

*iChem*TM₁₀₀

Urine Chemistry Analyzer

Operators Manual



Iris Diagnostics

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Introduction

Intended Use

The iChem[™]100 Urine Chemistry Analyzer is a semi-automated urine chemistry analyzer intended for use only with iChem[™] 10 SG Urine Chemistry Strips for the in vitro measurement of the following analytes in urine: glucose, protein, bilirubin, urobilinogen, pH, specific gravity, blood, ketones, nitrite, leukocytes, ascorbic acid, color and user-defined clarity.

This document is the Operators Manual for the iChem100 Urine Analyzer. It is intended to explain system operation in detail and to be used as the basis for training new operators. Retain this manual for future use. It is an information guide and a troubleshooting reference. It explains program settings and gives maintenance instructions.

How to use the Operator's Manual

This manual contains important information on the functions of the iChem100 distributed by Iris Diagnostics. This manual contains instructions for the operation, maintenance and troubleshooting of the iChem100.

Before operating the iChem100, read this manual carefully.

1. Introduction

Precautions and Warnings

The Operators Manual includes information and warnings that must be observed by the operator in order to ensure safe operation of the system. Important messages are highlighted with borders and special icons identifying the type of message enclosed.

There are four types of messages: Notes, Cautions, Warnings and Biological Warnings.

Notes



NOTE: Highlights important facts, gives helpful information and tips and clarifies procedures.

Cautions



CAUTION: Electrical caution! Unplug before handling.



CAUTION: Important information on the proper operation of the iChem100 Urine Analyzer. This information is crucial in preventing instrument damage and maintaining the analyzer.



CAUTION: Laser light caution. A laser is used to read the barcodes. Protect eyes from the laser light.

Warnings



WARNING: Identifies potentially hazardous situations that could result in serious injury to laboratory personnel.

Biological Warnings



WARNING: Use care when handling urine samples or used test strips. Always wear gloves to prevent exposure to pathogens. Incorrect or imprecise procedures may result in exposure to pathogens. This unit must only be used by operators trained in proper procedures for clinical testing and handling of biohazardous waste.

Warnings, Precautions, Limitations

- Do not place the iChem100 in water.
- Do not drop or throw the instrument.

1. Introduction

- Operate the instrument on a dry, level surface.
- Do not move the instrument while a test is in process.
- Plug the instrument into a grounded power source.
- Avoid sources of bright light/heat.

Iris Diagnostics Contact Information

Customer opinion and input is extremely important to us. Iris Diagnostics wants to design products that meet your needs. Comments on this manual should be directed to:

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Warranty

Iris Diagnostics, a Division of IRIS International, Inc. (Iris) warrants that the products manufactured by it or its affiliates and sold hereunder shall be free from defects in material and/or workmanship, under normal use and service, for the period expiring twelve (12) months from the completion of installation, or upon Purchaser's signature on Iris Diagnostics Warranty/ Acceptance form, or fifteen (15) months from shipment, whichever occurs first. No warranty extended by Iris Diagnostics shall apply to any products which have been modified, (including any third party software), altered, or repaired by persons other than those authorized or approved by Iris Diagnostics or to products sold as "used."

Iris Diagnostics' obligation under this warranty is limited SOLELY to the repair or replacement, at Iris Diagnostics' option, of defective parts, F.O.B. warehouse or local Iris Diagnostics office, or as otherwise

1. Introduction



specified by Iris Diagnostics. Repairs or replacement deliveries shall not interrupt or prolong the term of this warranty. Iris Diagnostics' warranty does not apply to consumable materials, except as specially stated in writing, nor to products or parts thereof manufactured by the Purchaser.

This limited warranty is made on condition that immediate written notice of any defect be given to Iris Diagnostics and that Iris Diagnostics inspection reveals that the Purchaser's claim is valid under the terms of this warranty.

IRIS DIAGNOSTICS MAKES NO WARRANTY OTHER THAN THE ONE SET FORTH HEREIN OR THAT WHICH MAY BE PROVIDED IN A SEPARATE WARRANTY COVERING THE APPLICABLE PRODUCT CATEGORY. SUCH LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY EXPRESSED OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSES AND SUCH CONSTITUTES THE ONLY WARRANTY MADE WITH RESPECT TO THE PRODUCTS.

Limitation of Liability

Iris Diagnostics shall not be liable for any loss of use, revenue or anticipated profits, or for any consequential or incidental damages resulting from the sale or use of the products.

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2. System Description



Theory of Operation

The iChem100 is a semi-automated urine chemistry analyzer performing measurements of urine chemical constituents utilizing test strips. The iChem100 is a reflectance densitometer.

Features

The iChem100:

- reads and interprets without operator variability
- processes and analyzes urine strips with a throughput of 210 samples per hour
- enables entry of microscopic results
- enables automated urine color determination with up to twelve programmed choices
- reads ascorbic acid for interference detection
- allows users to correct or compensate for urine discoloration
- allows batch and stat mode for sample processing

Test Strips

The test strips have reagent-impregnated specialty paper pads to perform chemical analysis of:

- bilirubin
- urobilinogen
- ketones
- ascorbic acid
- glucose
- protein
- blood
- pH
- nitrite
- leukocytes
- specific gravity

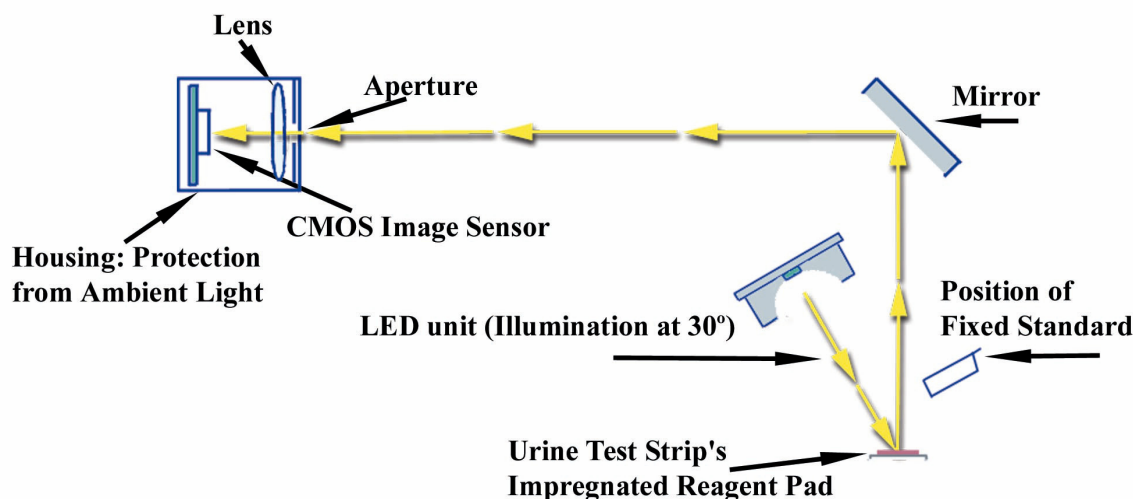
The advantage of this approach is ease of testing. The process requires that an operator dip the urine test strip with its reagent-impregnated pads into and out of a urine sample. This action brings the reagent-impregnated pads into contact with the urine containing the analytes to be

2. System Description

tested. Once the test strip has been dipped into the urine, color develops on each of the reagent-impregnated pads in direct proportion to the amount of analyte present in the sample. The test strips have a compensation pad to determine the color of the urine as well as correct for color interference on the impregnated reagent pads.

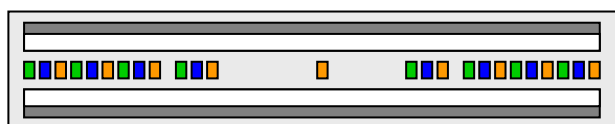
After the test strips are placed on the Test Strip Tray with correct orientation, they are automatically transported to the measurement window and the remainder of the operation is performed automatically by the iChem100.

