



# **KU-U200**

# **Dry Chemistry Urine Analyzer Instructions for Use**

#### **Copyright&Statement**

Thank you for being a valued customer of Zhuhai KEYU Biological Engineering Co., Ltd. (hereinafter referred to as KEYU), and welcome to use KEYU's dry chemistry urine analyzer, which will bring you convenience and a new experience.

This instruction manual is prepared in accordance with the relevant laws and regulations and the actual situation of dry chemistry urine analyzer manufactured by KEYU. This manual includes the latest information as of the printing of this manual. Zhuhai KEYU Biological Engineering Co., Ltd. is solely responsible for the revision and explanation of this manual in simplified Chinese, and reserves the right to change the content of this manual after printing without notice. Some pictures in this manual are for reference only. If the pictures do not match the actual product, the final product shall prevail.

All information in this manual is protected by copyright law. No part of this manual may be reproduced, copied or translated into other languages in any form without the written consent of Zhuhai KEYU Biological Engineering Co., Ltd.

The operator should reads this manual in detail before use and must operate in strict accordance with this manual's operating instructions. Otherwise, Zhuhai KEYU Biological Engineering Co., Ltd. will not be responsible for any errors and damage to the instrument caused by non-compliance.

# **Limited Warranty:**

The Instruction Manual of Dry Chemistry Urine Analyzer specifies the quality assurance responsibilities of the product, the rights and obligations in terms of after-sales service, and the agreement on its creation and termination between KEYU and the user.

Instruments sold by KEYU and its authorized distributors that fail in normal use due to manufacturer or material problems are warranted by KEYU for a period of one year from the date of installation of the instrument. Any inspection by KEYU is not perfect.

Our obligations under this warranty are for repair only and do not include financial loss or additional costs resulting from the discontinuance of use of the instrument. Examples include:

- Shipping costs (including customs fees);
- Economic and time loss due to inability to use the instrument;
- Boarding, meals or other expenses along the way.
- Losses caused by inconvenience;
- Other fees.

KEYU is not responsible for direct, indirect or final damage caused by the following

situations. Upon the occurrence of the following circumstances, KEYU will no longer be responsible for the safety, reliability and operation of the instrument and all agreed free service rights will be deemed to be unconditionally and permanently waived.

- Abnormal use of the instrument, or use of the unmaintained or damaged instrument;
- Use of any reagent or accessory not provided or accepted by KEYU;
- Damage to the instrument caused by misuse or negligence due to the user or others not following the *Dry Chemistry Urine Analyzer User Manual*;
- Replace parts that are not licensed by KEYU.
- Maintenance, repair or alteration of the instrument by personnel not authorized by KEYU.
- Components are disassembled, stretched, and re-commissioned.

Note: KEYU does not undertake any implied warranty of merchantability or fitness for a particular purpose of the instrument.

We encourage you to contact us when you encounter any technical problems in the process of use. KEYU's after-sales service department has opened a product technology and service hotline to provide technical support and troubleshooting for users.

In case of instrument failure, please retain the relevant samples and notify the authorized distributor of Zhuhai KEYU Biological Engineering Co., Ltd.

Product Name: Dry Chemistry Urine Analyzer

Model Specification: KU-U200

#### [ Manufacturer ]

Name of Manufacturer: Zhuhai KEYU Biological Engineering Co., Ltd.

Address: No. 605, Yuge Road, Sanzao Town, Jinwan District, Zhuhai City, Guangdong Province,

519040, P.R.China

Factory Address: 1/f, 2/f, 5/f, 6/f building 4, No.605, Yuge road, Sanzao town, Jinwan district,

Zhuhai City, Guangdong Province, 519040, P.R.China

Tel: 0756-6821168

Marketing Department Hotline: 0756-6821170

Postal Code: 519040

Service Hotline: 400-622-8819

Fax: 0756-6821169

E-mail: export@keyubio.com http://www.keyubio.com

Software Release Version: V1.0

#### [ European representative ]

Lotus NL B.V

Address: Koningin Julianaplein 10, 1e Verd, 2595AA, The Hague, Netherlands

Email: peter@lotusnl.com

#### [Manual Version]

V1.4 (CEN)

[Approval and revision date of the instruction]

July 3<sup>rd</sup>, 2025



In Vitro Diagnostic medical device

For professional use only

#### **Foreword**

#### 1. Safety Instructions

- This instrument is a valuable and precise electronic medical analysis instrument. To avoid possible electric shock causing serious damage to the instrument and personnel, please turn off the main power supply before moving the instrument.
- It is recommended that you use a regulated power supply with a power of 75VA or more.
- When you connect a new hardware device to this instrument, be sure to unplug all power cables, connect the data cable of that device and then connect the power cable.
- Before you install or use this instrument, be sure to read the relevant information provided in this manual in detail. If you do not use this instrument in the manner prescribed by us, the protection provided by this instrument may be damaged.
- Strong light, dust, high temperature and humid environment as well as violent vibration and shaking will affect the accuracy and life of the instrument, so please make sure to avoid them.
- During routine maintenance of the instrument, please note that there is a possibility of biological contamination of the transport strip tray and waste strip cassette due to contact with urine, so please wear disposable gloves or other protective equipment when cleaning and replacing these parts.

#### 2. About the Instruction Manual

This manual contains information related to the use of the instrument, etc. It is the best information guide for using this instrument. Please read this manual carefully before using the instrument. By reading this manual, you will learn about the features and operation of this instrument. If necessary, a quick search through the catalog is available.

All personnel who use, maintain, move, and care for the instrument should read this manual.

The conventions used in this manual:

Marning:

is information you should know about how to avoid injury to the operator or others.

A Caution:

is information you should know about how to avoid damage to your equipment and unreliable analysis results.

# ⚠ Note:

are important steps you should know or require special attention.

#### 3. About the Product Packaging

When you get the packing box of the product from KEYU or agent, please open each packing box with the manufacturer or the authorized engineer of the manufacturer, check whether the standard accessories are as listed in the packing list attached, and whether there is any serious mechanical damage.

#### 4. Finding More Information

You can get more information about KEYU's products and upgrades related to this instrument through the following channels:

#### 1. Website:

You can get the latest information about the Dry Chemistry Urine Analyzer from our website: http://www.keyubio.com/

#### 2. Other documents:

The packaging box of your product may contain other documents such as the latest product catalog, and product warranty documents provided by the agency.

# Content

Copyright&Statement	
Foreword	5
Chapter 1 Instrument introduction	8
1.1 Instrument overview	8
1.2 Intended use	8
1.3 Detection principle	8
1.4 Parameters table	9
1.5 Structure and composition	10
Chapter 2 Unpacking and installation	12
2.1 Installation environment	12
2.2 Unpacking and checking	13
2.3 Instrument installation	14
2.4 Instrument start-up	20
Chapter 3 Use of instrument	21
3.1 Daily operation precautions	21
3.2 Start of instrument	
3.3 Functions and settings of the instrument	22
3.4 Sample test	34
3.5 Historical data query	36
3.6 Quality control and calibration	41
Chapter 4 Cleaning and maintenance	45
4.1 General cleaning	45
4.2 Daily cleaning	
4.3 Waste disposal	46
4.4 Fuse replacement	46
Chapter 5 Storage, transportation and operation	47
5.1 Storage	47
5.2 Transportation	47
5.3 Operation	47
Chapter 6 Maintenance manual	
6.1 Troubleshooting table	48
6.2 Instrument errors and solution table	50
Chapter 7 Prevention, limitation and hazards	51
7.1 Usage restrictions	51
7.2 Installation restrictions	51
7.3 Personal protection and infection control	52
7.4 Toxic and hazardous substances in products and their content	52
7.5 Electromagnetic compatibility	53
Table 1	54
Table 2	54
Appendix 1: Comparison table of testing items	56
Appendix 2: List of spare parts	57
Appendix 3: Symbols	
Appendix 4: Barcode	59

# **Chapter 1 Instrument introduction**

#### 1.1 Instrument overview

This instrument is a high-precision intelligent instrument developed by modern photoelectric technology for urine clinical testing. It adopts the reflection method to detect the color change produced by the chemical reaction between urine and urine reagent strips to complete the detection of urine routine items, with flexible and accurate test results, high repeatability and good quality control. The instrument can continuously feed strips and automatically collect discarded urine reagent strips, which is simple and convenient to use, fast detection speed and accurate test results. The thermal printer is used to print the results automatically; equipped with 7.0-inch high-definition touch screen, direct touch operation is high-speed and fast. Provide languages switch between Chinese and English, can send Chinese and English test report, man-machine dialogue is convenient, can display all test items, and can save 10000 test results for query and print. The instrument is equipped with RS-232 serial port for connecting with other urine formed elements analysis instruments.

