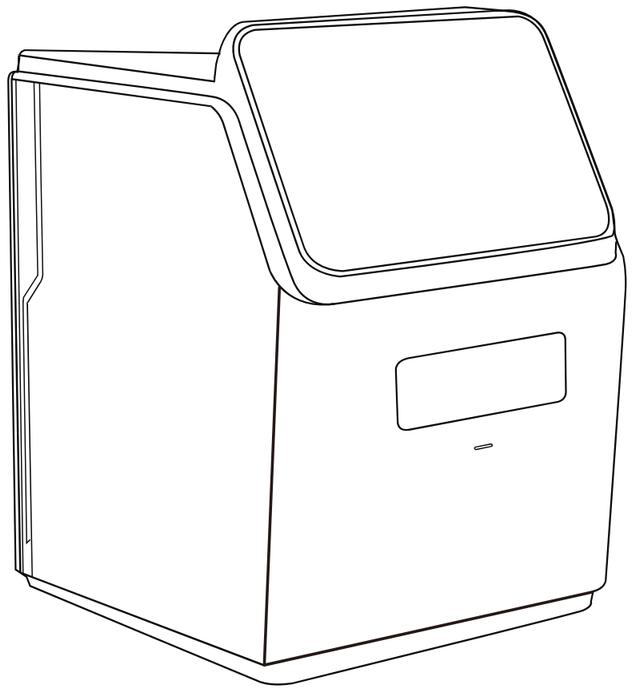


NOTE

Please read this manual carefully before using the analyzer.

seamaty

Qt3

Auto Chemistry Analyzer

User Manual

* Please read this user manual carefully before using the analyzer.
* It's for veterinary use only.

Chengdu Seamaty Technology Co., Ltd.

seamaty

Contents

Good to Know

Dear Customers:

Thank you for your trust and using Qt3 Auto Chemistry Analyzer. In order to let you have a comprehensive understanding of this analyzer, we provide this manual for you with contents including introduction, usage, maintenance, packing, storage, transportation, etc. It is an essential guide for you to use this analyzer. We strive to make it comprehensively and concisely, so that you can better understand the relevant knowledge of the analyzer. Before use, please carefully read the user manual. I believe it will be very helpful for you to effectively use the analyzer.

The user manual is a guide for using the analyzer, so to ensure the good operation of analyzer and the reliability and accuracy of test results, please pay a lot attention on the "Warning", "Caution" and "Note" in this manual.

How to Use This Manual Appropriately

Scope of application:

1) User who received the operation training from Seamaty.

2) User who received the operation training from authorized distributors of Seamaty.

In principle, the user manual is correct and no error at the time of release. If you find any errors or omissions in this manual during use, please call or email to us.

In order to improve the performance and reliability of components and the analyzer, we will make some real-time changes to the hardware or software, which may lead to the difference from this user manual. Seamaty reserves the right to revise the user manual and maintain software versions without notice!

Seamaty has the final interpretation of the contents of this user manual.

The illustrations used in this user manual are showing as samples, which may differ from the actual, if there are any differences, the actual product shall prevail.

Be sure to use the analyzer under the conditions specified in this manual. Failure to do so may result in failure of analyzer or unreliability of test results.

If the analyzer is not used according to the methods specified by Seamaty, the protection provided by the analyzer may be damaged.

Symbols Used in Analyzer

Symbols	Name	Explanation
	Warning	The information should be learned on how to avoid the operator from potential harm. Please refer to any marks in this manual.
	Caution	It is the important information you should know to avoid any potential damage of analyzer.
	Mind your hands	Be careful not to pinch your hands when opening and closing the drawer.
	Note	Important prompts during operation.
	Biohazard	These contaminated blood, serum, and other specimens which you may come into contact with during operation. Please take precautions.
	Protection for grounding	Protect for grounding.

How to Use Qt3 Auto Chemistry Analyzer Correctly

Before operation, please do as follows at first:

1. Check that the actual configuration of the analyzer is exactly the same as the packing list. If you have any questions, please contact our salesperson or distributor.
2. In order not to affect our future service to you, please fill in the service guarantee card carefully, and send it (product warranty receipt) back to us as soon as possible. If you email us, please send it to info@seamaty.com.
3. Please read the documents shipped with the analyzer carefully and keep them properly.

Warning

The analyzer should be protected from working in humid and corrosive atmospheres.

If peculiar smell or smoke generated from the analyzer during the operation, please cut off electricity in time and notify Seamaty or distributor for maintaining.

The operator should avoid touching the inner circuit and only the certificated personnel can repair the analyzer.

The operator should wear protective gloves, masks, and overalls.

Users are responsible for ensuring the electromagnetic compatibility environment of the analyzer to ensure its normal operation.

Operators are not allowed to lean on the analyzer.

This analyzer meets the emission and immunity requirements corresponding to this analyzer in GB/T 18268.

This analyzer is designed and tested according to Class B instrument in GB 4824.

Do not use this analyzer near strong radiation sources (such as unshielded radio frequency sources), otherwise it may interfere with the normal operation of the analyzer.

It is prohibited to use flammable or explosive materials in laboratory, as well as gas materials that produce a large amount of hazardous substances due to chemical reactions.

Caution

The working environment of this analyzer should be ventilated and avoid strong electromagnetic interference and dust pollution. The analyzer should be placed on a stable workbench.

Do not damage the power cord. When unplugging, hold the plug and do not pull the power cord.

Do not place water containers or small metal objects on the analyzer to prevent water or metal objects from falling into the analyzer, causing short circuits and damaging the analyzer.

The analyzer should use a three core power cord and ensure good grounding.

Do not use this analyzer in a position where it is difficult to disconnect the switch.

The production date of the analyzer can be found on the label on the back of the analyzer.

The reagent rotors referred to in this manual are all produced by Seamaty.

Biohazard

According to standard laboratory operating procedures, considering the potential biological risks of blood samples, all samples, quality control products, related containers, and used reagent rotors should be processed according to the corresponding biological safety level.

If the analyzer is stopped or needs to be transported again, please remove the reagent rotor from the analyzer and clean it according to the instructions in Section 6 to prevent biological hazards.

Quality Guarantee

The Qt3 Auto Chemistry Analyzer and its series products, considering environmental and unexpected factors, are recommended to be used for a period of 5 years when used appropriately by users.

From the date of product receipt, our company promises to provide 24 months of free warranty service (excluding consumables) to analyzer users, except for the following situations:

Not strictly following the user manual to use the analyzer normally or not using standard matching consumables;

Man-made damage;

Dismantle the analyzer without the permission from Seamaty;

The above warranty services only belong to the initial installation user of the analyzer, and are invalid if the analyzer is transferred or shared with others.

Compliance with Safety Measures

For using analyzer safely and efficiently, please observe the following precautions:

1. Avoiding failure of analyzer

   The working environment of the analyzer should meet the requirements in this manual.

2. Preventing electric shock

   Do not open the analyzer without the authorization of Seamaty to prevent the liquid splashing into the analyzer. In order to prevent the occurrence of electric shock and other safety incidents, if the liquid is into the analyzer inadvertently, please contact Seamaty after- sales service team in time before powering on the analyzer. Before powering on the analyzer, please check if the power cord is intact. Do not use a damaged power cord to prevent electric shock.

3. Preventing pollution

   It is a must to wear protective gloves during operation, or there is a potential risk of biological infection. There is also a potential bio-safety risk in used reagent rotors without bio-safety treatment after testing. Once the skin is in direct contact, please immediately clean and disinfect the contact area, and consult a doctor.

4. Operating reagent rotor

   Reagent beads may contain corrosive substances, please strictly follow the instructions in the user manual for operation. The operator will not come into contact with the reagent beads sealed in the reagent rotor during normal use unless the rotor breaks. In case of this, please try to avoid direct contact with the reagent and prevent the reagent entering into the respiratory tract.

5. Disposing reagent rotor

   For used reagent rotors, please handle them according to the second level bio-safety standard. Please refer to the "Regulations on the Management of Biological Safety in Pathogenic Microbial Laboratories" (State Council Order No. 424 of the People's Republic of China), "Regulations on the Management of Medical Waste" (State Council Order No. 380 of the People's Republic of China), "General Requirements for Laboratory Biological Safety" (GB19489-2008), and "Laboratory Biological Safety Manual" etc. for disposing methods.

Section 1 Introduction of Analyzer

1.1 Analyzer Overview

Front and side view, seeing Figure 1-1.

Figure 1-1

Back view, seeing Figure 1-2.

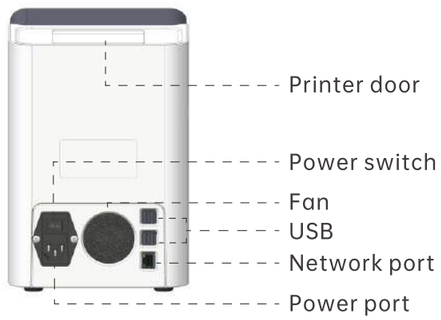


Figure 1-2

1.2 Brief Introduction

Product name: Auto Chemistry Analyzer

Model No.: Qt3

Size: 190mm*220mm*280mm (Width* Length* Height)

Net weight: 4 KG

Accessories: power cord and pipette

Qt3 Auto Chemistry Analyzer is easy to use. The operator only needs to collect blood samples (Heparin lithium anticoagulation of whole blood, plasma or serum), and adds it into the reagent rotor (circular reagent rotor 100 μl; sector reagent rotor 60-120 μl), then put the rotor into analyzer which will accomplish the test automatically. The result will be automatically displayed and printed after the analysis is completed. In order to prepare for a retest, it is recommended that the operator collects not less than 250 μl of sample at a time.