Optics



LED Unit

For the illumination of the measurement, a LED Unit with three different wavelengths LEDs (450nm, 530nm and 625nm) is used. To increase homogeneity, the LED's are not placed regularly over the measurement window but are placed mainly towards the outer area of the LED Unit. In order to achieve a very high light intensity, one reflector and one anti-reflector are placed beside the LED line. With this optical design, the entire urine test strip is illuminated.



LED Unit Inside View



Side View

2. System Description

CMOS Image Sensor

Unlike most of the reflectometers in the market for urine test strip analysis, the iChem100 does not use a photodiode detector to measure the reflected light, but instead utilizes a CMOS (Complementary Metal Oxide Semiconductor) image sensor that captures a color image of each of the test pads. The CMOS image sensor is able to photograph almost the whole length (100mm) of the urine test strip and all of its width. As seen in the figure above, the CMOS image sensor has been placed perpendicular to the measurement level, and since the height of the instrument limits the optical length, a mirror has been used for changing the direction of the beam.

Optics Calibration

Prior to each measurement, the optics assembly is calibrated using a “fixed standard” and it permits a one-point calibration. The iChem100 is also capable of performing an internal, automated two-point calibration if the one-point calibration done before each specimen determination falls outside of the acceptable limits. A secondary “movable standard” is automatically moved into place and readings from it in conjunction with the “fixed standard” are used to perform a two-point calibration. No external calibration strips or procedures are required.

Measurement

Once calibrated, the urine test strip is sequentially illuminated by the LEDs (Red, Blue, Green) that are located at a 30° angle to the impregnated reagent pads, and the reflected signals are sent via the mirror through the lens and captured by the CMOS camera. The captured signal is evaluated and a completed result is provided for each of the chemistries.

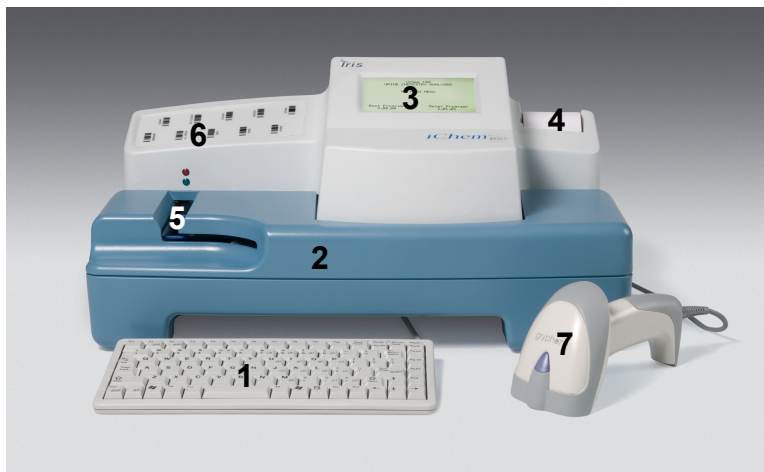
The iChem100 uses a compensation pad to determine the color of the urine as well as correct for color interference on the impregnated reagent pads. Since the iChem100 is capturing a pixelized image of the blood pad, a special algorithm has been developed using more than a reflectance to differentiate between intact and hemolyzed red blood cells.

2. System Description

iChem[™]₁₀₀
Urine Chemistry Analyzer

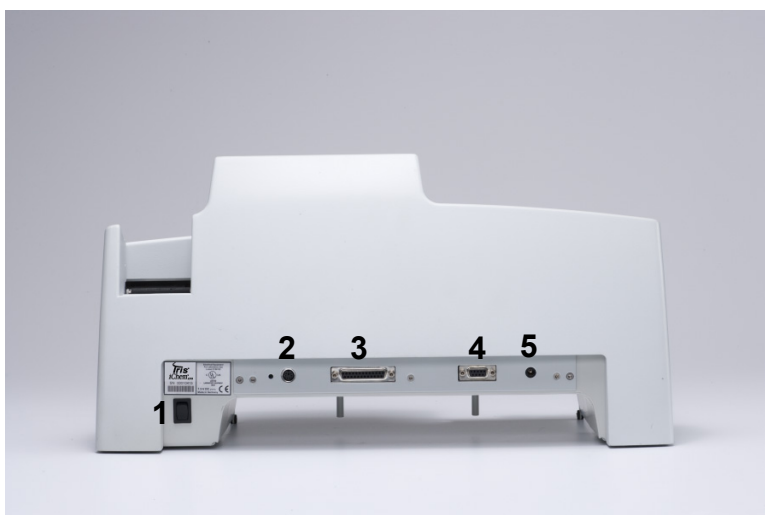
Instrument Components

Front



- 1 - Keyboard
- 2 - Transport mechanism enclosure
- 3 - Display screen
- 4 - Paper roll
- 5 - Transport belt opening (for placement of strip)
- 6 - Clarity and specimen type barcode labels
- 7 - Hand-held barcode reader

Back



- 1 - Power switch
- 2 - Keyboard/barcode reader cable connection
- 3 - External printer connection
- 4 - RS232 connection
- 5 - Power supply connection

2. System Description



Most user inputs are designed to be via the keyboard or the barcode reader.

The keyboard is used for navigating within a screen, between screens, making selections and entering data inputs.

The barcode reader enables you to enter information via barcoded data into selected entry fields, (e.g., patient identification, specimen identification, color, clarity, etc.).

2. System Description

Software

Data Entry Fields

Data entry fields are areas in a screen where information is entered. One screen can have several data entry fields, but only one field can be selected and active for entering data at a time. Pressing an alpha or a numeric key will input that character into the data entry field. If you exceed the number of allowable characters in a field, you cannot enter more characters until some characters have been deleted.

To select a data entry field, use the keyboard [↑] or [↓] keys to move the cursor up or down in the screen. To move back and forth between left and right columns, use the [Tab] key. The contents of the field will be reverse highlighted to show that they are selected or active.

To delete contents from a data field, select the field using the keyboard's [↑] or [↓] or [Tab] keys, then press the [Delete] key.

To erase contents from data field one character at a time, select the field using the keyboard's [↑] or [↓] or [Tab] keys, then press the [Backspace] key. The last character in the field will be deleted.

Toggle Fields

Toggle fields are fields setup in a circular fashion allowing you to choose one field out of a series of pre-setup fields (e.g., blank, trace, few, moderate, many, etc.). A toggle field will be indicated by a double-headed arrow [↔]. Only one toggle field can be active at a given time.

To select a toggle field, use the keyboard keys [↑] or [↓] to move the cursor into the desired field.

To view the choices in a toggle field, use the keyboard keys [←] or [→] to advance through the selections. To switch back and forth from a left toggle field to a right toggle field, press the [Tab] key.

To confirm or lock in a selection, you may press the [Enter] key or use the keys [↑] or [↓]. Either one will lock in the selection and advance you to the next field.

