



Laboratory Equipment Manufacturer  
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# Urine Analyzer

## UA-15 User's Manual



**PLEASE READ THIS MANUAL CAREFULLY BEFORE  
OPERATION**

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**MRC.VER.01-1.13**

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## How to use the manual

### General

Thank you to be the user of urine machine.

This manual is a user's guide for Urine Analyzer, and contents system installation, operating procedures and maintenance. We suggest that the user read the manual carefully.

Please read the ext.

The instruments with different versions or collocations will have some differences in functions

### Symbols description

#### Symbols in the manual



#### NOTE!

Notes contain additional information or tips when using the instrument.

#### Symbols on the instrument



Synonym for "Caution,consult accompanying documents" is "Attention, see instructions for use".

The symbol is labeled beside the power outlet and some external interface.

**SN**

The symbols for "SERIAL NUMBER", The serial number shall be after or below the symbol, adjacent to it.



The symbol means the product is in vitro diagnostic medical device.



The symbol indicates the manufacturer and its address, after which are shown its name and address.



The symbol indicates EU representatives of the manufacturer and their addresses, after which are shown their names and addresses.



The symbol indicates biological pollution, marked in the part where the instrument contacts the clinical reagent. The symbol appears in black side and yellow background.



The symbol indicates temperature range of the analyzers during storage and transportation.

# 1 Introduction

## 1.1 Specifications

Power Required	a.c.220V $\pm$ 22V ,50HZ $\pm$ 1Hz a.c.110V $\pm$ 11V ,60Hz $\pm$ 1Hz
Dimensions	270mm $\times$ 186mm $\times$ 170mm
Weight	2.0Kg
Ambient Operating Temperature range	10 $^{\circ}$ C to 30 $^{\circ}$ C
Ambient Operating Humidity range	$\leq$ 80%
Light Source	LED
Printer	EPSON micro thermo printer, width 57mm
Display	Liquid Crystal Display
Interface	RS-232C
Testing items	Leukocytes, Urobilinogen, Bilirubin, Nitrite, pH, Specific Gravity, Blood, Glucose, Protein, Ketone, Ascorbic Acid
Usable Strip	11 Para

Table 1.1

## 1.2 Displayed/Printed Results

	Arbitrary	Conversional	SI
LEU	-	neg.	
	$\pm$	15 cells/ $\mu$ L	
	1+	70 cells/ $\mu$ L	
	2+	125cells / $\mu$ L	
	3+	500cells/ $\mu$ L	
URO	Norm.	Norm.	Norm.
	1+	2.0 mg/dL	33 $\mu$ mol/L
	2+	4.0 mg/dL	66 $\mu$ mol/L
	3+	8.0 mg/dL	131 $\mu$ mol/L
	4+	12.0 mg/dL	200 $\mu$ mol/L
BLD	-	neg.	neg.
	1+	0.06 mg/dL	25 cells/ $\mu$ L
	2+	0.15 mg/dL	70 cells/ $\mu$ L
	3+	0.75 mg/dL	250cells/ $\mu$ L

Urine Analyzer

	Arbitrary	Conversional	SI
BIL	-	neg.	Neg.
	1+	1.0 mg/dL	17 $\mu$ mol/L
	2+	3.0 mg/dL	50 $\mu$ mol/L
	3+	6.0 mg/dL	100 $\mu$ mol/L
KET	-	neg.	neg.
	1+	15 mg/dL	1.5 mmol/L
	2+	30 mg/dL	3.0 mmol/L
	3+	80 mg/dL	8.0 mmol/L
GLU	-	neg.	neg.
	$\pm$	60 mg/dL	3 mmol/L
	1+	100 mg/dL	5.5 mmol/L
	2+	250 mg/dL	14 mmol/L
	3+	500 mg/dL	28 mmol/L
	4+	1000 mg/dL	55 mmol/L
PRO	-	neg.	neg.
	$\pm$	15 mg/dL	0.15 g/L
	1+	30 mg/dL	0.3 g/L
	2+	100 mg/dL	1.0 g/L
	3+	300 mg/dL	3 g/L
	4+	1000 mg/dL	10 g/L
PH	5		
	6		
	7		
	8		
	9		
NIT	-		
	1+		
	2+		
SG	1.005		
	1.010		
	1.015		
	1.020		
	1.025		
	1.030		
VC	-		0 mmol/L
	$\pm$		0.6 mmol/L
	1+		1.4 mmol/L
	2+		2.8 mmol/L
	3+		5.6 mmol/L

Table 1.2

## 2 Installation

### 2.1 General

This chapter provides detailed installation instructions for the Urine Analyzer. The installation steps must be followed correctly to ensure proper installation, operation and service. Read this section carefully before attempting to operate the instrument.

This is a precision instrument and must be handled accordingly. Rough handling or dropping of the instrument will disturb internal calibrated optics and/or cause other damage. Always handle the instrument with care.

### 2.2 Environment requirements

As with all sensitive electronics instruments, longtime exposure to excessive humidity and temperature should be avoided. Temperature should be held relatively constant to obtain the highest degree of operating stability. The ambient temperature range for instrument operation is 10°C to 30°C; the maxim ambient humidity is 80% relative humidity. Before operating, allow the instrument to equilibrate to the environment conditions.

Place the instrument where it will not be subjected to extreme temperature variations. Avoid proximity to open windows, ovens, hot plates, open burners, radiators, dry ice baths, and in particular, to direct sunlight. The machine should not be used in an explosive atmosphere.

### 2.3 Unpacking

Carefully remove the instrument and accessory package from the shipping carton. Inspect the carton and instrument for visible signs of damage. If damage to the instrument exists, immediately file a complaint with the carrier.