#### 1.2 Intended use

Used in conjunction with appropriate reagents to measure parameters such as leukocyte, nitrite, urobilinogen, bilirubin, vitamin C, protein, occult blood, potential of hydrogen, specific gravity, glucose, ketone body, microalbumin, creatinine and urinary calcium.

# 1.3 Detection principle

Based on the photoelectric colorimetric principle, this instrument determines the content of biochemical components in urine through the color change generated by the reaction between the reagent area on the test strip. After the strip with urine sample is placed on the strip holder, the instrument's transmission device transports the strip to the bottom of the detector, and the reflected light from the chemically reacted reagent blocks on the strip is received by the detector after being irradiated by the light source. Each reagent block in the strip reacts independently with the corresponding component of the urine and displays a different color, the shade of which is proportional to a component of the urine. The darker the color of each reagent block, the greater the value of absorbed light and the smaller the value of reflected light, the smaller the reflectance, and conversely,

the lighter the color, the smaller the value of absorbed light and the larger the value of reflected light, the larger the reflectance, i.e., the shade of color is proportional to the concentration of various components in the urine sample.

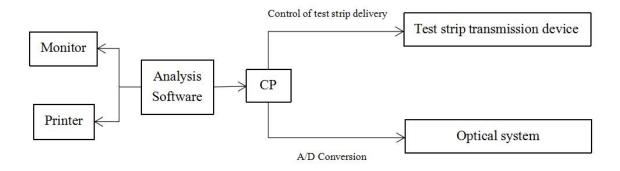


Figure 1-3 Diagram of the principle

# 1.4 Parameters table

Name	Dry Chemistry Urine Analyzer				
Test Items	Leukocytes, nitrite, urobilinogen, bilirubin, vitamin C, protein, occult blood, potential of hydrogen, specific gravity, glucose, ketone body, microalbumin, creatinine and urinary calcium (the microalbumin to creatinine ratio is optional)				
Test Speed	≥500 Specimens/hour				
Storage					
Capacity	10,000 BARS				
Function	Automatic sensing test strip, automatic reading, automatic collection of waste strips,				
	Chinese and English interface, multiple data queries and calibration function, multiple unit settings.				

	Repeatability: CV≤1%.		
	Stability: CV≤1%.		
	Accuracy with adapted urine reagent strips: the detection results shall not differ from		
	the corresponding reference solution labeled value by more than one order of		
	magnitude in the same direction, and no reverse phase difference shall occur.		
Performance	Negative results shall not occur for positive reference solutions and positive results		
	shall not occur for negative reference solutions.		
	Carrying contamination: detection of positive samples with the highest		
	concentration results of each test item except specific gravity and pH, followed by		
	the detection of negative samples, which shall not appear positive.		
Size	398 mm X 345 mm X 220 mm		
Voltage	AC100-240 V		
Frequency	50/60 Hz		
Power	≤ 75 VA		
Net Weight	6 kg		

# 1.5 Structure and composition

The instrument consists of mechanical system, optical system, electronic system and software system.

- Mechanical system: Strip loading device, strip transport device, inspection device, housing, frame, etc.
- Optical system: Multiple wavelength LED lights, acquisition data section, etc.
- Electronic system: Circuit board, power supply, sensor, touch screen, thermal printer, RS232 serial port, etc.
- Software system: Circuit control communication software, touch screen software, etc.

The outline drawing of the instrument is as follow:

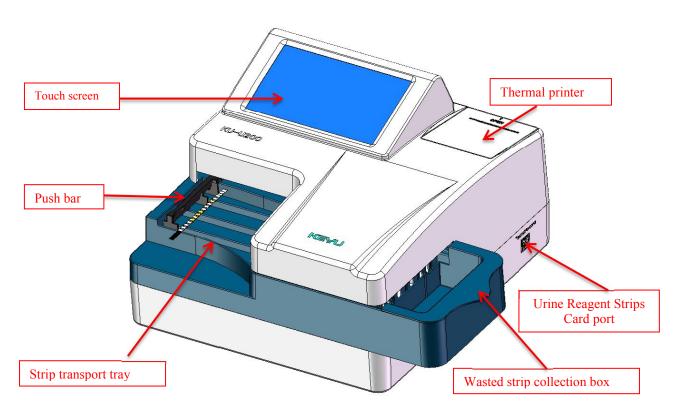


Figure 1-5-1 Front view

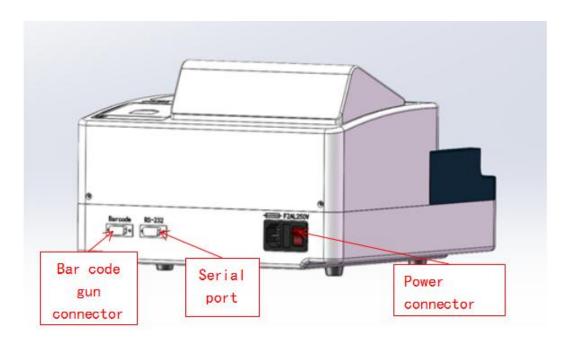


Figure 1-5-2 Rear view

# **Chapter 2 Unpacking and installation**

authorization, no one shall install the instrument or use it in another place.

To achieve the optimum operation performance of the instrument and obtain satisfactory clinical effects, initial installation and commissioning of the instrument must be performed by engineers with KEYU's authorization; if the instrument is moved or used in another place, it must be installed and used according to the following installation procedure.

#### ↑ Caution

Installation of the instrument by any unauthorized or untrained person could result in damage of the instrument, and such damage is not covered by KEYU's free warranty. Without KEYU's

#### 2.1 Installation environment

- 1) When carrying the equipment, please put hand into the gap at the bottom of the equipment and lift the bottom to carry the equipment.
- 2) Please place on a horizontal and stable table.
- 3) Selection and connection of power supply: Select separate power supply as required; equip with uninterruptible power supply (UPS) of 75VA or more if necessary to ensure normal operation.
- 4) When placing the equipment, please do not block the equipment power plug socket to ensure that in case of emergency danger can be disconnected in time to disconnect the plug, so that the equipment power off.
- 5) Recommended use temperature: 15~30 °C (See instructions for use of urine reagent
- 6) strips for the best use temperature).

Relative humidity: ≤93%RH.

Atmospheric pressure: 86kPa~106kPa.

#### ∧ Note

- The instrument should be protected from direct sunlight.
- The operating environment of the instrument should not be too cold/hot; if the air humidity is too high, water stain will exist on the surface of counting cell.
- Keep centrifuges and X-ray machines away from the instrument.

- Do not use mobile phones, radiophones or other devices generating strong radiation fields near the instrument, which may disturb normal working of the instrument.
- Do not place the instrument at a position where it is difficult to operate the disconnecting unit.

#### Marning

- The earthing rod on the socket of the instrument must be directly connected to the earthing conductor. User has the obligation to ensure the reliability of power supply protection ground.
- Before connecting the instrument to power supply, check to ensure that each electrical plug is connected correctly and securely.

## **∧** Caution

- Frequent voltage fluctuation will result in degradation of the performance and reliability of the instrument; user shall solve this problem before use of the instrument, for example, by installing an additional AC voltage stabilizer.
- Frequent power interruption will result in serious degradation of the performance and reliability of the instrument; user shall solve this problem before use of the instrument, for example, by installing an uninterruptible power supply (UPS) (equipped by user).

# 2.2 Unpacking and checking

- 1) Carefully take the instrument and its accessories out of the packaging box; properly keep the packaging materials for future transport or storage;
- 2) Check the instrument and accessories according to the accompanying Packing List;
- 3) Check whether there is any sign of water soaking;
- 4) Check whether there is any mechanical damage;
- 5) Check all exposed lead wires and inserted parts and accessories;
- 6) Please take the instrument and its accessories out of the packaging box together with the engineer authorized by the manufacturer or its agency.