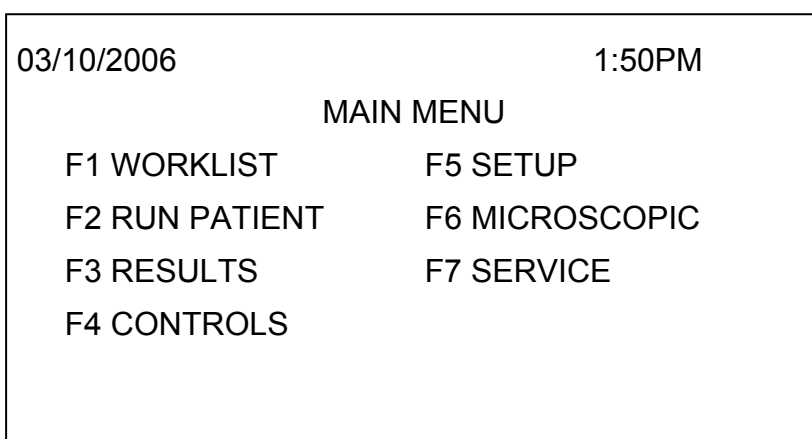
2. System Description

Function Keys

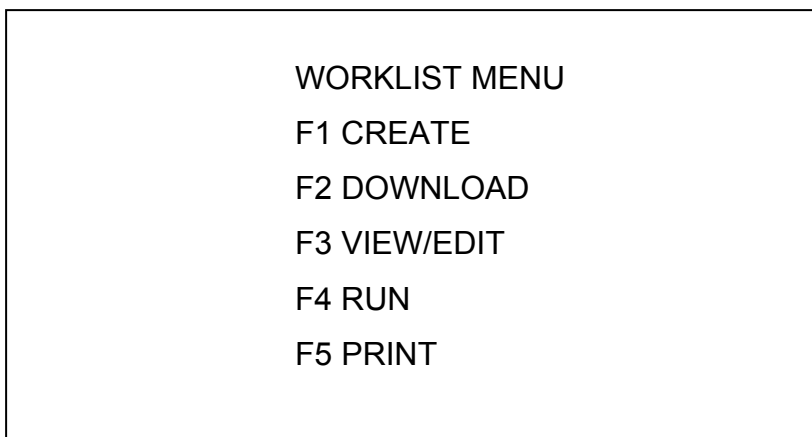
Pressing a function key, [F1] through [F10], will allow you to access the described function associated with it. For example, to choose to run a patient sample, press [F2] while the **Main Menu** screen is displayed. The function keys will only perform the function that is associated with it in the currently displayed screen.

Menu Diagram

Main Menu



Worklist Menu



2. System Description

Run Patient Menu

RUN PATIENT	
Enter information, then place urine strip on transport belt.	
SEQ	003
SPEC/PAT ID	
LAST NAME	
FIRST NAME	
CLARITY	↔
SPC TYPE	↔
F1 MAIN MENU	

Results Menu

RESULTS	
	mm/dd/yyyy hh:mm ↔
START DATE / TIME	/ / : am
END DATE / TIME	/ / : am
SPEC / PAT ID	
PAT LAST NAME	
OPER NUMBER	
F1 VIEW	F2 PRINT
F4 DELETE	F3 TRANSMIT
	F5 MAIN MENU

Controls Menu

CONTROLS MENU		
	LOT#	EXP
FILE 1	1212UC2006	03/20/2006
FILE 2	1213UC2006	03/20/2006
FILE 3		
FREQ	1	Hours ↔
F1 SETP	F2 VIEW	F3 RUN
F4 PRINT	F5 DELETE	F6 MAIN MENU

2. System Description

Setup Menu

SETUP MENU

F1 UNITS
F2 FLAGGING
F3 TEST SEQ
F4 LOG ON ID
F5 MAIN MENU

Microscopic Menu

MICROSCOPIC ENTRY

mm/dd/yyyy hh:mm ↔
START DATE / TIME / / : am
END DATE / TIME / / : am
SPEC / PAT ID
PAT LAST NAME

F1 ENTER F2 MICROSCOPIC F3 MAIN MENU

Service Menu

SERVICE MENU

F1 DATE/TIME F4 DIAGNOSTICS
F2 PRINTER F5 TRANSMIT
F3 LANGUAGE F6 TEST STRIP

F7 MAIN MENU

2. System Description

Specifications

Technology	Reflectance Photometry LEDs (450nm, 520nm, 625nm) with Color Image Sensor
Test Strips	iChem 10 SG
Throughput	210 Urine Test Strips per hour
Data Storage	2,000 Patient results 300 Quality Control results
Reporting Units	Conventional, S.I., Qualitative or Combination
Flagging	Results requiring confirmatory tests / Microscopic examination Abnormal Quality Control results
Display	LCD backlit (8 lines x 40 characters)
Printer	Thermal (built-in)
Interfaces	RS 232, parallel printer port, 5-pin DIN socket
Physical Specifications	19.5 x 10.8 x 9.8 in (49.5 x 27.5 x 25 cm) 16.5 lbs (7.5 kg)
Power	100 to 250 VAC ± 10%, 50/60 Hz
Operating Range	59° F to 90° F (15° C to 32° C) 20% to 80% Relative Humidity
Package	iChem100 instrument PC /AT keyboard Hand-held barcode reader (Optional)

2. System Description

Consumables or Part Replacement

REF	Number	Description
	800-7504	Transport belts
	800-7505	External power supply
	800-7506	Power Supply Adapter
	800-7507	Transport mechanism enclosure
	800-7508	Barcode reader and cable
	800-7509	Keyboard (English)
	800-7510	Keyboard (German)
	800-7511	3 Rolls of Thermal Paper
	800-7014	Incubation Belt
	800-7004	iChem 10 SG Urine Chemistry Strips (US)
	800-7005	iChem 10 SG Urine Chemistry Strips (Int'l)
	800-3203	Iris System Cleanser

3

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3. Set Up

Setting the Language

This screen allows you to select the desired language with which to display screens. The instrument can be set to one of six different languages:

English	Deutsch
Français	Italiano
Español	Português

1. From the **Main Menu**, press the **[F7]** key to access the **Service Menu**.
2. From the **Service Menu**, press the **[F3]** key. The **Language Setup** screen will be displayed.

LANGUAGE SETUP

LANGUAGE English ↔

F1 SERVICE F2 MAIN MENU

3. Use the **[←]** or **[→]** arrow keys to toggle through the six language options.
4. Press the **[F1]** key to lock in your selection and return to the **Service Menu** screen, or press the **[F2]** key to lock in your selection and return to the **Main Menu** screen.

3. Set Up

Setting Date and Time

This screen allows you to enter the correct date and time and select the format for the instrument displays and printouts.

1. From the **Main Menu**, press the **[F7]** key. The **Service Menu** screen will be displayed.

SERVICE MENU	
F1 DATE/TIME	F4 DIAGNOSTICS
F2 PRINTER	F5 TRANSMIT
F3 LANGUAGE	F6 TEST STRIP
F7 MAIN MENU	

2. Press the **[F1]** key to display the **Set Date/Time** screen.

SET DATE / TIME	
DATE FORMAT	mm/dd/yyyy
TIME FORMAT	am / pm
DATE	03/23/2006
TIME	10:00 pm ↔
F1 FORMAT	F2 SERVICE
F3 MAIN MENU	

3. Set Up

Setting the Date or Time Format

1. From the **Set Date/Time** screen, press the **[F1]** key to display the **Format Date/Time** screen.

FORMAT DATE / TIME		
DATE FORMAT	mm/dd/yyyy	↔
TIME FORMAT	am / pm	↔
F1 DATE / TIME F2 SERVICE F3 MAIN MENU		

2. Use the **[←]** or **[→]** arrow keys to toggle through three date options:
 - dd.mm.yyyy
 - mm/dd/yyyy
 - yyyy/mm/dd
3. Press the **[↑]** or **[↓]** arrow keys, or the **[Enter]** key to lock in your selection and move to the next field.
4. Use the **[←]** or **[→]** arrow keys to toggle through the two time options:
 - 24 hour
 - am/pm
5. Press the **[F1]** key to return to the **Date/Time** screen.

Changing the Date and Time

1. From the **Date/Time** screen, use the **[↑]** or **[↓]** arrow keys or the **[Enter]** key to move to the desired field (e.g., DATE, TIME or am/pm).
2. To enter or change the date, select the DATE field, and then enter the correct date using the keyboard numeric keys.



NOTE: You must enter two digits for the month and the day (e.g., 01 for January, etc.)

3. Set Up

3. To enter or change the time, select the TIME field, and then enter the correct time using the keyboard numeric keys.



NOTE: You must enter two digits for the hour and the minutes (e.g., 01:01 for 1:01, etc.).