The following parts and accessories should be included with the instrument:

- ◆ Operating Manual ( 1 )
- ◆ Paper Roll ( 1 )
- ◆ Warranty card ( 1 )
- ◆ Power supply adapter ( 1 )
- ◆ RS-232C Communication Cable ( 1 )

Make sure all these items have been included with your instrument, and keep them for future use.

After the instrument has been unpacked, place it on a firm work surface in the designated work area. Make sure there is nothing in front of the instrument that will obstruct the reagent strip feed table when it moves out to the load position.



**NOTE: Retain the machine shipping carton for future use. If the instrument ever needs to be shipped, the shipping carton will afford the best protection.**

---

## 2.4 Structure of the Instrument

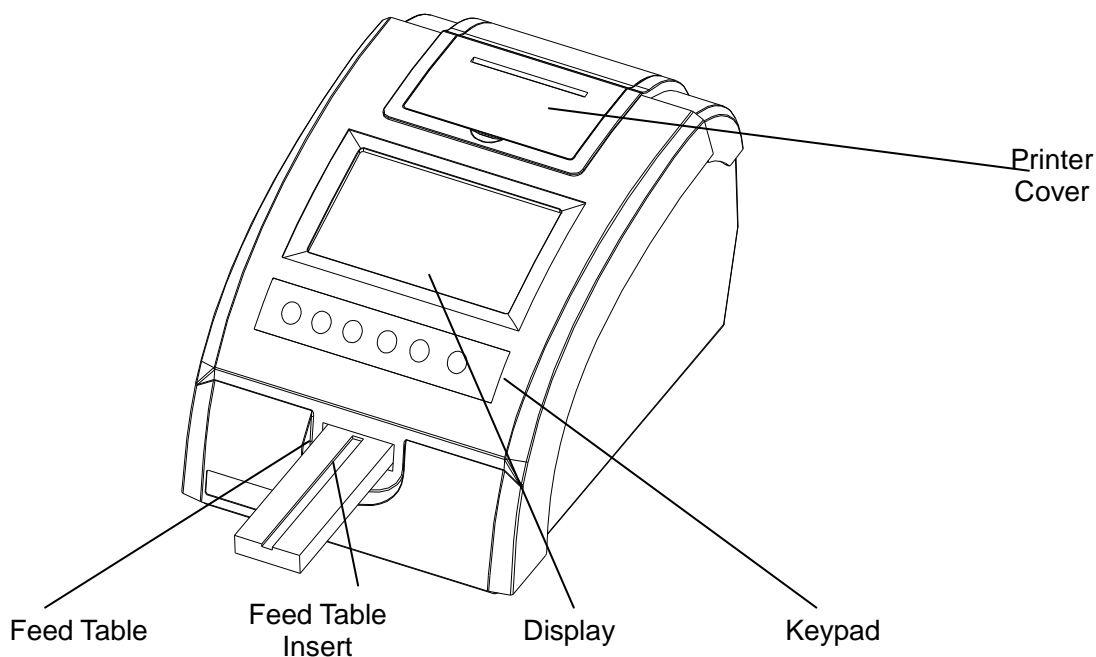


Figure 2.1

Figure 2.1 shows the front view of the instrument. Pay attention to the feed table and the feed table insert components. The reagent strip is held and moved in and out by these two components while being tested. The feed table is mounted on the instrument and cannot be removed from the instrument. The feed table insert is mounted on the feed table and can be removed from the feed table when need to be cleaned or disinfected (see 7. Maintenance of the Instrument).

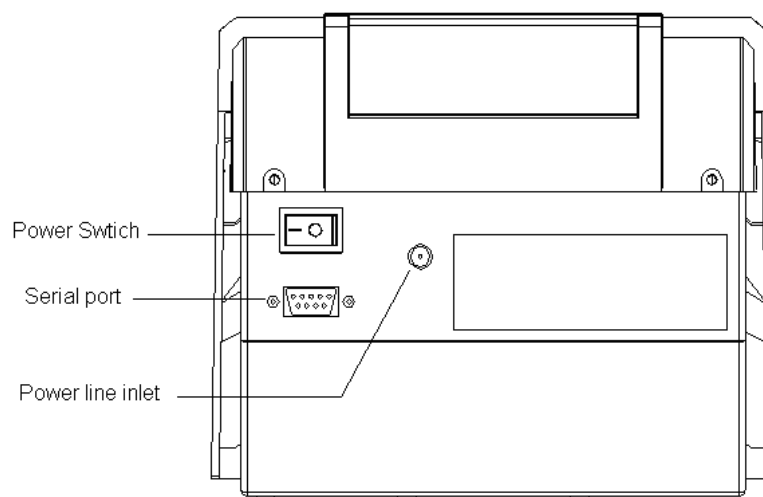


Figure 2.2

Figure 2.2 shows the rear view of the instrument. Pay attention to the “Voltage Select Switch”. Read **2.6 Power On** carefully before you power on the instrument.

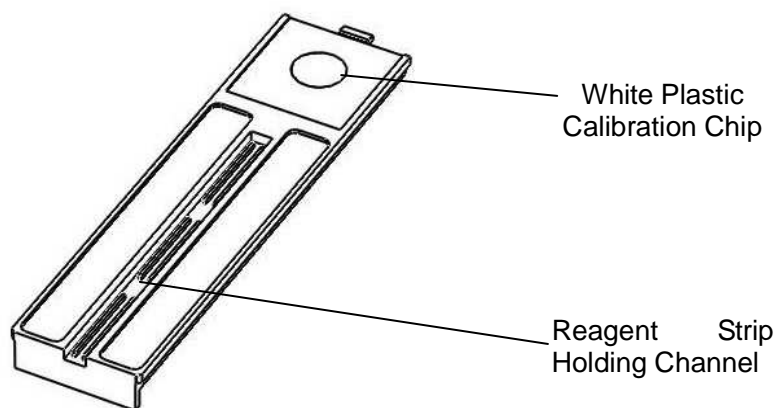


Figure 2.3

The reagent strip holding channel is used to hold the strip while being tested. The white plastic calibration chip is used to afford a calibration standard for photo metering. It must be treated carefully during the whole life of the instrument (see 7. Maintenance of the Instrument).