The packing list is as follows:

No.	Name & Specification	Quantity	Unit			
I	Main unit of KU-U200 Dry Chemistry Urine Analyzer	1	Set			
II	Instruction for Use	1	Set			
III	Certificate of Conformity/Warranty Card	1	Sheet			
IV	Strip transport tray	1	Set			
V	Push tray holder	1	Set			
VI	Print paper	1	Set			
VII	Waste strip collection box	1	Set			
VIII	Barcode scanner	1	Set			
IX	Operating procedure	2	Сору			
Accessories						
1	Power cord	1	Set			
2	Calibration strips	1	Set			
3	Magnetic card holder	1	Set			
4	Push bar	1	Set			

# 2.3 Instrument installation

# 2.3.1 Installation of push tray holder

Place the push tray holder above the strip transport device, and snap it firmly against the downward force, and the 4 hooks of the push tray holder steadily hook the strip shipping device. Confirm that the push tray holder is aligned horizontally with the strip transport device after installation, as shown in Figure 2-3-1.

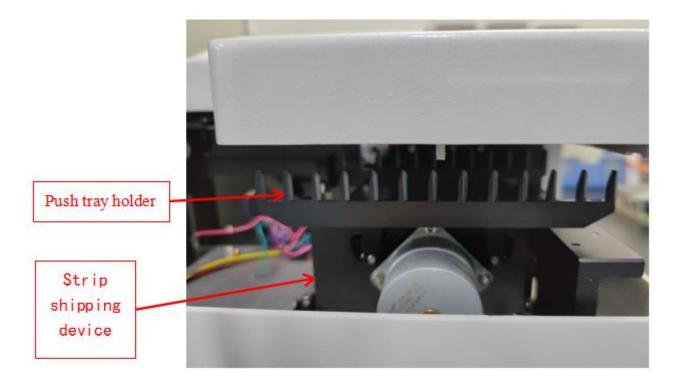


Figure 2-3-1 Installation diagram of push tray holder

# 2.3.2 Installation of strip transport tray

When installing and removing the strip transport tray, you must first make sure that the push tray holder is in its lowest position. Then hold both sides of the strip transport tray with both hands and slowly push inward in the direction of the arrow. Push to the bottom will be pressed by magnet, as shown in Figure 2-3-2.



Figure 2-3-2 Installation diagram of strip transport tray

# 2.3.3 Installation of push bar

First push the push bar diagonally and gently to the card slot in the right place, and then slowly put it down to test whether the push bar is stuck stably. Please try it again until the push bar is stuck stably if there is a loose. The installation process should be gentle, otherwise there is a risk of damage. As shown in Figure 2-3-3.

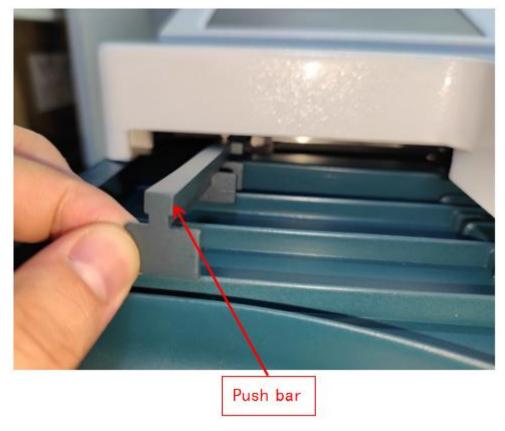


Figure 2-3-3 Installation diagram of push bar

# 2.3.4 Installation of print paper

Put the thermal paper (57 mm width, 50 mm diameter), as shown in Figure 2-3-4, into the printer and leave a cut in the outside, and then close the printer cover and press the paper, the paper has a glossy surface towards the front of the printer. Press the "paper delivery" button, the paper can be normally delivered on behalf of successful installation.



Figure 2-3-4 Installation diagram of print paper

# 2.3.5 External device communication

As shown in Figure 2-3-5, connect the bar code gun (optional) to the left connector and connect the computer to the right connector. This instrument can be used online with our urine formed elements analyzer KU-600 through RS-232 connector.

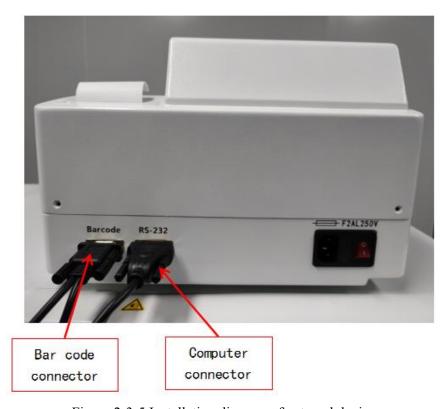


Figure 2-3-5 Installation diagram of external device

# 2.3.6 Installation of Urine Reagent Strips card

As shown in Figure 2-3-6, Insert the Urine Reagent Strips card, one box of Urine Reagent Strips (10 bolltes) contains a test strip card.

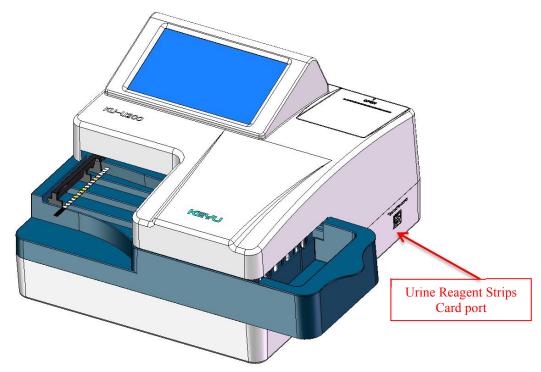


Figure 2-3-6 Installation diagram of Urine Reagent Strips Card

# 2.3.7 Installation of power cord

As shown in Figure 2-3-6, plug in the power cord, turn on the switch, the indicator light is on, representing the correct connection. The socket connected to the power cord must have a reliable ground wire.

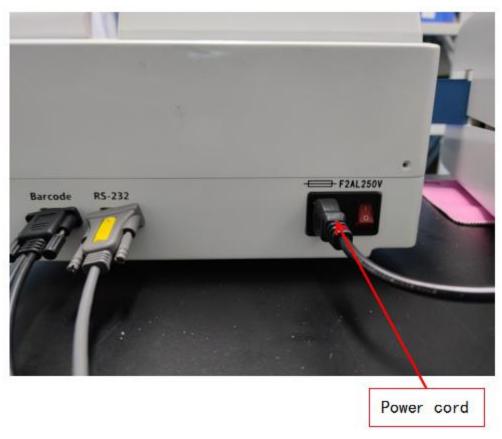


Figure 2-3-6 Installation diagram of power cord

# 2.4 Instrument start-up

After the installation, turn on the power switch to start the instrument. The instrument enters the self-test state and starts initialization. The instrument will enter the test page after successful initialization. If there is no error message, the instrument installation is complete.

# **⚠** Caution

If the instrument self-test shows an error, please contact the supplier.

# **Chapter 3 Use of instrument**

# 3.1 Daily operation precautions

- 1) Please check whether the paper is missing and whether the urine reagent strips in the waste strip collection box need to be cleaned before starting the machine.
- 2) Make sure there are no other objects on the work area.
- 3) When the instrument is in working condition, do not switch the interface for parameter setting at will.
- 4) Do not use hard objects to manipulate the touch screen to avoid damaging it.
- 5) The sound of the instrument in normal operation is less than 70 dB.

#### **∧** Note

- Please do not shut down the machine by abnormal means to avoid data loss and instrument failure.
- If the equipment is not used in the manner specified by the manufacturer, the protection provided by the equipment may be compromised.

#### 3.2 Start of instrument

After plugging in, turn on the power switch on the rear of the instrument, the instrument starts to self-test and initialize. After the initialization is completed, it automatically enters the main interface (testing interface), as shown in Figure 3-2-1

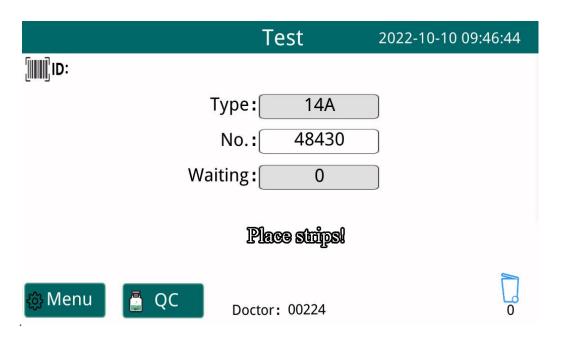


Figure 3-2-1 Detection interface

- 1) Doctor: 00224: Doctor ID; indicating the code of the operating doctor.
- 2) 2022-08-16 13:08:08: indicates the date and time of the current system.
- 3) 18430: indicates the current number of waste strips in the collection box, which can be cleaned up by pressing this icon.