There are four USB ports of the analyzer for connecting external printer, mouse, keyboard and the subsequent mentioned analyzers. For the analyzer, it takes 12 minutes to complete a test and obtain the report.

1.3 Principle

The Qt3 Auto Chemistry Analyzer is a biochemical analyzer based microcomputer, recommended to be used together with the matching reagent rotors. To detect the concentration of chemical substances in the sample, the corresponding methods of the parameters are endpoint method, velocity method, two-point method, and eight wavelengths which are synchronous detection.

The Qt3 Auto Chemistry Analyzer adopts the principles of photoelectric colorimetry and absorption spectroscopy. Mainly used for biochemical reaction experiments, its working principle is to preload multiple sets of detection reagents in the reagent rotor, forming an independent “reaction chamber”. Then add the collected blood samples to the reagent rotor, and put the reagent rotor into the analyzer. The system operates and controls through a microcomputer processor, and biochemical substances in the blood enter the “reaction chamber” and undergo chemical reactions with corresponding specific reagent, producing color changes. These changes are detected by absorption spectroscopy and analyzed and calculated by a microcomputer to determine the concentration of these changing substances in the blood to achieve the purpose of detection; Turbidimetry is mainly used in immunochemical experiments, and its working principle is that after antigen antibody binding, an immune complex is formed, and the complex aggregates to form turbidity within a certain period of time. When light passes through a solution, it can be absorbed by immune complexes. The more immune complexes there are, the more light is absorbed. The amount of light absorbed is proportional to the amount of immune complexes within a certain range. The absorbance value is measured through the transmission of optical components, and the content of the complex is directly proportional to the absorbance value. Similarly, when the amount of antibody is constant, the absorbance value is also directly proportional to the antigen content. Through analysis and calculation by a microcomputer, the concentration content of the immune

complex is determined to achieve the detection purpose. After the analysis is completed, the results will be automatically displayed and printed.

1.4 Structure and Composition

The Qt3 Auto Chemistry Analyzer consists of a complete machine shell, a movement assembly (including constant control temperature assembly, QR code scanning acquisition assembly, optical path assembly), a printer assembly, a display assembly (LCD capacitor display screen, touch pad), operating software (release version: V1), and a power cord.

The analyzer has a compact structure, small volume, light weight, and is easy to transport. The assemblies of the analyzer have the following characteristics:

- A complete set of plastic shell.
- A variable speed motor which drives the reagent rotor to spin (movement assembly).
- A photometer to detect the concentration of substance in liquid (optical assembly).
- Two microprocessors used for analyzer control and test calculation (constant control temperature assembly, QR code scanning acquisition assembly).
- A thermal printer can print out test results (print assembly).
- A 7 inch color multi-touch screen (display).
- Multiple selection functions related to tests and results (operating software), seeing Figure 1-3.

Figure 1-3

1.5 Function

- 7 inch capacitive multi-touch screen, android operating system, multiple language options.
- Independent channel test and no cross contamination.
- Advanced optical detection system, built-in 8 wavelength filters (340、405、450、505、546、600、630、850) nm.
- Test method: endpoint method, velocity method, two-point method etc.
- Sample information storage capacity meets customer information storage needs.
- Intelligent real-time quality control function to ensure accurate test.
- Support external mouse and keyboard (based on USB).
- Built-in thermal printer.

1.6 Application

This product is based on the principles of photoelectric colorimetric, transmittance turbidity, and absorption spectroscopy, and is used in conjunction with matching detection reagent discs to quantitatively detect analyses in whole blood, plasma, and serum samples from animals in clinical practice, including clinical biochemical testing, coagulation function monitoring, and immunological testing items.

1.7 Execution Standards

- The main performance indicators of this product are strictly designed and manufactured in accordance with YY/T 0655-2008 "Dry Chemical Analyzer", YY/T " 0659-2017 Coagulation Analyzer", and YY/T 0654-2017 "Fully Automatic Biochemical Analyzer".
- The electrical safety of this product complies with "EN 61010-1:2010+A1:2019 Safety Requirements for Electrical Instrument for Measurement, Control and Laboratory Use Part 1: General Requirements" and "EN IEC 61010-2-081:2020 Safety Requirements for Electrical Instrument for Measurement, Control and Laboratory Use Part 2-081".
- The environmental test of this product meets the requirements of GB/T14710-2009 "Environmental Requirements and Test Methods for Medical Electrical Instrument".

- This product complies with YY0648-2008 "Safety Requirements for Electrical Instrument for Measurement, Control, and Laboratory Use" Part 2-101: Special Requirements for In Vitro Diagnostic (IVD) Medical Instrument.

Note: If any of the tests in EN 61010-1:2010+A1:2019 are repeated on the analyzer, it may damage the analyzer and reduce the protection against danger!

1.8 Electromagnetic Compatibility Statement

- This analyzer has been tested by electromagnetic compatibility to meet EN IEC 61326-1: 2021 "General Requirements for Measurement, Control and Laboratory Electricity Instrument Electrical Compatibility" and IEC 61326-1: 2020 the standard requirements for "sexual requirements for external diagnosis (IVD) medical instrument".
- The following usage requirements should be strictly followed during use, otherwise it may cause electromagnetic interference to other instrument or reduce the anti-electromagnetic interference ability of this instrument, and even lose basic performance.
- This analyzer is designed and tested according to Class B instrument in GB 4824, and is suitable for use in all facilities, including household use and direct connection to residential public low-voltage power supply networks.
- Explanation of portable and mobile RF communication instruments that may affect medical electrical instrument: Portable and mobile RF communication instruments may affect the normal operation of this instrument, and it should be ensured that portable and mobile RF communication instruments meet a certain spatial distance from this instrument.
- It is recommended to evaluate the electromagnetic environment before using the analyzer. This analyzer should not be used in close proximity or stacked with other instruments. Except for spare cables, connecting wires, and other accessories of internal components by the manufacturer, components cannot be replaced or repaired without authorization, otherwise it may cause excessive electromagnetic interference or increased immunity.
- Do not use this analyzer near strong radiation sources (such as unshielded radio frequency sources), otherwise it may interfere with the normal operation of the analyzer.

1.9 Specifications

Sample Type	Whole blood, Plasma, Serum	
Sample Volume	Circular reagent rotor 100 μl	Sector reagent rotor 60-120 μl
Bar Code	QR code	
Testing Time	10-12 minutes/sample	
Testing Principle	Optoelectronic colorimetric, absorption spectroscopy, transmittance turbidity method	
Testing Method	Endpoint method, velocity method, two-point method	
Temperature	37±0.3℃	
Resolution	0.001 Abs	
Carryover	0	
QC & Calibrate	Automatic and real-time	
Work Environment	Temperature: 10-30℃ Humidity: ⩽85%	
Light Source	Halogen tungsten lamp with lifespan over 2500 hours	
Power Supply	AC 100-240V	
Rated Power	100VA	
Rotation Speed	5500 r/min	
Optic System	After the filter spectral,8 wave length synchronous detection: 340、405、450、505、546、600、630、850(Unit: nm)	
Display	Android 7 inch 800*480,multi-point capacitive touch screen multiple language options	
Storage	Up to 500,000 Results	

Printer	Built-in thermal printer
IT Connection	4 USB ports; 1 Network port
Net Weight	4 KG

1.10 Data Import and Storage

Data Import:

Support the function of importing test data between analyzers of the same type. The operation method can be found in Section 4.1.1.6 "Data Import".

The data type and format of the imported file: The data includes relevant information such as various parameters and items settings of the analyzer. The imported file format is compressed file zip format.

Note:

The imported database files can only be exported and decompressed by the analyzer before being directly imported into the analyzer. Data files from other sources cannot be imported.

Data Storage:

The analyzer has a storage space of 8 GB and can store up to 500,000 test data, far exceeding the storage requirements for actual usage. If the user stores 500,000 pieces of data, the new test data will be overwritten starting from the first piece of test data. If necessary, please backup the test data in a timely manner.

Section 2 Installation of Analyzer

2.1 Unpacking

Open the package according to the instructions of the carton, check the accessories and documents with the packing list, and prepare to install the machine after checking. If you have any questions, please contact our after-sales service department. At the same time, please fill in the service guarantee letter carefully and send the product warranty card receipt back to our company so that we can track the quality of the product and carry out the service in time.

(Or email back to our company after scanning: E-mail: info@seamaty.com).