## 2.5 Connected to computer

The machine can also be connected to a host computer via the RS-232C serial port. Plug one end of the RS-232C cable into the serial port on the rear panel of the instrument; plug the other end into the serial port on the host computer.

## 2.6 Power On

Plug one end of the power line into the instrument and the other end into a appropriate grounded AC electrical outlet, then turn on the instrument by placing the power switch to the "1" position.



**NOTE: Incorrect position of the voltage selection switch will cause a damage.**

After the power is on, the instrument shows the logo immediately on the displayer and begins to perform a self diagnosis and calibration process. If any error reported during the progress, refer to the Troubleshooting. Once the self diagnosis and calibration process completed, the instrument will show the system main menu including the logo, the software version, operating items, date and time.

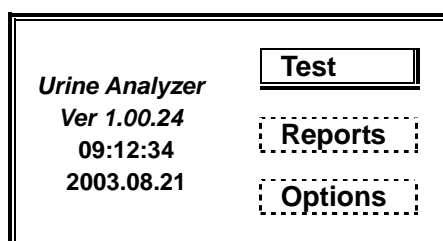


Figure 2.4



## 2.7 Install Paper Roll

There is no paper roll in the printer when being shipped. Install a paper roll before using the instrument.

1. Be sure that the instrument is in idle state, press **Esc** until the display return to the main menu.
2. Lift the printer cover on the top of the instrument.
3. Remove the used paper roll core.
4. Place a new roll of paper into the printer, with the paper unrolling from the beneath.
5. Feed the paper under the roller, and to advance the paper through the printer press **▶**. If the paper does not catch immediately, gently feed the paper into the roller while continuing to press **▶**. To make insertion easier, be sure the leading edge is a clean, straight cut; trimming the paper to a point may also assist in easier insertion.
6. Allow 4-5 cm of paper to advance through the roller, then feed the paper through the opening on the printer cover. Place the lip of the cover under the ledge on the instrument opening and close the cover. Press down firmly on the back of the cover until it snaps into place.

## 2.8 Adjust the Display

1. Open the printer cover on the top of the instrument.
2. Adjust the potentiometer (see Figure 2.5 ) using a suitable screwdriver, rotate it to find a position where the contrast of the screen is the most suitable.

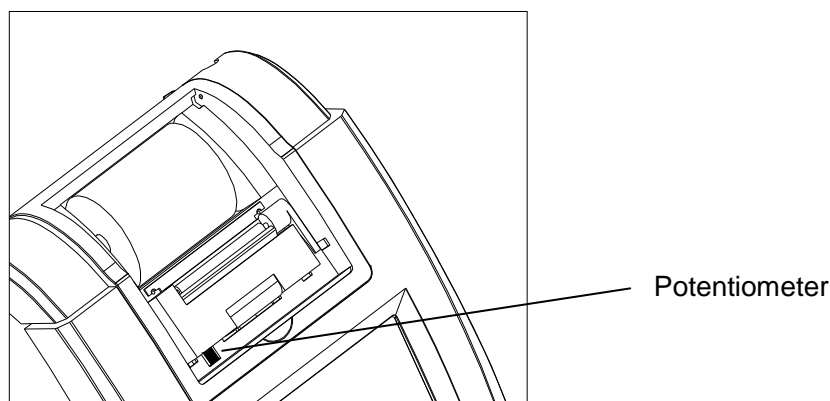


Figure 2.5

3. Reinstall the printer cover.

## 2.9 Introduction of Software

Figure 2.4 shows the main menu of the instrument. It is the entry of a multi-level menu system, from which all the user-selectable functions can be accessed. The main menu displays the date, time and the software version.





The main menu lists 3 menu items, “Test”, “Reports” and “Options”. The item surrounded by a shadowed box is the item being selected.

The content of the menu is the following:

Test	Single Mode	
	Slow Batch Mode	
	Fast Batch Mode	
Reports		
Options	Critical Value	
	Grade	
	Strip	
	Displayer	
	Real-time Clock	Date
		Time
	Printer	Option
		Shade
		Diagnosis
	Serial Port	9600
		19200
		38400
		57600
Serial No	700801001	

Table 2.1

The operator executes the designated functions using the keyboard. The Keyboard includes 3 arrow keys and 3 function keys.

Key	Function
	Used to show or close a pop-up menu or mark a specimen during testing.
	Used to select the previous menu or option, or increase the selected digit while a number is being edited.
	Used to select the next menu or option, or decrease the selected digit while a number is being edited.
	Used to select the next digit while editing an integer, to feed paper at the main menu or to select the menu in the next column while multi column being displayed.

Key	Function
Esc	Used to stop current operation; Used to exit from current menu to upper menu level.
Start	Used to begin a reagent test or to make new settings accepted;

Table 2.2

When any menu under the main menu being displayed, the menu title is shown at the top of the displayer to indicate the location of the current menu, for example:

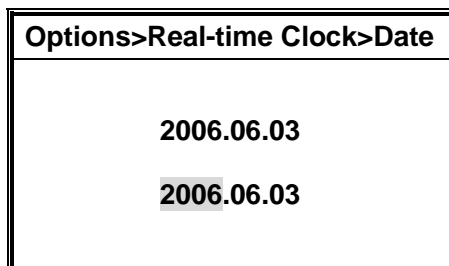


Figure 2.6

Sometimes pop-up menu is used to accept instructions from the operator. Press Fn to show a pop-up menu, for example:

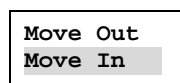


Figure 2.7

The highlighted item is the item being selected. Press Start to execute the corresponding function, Esc or Fn to close the pop-up menu.