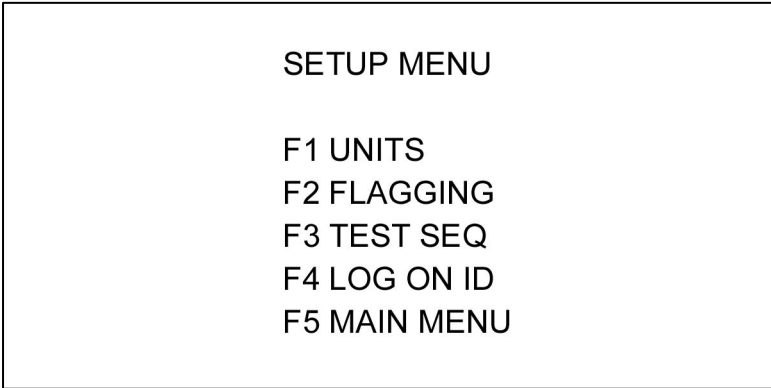
4. To change the am/pm selection (if desired), select the am/pm field, use the [←] or [→] arrow keys to select am or pm.
5. Press the [F2] key to return to the **Service Menu** screen, or press the [F3] key to return to the **Main Menu** screen.

Setting the Reporting Units

This screen allows you to select the reporting units for the results of the test strips chemistries. You may select from the following options:

- Conventional (mg/dL)
- S.I. (Standard International— μ mol/L and mmol/L)
- Qualitative (+)
- Customized (a combination of all three)

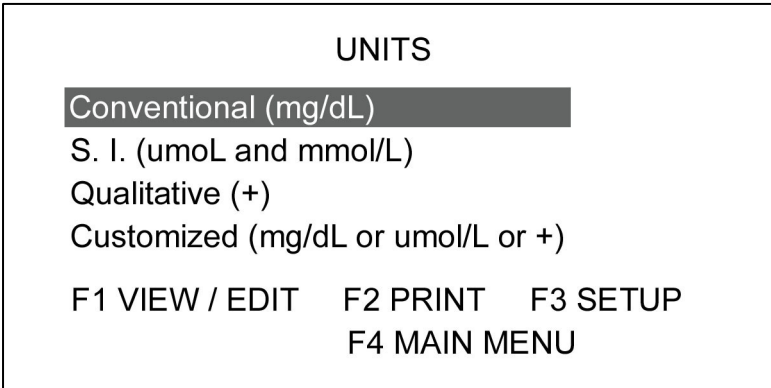
1. From the **Main Menu**, press the **[F5]** key. The **Setup Menu** will be displayed.



SETUP MENU

F1 UNITS
F2 FLAGGING
F3 TEST SEQ
F4 LOG ON ID
F5 MAIN MENU

2. From the **Setup Menu**, press the **[F1]** key. The **Units** screen will be displayed.



UNITS

Conventional (mg/dL)
S. I. (μ mol/L and mmol/L)
Qualitative (+)
Customized (mg/dL or μ mol/L or +)

F1 VIEW / EDIT F2 PRINT F3 SETUP
F4 MAIN MENU

3. To select either conventional, S.I., or qualitative units exclusively, select the desired unit option using the **[↑]** or **[↓]** arrow keys, then press the **[F1]** function key.

3. Set Up

Conventional (mg/dL) Units

CONVENTIONAL UNITS		
Bili: mg/dL	Prot: mg/dL	
Uro: mg/dL	Bld(Hgb): mg/dL	
Ket: mg/dL	Bld (RBCs): RBCs/uL	
A. Acid: mg/dL	Nit: Pos	
Gluc: mg/dL	Leu: WBCs/uL	
F1 UNITS	F2 SETUP	F3 MAIN MENU

Standard International (μmol/ L) units

S. I. UNITS		
Bili: umol/L	Prot: g/L	
Uro: umol/L	Bld(Hgb): mg/L	
Ket: mmol/L	Bld (RBCs): RBCs/uL	
A. Acid: mmol/L	Nit: Pos	
Gluc: mmol/L	Leu: WBCs/uL	
F1 UNITS	F2 SETUP	F3 MAIN MENU

Qualitative (+) units

QUALITATIVE UNITS		
Bili: +	Prot: +	
Uro: +	Bld(Hgb): +	
Ket: +	Bld (RBCs): RBCs/uL	
A. Acid: +	Nit: +	
Gluc: +	Leu: WBCs/uL	
F1 UNITS	F2 SETUP	F3 MAIN MENU

Press the **[F1]** key to return to the **Units** screen from any of these display screens.

3. Set Up

Customized Units

This option allows you to report out chemistry results with units specifically selected for each of the chemistries.

1. From the Units screen, select **Customized (mg/dL or μ mol/L or +)** using the [\uparrow] or [\downarrow] arrow keys, then press the [F1] key. The **Customized Units** screen will be displayed.

CUSTOMIZED UNITS			
Bili: +	↔	Prot: mg/dL	↔
Uro: mg/dL	↔	Bld(Hgb): +	↔
Ket: +	↔	Bld (RBCs): RBCs/uL	
A. Acid: +	↔	Nit: Pos	↔
Gluc: mg/dL	↔	Leu: WBCs/uL	
F1 UNITS F2 SETUP F3 MAIN MENU			

2. Toggle through the unit selections for the first chemistry using the [\leftarrow] or [\rightarrow] arrow keys. Once the desired units are displayed, press the [\downarrow] arrow key, or [Tab] key, or the [Enter] key to move to the next chemistry unit field.
3. Continue until all unit selections have been made, then press the [F1] key to lock in the selections and return to the **Units** screen.

Printing Units

1. From the **Units** screen, select the desired units and then press the [F2] key. The instrument will begin printing the selected units.
2. Press the [F1] key to stop printing, if desired. Press the [Pg Up] key to feed the paper into the printer.

3. Set Up

Sample Print Layout

The figure below displays an example of a unit printout.

Midtown County Health 10257 Crescent Blvd., Suite 3 Monroe, Texas 12345 Telephone: 555-555-7755	
CONVENTIONAL UNITS	
Bilirubin	mg/dL
Urobilinogen	mg/dL
Ketones	mg/dL
Asc. Acid	mg/dL
Glucose	mg/dL
Protein	mg/dL
Blood (Hgb)	mg/dL
Blood (RBCs)	RBCs/uL
Nitrite	Pos
Leukocytes	WBCs/uL

3. Set Up

Setting the Flagging Criteria

This option allows you to adjust flagging criteria for each chemistry to your own patient population. The flagging defaults in the instrument are set to the first positive level for each chemistry test. Any chemistry result at or higher than the selected positive result will be flagged when printed or displayed.

1. From the **Setup** Menu, press the **[F2]** key. The **Flagging Setup** screen will be displayed.

FLAGGING SETUP			
Bili: 1	↔	Prot: 30	↔
Uro: 2	↔	Bld (Hgb): 0.03	↔
Ket: 25	↔	Bld (RBCs): 5-10	↔
A. Acid: 20	↔	Nit: Pos	
Gluc: 50	↔	Leu: 25	↔
F1 FLAG F2 SETUP F3 MAIN MENU			

2. Toggle through the result selections for the first chemistry using the **[←]** or **[→]** arrow keys. The field will display all positive reportable results for the units selected. Once your selection is displayed, press the **[↓]** arrow key, the **[Tab]** key, or the **[Enter]** key to move to the next chemistry unit field.
3. When all flagging selections have been made, press the **[F1]** key to lock in the selections. The **Flag Selection** screen, which allows you to determine how each chemistry will be flagged, will be displayed.