Note

Instrument work environment:

- Indoor use;
- Temperature:10℃~30℃;
- Relative Humidity: ⩽85%;

Attention:

To ensure the normal operation of the analyzer, do not place it in following environment:

a) Humidity, corrosive gas, dust, dander, strong electromagnetic field interference;

b) Crowded and poorly ventilated areas;

c) Direct sunlight exposure and other nearby heat sources;

d) An uneven and unstable tabletop;

e) Use this analyzer next to strong radiation sources (such as unshielded radio frequency sources), otherwise it may interfere with the normal operation of the analyzer;

f) Place the container or small metal containing water on the analyzer to prevent water or metal objects from falling into the analyzer, causing a short circuit and damaging the analyzer;

g) Place this analyzer in a position where it is difficult to disconnect the switch.

Working power requirements:

a) AC 100-240V, 50/60Hz，Rated power：100VA；

b) It is not recommended to share a power socket with high-power instrument;

c) The power supply should be well grounded. It is recommended to use the special three-core power cord for the analyzer, connected to the power supply, and the grounding voltage is less than 5V.

2.2 Installation Procedure

2.2.1 Set up Analyzer

1) Take the analyzer out of the packaging carton and place it on a flat surface;

2) Check whether the appearance of the analyzer is intact;

3) Connect the power cord to the analyzer, and connect the pin end of the power cord to the power supply;

4) After the analyzer is installed, press the power switch on the back of the analyzer, the prompt light logo at the bottom of the screen is on, the system starts, and the interface to be tested is entered.

Please keep the removed accessories properly.

2.2.2 Set up Printing Paper

The specification of thermal printing paper is 50*57 mm, the inner structure, seeing Figure 2-1.

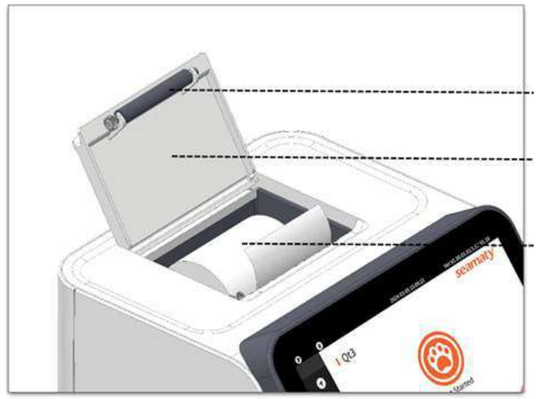


Figure 2-1

Steps:

1) Open the printer door.

2) Remove the packing of printing paper, and then load the paper roll into the printer chamber with correct direction, seeing Figure 2-2.

Pay attention to the front and back of the thermal paper.

Figure 2-2

3) Hold the end of the printing paper, go around the shaft and make the printing paper protrude from the paper exit of the printer door.

4) Close the printer cover and lock to complete the installation.

Note: The printing paper has been installed when the analyzer leaves the factory, and the user should follow this method when installing the printer paper after using it up.

2.2.3 Set up External Printer

This analyzer supports printers with standard HP PCL3GUI printer language, such as HP Deskjet 1010. If you do not need to use an external printer to print the test report, please skip this section.

The installation steps are as follows:

1) Install and set up the printer according to the printer's instruction manual;

2) Place A4 size printing paper;

3) Insert the USB cable of the printer into any of the 4 USB ports on the back of the analyzer;

Connect the power supply of the analyzer.

Section 3
Turning the Analyzer On and Off

Turning on: Connect power cord with power adapter, and then connect with analyzer, turn on the switch in the back as the indicator light turns bright with the screen showed as Figure 3-1.

Figure 3-1

Loading and initializing, the screen shows as Figure 3-2.

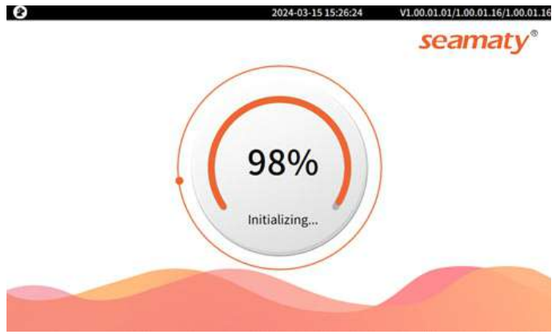


Figure 3-2

Turning off: Press down the switch button in the back of the analyzer when the drawer is closed, simultaneously removing the mains plug from the power cord is considered a complete power outage.

Note: To extend the lifespan of the analyzer and accessories, it is required to follow the procedures of powering off, please do not frequently switch on and off.

Section 4 Operation

4.1 Boot Check and Common Buttons

After the analyzer is turned on, it will automatically enter the interface shown in Figure 4-1. The user first needs to ensure that the date and time displayed in the upper middle of the screen are correct, otherwise the date and time need to be reset by referring to 4.1.1 in this Section.

There are four main buttons on the operation interface, as shown in Figure 4-1. The functions of each button are as follows.

Figure 4-1

4.1.1 Settings

This button is used to set the system date, time, hospital name, printer mode, sample/quality control reference values, etc. Click “Settings” on the main menu interface, set in the pop-up dialog box, and enter as shown in Figure 4-2.

Click on the corresponding setting module, the corresponding module will expand, click again, the module will collapse.

4.1.1.1 Information Settings

Click “Information Settings” to enter the analyzer information settings interface. In this interface, the user can set the analyzer time and hospital name, as well as view the instrument model and instrument ID, as shown in Figure 4-2.

Figure 4-2

Date Time: The system date and time are set according to Beijing time before leaving the factory. Click the "Date Time" column to enter the interface shown in Figure 4-3, scroll to select the required date and time and click "OK" to take effect.

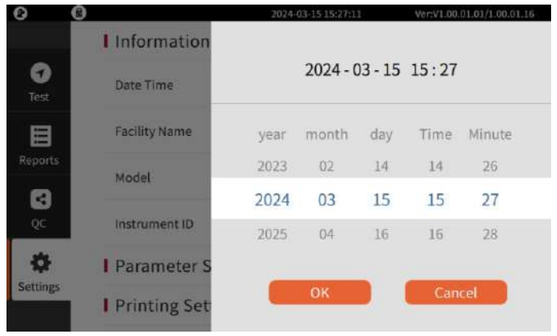


Figure 4-3

Facility Name: You can enter the hospital name through the keyboard, and then click "Save".

4.1.1.2 Parameter Settings

Click "Parameter Settings" to enter the parameter setting interface, as shown in Figure 4-4.

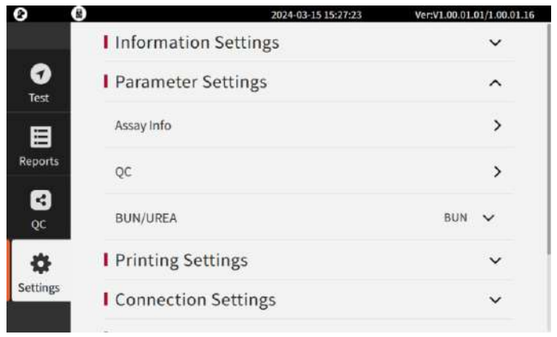


Figure 4-4

Assay Info: Click "Assay Info" to enter the interface shown in Figure 4-5.

Figure 4-5

Users can view and set the name, unit, precision, difference reference and other information of each assay;

"Diff Ref." (Difference Reference) settings: Click "Diff Ref." in the interface shown in Figure 4-5 to enter the interface shown in Figure 4-6.

Figure 4-6

- Users can view and edit information related to the reference range of the corresponding conditions of the assay;
- Users can add and delete sample types and modify result markers at the end of the interface in Figure 4-6.

QC :

Click "QC" to enter the quality control setting interface as shown in Figure 4-7.

Figure 4-7

Users can set target values, upper and lower limits, lot number and other information for each assay as needed.

BUN/UREA

Click "BUN/UREA" to choose to use BUN (urea nitrogen) or UREA (urea) in the results.

4.1.1.3 Printing Settings

Click the "Printing Settings" title in the "Settings" interface to expand the interface as shown in Figure 4-8.

Figure 4-8

Printer:

Switch internal/external printer.

Auto print:

Select whether to automatically print the test report by internal printer after the test is completed.

Print abnormal test result:

If there is a test abnormality in this test sample, you can choose whether to display the abnormality in the test report.

Print abnormal sample result:

If there is a sample abnormality in this test sample, you can choose whether to display the abnormality in the test report.

Print disclaimer:

Select whether to print a report statement in the test report.

Print manufacturer logo:

Select whether to print the manufacturer logo in the test report.

4.1.1.4 Connection Settings

Click the "Connection Settings" title in the "Settings" interface to expand the interface as shown in Figure 4-9.

Figure 4-9

LIS Settings

Relevant settings for connecting to LIS system, including LIS function switch, connection mode selection, automatic upload, serial port parameter settings, network parameter settings and other functions. The interface is shown in Figure 4-10 below. (HL7 exchange standard used for instrument LIS data transmission)

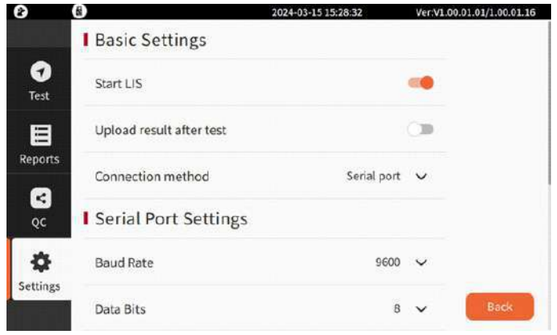


Figure 4-10

Note: When "Start LIS" is closed, the "Sample Info" interface will hide the "LIS Upload" related buttons.