When a parameter need is to be input, the software will show an input box, for example:

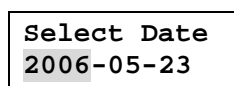


Figure 2.8

If the parameter being edited has several segments, use ▶ to change the select fields and press ▲ / ▼ to modify. Press START to validate the input.

When an error occurs, the software will show a message box with a short and a long buzz, for example:

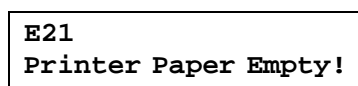


Figure 2.9

When a long process being done, the software will show a message box to indicate the status, for example:

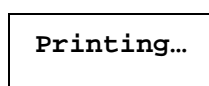


Figure 2.10

## 2.10 Turn off the Instrument

1. Be sure that the instrument is in idle state, press **Esc** until the display return to the main menu.
2. Press **Fn** to show a pop-up menu:

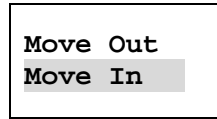


Figure 2.11


3. Select "Move In" by **▲** and **▼**, and press **Start**, the feed table begins to move in until the storage position.
4. Place the power switch to the "0" position.



**NOTE: It is strongly recommended that the feed table should be moved to the "storage" position before turning the instrument off.**

---

### 3 Setup

At the main menu( See Figure 2.4 ), use  and  as necessary to select “Options” , and press  to enter “Options” menu:

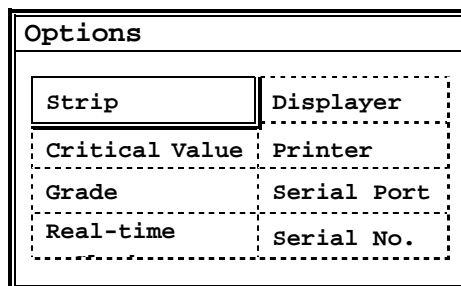





Figure 3.1

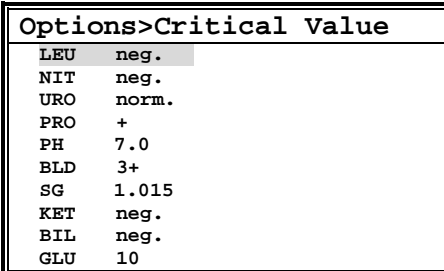
In this menu, the operator can:

- ◆ Correct the system clock;
- ◆ Set the options for printer and serial port;
- ◆ Select the reagent strip , testing results output unit and critical values;
- ◆ Show serial No. of the instrument.

#### 3.1 Critical Value




Critical values are a set of values to be compared with the testing results. If the result of a certain parameter is the same as or higher than the corresponding critical value, a “\*” will be inserted in front of the corresponding row while the report being displayed and printed.

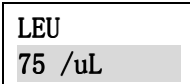
At the “Options” menu, use  and  to select “Critical Value”, press  to enter the “Options>Critical Value” menu:



Options>Critical Value	
LEU	neg.
NIT	neg.
URO	norm.
PRO	+
PH	7.0
BLD	3+
SG	1.015
KET	neg.
BIL	neg.
GLU	10





Figure 3.2

Use  and  to select a parameter to be modified, press  to show a pop-up window:



LEU
75 /uL

Figure 3.3

Use  and  to change the value, press  to validate the modification or press  to abandon.

### 3.2 Grade

The “Options>Grade” menu is used to select the grade unit system in which the results being displayed and printed. The selectable unit systems are Arbitrary, Conversional and SI. For detail, refer to Table 1.1.

At the “Options” menu( See Figure 3.1 ), use ▲ and ▼ to select “Grade”, press **Start** to enter “Options>Grade” menu:

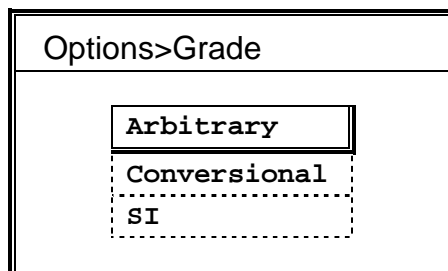


Figure 3.4

Use ▲ and ▼ as necessary to select the designated unit system, press **Start** to validate the new selection.

### 3.3 Real-time Clock

The instrument equipped a real-time clock chip to afford date/time information while a report is generated. After the instrument was unpacked, the real-time clock should be corrected according to the local time immediately.

At the “Options” menu( See Figure 3.1 ), use ▲ and ▼ to select “Real-time Clock”, press **Start** to enter the “Options>Real-time Clock” menu:

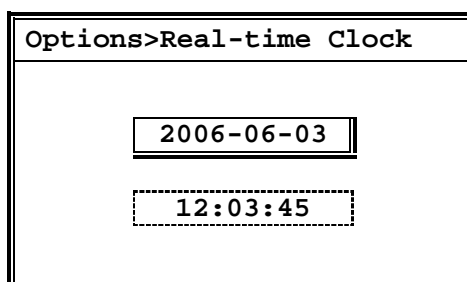


Figure 3.5

Use ▲ and ▼ to select the date, press **Start** to modify the date:

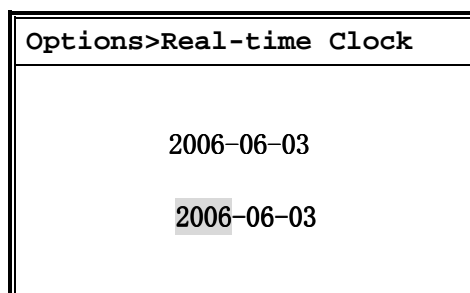


Figure 3.6

Press **▶** to move highlighted block among the year, month and day fields. Press **▲** and **▼** to modify the value of the current field. Press **Start** to validate the new date, and press **Esc** to return to the “Options>Real-time Clock” menu.