FLAG SELECTION			
Bili: *	↔	Prot: #	↔
Uro: *	↔	Bld (Hgb): #	↔
Ket: *	↔	Bld (RBCs): #	↔
A. Acid: *	↔	Nit: #	↔
Gluc: *	↔	Leu: #	↔
F1 FLAGGING F2 SETUP F3 MAIN MENU			

3. Set Up

For example, an asterisk (*) may be used to signal an abnormal result and that an additional confirmation test is required. The use of a number sign (#) may signal that a microscopic examination is required.

4. Toggle through the flagging selections for the first chemistry using the [←] or [→] arrow keys. The flagging choices are:
 - Blank - no flag will be displayed
 - * - displays an asterisk after the result
 - # - displays a number sign after the result
5. Once your selection is made, press the [↓] arrow key, the [Tab] key or the [Enter] key to move to the next field.
6. When all flagging selections have been made, press the [F1] key to lock in the selections and return to the **Flagging Setup** screen.
 - Press the [F2] key to lock in the selection and return to the **Setup Menu** screen.
 - Press the [F3] key to lock in the selection and return to the **Main Menu** screen.

3. Set Up

Microscopic

This function provides you with the means to set up your preferences for reporting microscopic exams performed on urine specimens, print out your set up quantifiers, as well as the ability to enter microscopic results.

1. From the **Main Menu**, press the **[F6]** key. The **Microscopic** screen is displayed.

MICROSCOPIC

F1 ENTRY
F2 SETUP
F3 PRINT SETUP
F4 MAIN MENU



NOTE: Since the setup information becomes the basis for the quantifiers used in reporting microscopic exams, anytime this information is altered, all existing patient data is deleted to avoid reporting the wrong microscopic information. A warning screen will alert you to this prior to allowing you to establish the new microscopic quantifiers.

2. From the **Microscopic** screen, press the **[F2]** key to display the following **Microscopic Setup** screen.

MICROSCOPIC SETUP

RBCs (Reporting)

1. 	4.
2.	5.
3.	6.

F1 NEXT F3 MICROSCOPIC
F4 MAIN MENU

A series of screens similar to this one provide you with the ability to record, display, and print microscopic examinations consistent with reporting results for the specified parameter for your laboratory.

3. Set Up

For example, shown above is the screen for entering quantifiers for RBC's. You have six text fields in which to enter the descriptors consistent with your laboratory's results for RBC's, e.g., trace, 1+, 1-3 HPF, etc. Each text field will hold up to 10 alphanumeric characters. Once entered, these fields will be the toggle fields used when you select the quantities present in the microscopic exam for RBC's.

3. To enter a microscopic quantifier for a parameter, type the desired information into the text field, then press the [↑] or [↓] arrow keys, the [Tab] key or the [Enter] key to move to the next field. The [Delete] key can be used to delete existing entries in the field allowing the operator to change the information.
4. Once you have entered all the quantitative descriptions desired for the current parameter, press the [F1] key to bring up the next microscopic parameter screen.

MICROSCOPIC SETUP	
WBCs (Reporting)	
1. <input type="text"/>	4. <input type="text"/>
2. <input type="text"/>	5. <input type="text"/>
3. <input type="text"/>	6. <input type="text"/>
F1 NEXT F2 PREV F3 MICROSCOPIC F4 MAIN MENU	

5. To enter the quantifiers for the next microscopic parameter, type the desired information into each of its text fields, then press the [↑] or [↓] arrow keys, the [Tab] key or the [Enter] key to move to the next field. To go back to the previous parameter, press the [F2] key.

There are a total of 11 parameters listed. Each parameter has up to six fields in which to enter quantitative results. The parameters are as follows:

- RBCs (red blood cells)
- WBCs (white blood cells)
- Bacteria
- Epis (Epithelial cells)
- Crystals
- Yeast

3. Set Up

- Casts
 - Trich (Trichomonas)
 - Oval fat (Oval fat bodies)
 - Mucus
 - Sperm
6. Continue entering parameter quantifier information until you have entered it for all parameters desired. Press the **[F3]** key to return to the **Microscopic** screen or press the **[F4]** key to return to the **Main Menu** screen.

Print a Copy of Microscopic Setup

1. From the **Microscopic** screen, press the **[F3]** key to print a copy of the microscopic parameters.
2. Press the **[F1]** key to stop **printing**, if desired.

All printouts will include:

- Header information (see [Setting Up the Printer.](#))
- The printout identifier: Microscopic Setup.
- Each parameter with up to six quantifiers.

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Monroe, Texas 12345
Telephone: 555-555-7755

Microscopic Setup

RBCs

- | | |
|--------------|--------------|
| 1. 0-5 HPF | 4. 21-50 HPF |
| 2. 6-10 HPF | 5. 51-75 HPF |
| 3. 11-20 HPF | 6. 75+ HPF |

WBCs

- | | |
|--------------|--------------|
| 1. 0-5 HPF | 4. 21-50 HPF |
| 2. 6-10 HPF | 5. 51-75 HPF |
| 3. 11-20 HPF | 6. 75+ HPF |

Bacteria

- | | |
|-------|-------|
| 1. 1+ | 4. 4+ |
| 2. 2+ | 5. |
| 3. 3+ | 6. |

Epis

- | | |
|-------|-------|
| 1. 1+ | 4. 4+ |
| 2. 2+ | 5. |
| 3. 3+ | 6. |

Crystals

Setting the Test Sequence

This screen allows you to display and print the individual chemistry tests in a specific order. The default test setup sequence is shown below.

TEST SEQUENCE SETUP	
Bili: 1	Blood: 7
Uro: 2	pH: 8
Ket: 3	Nit: 9
A. Acid: 4	Leu: 10
Gluc: 5	S. Gravity: 11
Prot: 6	
F1 MICRO	F2 SETUP F3 MAIN MENU

1. From the **Setup Menu**, press the **[F3]** key to display the **Test Sequence Setup** screen.
2. To change the sequence order of any of the chemistries, select the field next to the chemistry and using the keyboard, enter a number from 1 to 11.
3. Once your selection is made, press the **[↓]** arrow key, the **[Tab]** key or the **[Enter]** key to move to the next field.
 - If a test result is not to be displayed or printed, do not enter a number next to that test parameter.
 - You may not use the same number in more than one field. To do so will result in an error when you go to lock in the selections.
4. When all test selections have been numbered, press the **[F1]** key to lock in the selections and display the default reporting order for the microscopic examination.

3. Set Up

TEST SEQUENCE SETUP					
RBCs	:	1	Casts	:	8
WBCs	:	2	Casts	:	9
Bacteria	:	3	Trich	:	10
Epis	:	4	Oval Fat	:	11
Crystals	:	5	Mucus	:	12
Crystals	:	6	Sperm	:	13
Yeast	:	7			
F1 CHEM		F2 SETUP	F3 MAIN MENU		

5. To change the sequence order of any of the microscopic parameters, select the field next to the microscopic results and using the keyboard, enter a number between 1 and 13.
6. Once your selection is made, press the [↑] or [↓] arrow keys, the [Tab] key or the [Enter] key to move to the next desired parameter field.
 - If a result is not to be displayed or printed, do not enter a number next to that test parameter.
 - You may not use the same number in more than one field. To do so will result in an error when you go to lock in the selections.
7. When all desired test selections have been numbered, press the [F1] key to return to the **Test Sequence Setup** screen displaying the chemistry parameters.
 - Press the [F2] key to return to the **Setup Menu** screen.
 - Press the [F3] key to return to the **Main Menu** screen.

Setting the Log On Identifiers

This function allows you to record the operator who performed an analysis along with the results of the specimen by requiring users to log onto the instrument.

If **Log On Required** is selected, a user must “Log On” to operate the instrument. The instrument will automatically display the “Log On” screen before allowing the operator to access the **Main Menu**.

If **Log On Not Required** is selected, the instrument will go directly to the **Main Menu** screen when turned on.



NOTE: A generic “Log On” will permit operation of the instrument should the operator forget their password.