WiFi Settings

Click "WiFi Settings" to enter the interface shown in Figure 4-10-1.

Figure 4-10-1

The analyzer will automatically refresh the available WiFi list and display the available networks. Click"Refresh" to refresh the WiFi list again;

Click"Networks Saved" to view WiFi with saved passwords;

Click"Reset" to clear the saved password;

Click"Advanced" to view the"IP Address","Gateway","Subnet Mask" and"DNS" information of the current network.

Ethernet Settings

Functions used for Ethernet switch control and related settings

4.1.1.5 Log Export

Log Export:

For the function of exporting instrument system logs and database files, insert the USB flash drive and click"Export All Logs" to start the export. When the prompt indicates that the export is successful, the corresponding files will be exported to the USB flash drive.

Database Files

After decompressing the file ending with"DB.zip" in the exported file, you can obtain the database file"MiniAuto.db1", which records the relevant assay information and historical test records of the analyzer.

Log Files

This file records the operating process and status of the analyzer. If the user has any questions or problems during use, he or she can provide this file to the after-sales support personnel for problem analysis.

4.1.1.6 Others Settings

Click the"Others Settings" title on the"Settings" interface to get the interface shown in Figure 4-11.

Figure 4-11

Upgrade

Click"Upgrade" to enter the interface shown in Figure 4-12.

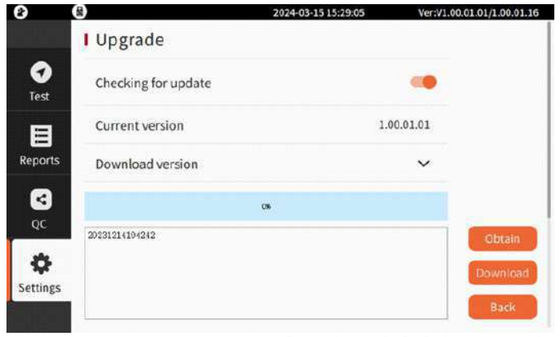


Figure 4-12

Software network upgrade process: see Section 6.2.2 for details.

Species Settings

Used to set which animal types are used during use. As shown in Figure 4-13.

Figure 4-13

Animal types that are turned off will not be displayed when in use.

Setting of Physicians

Used to view and delete existing physician information.

Figure 4-14

Department Settings

Used to view and delete existing department information.

Figure 4-15

Data Import

This function is used to import the database that stores test data and assay information, thereby realizing data backup and data migration functions.

For how to obtain the database file (MiniAuto.db1), see Section 4.1.1.5 Log Export.

After copying the database file MiniAuto.db1 to the root directory of the USB flash drive and insert to the USB port of the analyzer, enter the interface shown in Figure 4-16 and click"Import". When prompted that the import is successful, restart the analyzer.

Figure 4-16

Note: This operation will overwrite the data file in the analyzer with the currently imported data file, please operate with caution.

Factory Reset

This function will clear all test data and settings of the analyzer. After clicking, a prompt box will pop up. Click"OK" to confirm the operation, and click"Cancel" to cancel the operation. The interface is shown in Figure 4-17.

Note: This operation will delete all test data in the analyzer, please operate with caution.

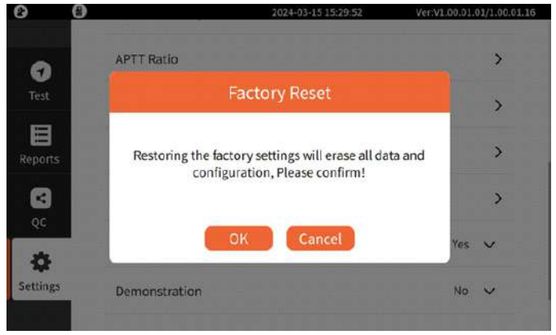


Figure 4-17

Print Abnormal Report

Function: Control whether the analyzer saves the test results of"test abnormality".

The default is"Yes". When set to"No", the test results will not be saved after the abnormal test is completed. When set to"Yes", after the abnormal test is completed, the test results will be saved normally, and the corresponding test report will be marked with"⚠" at the bottom.

Demo Test

Function to control whether demo testing is enabled.

After it is turned on, all tests will be regarded as demonstration tests, and the test results will not display the test values of each assay.

Note: When this function is turned on, do not use regular reagent rotors or samples for testing to avoid unnecessary consumption.

4.1.2 Sample Data

This button is used to query historical sample information and test results. It can query, modify sample settings and print sample information. The interface shown in 4-18.

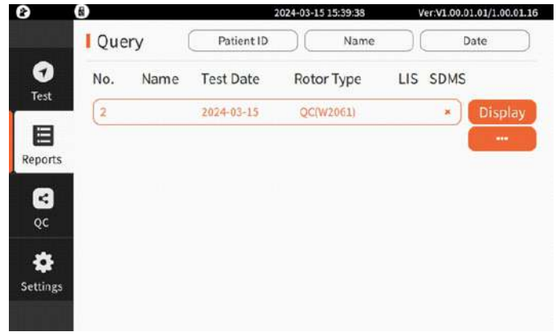


Figure 4-18

Query function:

There are three query conditions, Name, Date and Patient ID; after selecting or entering the required conditions, the interface automatically displays the query content.

Data processing:

Click ••• , entering the interface shown in Figure 4-19 allows you to upload data records to the LIS system, export and print test reports to excel documents.

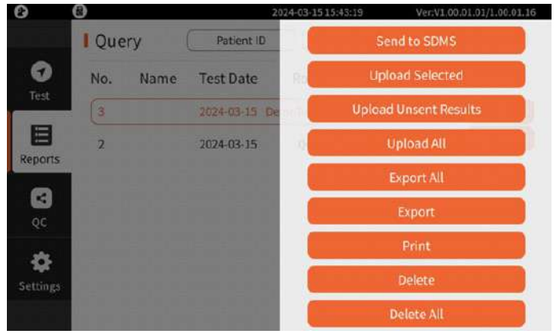


Figure 4-19

Modify/view sample information:

Click"Details" and enter the interface in Figure 4-20 to view and edit sample information and view the test data and reference range of the current test record.

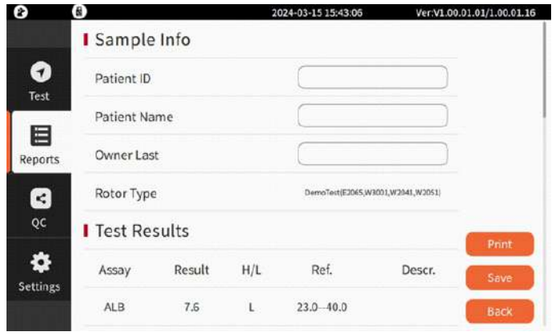


Figure 4-20

Note: When you click the"Sample Info" area, the interface will expand to display all sample information content.

4.1.3 QC

This button is used to query historical quality control information and test results. It can query, modify quality control information and print test records. Click this button to pop up the interface shown in Figure 4-21.

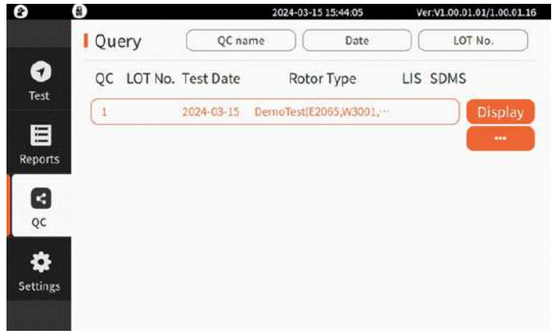


Figure 4-21

For the operation process of this interface, please refer to Section 4.1.2 Sample Info module description.

4.1.4 Preparing for Test

Add the sample or quality control product to the reagent rotor and put it into the analyzer drawer, then click the"Confirm" to enter the test process.

If there are any prompts, please observe the prompts and then proceed. For details on the test process, see Section 5.3 Sample Testing.

4.2 Soft Keyboard

4.2.1 Soft Keyboard Window

This analyzer has a built-in soft keyboard. The user can click on the position in the window that requires input, and the cursor will flash to activate the soft keyboard. This operation can control the soft keyboard to switch between three states: closed, English input, and Chinese input. Click the editable dialog box to pop up the soft keyboard dialog box, as shown in Figure 4-22.

Figure 4-22

4.2.2 Keyboard Input Method

Switch to Other Language Input Methods:

Click , input methods for other languages can be selected, click , or exit with blank space. As shown in the Figure 4-23.