# ⚠ Note

When there is a fault, the fault information will be displayed in the form of scroll bar on the upper left of the instrument, and the fault will be displayed in the form of a list after clicking, click to go back to the main interface.

# 3.3 Functions and settings of the instrument

The screen of the instrument is touch screen, users can directly click the corresponding function button to set, which is convenient and fast.

# 3.3.1 Serial number input

Click the input box after "Serial Num" in the main interface, the keyboard will pop up, as shown in Figure 3-3-1.

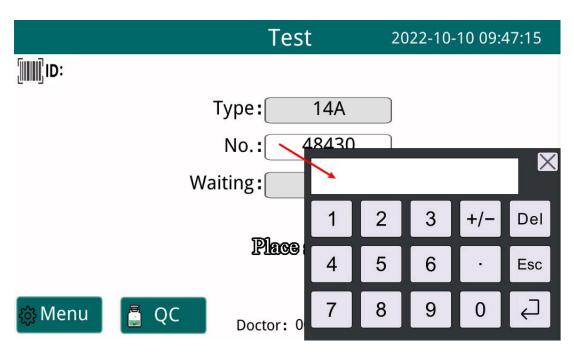


Figure 3-3-1 Serial number input diagram

# 3.3.2 ID setting

Press in the main interface to enter the ID Setting interface, as shown in Figure 3-3-2.

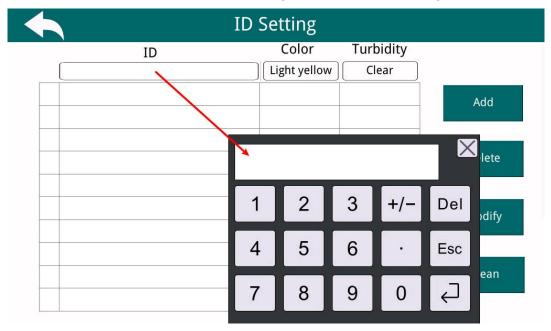


Figure 3-3-2 ID code input diagram

The ID code is the sample code, which can be entered either through a scan gun connected to the instrument's Bar code port or manually.

- 1) **Scan entry:** In the interface of Figure 3-3-1, scan input directly with the standard scan gun, and scan multiple ID codes continuously when the batch ID mode is turned on;
- 2) **Manual entry:** On the interface of Figure 3-3-1, enter the ID code directly on the ID input field and click to save the entry; you can enter more than one ID at the same time when the batch ID mode is turned on; press Del to clear the entry, press to not save the entry and return to the previous level interface.

After the ID code is entered, press to return to the main interface for testing.

#### 3.3.3 Menu setting

In the lower left corner of the main interface, press the button to enter the menu selection interface, as shown in Figure 3-3-3 below.

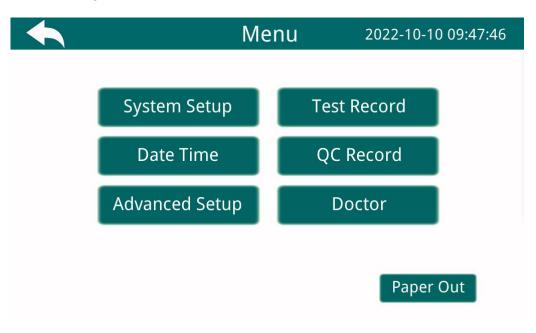


Figure 3-3-3 Menu setting diagram

#### 1) Doctor number

Press Doctor enter the doctor number setting interface, as shown in Figure 3-3-4 below:

Users can enter or change the doctor number in this interface, and after the input is completed, press to confirm the input and return to the previous level menu, press to abandon the change and return to the previous level menu.

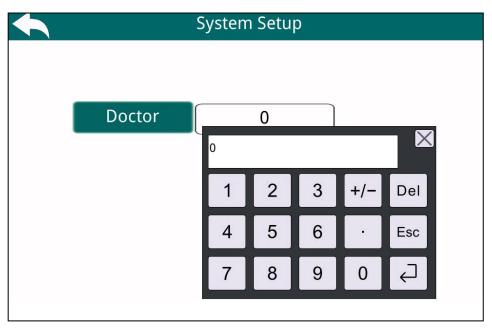


Figure 3-3-4 Doctor number input interface

#### 2) System setup

Press System Setup to enter the system setup interface, as shown in Figure 3-3-5 below: you can set and modify the test strip type, language, result unit, work list, ID scan mode, etc. of the instrument.

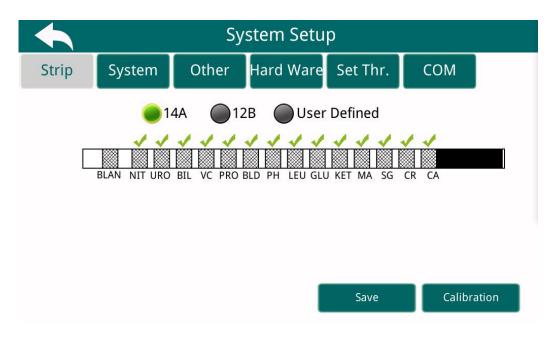


Figure 3-3-5 System setup interface

#### **1** Test strip type setting

The test strip supports 14A, 12B and user defined types(requires the use of 14 strips). When the test strip is selected as the user defined mode, you need to decide whether to detect the item by clicking the " $\sqrt{}$ " button above the corresponding test item. " $\sqrt{}$ " status means that the item is detected, no " $\sqrt{}$ " means that the item is not detected, as shown in Figure 3-3-6 below.

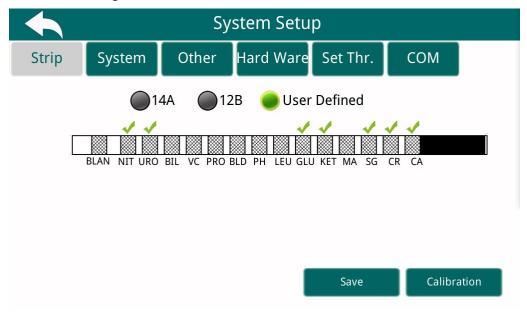


Figure 3-3-6 Test strip setup diagram

In Figure 3-3-5 above: Click the System in the upper menu bar to enter the sub-menu "System Setup" interface, as shown in Figure 3-3-7: you can set the system language, result unit and other functions.

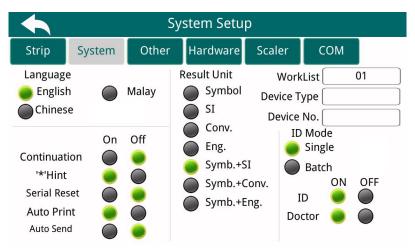


Figure 3-3-7 System setup

#### 2 Continue out

In Figure 3-3-7 above, check the "On" or "Off" button after ContinueOut to turn on or off the function, "On": output the current display record and subsequent records completed; "Off": output only the records currently displayed.

#### 3 Abnormal hint

Check the "On" or "Off" button after '\*'Hint to turn the function on or off. When the test value of an item reaches or exceeds the set abnormal value: "On": the output result is marked by "\*"; "Off": the output result is not marked by "\*".

#### (4) Serial reset

Check the "On" or "Off" button after **SerialReset** to turn the function on or off. "On": When the instrument is restarted, the detection number is reset and incremented from 1. "Off": the serial number is not reset when the instrument is restarted.

#### (5) Printer

Check the "On" or "Off" button after Print to turn the function on or off. "On": the test results can be printed out; "Off": the test results can not be printed.

#### **6** Computer port

Check the "On" or "Off" button after ComputerPort to turn the function on or off. "On": the system can output test results to the computer through the data communication port; "Off": the system stops outputting test results.

#### 7 Result unit

In the above figure 3-3-7: you can click the in front of the corresponding result unit to set the result unit reporting method including symbol, SI, Conv., Eng., Symb.+SI, Symb.+Conv. and Symb.+Eng.

#### 8 Work list and device name

In the above figure 3-3-7: you can make the entry of work list, device name and device number. Click the input box after the corresponding item, you can input the content you want to enter through the pop-up keyboard, after the input is finished, press to confirm the input and return to the previous level menu, and press to abandon the changes and return to the previous level menu. As shown in Figure 3-3-8.



Figure 3-3-8 Work list settings interface

#### 9 ID scan module

In Figure 3-3-7 above: Click the before "Single" or "Batch" to indicate that the "ID Mode" on the screen will take effect as Single or Batch.