At the “Options>Real-time Clock” menu( See Figure 3.2 ), use **▲** and **▼** to select the date, press **Start** to modify the date:

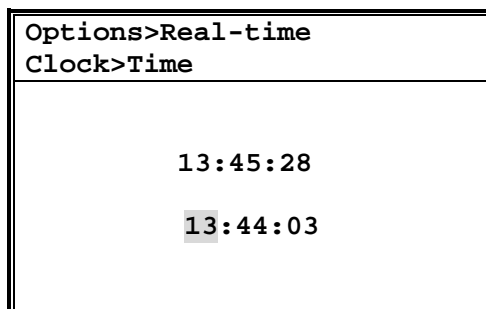


Figure 3.7

Press **▶** to move highlighted block among the hour, minute and second fields. Press **▲** and **▼** to modify the value of the current field. Press **Start** to validate the new time, and press **Esc** to return to the “Options>Real-time Clock” menu.

**⚠ NOTE: The testing reports stored in the Flash ROM of the instrument are organized by date, time and sample No. Incorrect modification to the real-time clock will cause confusions.**

### 3.4 Printer

The “Options>Printer” menu used to set auto print option and print shade or perform a test print. At the “Options” menu( See Figure 3.1 ), use **▲** and **▼** to select “Printer”, press **Start** to enter “Options>Printer” menu:

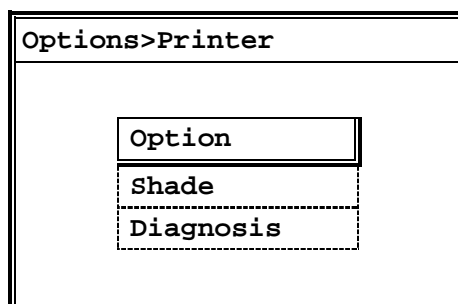


Figure 3.8

Use **▲** and **▼** to select “Auto Print”, press **Start** to modify the auto print option:

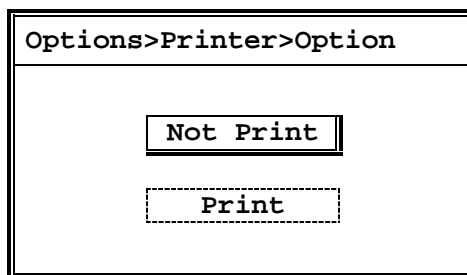


Figure 3.9

Press  and  to select “Yes” or “No”, press  to validate the new option. If “Yes” is selected, the instrument will print a report after a urine sample was tested.

At the “Option>Printer” menu( see Figure 3.3 ), use  and  to select “Shade”, press  to modify the print shade:

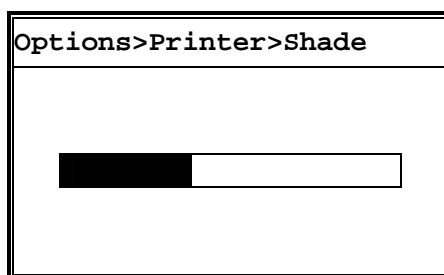


Figure 3.10

A bar shows the relative value of the print shade. Press  to increase the shade and  to decrease the shade. Press  to validate the new value.

The print shade varies in different seasons. In cold seasons, the print shade should be set to higher values. In warm seasons, the print shade should be set to lower values.

### 3.5 RS-232C

The instrument equipped a RS-232C serial port for communication with a host computer. The “Options>Serial Port” menu is used to set the baud rate of the serial port. At the “Options” menu( See Figure 3.1 ), use  and  to select “Serial Port”, press  to select the baud rate:

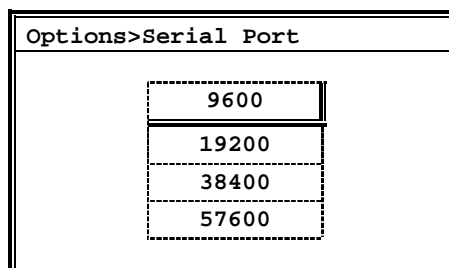


Figure 3.11

Press  and  to select the designated baud rate, press  to validate the new value.



### 3.6 Serial No.

At the "Options" menu( See Figure 3.1 ), use  and  to select "Serial Port", press  to view the serial No. of the instrument:

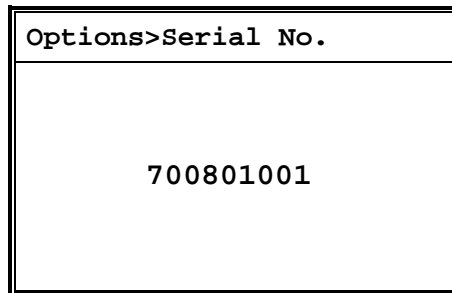


Figure 3.12

## 4 Testing

The instrument supports 3 testing modes: single mode, slow batch mode and fast batch mode. Under the single mode, the operator is required to press **Start** every time to start a test and can do 60 tests per hour. Under the slow or fast batch modes, once the operator presses **Start**, the instrument will start to test strips continuously unless the operator presses **Esc** to terminate the procedure. The instrument can test 60 tests per hour under the slow batch mode and 120 tests under the fast batch mode.