Figure 4-23

Section 5 Test and Result

5.1 Sample Requirements

Warning

Users should strictly abide by general and medical institution-specific laboratory biosafety regulations when handling blood samples and operating analyzers. Including but not limited to the"Regulations on the Biosafety Management of Pathogenic Microorganism Laboratories" (Order No. 424 of the State Council of the People's Republic of China), the"Regulations on the Management of Medical Waste" (Order No. 380 of the State Council of the People's Republic of China), and"General Requirements for Laboratory Biosafety" (GB19489-2008),"Regulations on the Transportation Management of Highly Pathogenic Microbial Species or Samples that Can Infect Humans","Laboratory Biosafety Manual","Biosafety Laboratory Construction Technical Specifications", etc.

Note

- The amount of sample added to the reagent rotor is:
- The circular rotor requires standard sample amount: 100 μl.
- The sector rotor requires sample amount range: 60-120 μl.
- The biochemical immunization recommends the use of heparin anticoagulant tubes to process samples; Coagulation test recommends the use of sodium citrate anticoagulant tubes for sample processing.

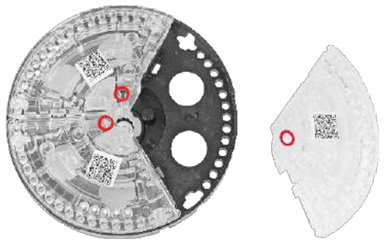
Caution

- After collecting the blood sample, move it into the anticoagulant tube as soon as possible and turn it upside down 3-5 times to ensure that the sample and anticoagulant are evenly mixed.
- Whole blood must be analyzed or converted into plasma and serum within 30 minutes after collection; if the sample is tested after being separated from the body for a long time, the accuracy of the test results may be affected.

- Do not freeze whole blood samples in the refrigerator or shake vigorously to prevent hemolysis.
- If timely detection is not possible, plasma and serum should be separated and stored in an airtight container protected from light at 2-8°C, and tested within 24 hours. Store frozen at -20°C for no more than 30 days and cannot be frozen and thawed repeatedly. If these constraints are not met, the result concentration may change and the test results will have no practical clinical significance.
- In order to obtain correct glucose test results, the subject to be blood collected should fast for at least 12 hours before blood collection.
- Anticoagulated whole blood without clots, or plasma or serum without hemolysis. The fully automatic biochemical analyzer has a built-in centrifugation function that can automatically separate anticoagulated whole blood into plasma for testing. Anticoagulated samples should use lithium heparin anticoagulant that has less impact on biochemical tests.
- Sample collection must be performed by professionals. Operators should wear protective gloves, masks, and overalls to avoid contaminating samples.
- When the sample cannot meet the test requirements or has been contaminated, please promptly dispose of it in accordance with the"Medical Waste Management Regulations", use special packaging and containers for medical waste, and there should be obvious warning signs and warning instructions.

5.2 Prepare the Reagent Rotor

Circular Rotor



Sector Rotor

Introduction:

Qt3 supports testing of two rotor types: sector rotor and circular rotor.

Circular Rotor:

The circular rotor is about 8CM in diameter and 2CM in thickness. The center of the rotor is equipped with a plastic cup that contains diluent. The colorimetric holes on the edge of the rotor are equipped with freeze-dried reagents that can test different biochemical items.

Sector Rotor:

The sector rotor has a diameter of about 4CM and a thickness of about 2CM. There is a plastic cup holding diluent at the rounded corner. The colorimetric holes in the peripheral arc area are filled with freeze-dried reagents that can test different biochemical items.

Note:

- The sector reagent rotor needs to be used together with the base, and three sector rotors must be placed during testing. When the number of tests is less than three, the equipped "Balance Rotor" needs to be placed for filling.
- If you need to use a marker to mark the rotor, do not cover the colorimetric holes and QR code on the sector rotor.

The reagent rotor is disposable, single-portion packaging, with an independent internal channel design, and is used once to avoid cross-contamination; the reagent rotor can be combined in a variety of ways for users to easily choose, and customized services can also be provided. Please consult the sales manager for details.

5.2.1 Storage and Preparing

- Store reagent rotor according to the instructions on the reagent rotor labels to ensure the validity period of the reagent rotor.
- The storage temperature of the reagent rotor is 2–8°C. After taking it out of the refrigerator or low-temperature storage box, it needs to be allowed to return to normal temperature for 20 minutes before opening the packaging bag.
- The sealed reagent rotor bag can be left at room temperature below 25°C for 48 hours. It is prohibited to leave it for longer to avoid reagent rotor failure.
- Do not expose the reagent rotor to the sun or place it in an environment with a temperature exceeding 32°C.
- Tear open the aluminum film bag, take out the reagent rotor and check whether the reagent rotor is damaged. Do not use damaged reagent rotor.
- Keep the reagent rotor clean. Hold the reagent rotor by its edges to prevent contamination of the optical surface.
- After adding the sample, it should be tested immediately on the analyzer. The reagent rotor after adding the sample should avoid excessive tilting and intentional shaking before testing on the analyzer.
- The reagent rotor is for one-time use. After use, the reagent rotor should be disposed of in a timely manner. Special packaging and containers for medical waste should be used, and there should be obvious warning signs and warning instructions.
- When you need to take out the reagent rotor, pay attention to protection and be careful to destroy the QR code. The operator must take protective measures and wear protective gloves, masks, etc.
- When the reagent rotor is damaged or broken, once the skin comes into direct contact with the reagent, please clean and disinfect the contact area immediately, and consult a doctor.

Note: It should be used within 10 minutes after opening. This can avoid condensation of water vapor and ensure that the test temperature meets the requirements. Once opened, do not put unused reagent rotors back into the refrigerator.

5.2.2 Sample Injection

The analyzer supports testing of two types of reagent rotors:"circular rotor" and"sector rotor". The sample addition methods for the two rotors are roughly the same. Let's take the circular rotor as an example to introduce the sample addition process.

5.2.2.1 Adding Sample to Circular Rotor

1. Use a 100 μl standard pipette and a disposable tip to inject the sample into the only conical sample hole on the reagent rotor. As shown in Figure 5-1.

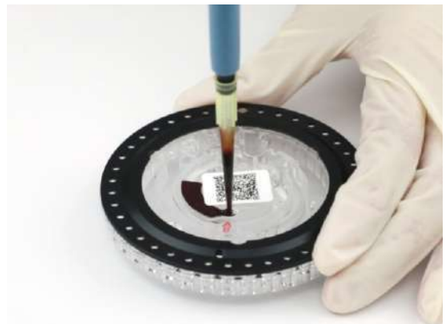


Figure 5-1

2. The amount of sample added should not be too much or too little. It should be close to but not exceeding the straight line indicated by the triangle on the reagent rotor, as shown in Figure 5-2. Too little sample volume will affect the test results, and too much sample volume will overflow the sample chamber. The standard sample amount is 100 μl.

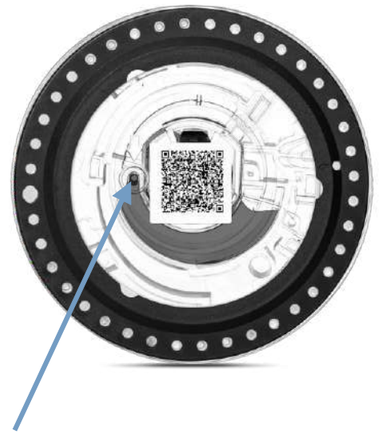


Figure 5-2

3. To avoid cross-contamination, the same tip cannot be reused to pick up multiple samples.
4. Hold the edge of the reagent rotor horizontally and place the prepared reagent rotor into the machine.

5.2.2.2 Adding Sample to the Sector Rotor

1. Use a 60-120μl standard pipette and a disposable pipette tip to inject the sample into the only tapered sample hole on the reagent rotor, as shown in Figure 5-2-1.

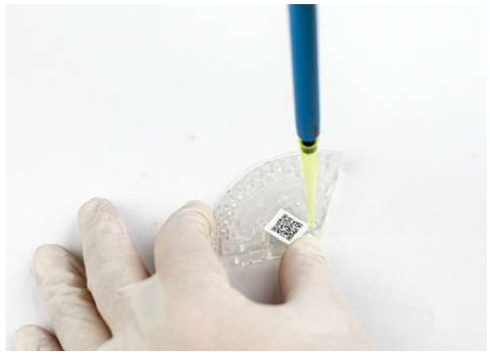


Figure 5-2-1

2. The amount of sample added should not be too much or too little. Too little sample amount will affect the test results. Too much sample amount will overflow the sample chamber. The workable sample amount is 60-120 μl.
3. To avoid cross-contamination, the same tip cannot be reused to pick up multiple samples.
4. Hold the edge of the reagent rotor horizontally and place the prepared reagent rotor into the reagent rotor base.
5. Place the reagent rotor horizontally into the analyzer drawer.

Caution

1. Do not contaminate or damage the reagent rotor and the QR code on it;
2. Do not touch the tip of the pipette tip to avoid affecting the test accuracy of certain items;
3. When aspirating samples, it is appropriate for the pipette tip to be immersed at a depth of 2-3mm below the sample liquid level;
4. Do not aspirate the sample injected into the reagent rotor and refill it;
5. If there is residual liquid on the surface of the reagent rotor, especially around the sample loading hole, wipe it clean with a clean dust-free paper towel or cloth, put the used paper towel or dust-free cloth into the biological waste bin, and wipe the reagent When liquid remains on the rotor surface, be careful not to aspirate the sample in the blood sample chamber;
6. After the sample addition is completed, put the disposable pipette tip into the biological waste bin.