#### **10** ID

"On": the ID number is displayed in the output result; "Off": the ID number is not displayed in the output result.

#### 11 Doctor number

"On": the main interface shows the doctor number; "Off": the main interface does not show the doctor number.

Click the Other in the menu bar above the system setup to enter the sub-menu "Other" function setting interface, as shown in Figure 3-3-9: you can set the color, clarity and abnormal value marking function.

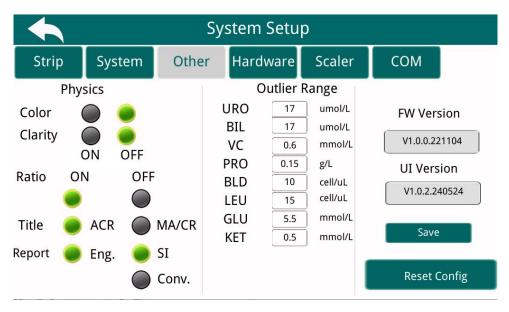


Figure 3-3-9 Other settings

#### 12 Ratio

"On": the ratio is displayed in the output result with the set ratio name; "Off": the ratio is not displayed in the output result. "Title" and "Report" are set individually for the ratio. "Title": the microalbumin to creatinine ratio can be selected as "ACR" or "MA/CR". "Report": the unit reporting method including SI, Conv., Eng.+SI and Eng.+Conv..

#### (13) Color and clarity

In the above figure 3-3-9: you can set whether to turn on the color and clarity functions by checking the "On" or "Off" button after the corresponding function to set.

#### Notes

- (a) When "Color", "Clarity" switch are on, you can press "ID" in the main interface and scan the bar code of "Color" and "Clarity" through the external scanner, and the test result will include color and clarity.
- (b) When both "Color" and "Clarity" are set to "OFF": the color and clarity cannot be input and will not be displayed in the result too.

The rules of ID, color and clarity are as follows:

① "ID" is automatically bound to "Color" and "Clarity"

- ② "Color" and "Clarity" can be obtained only after the ID number is obtained through the Scanning gun or manually input.
- 3 You can modify or add ID, color and Clarity through 'Figure 3-3-2 ID Code Input Diagram'
- ④ 'C:00000-C:00009' The barcode stands for the color (Light yellow; Yellow; Dark yellow;

Colorless; Milk white; Light red; Red; Black Brown; Light Green; Green)

⑤ 'T:00000-T:00003' This barcode stands for Clarity (Clear; L-Turbid; M-Turbid; H-Turbid)

#### 14 Edit flagged abnormal

In Figure 3-3-9 above: you can set abnormal values for urobilinogen, bilirubin, vitamin, protein, occult blood, white blood cell, glucose, and ketone, and by clicking on the input box of the items, you can select between the data listed in Table 3-3-10 below.

Name **URO** BIL VC PR<sub>0</sub> BLD LEU GLU KET NO. (g/L) (umoI/L) (mmoI/L) (cell/uL) (cell/uL) (mmo I/L) (umo I/L) (mmo I/L) 1 33 17 0.6 0.15 10 15 5.5 0.5 2 60 50 1.4 0.3 28 70 1.5 14 3 125 130 100 2.8 1.0 80 28 3.9 4 5.6 >=3.0 >=200 500 55 7.8

Table 3-3-10

If one of the test results reaches or is higher than the value set in Figure 3-3-10, it will be marked with an "\*" in front of it in the output result, as shown in Figure 3-3-11.

			Test Recor	d.		
No.: 48430		NIT URO BIL	- Normal -	3.2 0	umol/L umol/L	10
2022 - 10 - 10 10 : 03 : 25	*	VC PRO BLD PH	+ - -	1.4 0 0	mmol/L mmol/L cell/uL	1
ID:	*	LEU GLU KET	+	5.0 70 0 0	cell/uL mmol/L mmol/L	<b>1</b>
Doctor: 00224		MA SG CR	*	0 1.025 4.4	g/L mmol/L	<b>↓</b> 10
Continuous  ON OFF		CA ACR COLOR TURBIDIT	Light yellow Y Clear	<=1.0 Negative	mmol/L	Print Send

Figure 3-3-11 Test record

#### 15 Reset configuration

In Figure 3-3-9: Click Reset Config to enter the Restore Default Setup screen, as shown in Figure 3-3-12.

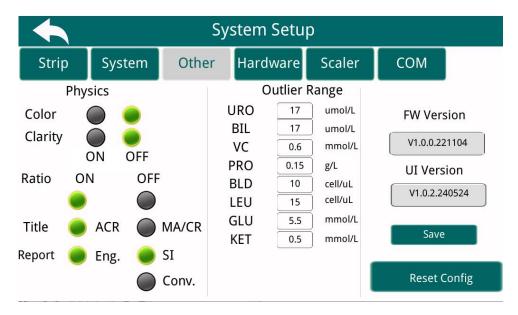


Figure 3-3-12 Reset configuration

By clicking on the "ResetConfig" button, the instrument will restore the factory settings (only the contents in the SetScaler will be restored) and return to the previous menu level.

Click the HardWare in the menu bar above the system setup to enter the sub-menu "HardWare" interface, as shown in Figure 3-3-13: This interface is used for after-sales personnel to analyze and detect whether there is a hardware failure.

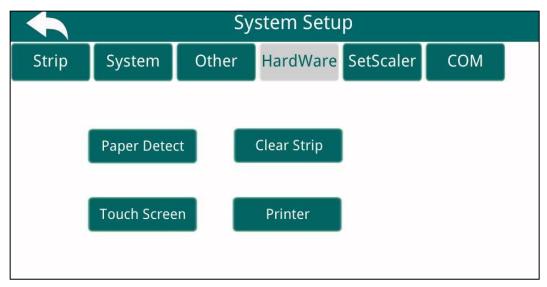


Figure 3-3-13 Hardware testing

#### 16 Set scaler

Click the SetScaler in the menu bar above the system setup to enter the sub-menu "SetScaler" interface, as shown in Figure 3-3-14: the calibration of each item test value is displayed, and the user cannot change it at will to avoid affecting the test results.

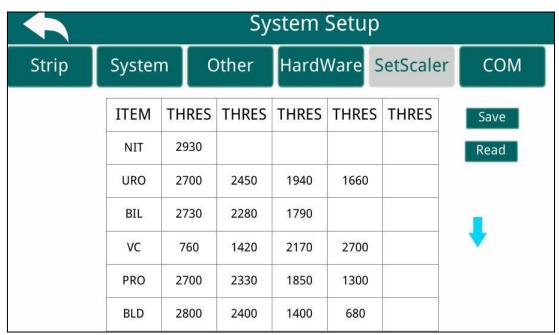


Figure 3-3-14 SetScaler

#### **17** COM setting

Click the COM in the menu bar above the system setup to enter the sub-menu "COM" interface, as shown in Figure 3-3-15: you can view the baud rate, verify and stop bit of the send COM and scanner COM. Users can not change it at will, so as not to affect the instrument and computer online.

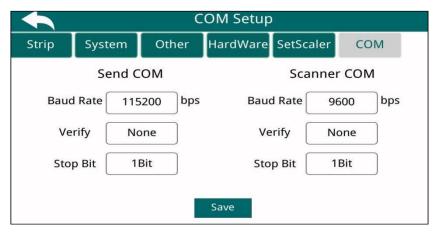


Figure 3-3-15 COM setting

#### 3) Date and time setting

In Figure 3-3-4, press the Data Time to enter the date and time setting interface, as shown in Figure 3-3-16 below: you can set the year, month, day, hour, minute and second, and when the setting is finished, click the in the upper left corner to return to the previous level menu.

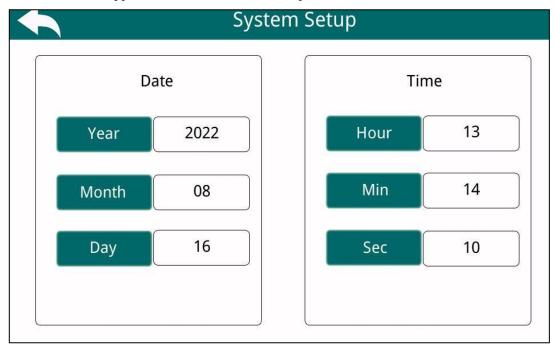


Figure 3-3-16 Date and time setting

#### 4) Advanced setting

The "Advanced Setting" function is used for password-controlled and only open to the R&D, after-sales and other employees of the manufacturer, which is not available to users.