The software of the instrument manages the testing reports by the sample No. and the date. The sample No. is a 3 digits number from 000 to 999 used to identify a particular sample. That is to say, the instrument can do up to 1000 tests and save all the 1000 reports in its Flash ROM.

At the main menu( See Figure 2.4 ), use **▲** and **▼** to select “Test”, and press **Start** to enter “Testing” menu. The instrument will then prompt the operator to decide the testing mode and the sample No.

### 4.1 Select testing mode

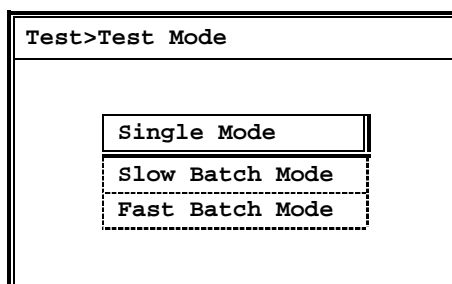


Figure 4.1

3 testing modes are listed on the display and the mode used recently is automatically selected. Using **▲** and **▼**, to select the desired mode, then press **Start**, the display goes to the next step to decide the sample No. If the mode selected by the operator is different from the recently used mode, the software will save this new setting to the Flash ROM.

### 4.2 Select sample No.

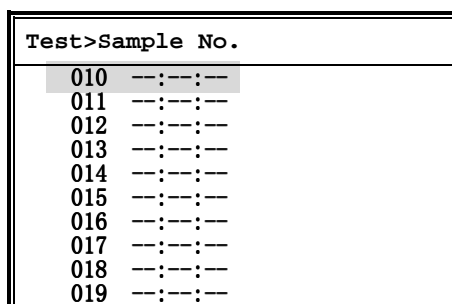





Figure 4.2

5 samples are listed on the display and the sample No. next to the latest sample is automatically selected. Sample No. and the time when being tested are used to identify a sample. A prefixed “\*” indicates that the sample has at least a result higher than the corresponding critical value, and a prefixed “†” indicates a sample marked by the operator during the testing. “--:--:--” indicates no testing was done under this No. Press  and  to change the selection. The list will scroll when operator try to select the sample previous to the sample listed on the top or next to the sample listed on the bottom. The operator can also enter the desired sample No. directly by pressing  to pop-up an input box:

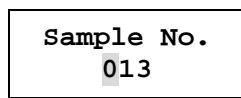







Figure 4.3

Press  to change the select digit and press  /  to modify. Press  to validate the input.

When the sample No. selection is done, press  to start testing under the mode selected before.

### 4.3 The single mode

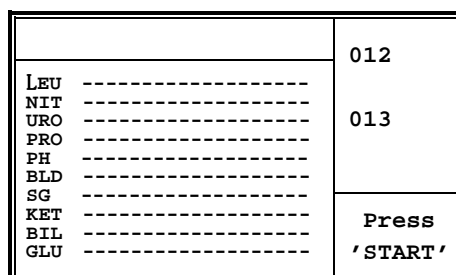



Figure 4.4

Figure 4.1 shows the display of single mode testing. The display area is divided into 4 blocks. The top-left is the sample number area, the bottom-left is the report area, the top-right is the progress area, and the bottom-right is the user prompt area.

Press  to start testing. The internal timer of the instrument begins to count down and a progress bar is shown under the sample number at the progress area. With 3 short noises from the buzzer, and the message “Dip 012” shown at the prompt area, the operator is prompted with immerse all reagent areas of the reagent strip in the urine; following the long noise from the buzzer and a “Place 012” prompt, place the reagent strip on the feed table. Then the feed table will move to the inside of the instrument. The instrument will test the stripe block by block when the feed table moving outside. When the feed table return to the original position the entire test cycle is over, and the result of the test is displayed at the report area, and output via the thermo printer.

Press  to start a new test cycle.

#### 4.4 The Batch Modes

If “Slow Batch Mode” was selected, the instrument will prompt operator to dip the reagent strip 60 seconds after the first strip test started.

If “Fast Batch Mode” was selected, the instrument will prompt operator to dip the reagent strip 30 seconds after the first strip test started.

012 09:12:36		013
LEU -		<input type="checkbox"/>
NIT -		<input type="checkbox"/>
URO normal		014
PRO +-		<input type="checkbox"/>
PH 7.0		
BLD 1+		
SG 1.010		
KET 8.0 mmol/L		
BIL 3+		
GLU 3+		
		Press
		'START'

Figure 4.5

At any moment during the test cycle, operator can browse the reports generated recently using **▲** and **▼**. Operator can mark a report by press **Fn**. The mark can be seen later in the report menu.




#### 4.5 Stop Testing

At any moment during the test cycle, operator can stop the testing process by pressing **Esc**, the display will return to the main menu (see Figure 2.4.).

## 5 Reports

The instrument can store up to 1000 reports in its Flash ROM. A report is saved to the Flash ROM immediately after a test is done. When the storage overflows, the oldest 333 reports will be dropped. All the reports can be recalled in the “Reports” menu.

### 5.1 Date List


At the main menu( see Figure 2.5 ), use  and  to select “Reports” and press , the instrument begins to search through the report storage, then lists all the date in ascend order. The most recent date is listed in the bottom of the display.

History record
2006-05-18
2006-05-19
2006-05-21
2006-05-22
2006-05-23
2006-05-24
2006-05-25
2006-05-26
2006-05-28
2006-05-30

Figure 5.1




Use  to select the previous date and  to select the next date. At this moment, the operator can

- ◆ Change the selected date by input a date directly.
- ◆ Delete the reports generated between two specified dates;
- ◆ Transmit reports of the selected date;
- ◆ Print reports of the selected date;

Press  to show a pop-up menu.