5.3 Sample Testing

5.3.1 Circular Rotor Test

1) Booting and preparing.

2) Self-check and warming up.

Note: The main interface of the software will be entered normally after booting. In order to ensure that the temperature of the test chamber of the analyzer is stable, it must be warmed up for 5 minutes before entering the formal test.

3) Click "Test", and the drawer door will pop up. Place the reagent rotor with sample added into the analyzer, as shown in Figure 5-3.

Figure 5-3

Caution

Please place the circular rotor smoothly into the rotor holder to ensure accurate reading of the QR code. The main screen displays the following interface, as shown in Figure 5-4.

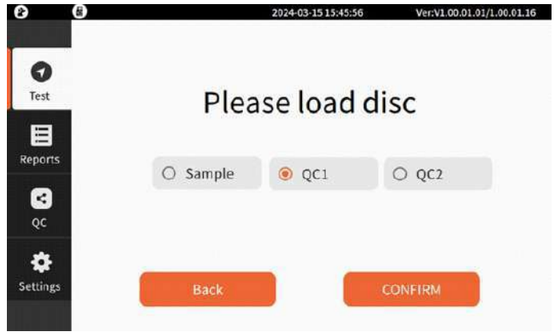


Figure 5-4

4) Press "CONFIRM", the drawer will be closed and the analyzer will read the QR code and then enter into testing screen. Please see Figure 5-5.

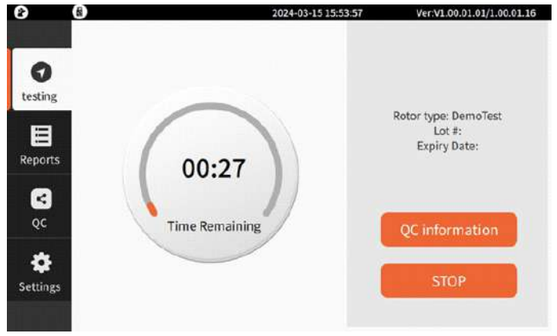


Figure 5-5

Caution

If the analyzer failed to read QR code, the screen will show a message as Figure 5-6.

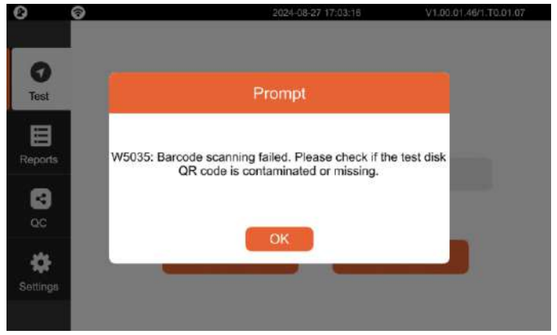


Figure 5-6

5) When it shows "W5035" error code as Figure 5-6, please click "OK" icon to open the drawer. Check the QR code on reagent rotor to make sure it is intact and uncontaminated. If no, please contact technical support.

6) When it shows "M5043" error code, please upgrade the software version to test again.

7) During the test, users can edit "Sample Info" as the follow steps: select "Sample Info", enter the interface shown in Figure 5-7 and then input the corresponding content. After completion, please click "Save".

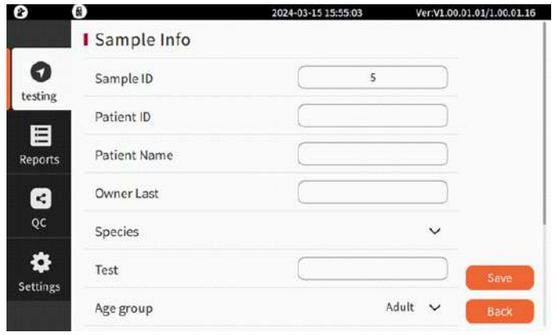


Figure 5-7

8) Do not press "Stop" during testing, unless it is in emergency. Click "Stop", it will show a dialog box as Figure 5-8.

Figure 5-8

Click "OK" to stop the testing.

Caution

If it is not a special case, please don't stop the test to avoid wasting the reagent rotors and samples.

9) When the remaining time progress displayed on the test interface is completed, the test is completed, and the test results can be viewed in the sample data/QC data.

5.3.2 Sector Rotor Test

1) Booting and preparing.

2) Self-check and warming up.

Note: The analyzer will enter the main screen of test after booting. It needs about 5 minutes to warm the sector rotor chamber to working temperature.

3) Click "Test" icon, the drawer will be open. Insert the sector rotor into drawer.

Caution

- If the quantity of tested sector rotor is less than three, we need to put the "Balance Rotor" before testing.
- When we test multiple sector rotors at a time, different sector rotors can be tested.

4) Select a test type, as shown in Figure 5-9.

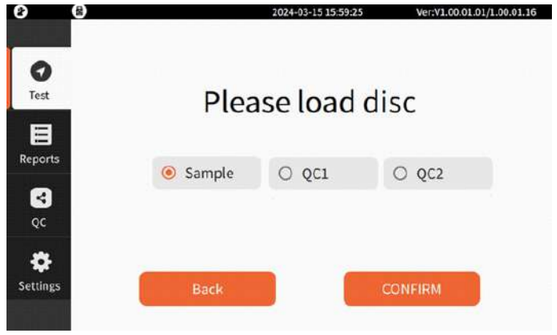


Figure 5-9

5) Press "CONFIRM", the drawer will be closed and the analyzer will read the QR code and then enter into testing screen. Please see Figure 5-10.

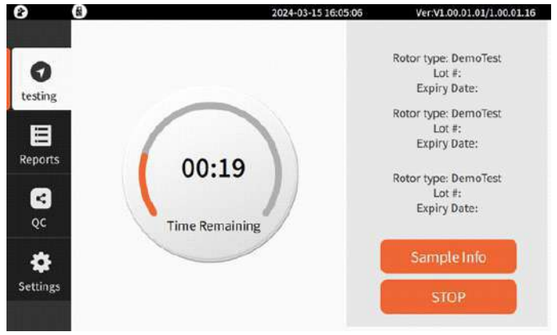


Figure 5-10

Note: If the analyzer failed to read QR code, the screen will show a message as Figure 5-11.

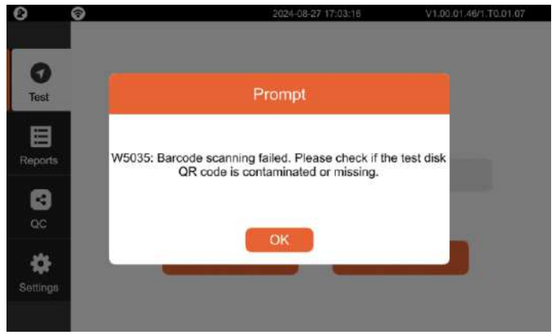


Figure 5-11

6) When it shows "W5035" error code as Figure 5-11, please click "OK" to open the drawer. Check the QR code on reagent rotor to make sure it is intact and uncontaminated. If no, please contact technical support.

7) When it shows "M5043" error code, please upgrade the software version to test again.

8) During the test, users can edit "Sample Info" as the follow steps: select "Sample Info", enter the interface shown in Figure 5-12 and then input the corresponding content. After completion, please click "Save".

Figure 5-12

9) Do not press "Stop" during testing, unless it is in emergency. Click "Stop", it will show a dialog box as Figure 5-13.

Figure 5-13

Click "OK" to stop the testing.

Caution

If it is not a special case, please don't stop the test to avoid wasting the reagent rotors and samples.

10) When the remaining time progress displayed on the test interface is completed, the test is completed, and the test results can be viewed in the sample data/QC data.

5.4 Test Process Precautions

Analyzer

- Make sure the electrical outlet utilized for the analyzer is grounded.
- Make sure the working temperature of analyzer at 10–30 ℃.
- Don't disconnect the power of analyzer during testing.
- Keep the analyzer drawer closed when not using.
- Don't touch the door of drawer when it tests to avoid injuries.
- Disassembling the analyzer without permission will void the warranty.

Reagent Rotor

- Don' t use an expired rotor. The expiration time is printed on the round label.
- Store all reagent rotors under 2-8 ℃ as described on the round label. Keep rotors clean. Handle them only by their edges to avoid smudges on the optical surfaces.
- After injecting the sample, hold the reagent rotor flat to avoid spillage.
- Never use a dropped reagent rotor.
- Use the reagent rotor within 10 minutes of opening the package.
- Run the reagent rotor immediately of injecting the sample.
- If the quantity of tested sector rotor is less than three, we need to put the "Balance Rotor" before testing.
- When we test multiple sector rotors at a time, only the same type of sector rotors can be tested.

Sample

- Whole blood must be analyzed within 30 minutes after collection.
- To prevent hemolysis, don't refrigerate or shake whole blood samples.