1. From the **Setup Menu**, press **[F4]** to access the **Log On Setup** screen.
2. To require “Log On” to the iChem100 instrument, select **Log On Required** on the **Log On Setup** screen.

Enter LOG ON ID

F1 TO CONTINUE

3. Once the “Log On Required” is highlighted, press either **[F1]** or **[F2]** and the instrument will automatically take you to the **Enter Log On ID** screen.
4. Type **iris** (all lowercase) in the “Enter Log On ID” field and press **[F1]**. The instrument will take you to the **Main Menu** screen.

If you enter the password incorrectly, an error message will appear advising you to re-enter the password.

3. Set Up

Adding a New User

This option allows you to add a “Log On ID” to be used when logging on to the analyzer. A “Log On ID” must be specific for an operator and must be in lowercase only, last and first names can include uppercase. Up to 24 users can be entered. The software will check to insure that an identifier is not currently in use by another operator. If a desired identifier is already in use, you will be notified, the “Log On ID” field will be blanked and you will be asked to enter a new identifier

1. From the **Main Menu**, press **[F5]** to access the **Setup Menu**.
2. Press **[F4]** to access the **Log On Setup** screen.
3. Press **[F1]** to display the **Log On Setup Change or Delete** screen.
4. Use the **[↓]** arrow key to advance to the first empty position. Press **[F2]** to display the **Log On ID Setup—Add/Change** screen.

LOG ON ID SETUP - ADD / CHANGE	
OPER NO.	01
LAST NAME	Brown
FIRST NAME	Stephanie
LOG ON ID	
VERIFY LOG ON ID	
USE ONLY LOWER CASE FOR LOG ON ID!!	
F1 LOG ON F2 SETUP F3 MAIN MENU	

5. Enter the operator’s last name in the “Last Name” text field (up to 15 alpha characters). Press the **[Enter]** key or use the **[↑]** or **[↓]** arrow keys to advance to the next field.
6. Enter the operator’s first name in the “First Name” text field (up to 10 alpha characters). Press the **[Enter]** key or use the **[↑]** or **[↓]** arrow keys to advance to the next field.
7. Enter a personal identifier in the “Log On ID” text field (between 4 and 10 lower case alphanumeric characters). Press the **[Enter]** key or use the **[↑]** or **[↓]** arrow keys to advance to the next field.
8. Re-enter the personal identifier in the “Verify Log On ID” text field.

3. Set Up

9. Press any **[F]** key displayed on the screen. The software will automatically accept the Log On ID identifier unless:
 - the entered “Log On” identifier and the Verify Log On Identifier do not match
 - the entered “Log On” identifier is already in use
 - no information was entered, or insufficient information was entered

In these cases, a screen will appear identifying the error and it will allow you to either:

- **[F1]** return to the previous screen to correct the deficiency,
 - **[F2] disregard** and return to the **Setup** menu without the “Log On” ID being setup,
 - **[F3] disregard** and return to the Main Menu without the “Log On” ID being setup.
10. Press the **[F1]** key to return to the **Log On Setup** screen.
 11. Press the **[F2]** key to return to the **Setup Menu** screen, or press the **[F3]** key to return to the **Main Menu** screen.

Editing a User Information

1. If an operator is “Logged On”, he/she must “Log Off” and log back on:
 - a. From the **Main Menu**, press **[F8]** to display the **Enter Log ON ID** screen.
 - b. Type **iris** as a generic Log On ID and then press the **[F1]** key.
2. From the **Main Menu**, press **[F5]** to display the **Setup Menu** screen, then **[F4]** to display the **Log On Setup** screen, and then press **[F1]** to display the **Log On Setup Change or Delete** screen.

LOG ON SETUP CHANGE OR DELETE		
01	Brown	Stephaniene
02	Smith	Mike
03	Allen	Susan
04	Wright	Michele
05		
06	Russo	Michael
07	Richardson	Julianne
08	Monroe	Marilyn
F1 NEXT	F2 ADD / CHANGE	F3 DELETE
F4 PRINT	F5 SETUP	F6 MAIN MENU

3. Set Up

3. Press the **[F1]** key if the desired operator name is not displayed on this screen. This will advance you to the next screen of operator names.

A total of 24 positions are available.

4. Once the desired operator name is displayed on the screen, use the **[↑]** or **[↓]** arrow keys or the **[Enter]** key to select it.
5. Press the **[F2]** key. A message will appear warning that all results will be deleted.



WARNING: All stored results will be deleted from memory

6. Press the **[F1]** key to continue. This will display the **Log On ID Setup—Add/Change** screen.

LOG ON ID SETUP - ADD / CHANGE	
OPER NO.	01
LAST NAME	Brown
FIRST NAME	Stephanie
LOG ON ID	
VERIFY LOG ON ID	
USE ONLY LOWER CASE FOR LOG ON ID!!	
F1 LOG ON	F2 SETUP F3 MAIN MENU

7. To change any of the information shown, use the **[↑]** or **[↓]** arrow keys to move to the desired text field to highlight it.
8. Enter the change desired using the keyboard keys.



NOTE: If you make an entry in the “Log On ID” field, you must make the same entry in the “Verify Log On ID” field.

9. Press the **[F1]** key to lock in the changes made and return to the **Log On Setup** screen.
10. Press the **[F2]** key to lock in the changes made and return to the **Setup Menu** screen, or press the **[F3]** key to log in the changes made and return to the **Main Menu** screen.

Deleting a User

1. If an operator is Logged On using their own identifier, they must Log Off and log back on using the generic “iris” (all lower case) “Log On ID”.
2. Press **[F5]** to display the **Setup Menu** screen, then **[F4]** to display the **Log On Setup** screen, and finally press **[F1]** to display the **Log On Setup Change or Delete** screen. This screen will allow you to delete one or more “Log On” identifiers.
3. Press the **[F1]** key if the desired operator name is not present on this screen. This will advance you to the next screen of operator names.
4. Use the **[↑]** or **[↓]** arrow keys or the **[Enter]** key to select the user.
5. If you wish to delete the selected (highlighted) operator information, press the **[F3]** key. A message will appear warning that all results will be deleted.

LOG ON SETUP CHANGE OR DELETE

WARNING! Changing a used LOG ON
results in deleting data from patient
storage permanently!!

F1 CONTINUE
F2 LOG ON SETUP F3 MAIN MENU

6. If you press the **[F1]** key, the **Log On Setup Delete** screen will be displayed.

LOG ON SETUP DELETE

Delete current LOG ON ID? YES
Delete current LOG ON ID? NO

F1 CONTINUE

7. If you press the **[F2]** key the **Log On Setup** screen will be displayed, or pressing the **[F3]** key the **Main Menu** screen will displayed.
8. If you selected the [F1] option above, use the [↑] or [↓] arrow keys or the **[Enter]** key to select (highlight) your choice.
9. If you select **YES** and press the **[F1]** key, the instrument will delete the existing operator information and return you to the **Log On Setup Change or Delete** screen.

If you select **NO** and press the **[F1]** key, the instrument will return you to the **Log On Setup Change or Delete** screen without deleting the operator information.

Setting Up the Printer

1. To set up the printer functions, press the **[F7]** key with the **Main Menu** screen active, then press the **[F2]** key with the **Service Menu** screen active. The **Printer Setup** screen will be displayed.

This screen allows you to configure certain printer functions as well as configure the printout header.

