sizes (diameter 12-15mm, height 100mm), paediatric cups</td>
</tr>
<tr>
<td>Sample type</td>
<td>Serum, Plasma, Urine &amp; Whole Blood</td>
</tr>
<tr>
<td>Sample volume</td>
<td>0.5-25µl (0.1µl increments) ISE: less than 22µl</td>
</tr>
<tr>
<td>STAT sampling</td>
<td>Immediate STAT sampling interruption</td>
</tr>
</tbody>
</table>
### REACTION SYSTEM

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reaction time</td>
<td>10 minutes</td>
</tr>
<tr>
<td>Minimum reaction volume</td>
<td>50µl</td>
</tr>
<tr>
<td>Stirring system</td>
<td>Dual 5 speed paddle stirrers</td>
</tr>
<tr>
<td>Temperature</td>
<td>37°C ±0.2°C</td>
</tr>
<tr>
<td>Cuvettes</td>
<td>153 Semi-permanent cuvettes, 5nm optical path. Life span:3-6 months</td>
</tr>
<tr>
<td>Wash unit</td>
<td>7 stage cuvette washing system</td>
</tr>
<tr>
<td>Water consumption</td>
<td>&lt;20L per hour</td>
</tr>
</tbody>
</table>

### OPTICAL SYSTEM

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detector method</td>
<td>Direct absorbance in cuvette (monochromatic or bi-chromatic)</td>
</tr>
<tr>
<td>Light source</td>
<td>Halogen tungsten lamp (air-cooled, 6 month service life)</td>
</tr>
<tr>
<td>Detection principal</td>
<td>13 wavelengths 340, 380, 415, 450, 478, 510, 546, 570, 600, 660, 700 750, 800nm</td>
</tr>
<tr>
<td>ISE tests</td>
<td>Integrated ISE unit (sodium, potassium, chloride)</td>
</tr>
<tr>
<td>Wavelength accuracy</td>
<td>±2nm</td>
</tr>
<tr>
<td>Absorbance range</td>
<td>0 to 3 Abs</td>
</tr>
</tbody>
</table>

### CALIBRATION & QC

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality control</td>
<td>Interactive Levey-Jennings charts, daily, monthly and batch QC with data archiving</td>
</tr>
<tr>
<td>Calibration principal</td>
<td>Factor, Linear, Point to point, Log-logit, Exponential, Spline and Spline 2</td>
</tr>
</tbody>
</table>

### POWER & CONNECTIVITY

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input voltage</td>
<td>100 - 240 Vac</td>
</tr>
</tbody>
</table>

### OPERATING SYSTEM

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operator interface</td>
<td>Windows® based user Interface Touch screen (optional keyboard and mouse available upon request) Software text/language fully editable by user</td>
</tr>
</tbody>
</table>
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 clinical chemistry analyser with 12 wavelengths between 340-800nm and a throughput of 170 tests per hour. Available as a benchtop or floor standing model with Windows® based software and STAT sampling as standard. The low throughput of the RX monaco provides small to mid-volume laboratories with cost effective analysis and high quality testing.
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.
Randox has been supplying laboratories worldwide with revolutionary diagnostic solutions for over 35 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 health care worldwide.

REAGENTS

Randox offers an extensive range of diagnostic reagents, giving biochemistry laboratories the opportunity to advance their routine and niche testing.

The Randox reagents range goes beyond routine chemistries. At Randox we re-invest significantly in research and development to ensure we meet the ever changing needs of the laboratory. As a result, the esoteric reagents range from Randox is extensive and includes sLDL, Lipoprotein(a), H-FABP, Cystatin C, TnTBCardio, Adiponectin, Bile Acids, Copper: D-3-Hydroxybutyrate, G-6-PDH, Non-Esterified Fatty Acids, Total Antioxidant Status and Zinc.

Randox Reagents provide a number of benefits for the laboratory: Cost savings through excellent stability, automated methods and standards supplied with some kits; confidence in results with high performance methods, minimal interferences and wide measuring ranges; convenience and choice with applications for over 100 biochemistry analysers; liquid ready-to-use reagents, a wide range of kit sizes and complementary controls and calibrators.

ACUSERA

Randox is a world leading manufacturer of multi-analyte, true third party controls. Thousands of laboratories rely on us to accurately assess test system performance and ultimately empower them with the confidence required to release patient test results. With more than 390 analytes available across the Acusera range we can uniquely reduce the number of individual controls required while simultaneously reducing costs, time and storage space. A choice of formats are available, including liquid or lyophilised, ensuring flexibility and suitability for laboratories of all sizes and budgets.

Some of our principle products include Clinical Chemistry, Immunoassay, Urine, Immunology/Proteins, Cardiac Markers and Therapeutic Drugs among others. As a primary manufacturer, Randox are also able to offer the unique service of custom made controls.

RIQAS

Boasting over 45,000 participants and more than 360 parameters across 32 comprehensive & flexible EQA programmes, RIQAS is the largest international EQA scheme. Designed to cover all areas of clinical testing, each of our multi-analyte programmes benefit from a wide range of concentrations, frequent reporting, rapid feedback and informative yet user-friendly reports.

BIOCHIP ARRAY TECHNOLOGY

Biochip Array Technology (BAT) is an innovative assay technology for multi-analyte screening of biological samples in a rapid, accurate and easy to use format. BAT offers highly specific tests, coupled to highly sensitive chemiluminescent detection, providing quantitative results in easy to interpret reports. Randox BAT assays offer diagnostic, prognostic and predictive solutions across a variety of disease areas including sexually transmitted infection, cardiovascular disease (CVD), familial hypercholesterolemia (FH), colorectal cancer and respiratory infection.
Contact us for more information on any of our products and services:

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