# 3.4 Sample test

# 3.4.1 Flow chart of sample testing operation

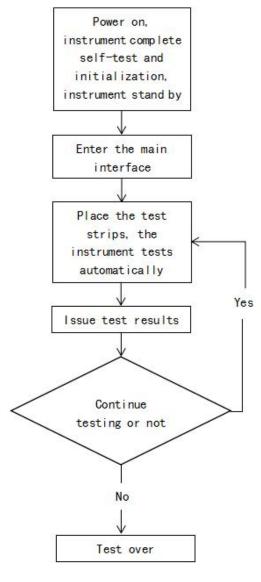


Figure 3-4-1 Flow chart

⚠ Note

When the self-test does not pass, please contact the supplier or refer to section 6.2 Instrument errors and solution table.

#### 3.4.2 Sample test operation steps

- (1) After the completion of initialization and self-test, the instrument will automatically enter the main interface, and the push bar is in the initial position (Figure 3-4-2).
- (2) ID entry (if necessary): press the "ID" in the main interface to enter the barcode entry interface; either by means of an external scanner or manually. Please return to the main interface after the entry is completed (please refer to section 3.3.2 for detailed operation).
- (3) Immerse the reagent area of the test strip completely into a fresh sample, well-mixed and uncentrifuged urine sample and remove it immediately, scraping the side of the test strip along the wall of the urine sample container to remove the excess urine.
- (4) Place the test strip (limited to 1 strip at a time) on the working area (as shown in Figure 3-4-2), making sure that the front of the strip is in contact with the front of the working area.
- (5) When the instrument detects the test strip, the push bar automatically pushes the test strip to the testing area to complete the test.
- (6) When the push bar returns to the initial position, another test strip can be placed to be tested, so as to achieve continuous testing.

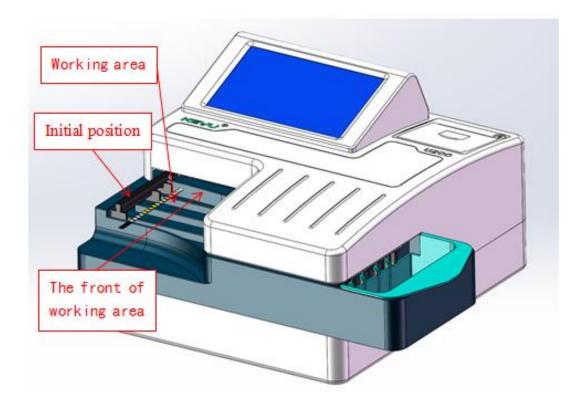


Figure 3-4-2 Test position

# ⚠ Note

- Because urine samples may be potentially infectious, please take precautions when using, cleaning, and maintaining the instrument.
- Please dispose of urine samples and used waste strips according to the regulations of your local laboratory.
- Please check the model number of the strips carefully before testing to ensure that the model number of the strips is the same as the one required for the test.
- Do not use expired, spoiled or damp urine reagent strips as this may affect the test results.

# 3.5 Historical data query

#### 3.5.1 Test record

In Figure 3-3-4, press the Test Record to enter the test record query screen, as shown in Figure 3-5-1

below.

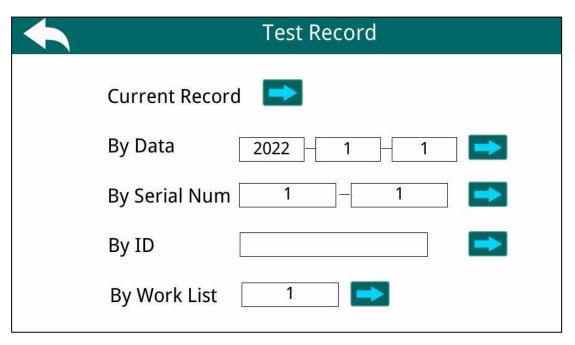


Figure 3-5-1 Test query

#### **1** Current record query

In Figure 3-5-1, press query key

after the "Current Record", and the screen displays as shown in
Figure 3-5-2 (taking the 14A test strip as an example):

	•	1 /			
		Test Recor	<sup>-</sup> d		
No.: 48430	NIT URO BIL	- Normal -	3.2 0	umol/L umol/L	10
2022 - 10 - 10 10 : 03 : 25	* VC PRO BLD	+ -	1.4 0 0	mmol/L mmol/L cell/uL	1
ID:	PH * LEU GLU	+	5.0 70 0	cell/uL mmol/L	<b>I</b>
Doctor: 00224	KET MA SG		0 0 1.025	mmol/L g/L	<b>1</b> 10
Continuous ON OFF	CR CA ACR		4.4 <=1.0 Negative	mmol/L mmol/L	Print
ON OFF	COLOR TURBIDI	Light yellow TY Clear	J		Send

Figure 3-5-2 Test record

Press the 10 to display the 10th record before the current record (serial number minus 10)

Press the to display the 10th record after the current record (serial number plus 10)

Press the to display the previous record of the current record (serial number minus 1)

Press the to display the next record of the current record (serial number plus 1)

Press the Print to print the currently displayed record

Press the Send to output the currently displayed record

Press the to return to the previous menu level

When the query has no record, the screen displays: 'No Record! ' as shown in Figure 3-5-3 below.



Figure 3-5-3

#### 2 Search by date

Enter the start and end date, press the after the "By Data", you can query by date.

#### **3** Search by serial number

Enter the start and end serial numbers, and press the after the "By Serial Num" to search by serial number.

#### 4 Search by ID

Enter the ID number and press the after the "By ID", you can query by ID number.

#### 5 Search by work list

Enter the name of the work list and press the after the "By Work List" to query by work list.

### 3.5.2 Quality control records

In Figure 3-3-3, press the QC Record button to enter the QC record query interface, as shown in Figure 3-5-4 below.

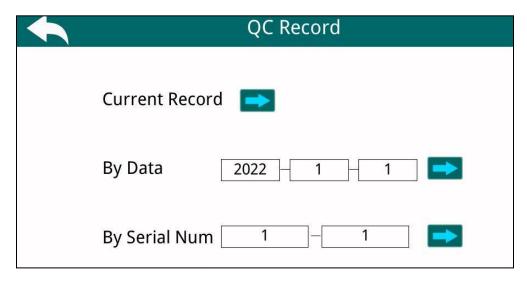


Figure 3-5-4 QC record query

You can query the QC records by current, date and serial number, the query result is shown in Figure 3-5-

5 (take 14A urine reagent strips as an example): Press to switch records, when there is no record, the screen displays: 'No Record!'.

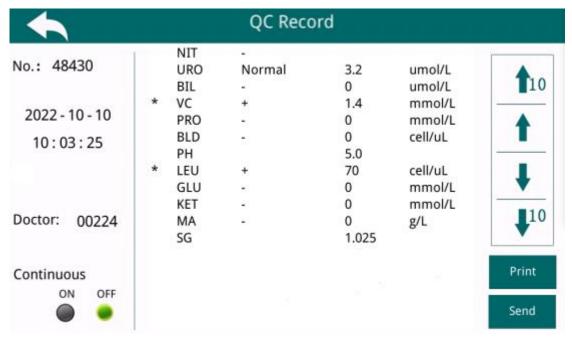


Figure 3-5-5 Quality control records

### 3.6 Quality control and calibration

#### 3.6.1 Quality control detection

In the main interface, click the button to enter the QC testing interface, as shown in Figure 3-6-1.

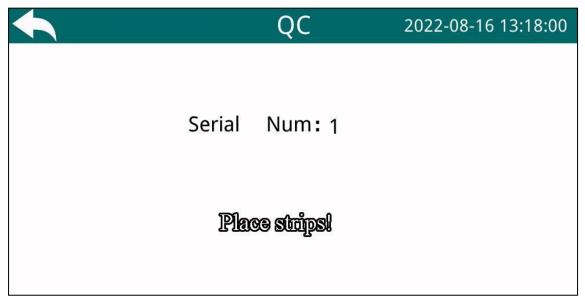


Figure 3-6-1 Quality control testing

Test method: Place the urine reagent strips dipped in urinalysis QC solution flat on the working area as shown in Figure 3-6-2: After the instrument detects the test strip, it will automatically push the strip to the testing area for testing, and output the test result after the testing is completed. Please refer to the reference values in the QC solution manual for details on whether the QC results meet the requirements.

Press the key to return to the main interface.



Figure 3-6-2

#### ⚠ Note

- If the QC fails, please replace the QC solution with a different batch number and perform the QC test again, if it still fails, please contact our customer service.
- Do not exit this screen during the QC test.