5.5 Calibration & QC

5.5.1 Calibration

The analyzers go through a standard calibration process before leaving the factory. It will perform a self-test after starting up. If the self-test fails, a warning message will be displayed on the screen. All assays contained in each reagent rotor are calibrated before delivery, the calibration information is included in the QR code on the reagent rotor label, and the analyzer's built-in Real-time Quality Control (RQC) system will monitor internally each time when the test is performed to ensure the reliability of the output results.

5.5.2 Quality Control

The performance of the analyzer and reagent rotor can be verified through quality control testing. Samples prepared for quality control are called quality control products and the reference substance of quality control products is the same as that of test samples.

The company recommends that customers do quality control at least once a month and recommend using the RANDOX quality control products to do it. When the laboratory conditions in which the analyzer is located change or the test results do not match the clinical performance of patients, they should also do quality control to verify or comply with local national and regional regulations and hospital regulations.

The test results of quality control products and samples are stored in two different databases of the analyzer and the quality control report can be printed while querying the quality control results.

In the main interface, click "Test", add quality control into reagent rotor and insert it into analyzer. For the procedure of adding quality control products, please refer to Section 5.2.2 for detail operation.

Enter the interface, select quality control mode, QC 1 or QC 2 (QC 1 is a low concentration quality control product, QC 2 is a high concentration quality control product) as shown in Figure 5-14. Take an example of QC 1 for reference. The operation of QC 2 is the same as QC1.

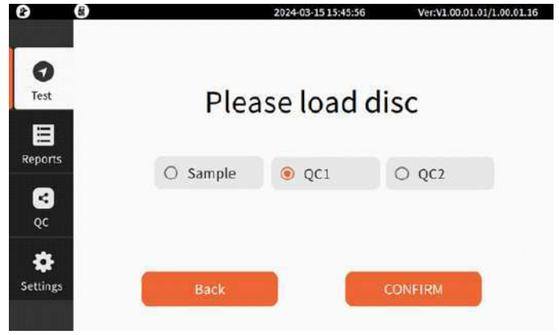


Figure 5-14

Start the test and enter the above interface as Figure 5-14.

User can edit the "QC" information as the below interface which shown in Figure 5-15.

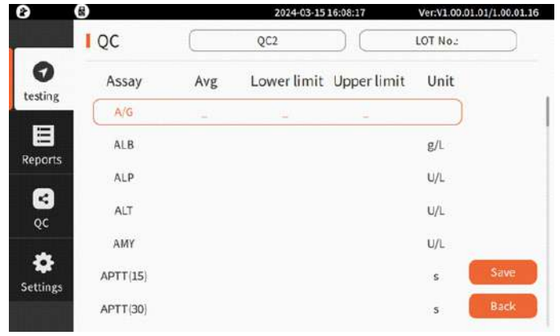


Figure 5-15

At right of the interface, there are reference values, including lot No., assay, and "Average (Avg)", upper and lower limits. User can modify the information, after modifying them, please press "Save" button on screen.

After the QC test is finished, the following interface will pop up as shown in Figure 5-16. Users can choose to print or check QC information.

Figure 5-16

5.6 Print Results

5.6.1 Built-in Printer

5.6.1.1 Sample Test Report

The test result will be automatically stored. User can choose to print or check.

The picture on right side shows a general sample test report. As shown in Figure 5-17.

1) The header information of the printed report includes information such as hospital name, owner name, animal name, patient ID, sample ID, age group, animal, sample, operator ID, operator department(LAB), reagent lot number, plate (reagent) ID, machine ID, version and test time.

2) The test results of report are printed in four columns: assay, result result, reference range and units.

   The deviation between the test value and the reference value will be followed by "H" or "L" standing for higher than or lower than reference range. In addition, the header information of the printed report will be displayed only after the header information is filled in.

3) The last line of the report shows the real-time quality control level.

WAT means "empty" cuvettes fill with diluent only, as a control on the system cuvettes. EMP means "hollow" cuvette for self-check of analyzer and reagent rotor. CHE means cuvette for absorbance monitoring.

There are three degrees for them. "0" means good. "1" means acceptable. "2" means non-acceptable.

When WAT, EMP and CHE all report "2" degree, please replace the reagent rotor and retest it. If it occurs frequently, please contact our after-sales service team.

seamaty®

HospitalName

RESULTS

OWNER NAME:
ANIMAL NAME:
Patient ID:
SAMPLE ID: 14
AGE GROUP: Adult
Animal: Dog
SAMPLE TYPE: Whole Blood
OPERATOR ID:
LAB:
REAGENT LOT No.:
PLATE ID:
MACHINE ID: 201601109
Ver: 1.00.01.01/1.00.01.16
TEST TIME: 2024-03-15 16:20:57

Assay	Result	Ref	Unit
Crea	17.5 L	28.0--159.0	umol/L
BUN	> 45.00 H	2.50--9.60	mmol/L
BUN/CR	--	16.000--218.000	
EA			

-- Indicates that it cannot be calculated.

BUN>Detection limit, please retest after dilution.

Remark

1.Because the specific cases of disease diagnosis is complex and individual, the report is for general reference only, not as a partial basis specific disease diagnosis.
2.If there is "H" behind result value, it indicates the test parameter is beyond the upper limit of normal range.If there is "L" behind result value, it indicates the test parameter is lower than the lower limit of normal range.
3.If there is > behind result value, it indicates the test parameter result is beyond the uppper limit of instrument calculate range.If there is < behind result value, it indicates the test parameter result is lower than the lower limit of instrument calculate range.

* The report is only responsible for the test and the result is for doctors' reference only

WAT:0 EMP:0 CHE:0

⚠ 300012591111J0907

Figure 5-17

5.6.1.2 QC Test Report

The results of the quality control test will be automatically stored, the user can choose to print or check.

The Figure 5-18 shows the contents of a general quality control test report.

1) The header information of the printed report includes information such as hospital name, test time, QC name, QC lot number, Operator ID, operator department (LAB), reagent lot No.
2) The test results of report are printed in four columns: assay result , reference range and units.
3) The explanation of QC sample indices included at the bottom refers to Section 5.6.1.

Note: When the built-in printer is working, please do not open the protective cover on the printer, in order to avoid security risks!

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HospitalName

CONTROL REPORT

TEST TIME: 2024-03-15 15:54:16
CONTROL: QC LOW
QC LOT No.:
OPERATOR ID:
LAB.:
REAGENT LOT No.:
MACHINE ID: 201601109
Ver: 1.00.01.01/1.00.01.16

Assay	Result	Ref	Unit
ALB	7.6	1--9	g/L
TP	22.5		g/L
GLOB	15.0		g/L
A/G	0.51		
TB	0.8		umol/L
GGT	< 2		U/L
ALT	> 650		U/L
ALP	6		U/L
CHE	> 16000		U/L
AMY	< 5		U/L
Crea	17.5		umol/L
UA	--		umol/L
BUN	> 45.00		mmol/L
BUN/CREA	--		
GLU	< 0.80		mmol/L
K+	> 8.00		mmol/L
Na+	< 80.0		mmol/L

-- Indicates that it cannot be calculated.

ALT、CHE、BUN、K+>Detection limit, please retest after dilution.

WAT:0 EMP:0 CHE:0

⚠ 3767125917111D1142

Figure 5-18

5.6.2 External Printer

5.6.2.1 Sample Test Report

The Figure 5-19 shows the contents of a general results printout by an external printer.

It is recommended to HP brand external printer, such as DeskJet Ink Advantage Ultra 2520.

seamaty®

HospitalName

RESULTS

ANIMAL NAME:	OWNER NAME:
Animal:Dog	Patient ID:
SAMPLE ID:14	AGE GROUP:Adult
SAMPLE TYPE:Whole Blood	REAGENT LOT No.:
PLATE ID:	OPERATOR ID:
LAB.:	TEST TIME:2024-03-15 16:20:57
PRINT TIME:2024-03-15 16:28:23	Ver:1.00.01.01/1.00.01.16

Assay	Result		Ref	Low	Normal	High
Crea	17.5umol/L	L	28.0--159.0			
BUN	> 45.00mmol/L	H	2.50--9.60			
BUN/CREA	--		16.000--218.000			

-- Indicates that it cannot be calculated.

BUN>Detection limit, please retest after dilution.

Assay	Clinical Mean
Crea BUN	Rarely seen in cachexia, muscle atrophy, middle and late pregnancy, etc. 1. Increased prerenal sex:Prerenal azotemia, muscle damage, drugs (steroids, tetracycline), etc.; 2. Increased renal function:It is common in renal parenchymal tissue diseases, glomerular injury, renal azotemia, and decreased adrenal cortex function;3. Postrenal sex increases: Blockage of the urethra, blockage of the ureter or renal pelvis, etc.

Remark

1.Because the specific cases of disease diagnosis is complex and individual, the report is for general reference only, not as a partial basis specific disease diagnosis.
2.If there is "H" behind result value, it indicates the test parameter is beyond the upper limit of normal range.If there is "L" behind result value, it indicates the test parameter is lower than the lower limit of normal range.
3.If there is > behind result value, it indicates the test parameter result is beyond the uppper limit of instrument calculate range. If there is < behind result value, it indicates the test parameter result is lower than the lower limit of instrument calculate range.
* The report is only responsible for the test sample, and the result is for doctors' reference only.