PRINTER SETUP		
PRINT TO	Internal	↔
PRINT CYCLE	After each Analysis / Run	↔
OPER PRINT	Number	↔
HEADER		
1.		
2.		
3.		
4.		
F1 SERVICE		F2 MAIN MENU

2. The printer can be set to print using one of three options:
 - Internal—printing will be on the instrument printer only
 - External (Letter)—printing will be sent to an external printer that uses letter size paper
 - External (A4) – printing will be sent to an external printer that uses A4 size paper
3. Use the **[←]** or **[→]** arrow keys to toggle through the options, then use the **[↑]** or **[↓]** arrow keys, or the **[Enter]** key to lock in the selection and move to the next field.
4. The Print Cycle can be set to print:
 - After each Analysis/Run—printer will print results after each analysis or “worklist” run
 - Print Function only—printer will print results only when the Print Function keys are selected
5. Use the **[←]** or **[→]** arrow keys to toggle through the options, then use the **[↑]** or **[↓]** arrow keys, or the **[Enter]** key to lock in the selection and move to the next field.

3. Set Up

6. The Operator print function allows the laboratory to print, if desired, the name or number of the operator performing the tests with the corresponding results using one of three options:

- Number—printer will print the operator identifier number on each printout
- Name—printer will print the operator name on each printout
- Blank—printer will not print operator ID or name on printout

The remaining fields on this screen allow you to create the print header to be displayed and printed when results are sent to the printer.

7. Four lines with up to 30 alphanumeric characters each may be entered. Once you have entered the desired information, use the [↑] or [↓] arrow keys, or the [Enter] key to lock in the selection and move to the next line.
8. Press the [F1] key to lock in your selection and return to the **Service Menu** screen, or press the [F2] key to lock in your selection and return to the **Main Menu** screen.

Setting Transmitting Results

This function provides you with the ability to configure when to transmit data to your host computer.

1. From the **Main Menu** screen, press the **[F7]** key, then press the **[F5]** key. The **Transmit Setup** screen will be displayed.

TRANSMIT SETUP

TRANSMIT Transmit Function Only ↔

F1 SERVICE F2 MAIN MENU

2. The instrument can be set to transmit using one of two options:
 - After each Analysis/Run - data will be transmitted to the host computer after each analysis/run
 - Transmit Function Only - data will be transmitted only when the transmit function **[F3]** is accessed from the **Results** screen.
3. To setup the Transmit option, use the **[←]** or **[→]** arrow keys to toggle through the two options, then use the **[↑]** or **[↓]** arrow keys, or the **[Enter]** key to lock in the selection and move to the next field.
4. Press the **[F1]** key to return to the **Service Menu** screen, or press the **[F2]** key to return to the **Main Menu** screen.

4

Specimen Processing

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4. Specimen Processing

Powering the Instrument On

When powered on, the instrument will perform an internal systems check and then go directly to the screen shown below, unless “Log On Required” has been previously selected.

iChem100	
URINE CHEMISTRY ANALYZER	
F1 MAIN MENU	
Boot Program: 2.01.01	Meter Program: 2.01.01

Press **[F1]** to proceed to the **Main Menu** screen. Prior to displaying the **Main Menu** screen, the display will ask whether you have emptied the waste container or not. Press **[F1]** if not emptied or **[F2]** if emptied, and the **Main Menu** screen will be displayed.



NOTE: Anytime the transport mechanism enclosure is removed while the instrument is on, you will be alerted that it is ajar and you must indicate whether the waste container was emptied or not. Once it is back in place, the incubation belt will run for approximately 110 seconds to clear any strips that may be on the belts and then the **Main Menu** screen will appear.

Logging On

The following screen is displayed when you power up of the iChem100 instrument if the **Log On Required** option has been selected in the **Setup Menu**. Refer to [Setting Log On Identifiers](#).

1. Press the **[F1]** key to advance to the **Enter Log On ID** screen shown below.

4. Specimen Processing

Enter LOG ON ID

F1 TO CONTINUE

2. Enter your assigned identifier using the keyboard keys. To delete entered characters, press the **[Backspace]** key.
3. Press the **[F1]** key to enter your identifier and advance to the **Main Menu** screen.

03/10/2006 1:50PM

MAIN MENU

F1 WORKLIST	F5 SETUP
F2 RUN PATIENT	F6 MICROSCOPIC
F3 RESULTS	F7 SERVICE
F4 CONTROLS	F8 LOG OFF



NOTE: If the **Enter Log On ID** screen reappears with the message “Unacceptable Log On”, re-enter your identifier. If the **Main Menu** screen still does not appear, refer to [Setting Log On Identifiers](#).

Logging Off

To log off of the instrument, from the **Main Menu**, press the **[F8]** key. This will log off the current operator and the **Enter Log On ID** screen will be displayed. The **[F8] LOG OFF** does not appear on the Main Menu screen unless “Log On Required” is selected.

4. Specimen Processing

Running Single Specimen Analysis

Entering Patient Information

1. From the **Main Menu** screen, press the **[F2]** key to display the **Run Patient** screen (below) and to activate the urine strip sensor. The illuminated green LED on the instrument indicates that the sensor is active.

RUN PATIENT	
Enter information, then place urine strip on transport belt.	
SEQ	0001
SPEC / PAT ID	
LAST NAME	
FIRST NAME	
CLARITY	↔
SPEC TYPE	↔
F1 MAIN MENU	



NOTE: If the waste container is nearly full (> 125 strips), you must empty it prior to beginning “Run Patient” analysis.

The **Run Patient** screen allows you to identify and run a patient specimen. You can identify the sample using a sequence number, a specimen/patient ID, a name, or all three options. Data for only one patient at the time can be entered in this screen.

Sequence Number

The sequence number field is only active for the first specimen run after entering **Run Patient**. Thereafter, the sequence number is automatically assigned by the software each time a new patient specimen is analyzed.

Specimen/Patient ID

2. If desired, enter specimen or patient ID (up to 15 alphanumeric characters) by using the keyboard or the barcode reader. Press the **[Enter]** key or use the **[↑]** or **[↓]** arrow keys to move to the next field.

Last Name

3. If desired, enter the patient last name (up to 15 characters) using the keyboard or the barcode reader. Press the **[Enter]** key or use the **[↑]** or **[↓]** arrow keys to move to the next field.

4. Specimen Processing



First Name

4. If desired, enter the patient first name (up to 10 characters) using the keyboard or the barcode reader. Press the **[Enter]** key or use the **[↑]** or **[↓]** arrow keys to move to the next field.

Clarity

5. You can enter clarity by either toggling through the list of clarity options found in the software or by using the barcode reader. Barcodes are located at the top left of the instrument.

Using keyboard entry		Using barcode entry	
Options	Blank field Clear Hazy Slit. Cloudy Cloudy Turbid Bloody Other	Options	CLEAR SLT. CLOUDY CLOUDY BLOODY OTHER
Press the [←] or [→] arrow keys until the desired clarity result appears. Press the [Enter] key or use the [↑] or [↓] arrow keys to accept and move to the next field.		To select clarity using the barcode reader, determine the clarity result and click the barcode reader over its respective barcode.	

4. Specimen Processing



Specimen Type

6. You can enter the specimen type by either toggling through the list in the software or by using the barcode reader. Barcodes are located at the top left of the instrument.

Using keyboard entry		Using barcode entry	
Options	Blank field Random CL catch Cath Peds First am 24 hours Fasting Gluc tol S pubital Other	Options	RANDOM CL CATCH CATH PEDS OTHER
Press the [←] or [→] arrow keys until the desired type appears. Press the [Enter] key or use the [↑] or [↓] arrow keys to accept and move to the next field.		To select specimen type using the barcode reader, click the barcode reader over its respective barcode.	

4. Specimen Processing

Analyzing the Urine

Once all the patient identification information has been entered, proceed to analyzing the urine.



NOTE: The urine specimen should be fresh, well-mixed and un-centrifuged. If refrigerated, allow the specimen to return to room temperature.