#### 3.6.2 Calibration

### ⚠ Note

- Do not dip the calibration strip into water or other liquids.
- If the calibration strip is stained or damaged, please contact the supplier.
- To ensure the accuracy of the test results, it is recommended that the instrument be calibrated every 1 month with a calibration strip.

#### Calibration method:

1) Enter the interface of "System Setup-Strip", as shown in Figure 3-6-3.

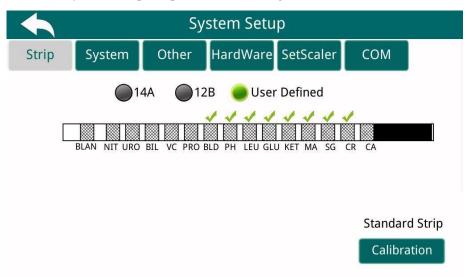


Figure 3-6-3 Calibration interface

2) Click the Calibration key in Figure 3-6-3 to enter the calibration strip test interface, as shown in Figure 3-6-4.



Figure 3-6-4 Calibration interface

3) Place the calibration strip flat on the working area, then the instrument tests automatically. After the test, if the calibration is passed, the screen will show "Successful", if the calibration fails, the screen will show "Failed (white block), please retry", or "Failed (Strip), please retry".

#### ⚠ Note

- If the calibration fails, please perform the calibration test again, and if it still fails, please contact our customer service.
- Do not exit the calibration screen during the calibration process.

# **Chapter 4 Cleaning and maintenance**

This instrument is a precision electronic optical instrument. In order to make the instrument operate normally, regular cleaning and maintenance is very important. If the instrument breaks down, it should be repaired by our authorized professional maintenance personnel or sent to our designated maintenance department.

#### Caution:

- 1) Read the instructions for use of the instrument and the instruction for urine reagent strips carefully before operation;
- 2) Ensure the cleanliness of the instrument in order to maintain good operation;
- 3) If the instrument is not used for a long time, it should be covered with a soft cloth or plastic sheet, when using it next time, please check it with the quality control solution first;
- 4) Do not arbitrarily disassemble the instrument.



Please wear protective gloves to prevent germ infection.

#### 4.1 General cleaning

- Keep the instrument clean and dust-free. If cleaning is required, use a damp cloth and flexible cleaning.
- The display screen can only be gently wiped with a soft cloth with ordinary alcohol. Water, ketones and aromatic solvents are strictly prohibited.

### 4.2 Daily cleaning

- Under normal conditions, clean at least once a day. If not cleaned, it will affect the test result, please clean it at any time.
- To clean, remove the push bar, strip transport tray and push tray holder separately and clean each

part (push bar, strip transport tray and push tray holder) with warm water and flexible cleaner.

#### ⚠ Note

It is strictly forbidden to use organic solvents to clean the instrument to avoid deformation and discoloration of the parts. The white reference block must be cleaned with a cotton ball dipped in water. If the white reference block has obvious scratches, damage or dirty spots that cannot be removed, please contact the supplier.

 After cleaning each part, dry it with paper or soft cloth. The white reference block is dried naturally.

#### 4.3 Waste disposal

Every day after the completion of the inspection or waste box full, please timely dispose. We suggest that the user strictly abide by the national and local laws and regulations on medical waste disposal, and strictly handle the medical waste according to the relevant medical waste disposal procedures of the device user.

### 4.4 Fuse replacement

- 1) Prepare for the replacement. Disconnect the power supply and wear insulation gloves.
- 2) Start replacing the fuse. Remove the broken fuse and replace it with a new one. The specification model of equipment fuse is F2AL250V.
- 3) Check the fuse. After replacing the fuse, use a test pen to measure the power supply at both ends of the fuse block. If there is electricity at both ends, it indicates that it has been replaced.
- 4) Turn on and use the equipment.

## Chapter 5 Storage, transportation and operation

#### **5.1 Storage**

- Ambient temperature:  $-10^{\circ}$ C $\sim$ 40 $^{\circ}$ C.
- Relative humidity: ≤93 %RH.
- Atmospheric pressure: 86kPa~106kPa.

#### **5.2** Transportation

- Ambient temperature:  $-10^{\circ}\text{C} \sim 40^{\circ}\text{C}$ .
- Relative humidity: ≤93 %RH.
- Atmospheric pressure: 86kPa~106kPa.
- Avoid vibration, extrusion and impact during transportation. When loading and unloading, it must be handled gently.

### 5.3 Operation

- Operating environment: indoor.
- Ambient temperature:  $15^{\circ}\text{C} \sim 30^{\circ}\text{C}$ .
- Relative humidity: ≤70 %RH.
- Atmospheric pressure: 86kPa~106kPa.
- Pollution Level: 2
- Transient overvoltage category: class II.

### **Chapter 6 Maintenance manual**

The manufacturing process of this instrument is strictly managed, and it is a precision instrument, even if one of the components is damaged, it will affect the normal operation of the instrument. Due to the special nature of the instrument, if it is not used properly, it will bring significant impact to the test work. Maintenance personnel should master certain electronic technology, and after our company's training and authorization, determinate and repair according to this maintenance manual about fault tips. The repair method provided in this maintenance manual is based on the principle of replacing parts, and the list of major replacement devices is shown in Appendix 2.

Before removing the strip transport tray, you should pay attention to the position of the push tray holder, because if the instrument is not in the reset or stop operation mode to shut down, the push tray holder may not be in its lowest position. If you pull out the strip transport tray at this time, the strip transport tray can not be pulled out because of the blockage of the push tray holder. At this time should not be forced to pull out the strip transport tray, so as not to damage the push tray holder and strip transport tray. The solution is: turn on the machine again, and then turn off the machine after the self-test (at this time the push bar holder will rotate to the lowest position), and then carry out the operation of pulling out or installing the strip transport tray.

#### **6.1 Troubleshooting table**

No.	Errors	Possible Causes	Solutions
1	The display screen does	1) No power input;	1) Check whether the power
	not work	2) Circuit failure.	light is on, check whether the
			power cord is connected
			correctly;
			2) If it still does not work,
			please contact our after-sales
			service.
2	After putting the test	1)The urine test strip detector	1) Turn off the instrument,
	strip in the strip	is not working.	wait 30 seconds and reboot.
	transport tray, the push		2) If it still does not work,
	bar does not push the		please contact our after-sales
	strip		service.
3	Push bar works without	1) The test strip detector is	1) Please make sure not to

	1	I	
	placing a test strip	accidentally touched or	place hands or other objects
		blocked by hand, or by an	on the platform and avoid
		external object, or a strong	strong light exposure.
		external light shines on the	2) Clean the strip transport
		sensor.	tray, if it still doesn't work,
		2) The strip transport tray is	please contact our company
		dirty.	after-sales.
4	Test results cannot be	1) The printer is set to "off".	1) Set the printer to "on"
	printed	2) The printer is out of	through "system Setup" >
		paper.	"system".
			2) Installation of new
		3) Printer connection cable	printing paper.
		is loose, poor contact.	3) Carefully check and
		4) Printer malfunction.	reinsert the printer's
			connection cable.
			4) If it still does not work,
			please contact our after-sales
			service.
5	Touch screen errors	1) Recalibration	1) Turn off the instrument,
		of the screen.	wait 30 seconds to reboot and
		2) The screen is not working.	recalibrate the screen.
			2) If it still does not work,
			please contact our after-sales
			service.
	I .	I .	1

## 6.2 Instrument errors and solution table

No.	Errors types	Solutions
1	Detecting motor error	Turn off the instrument and leave it on for 30 seconds before turning it on again.
2	Transport motor error	Check whether the strip transport tray is properly installed.
3	Wrong type of test strip	Set up the system test paper type correctly to ensure that it matches the type of test paper used for testing.
4	No test strips	Check the printed results or the error report at the end of the run, and retest the samples with wrong results.
5	Push motor error	Make sure the induction area of the strip transport tray is free of debris and then turn off and restart the instrument.
6	Detection sensor error	Detects whether the white reference block is contaminated.
7	Printer not connected	Check that the printer connection cable is well connected.
8	Printer out of paper	Installing new print paper.
9	Counter error	Shutdown and restart the instrument, the count is cleared.
10	Wrong sensing of test strip	Check whether the strip transport tray is free of debris and then turn off and restart the instrument.