WAT:0 **EMP:0** **CHE:0**

42931259111K1303

⚠

Figure 5-19

5.6.2.2 QC Test Report

QC test report, please check the Figure 5-20 for reference.

seamaty®

HospitalName
CONTROL REPORT

TEST TIME:	2024-03-15 16:18:58	CONTROL:	QC LOW
QC LOT No.:		OPERATOR ID:	
LAB.:		REAGENT LOT No.:	
MACHINE ID:	201601109	Ver:	1.00.01.01/1.00.01.16

Assay	Result	Avg	Ref	Unit
Crea	17.5			umol/L
BUN	> 45.00			mmol/L
BUN/CREA	--			

-- Indicates that it cannot be calculated.

WAT:0 EMP:0 CHE:0

⚠ 4515125111J1371

Figure 5-20

Section 6 Maintenance & Service

Qt3 requires minimal maintenance and regular maintenance of the analyzer will make the analyzer in good working condition.

6.1 Cleaning the Analyzer

6.1.1 Cleaning the Exterior Case

Clean the exterior case of the analyzer weekly with mild detergent and a soft, damp cloth.

Do not spray or pour any detergents, solutions or other liquids directly onto the analyzer.

Dampen a soft cloth or disposable paper towel with the detergent and then wipe the analyzer.

Notes:

a) Operators should wear protective gloves and masks.

b) Before using cleaning and disinfection methods not recommended by the manufacturer, the user shall consult the manufacturer to ensure that the method does not damage the analyzer.

6.1.2 Cleaning the Screen

Clean the analyzer's screen periodically using a soft and lint-free cloth dampened with a glass-cleaning fluid or window cleaner.

6.2 Software Upgrade

When you meet the following two situations, please update the software of the analyzer.

A. The manufacturer has issued a unified upgrade notice for the software.

B. During after-sales maintenance, the after-sales personnel require the software of the analyzer to be upgraded.

This analyzer supports USB or WIFI for software upgrading.

Caution: Upgrading has risks. Please read the upgrade steps or tips carefully and confirm the correct software upgrade package and version before upgrading, avoiding the upgrade error which may cause the damage of analyzer.

6.2.1 Upgrade by USB Flash Drive

1) Prepare a FAT32 format USB flash drive. If the format is not correct or can not be confirmed, please format it on the computer in first. Remember to backup date before formatting.

   Steps for formatting USB drive: Connect USB flash drive to computer---select USB flash drive----right click the mouse----format----select"FAT32"file system----start----confirm----a message is displayed indicating that the formatting is successfully----confirm.

2) Obtain the software package from the company website or after-sales personnel. For details about the company website and after-sales service hotline, see Section 8.

3) Create directory SMT150 in the root directory of the USB flash drive, and save the downloaded or obtained software package to file SMT150 in the root directory of the USB flash drive. The USB flash drive is ready.

4) Remove the USB flash drive from the computer and insert the USB flash drive into the USB port in the back of the analyzer.

5) Enter the interface of software "Settings" – "Other Settings" – "Upgrade", click " Obtain", select the version and download it.

6) After the download is complete, confirm the software version number, select "Yes", and the software will automatically restart and upgrade.

7) During the software upgrade process, the user will be prompted to complete the upgrade. After the completion, the analyzer needs to be restarted, and please turn off and restart.

8) The software is automatically initialized after the upgrade is complete.

Note:

During the upgrade, do not power off the power supply to avoid software exceptions.

During the upgrade, if the upgrade fails, upgrade again. If the upgrade still fails,

contact the after-sales service personnel. For details about the after-sales service hotline, see Section 8.

6.2.2 Upgrade by Wifi

The software of analyzer can be upgraded by connecting to the network, which requires a WiFi or Ethernet connection to the network

Operation steps:

After connecting to the network through WiFi or Ethernet, click "Checking for update" under "Other Settings" in the "Settings" interface to enter the interface as shown in Figure 6-1.

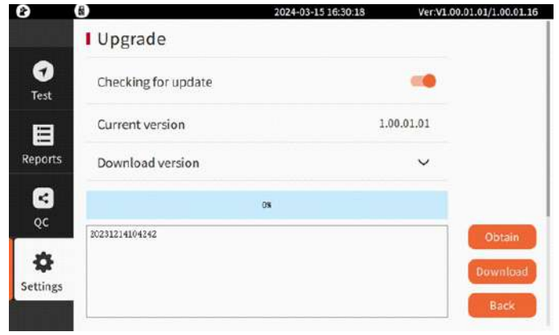


Figure 6-1

Click "Obtain" to obtain the downloadable software version, click the drop-down menu to select the required software version and click "Download" to start the download. The download progress is shown in the progress bar. After the download is complete, the prompt will be displayed to confirm the upgrade. After confirming the upgrade, the analyzer automatically restarts to start the upgrade.

6.3 Troubleshooting

Symptoms	Solutions
Analyzer cannot turn on	Check whether the analyzer is powered on. Check whether the power plug is loose. Check the access voltage.
Failure of loading home screen	Restart the analyzer.
Abnormal testing results	Check whether the reagent rotor is expired (refer to the instruction of reagent rotor). Check the parameter settings of test items.
The touch screen is not working properly	Connect USB mouse as an alternative.
The mouse can't move	Reconnecting the USB mouse to computer. Check if the USB mouse damaged. Restart the analyzer.
The built-in thermal printer cannot work	Check if the "Build-in printer" mode has been selected in setting screen. Check if the thermal printing paper is loaded in the right direction.
The external printer cannot work	Check if the "External printer' mode has been selected in setting screen. Verify if the USB cables are connected firmly between printer and analyzer. Make sure the external printer matching the analyzer.
The soft keyboard cannot work	Try to use the soft keyboard in another screen. Restart the analyzer.
The QR code not recognized	Recheck whether the reagent rotor is in right place. Make sure if the QR code contaminated or damaged.
Prompt "the test is abnormal and need to change a new reagent rotor to retest"	Contact the distributor or Seamaty.
Analyzer cannot be turned on	Check whether the fuse is intact, if the fuse is damaged, please ask a professional to replace the fuse, the specification is "F3AL250V".

Note: If the above problems cannot be solved, please contact after-sales service.

6.4 Consumables Replacement

Name	Type	Instruction
Printing Paper	Consumable	The specification of thermal printing paper used in build-in printer is 50*57mm.
Reagent Rotor	Specified consumables	Our company recommends brands or specifies factory reagent rotors. Our company uses disposable quantitative detection test reagent rotors produced by Chengdu Polytech Biological Technology Co., Ltd.
USB Peripheral	USB connector	The user can connect the mouse and USB interface peripherals according to the need, our company recommends the use according to the situation, not as our standard equipment.

Caution

- The internal components need to be replaced by professionals designated or authorized by our company, such as inlet and outlet motor, jacking motor, fan, etc.
- The user shall clean or maintain the test chamber regularly according to the situation of usage.

Section 7 Packing, Storage and Transportation

7.1 The analyzer is packed with rigid cardboard boxes, with high-quality pearl cotton foam, strong and shockproof.

7.2 Simple shockproof facilities are set in the packing carton of the analyzer, which is suitable for air, railway, highway and ship transportation but rain and snow splashing, inversion and collision should be avoided in transport.

7.3 When the storage period of the analyzer exceeds 3 months, the analyzer shall be taken out of the packing carton and powered on for 4 hours. And then put into the carton and placed in the warehouse according to the direction shown on the packing carton after checking the operation status.

7.4 Please do not stack the analyzer and do not place them close to the floor, walls and roof.

7.5 Transportation environment temperature: -20℃ ~ +55℃; Storage environment temperature: 0℃ ~ +40℃; Relative humidity: ⩽85%.

7.5.1 Signs on Outer Carton


THIS SIDE

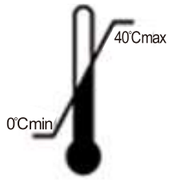

FRAGILE


KEEP DRY

STACKING


HUMIDITY

PRSSURE



TEMP LIMIT


RECYCLABL

Section 8 Contact Information of the company

seamaty®

Manufacturer Information

Manufacturer: Chengdu Seamaty Technology Co., Ltd.
Registered Name: Chengdu Seamaty Technology Co., Ltd.
Registered Address: No. 333 Hezuo Road, High-tech Zone, Chengdu, 611731, Sichuan China.
Production Address: South area, 4/F, No.1, 1/F, Building 2 and Room 306-316, No.1, 1/F, Building 1, No. 333 Hezuo Road, High-tech Zone, Chengdu, 611731, Sichuan, China.
Tel: (028) 69760307
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Zip Code: 611731
Website: www.seamaty.com

After-sales Service

After-sales Service Company: Chengdu Seamaty Technology Co., Ltd.
After-sales Service Address: South area, 4/F, No.1, 1/F, Building 2 and Room 306-316, No.1, 1/F, Building 1,No. 333 Hezuo Road, High-tech Zone, Chengdu, 611731, Sichuan, China.
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