Select Date
Delete
Transmit
Print

Figure 5.2

Use  and  to select “Select Date” and press , the instrument prompts the operator to input a new date:

Select Date
2006-05-23

Figure 5.3

Use  to move the high lightened block among the year, month and day fields, use  and  to modify the highlighted field and press  when done. The date list in Figure 5.1 will scroll to the specified date. If the specified date does not exist in the list, the date list will scroll to the

nearest date.

Select “Delete” item of the pop-up menu (See Figure 5.2) and press **Start** to delete reports generated between 2 specified dates. First the instrument asks the operator to enter the start date.

A rectangular box with a double border. The top line contains the text 'From'. The bottom line contains the date '2006-05-23'.

Figure 5.4

Use **▶** to move the highlighted block among the year, month and day fields, use **▲** and **▼** to modify the highlighted field and press **Start** when done. Then the instrument asks the operator to enter the end date.

A rectangular box with a double border. The top line contains the text 'To'. The bottom line contains the date '2006-05-23'.

Figure 5.5

Use **▶** to move the high lightened block among the year, month and day fields, use **▲** and **▼** to modify the highlighted field and press **Start** when done. At last the instrument prompts the operator to confirm.

A rectangular box with a double border. The text inside reads: 'Delete the reports from 2006-05-19 to 2006-05-23 ?' followed by 'Yes' and 'No' on the next line.

Figure 5.6

Select “Yes” and press **Start** to delete the reports. Select “No” and press **Start** to abandon.

Select “Transmit” item of the pop-up menu (See Figure 5.2) and press **Start** to transmit reports of the selected date. First the instrument asks the operator to enter the start sample No.

A rectangular box with a double border. The top line contains the text 'Start No.'. The bottom line contains the number '000'.

Figure 5.7

Modify the start sample No. using **▲**, **▼** and **▶** press **Start** when done. The instrument asks the operator to enter the end sample No.

A rectangular box with a double border. The top line contains the text 'End No.'. The bottom line contains the number '999'.

Figure 5.8

Modify the end sample No. using **▲**, **▼** and **▶** press **Start** when done. The instrument begins to transmit the reports between the start No. and the end No. to the host computer via RS-232C serial port. A message box will be shown during the transmission.

Figure 5.9

Press **Esc** to stop the transmission.

Select "Print" item of the pop-up menu (see Figure 5.2 ) and press **Start**, to print reports of the selected date. As same as the transmitting process described above, the instrument will ask the operator to enter the start No. and the end No. When the end number was entered, press **Start** to print the reports between the start No. and the end No. A message box will be shown during the printing process.

Figure 5.10

Press **Esc** to stop the printing process.

## 5.2 Report

At the date list (See Figure 5.1 ), press **Start** to browse the reports of the specified date.

Reports>2006-05-23		
	LEU	neg.
*052	NIT	neg.
08:12:40	URO	norm.
	*PRO	+
	PH	7.0
	*BLD	+++
	SG	1.015
	KET	neg.
	BIL	neg.
	*GLU	10

Figure 5.11

If the date is today, the report of the most recently testing will be first displayed, otherwise the report with the smallest sample No. will be first displayed. Press **▲**, to view the previous report and **▼** to view the next report. Press **FUN** to show a pop-up menu.

Figure 5.12

Notice that the "Mark" item will be shown only if the report of today is shown. Use **▲** and **▼** to select the designed item, press **Start** to perform the corresponding function.

Select "Print" and press **Start** to print the report.

Select "Transmit" and press **Start** to print to the host computer via the RS-232C serial port.

Select "Mark" and press **Start** to mark the report. The mark can be seen at the "Testing>Sample

No” menu. If the report being currently displayed has already been marked, “Remove Mark” will be shown instead of “Mark”.

Select “Select No.”, the instrument prompt the operator to enter a new sample No.

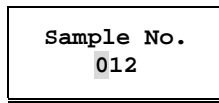


Figure 5.13

Modify the end sample No. using ▲, ▼ and ► press **Start** when done. The report with the specified sample No. will be shown if exists, otherwise the report with the nearest sample No. will be shown.



## 6 Troubleshooting

If the instrument is in an abnormal condition, or being operated incorrectly, an error will occur. Table 6.1 lists all the errors and corresponding remedies.

Error ID	Message	Remedy
E01	System Memory failure	The system memory failed and the instrument can't work. Please contact the customer service.
E02	System Data Failure	The calibration data lost and the instrument can't work. Please contact the customer service.
E03	Feed Table Failure	The instrument can't find the mechanical origin of the feed table. Please turn off the power off and retry for few more times.  If not succeeded, please contact the customer service.
E04	Calibration Error	Clean the white plastic calibration chip as instructed in 7.2 Daily Maintenance, and turn the instrument once more.  If not succeeded, contact with the customer service.
E05	Feed Table Polluted	If any foreign material is in the reagent strip holding channel, remove it;  If the feed table insert is heavily polluted by the urine specimen, clean it as instructed in 7.2 Daily Maintenance.
E10	Stray Light Error	Confirm if the instrument is located under direct sunlight, or there is a strong light source working near the instrument.  Please place the instrument as instructed in 2.2 Environment Requirements.
E11	Positioning Error	The urine sample being tested should be tested once more.  If this error usually occurs, contact the customer service.
E12	Strip Placement Error	Confirm if a reagent strip is placed on the feed table and the tip of the strip touches the end of the strip holding channel. If not, replace the strip in 10 seconds and press <b>Start</b> .
E21	Printer Paper Empty	Please install a new paper roll.
E22	Printer Handle	Put the handle of the printer to the "down" position.