### Chapter 7 Prevention, limitation and hazards

Any instrument that is used improperly will not achieve the desired results, and may even cause some harm to the operator or others. Therefore, before the operation and use of the instrument, the rules and conditions of use must be standardized, to prevent the occurrence of hazards, so that the use of the instrument can achieve the best results.

#### 7.1 Usage restrictions

- 1)This instrument is limited to the use of in vitro diagnostic reference analysis.
- 2)Any person who uses, moves, installs, or maintains the instrument must read this manual carefully and follow it strictly. Failure to do so may result in an accident and loss of our free warranty.
- 3)Any repair for any reason should be approved by our company, and any part replacement should use the parts specified by our company, otherwise it may lead to an accident and loss of our free warranty opportunity.
- 4)Failure to follow the cleaning and maintenance in Chapter 4 will affect the measurement and analysis of the instrument, reduce the service life of the instrument, and may lead to accidents. You will also lose the opportunity of our free warranty.

### **∧** Warning

• Any parts that can only be inspected or supplied by our company or our authorized agents.

#### 7.2 Installation restrictions

- 1)The initial installation must be done by an engineer authorized by our company with the appropriate qualifications.
- 2)The instrument must be placed on a horizontal, stable bench, avoiding direct sunlight, avoiding excessively cold and hot exhausts, and away from dryers, centrifuges, X-ray equipment, copiers and ultrasonic cleaners.
- 3)The reagent should be placed at the same height as the instrument or kept in the same plane.
- 4)In order to maintain good ventilation, a certain amount of space must be reserved around the analyzer. The distance between the instrument and the surrounding objects should be at least 40cm for ventilation.

The installation table should be flat, vibration-free and at least 600mm x 600mm in size. There should be enough space around the instrument for maintenance and repair.

5)It is strictly forbidden to unplug any electrical connection of the instrument when the instrument is energized. In order to prevent electrical interference and guarantee user's personal safety, please make sure the instrument shell ground wire is properly grounded before use.

#### **↑** Warning

 Any unauthorized or non-qualified personnel for the maintenance of the instrument shall not open the screws on the instrument housing at any time, otherwise all problems that occur will be borne by the user!

#### 7.3 Personal protection and infection control

1)Users must comply with the operational requirements of laboratory or clinical testing when performing sample testing and daily cleaning and maintenance, wear medical gloves and safety glasses, and avoid direct contact between skin and measurement samples.

2)Since all clinical samples, quality controls, and calibrations may contain human urine and are potentially infectious, it is important to follow established laboratory or clinical operating procedures, wear work clothes, medical gloves, and safety glasses properly when handling these items. In the work area, no smoking, eating or drinking, or blowing or sucking the work line with your mouth.

3)Since waste liquid from urine samples and instruments contains potentially contaminating substances that may be biologically and chemically hazardous, special care should be taken in the process of disposal. Relevant local government regulations must be observed when cleaning, treating, and discharging the waste liquid.

4)The storage of urine reagent strips and quality controls should be stored and maintained in accordance with the instructions for use. Users of this instrument are obliged to establish and maintain effective storage and collection measures to prevent the expired use, deterioration, misuse and misapplication of urine reagent strips and QCs. Reagents should be stored to avoid strong cold and hot environments.

### 7.4 Toxic and hazardous substances in products and their content

Parts Name	Hazardous Substances					
	Plumbum	Mercury	Cadmium	Hexavalent	Ploybrominated	Polybrominated
	(Pb)	(Hg)	(Cd)	chromium (Cr^6+)	biphenyls (PBB)	diphenyl ethers
				, , , ,		(PBDE)
Printed	0	0	0	0	0	0

Circuit						
Board Assembles						
Plastic	0	0	0	0	0	0
Metal	0	0	0	0	0	0

o: Indicates that the content of the toxic and hazardous substances in all homogeneous materials of the component meets the limit requirements specified in SJ/T 11363-2006 standard.

### 7.5 Electromagnetic compatibility

#### **∧** Note

- This instrument meets the emission and immunity requirements specified in GB/T 18268.1/ IEC 61326-1 and GB/T 18268.26/ IEC 61326-2-6, as shown in Table 1 and Table 2 below.
- It is the user's responsibility to ensure the EMC environment of the instrument so that the instrument can work properly.
- It is recommended that the electromagnetic environment be evaluated prior to the use of the instrument.

### **⚠** Warning

- This instrument is designed and tested as a Class A device in GB 4824/ CISPR 11: 2016.
   In a home environment, this instrument may cause radio interference and protective measures are required.
- It is prohibited to use this instrument next to strong radiation sources (e.g., non-shielded RF sources), as this may interfere with the normal operation of the instrument.

<sup>×:</sup> Indicates that the content of the toxic and hazardous substances in a homogeneous material of the component exceeds the limit requirement specified in SJ/T 11363-2006 standard.

Table 1

Electromagnetic Emission				
Launch Tests	Conformity			
GB 4824/ CISPR 11: 2016 Conducted emissions	Course 1 Class A			
GB 4824/ CISPR 11: 2016 Radiated emissions	Group 1 Class A			
GB 17625.1/IEC 61000-3-2: 2001 Harmonic emissions	Not applicable			
GB 17625.2/IEC 61000-3-3: 2005 Voltage fluctuations / flicker emissions	Not applicable			

Table 2

Electromagnetic Immunity					
Immunity Test Items	Basic Standards	Test Value	Conformity Performance Criteria		
Electrostatic Discharge (ESD)	GB/T 17626.2/IEC 61000-4-2	Contact discharge: ±2kV, ±4kV Air discharge: ±2kV,±4kV, ±8kV	В		
Radio Frequency Electromagnetic Field	GB/T 17626.3/ IEC 61000-4-3	3V/m, 80MHz~2.0GHz, 80% AM	A		
Pulse Group	GB/T 17626.4/IEC 61000-4-4	Power line: ±1kV (5/50ns, 5KHz)	В		
Surge	GB/T 17626.5- 2019/IEC 61000-4-5	Line to ground: ±2kV Wire to wire: ±1kV	В		
Radio Frequency Conduction	GB/T 17626.6/IEC 61000-4-6	Power line: 3V/m, 150kHz~80MHz, 80% AM	A		

Industrial Frequency Magnetic Field	GB/T 17626.8/IEC 61000-4-8	3A/m, 50 Hz	A
		0% for 1 cycle.	В
Voltage	GB/T	40% for 5 cycles.	С
Transients,	17626.11/IEC 61000-4-11	70% for 25 cycles.	C
Interruptions	01000 111	5% for 250 cycles.	С

#### Performance discriminations:

- A. When testing, the performance is normal within the specification limits.
- B. When testing, the function or performance is temporarily reduced or lost, but can recover on its own.
- C. When testing, the function or performance is temporarily reduced or lost, but requires operator intervention or system reset.

# **Appendix 1: Comparison table of testing items**

No.		
	English Name	English Abbreviation
1	Leukocytes	LEU
2	Nitrite	NIT
3	Urobilinogen	URO
4	Bilirubin	BIL
5	Vitamin C	VC
6	Protein	PRO
7	Occult blood	BLD
8	Potential of hydrogen	pH
9	Specific Gravity	SG
10	Glucose	GLU
11	Ketone body	KET
12	Microalbumin	MA
13	Creatinine	Cr
14	Urine calcium	Ca
15	Microalbumin to	ACR or MA/CR
	creatinine ratio	

# **Appendix 2: List of spare parts**

Part Name	Location	Replacement Cycle	Replacement Method	Remarks
Push tray holder	Transport	3 years	See 2.3.1 of this	
	mechanism		manual	
Strip transport	Transport	2 years	See 2.3.2 of this	
tray	mechanism	_ j cuis	manual	
Push bar	Push	2 years	See 2.3.3 of this	
	mechanism		manual	

# **Appendix 3: Symbols**

Caution, possibility of electric shock	Caution	Biological Risks	Consult instructions for use	Manufacturer
On (Power)	Off (Power)	≟ Earth (ground) TERMINAL	Fuse	Serial Number
I V D  In vitro diagnostic medical devices	OO Serial port	Sharp edges. Watch your fingers.	Keep Dry	Temperature limit
This way up	Fragile	Stacking limit by number	Do not roll	Network port
~ AC	USB interface	Keyboard Interface	Authorized representative in the European Community	CE marked according to Regulation (EU) 2017/746 In vitro diagnostic medical devices

# **Appendix 4: Barcode**

# **KU-U200 Color Turbidity**

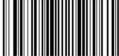






















## **Turbidity**