Table 6.1

## 7 Maintenance of the Instrument

### 7.1 General maintenance

Keep the exterior of the instrument free from dust at all time. If needed, the exterior may be cleared using a damp cloth and a mild detergent. Do not use any type of solvent on any part of the instrument. Do not use any type of lubrication on the instrument. Use of oil, grease, silicon spray, or any other lubrication may cause a damage.

### 7.2 Daily maintenance

The feed table and feed table insert must be kept clean to obtain the best result with the instrument / reagent strip system. At the end of each day use, the instrument's white plastic calibration chip, located on the feed table insert, and the reagent strip holding channel should be cleaned. To clean the feed table insert, perform the following:

1. Turn the instrument on. The feed table will move out from the "storage" position to the "load" position.
2. Grasp the front end of the insert on each side with the thumb and one finger. Apply a counter pressure with the palm of the hand against the feed table and gently pull the insert outward. After the insert is completely exposed, lift the front end of insert up and off the table.

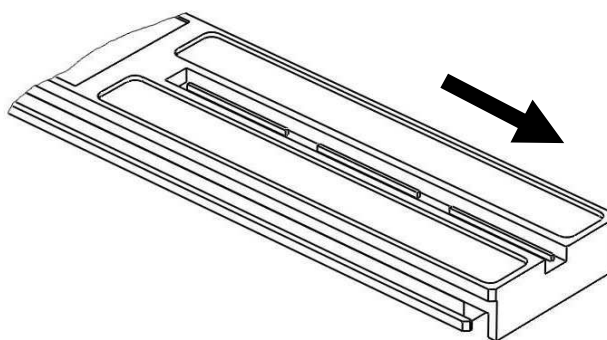


Figure 7.1

3. Clean the insert using a cotton-tipped applicator stick or other suitable absorbent material wetted with distilled water. Thoroughly swab the strip holding channel area until it is clear. Inspect the surface of the white plastic calibration chip for dust, foreign material, scratches or scuffs. If necessary, gently wipe the calibration chip with a cotton-tipped applicator stick wetted with distilled water. Allow the calibration chip to air dry before using. Make sure no foreign particles remain on its surface. If the calibration chip cannot be cleaned or is scratched or scuffed, contact the customer service for replacement.



**NOTE: Do not use any material that will scratch the feed table insert or the white plastic calibration chip. Do not use solvents of any kind to clean the calibration chip.**

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4. Wipe the feed table surface and feed table mounting groove with a damp cloth. Wipe the feed table dry with an absorbent tissue.



**NOTE: Residual water or solution on the feed table or feed table insert will cause a damage to the electronic components inside the instrument.**

---

5. To replace the feed table insert in the feed table:  
Hold the feed table insert in the same manner as when it was removed( holding it by the end opposite the calibration chip ). With the front end angled upwards, insert the calibration chip end about midway onto the feed table. Slide the insert in while lowering the front end until the insert is laying flat against the table and resistance is felt. Then place the thumb against the front edge of the insert and two fingers against the underside of the feed table. Apply a counter-pressure to the feed table while pressing the insert firmly inward. The insert is properly positioned in the feed table when the front edge is flush with the retain rails of the feed table.
6. After replacing the feed table insert, the LEDs must be recalibrated. To ensure this occurs, turn the instrument off, wait several seconds, then turn it on again before testing additional samples.

### 7.3 Disinfection

The only part of the instrument that comes into contact with the urine specimen is the feed table insert. To disinfection the insert, perform the followings:

1. Remove, clean and dry the feed table insert as instructed in 7.2 Daliy Maintenance
2. Prepare one of the following solutions for use in disinfection:
  - a. 2% glutaraldehyde solution - Cidex™ ( use full strength )is a commercially available product that is acceptable for use. Refer to the labeling accompanying this disinfection product for complete instructions on its use.
  - b. 0.05% sodium hypochlorite solution – dilute 1 mL of 5% sodium hypochlorite( e.g., Clorox® Bleach ) into 99 mL of water for a 1:100 dilution.
  - c. Isopropyl alcohol ( 70% - 85%), undiluted.
3. Fill a tall, narrow container to a depth of 4 inches( 10cm ) with the disinfection solution.

4. Immerse the feed table insert into the disinfection solution. so the white plastic calibration chip must be above the liquid level.



***NOTE: Do not allow the disinfection solution to come in contact with the white plastic calibration chip, located on the feed table insert, or with any other portion of the feed table or instrument.***

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5. Allow the feed table insert remain in the solution for 10 minutes.
6. Remove the feed table insert and rinse thoroughly with distilled water to remove any residual solution.
7. Wipe the feed table insert in dry with a absorbent tissue.
8. Replace the feed table insert in the feed table, as instructed in 7.2 Daily Mantentce.

#### **7.4 Periodic maintenance**

If the feed table insert becomes excessively dirty and cannot be adequately cleaned as described in 7.2 Daily Cleaning, the following procedure should be used:

1. Remove the feed table insert from the table, as described in 7.2 Daily Mantentce.
2. Wipe the strip holding channel of the feed table insert with 0.1N sodium hyndroxide( NaOH ) using a cotton-tipped applicator stick or other suitable absorbent material. Thoroughly swab the channel area until it is clean.



***NOTE: Do not wipe the white plastic calibration chip with the NaOH. Do not use any material that will scratch the feed table insert. Do not allow the NaOH to come in contact with the white plastic calibration chip or with any other portion of the feed table or instrument.***

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3. Rinse the feed table insert channel thoroughly with water to remove any residual NaOH.
4. Wipe the feed table surface and feet table mounting groove with a damp cloth. Wipe the feed table dry with an absorbent tissue.
5. Replace the feed table insert in the feed table, as instructed in 7.2 Daily Mantentce.