1. Dip the urine test strip into the urine, making sure all the test pads are wet.

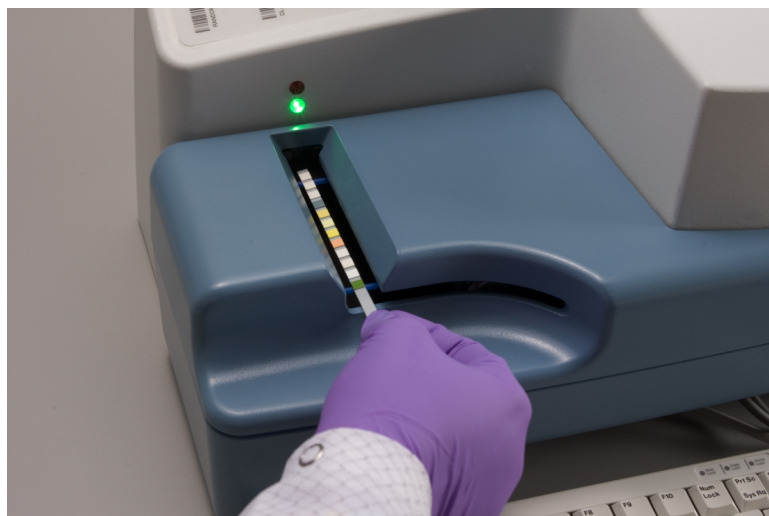


2. Immediately remove the urine test strip from the urine, dragging the edge of the strip against the side of the container as you remove the strip.
3. Blot the urine test strip by touching the edge of the strip to a paper towel. Do not drag the strip across the paper towel; touch the edge only.

4. Specimen Processing



4. Place the urine test strip on the transport belt of the instrument with the test pads facing up. Slide the strip forward until the strip touches the end stop. A sensor will detect the presence of the strip and the red LED light will be turned on along with the green LED light.



NOTE: If you move the strip away from the sensor prior to being transported, you will be prompted to remove the urine strip from the transport belt and press the **[F1]** key to continue.

5. Approximately two minutes after the urine strip is transported for analysis the printer will print the results; unless printing has been set to "Print Function Only" (see [Setting up the printer.](#))

4. Specimen Processing



To run another specimen, repeat from *Entering Patient Information*, then *Analyzing the Urine*. If no test strip is placed on the transport belt within ten (10) minutes, the screen will return to the **Main Menu** screen.

You may return to the **Main Menu** screen at any time by pressing the **[F1]** key. However, if the analysis of the strip is not complete, a message will appear requesting that you wait for analysis to finish.

4. Specimen Processing

Running Batch Specimen Analysis

Creating a Worklist

The **Create Worklist** screen allows you to generate a list of specimen samples that will run in a batch mode. To create a worklist, you must enter information in at least one of the identifier fields. An error message will direct you to enter missing information before advancing to the next specimen. The sequence number field is only active for the first specimen in the **Create Worklist** option. After the first specimen, the instrument will automatically advance one sequence number each time a new patient specimen is entered.

1. From the **Main Menu** screen, press the **[F1]** key to display the **Worklist Menu** screen.

WORKLIST MENU
F1 CREATE
F2 DOWNLOAD
F3 VIEW / EDIT
F4 RUN
F5 PRINT
F6 MAIN MENU

2. From the **Worklist Menu** screen, press the **[F1]** key to display the **Create Worklist** screen.

CREATE WORKLIST	
SEQ	0025
SPEC / PAT ID	
LAST NAME	
FIRST NAME	
CLARITY	↔
SPEC TYPE	↔
F1 NEXT	F3 WORKLIST

4. Specimen Processing

3. The following screen will appear only if a worklist exists. Use the [↑] or [↓] arrow keys to select **YES** or **NO**.

CREATE WORKLIST

Delete existing worklist? Yes
Delete existing worklist? No

F1 CONTINUE

- a. If you select **YES** and press the [F1] key, the instrument will delete the existing worklist and advance you to the **Create Worklist** screen.
- b. If you select **NO** and press the [F1] key, the instrument will return you to the **Worklist Menu** screen.

CREATE WORKLIST

SEQ	0025
SPEC / PAT ID	
LAST NAME	
FIRST NAME	
CLARITY	↔
SPEC TYPE	↔
F1 NEXT	F3 WORKLIST

4. Specimen Processing

Sequence Number

4. To reset the sequence number, change it while the initial specimen screen is active or you will need to return to the initial specimen screen in the worklist where the sequence number field will again be active.

Specimen/Patient ID

5. If desired, enter specimen or patient ID (up to 15 alphanumeric characters) by using the keyboard or the barcode reader. Press the **[Enter]** key or use the **[↑]** or **[↓]** arrow keys to move to the next field.



Last Name

6. If desired, enter the patient last name (up to 15 characters) using the keyboard or the barcode reader. Press the **[Enter]** key or use the **[↑]** or **[↓]** arrow keys to move to the next field.

First Name

7. If desired, enter the patient first name (up to 10 characters) using the keyboard or the barcode reader. Press the **[Enter]** key or use the **[↑]** or **[↓]** arrow keys to move to the next field.

Clarity

8. You can enter clarity by either toggling through the list of clarity options found in the software or by using the barcode reader. Barcodes are located at the top left of the instrument.

4. Specimen Processing

Using keyboard entry		Using barcode entry	
Options	Blank field Clear Hazy Slit. Cloudy Cloudy Turbid Bloody Other	Options	CLEAR SLT. CLOUDY CLOUDY BLOODY OTHER
Press the [←] or [→] arrow keys until the desired clarity result appears. Press the [Enter] key or use the [↑] or [↓] arrow keys to accept and move to the next field.		To select clarity using the barcode reader, determine the clarity result and click the barcode reader over its respective barcode.	



Specimen Type

9. You can enter the specimen type by either toggling through the list in the software or by using the barcode reader. Barcodes are located at the top left of the instrument.

4. Specimen Processing

Using keyboard entry		Using barcode entry	
Options	Blank field Random CL catch Cath Peds First am 24 hours Fasting Gluc tol S pubital Other	Options	RANDOM CL CATCH CATH PEDS OTHER
Press the [←] or [→] arrow keys until the desired type appears. Press the [Enter] key or use the [↑↑] or [↓↓] arrow keys to accept and move to the next field.		To select specimen type using the barcode reader, click the barcode reader over its respective barcode.	

10. Once the desired patient identification information has been entered for the current specimen, proceed to the next sample by pressing the **[F1]** key. A blank **Create Worklist** screen will be displayed ready for the next sample. The sequence number will automatically advance by one number. Repeat this process until information has been entered for all specimens.
11. You can return to the previous specimen information by pressing the **[F2]** key.
12. When all specimens have been entered, press the **[F3]** key to return to the **Worklist Menu** screen.

4. Specimen Processing

Downloading a Worklist

1. From the **Main Menu**, press the **[F1]** key to display the **Worklist Menu** screen.
2. From the **Worklist Menu**, press the **[F2]** key. The **Download Worklist** screen will be displayed, except when a worklist already exists; then the following screen will be displayed.

DOWNLOAD WORKLIST

Delete existing worklist? Yes
Delete existing worklist? No

F1 CONTINUE

3. If the screen above appears, use the **[↑]** or **[↓]** arrow keys to select **YES** or **NO**.
 - a. If you select **YES** and press the **[F1]** key, the instrument will delete the existing worklist and display the **Download Worklist** screen.
 - b. If you select **NO** and press the **[F1]** key, the instrument will return to the **Worklist Menu** screen.
 - c. If there is no existing worklist, the following screen will be displayed.

DOWNLOAD WORKLIST

SEQ 0025

F1 DOWNLOAD F2 WORKLIST

4. Specimen Processing

This screen allows you to generate a list of specimen samples that is downloaded from an interfaced computer or a Laboratory Information System (LIS).

4. The sequence number field is active and may be altered. If you do not alter the sequence number before pressing the **[F1]** key, the instrument will begin with the number that is present on the screen. To specify a particular sequence number, enter it before downloading the worklist and the instrument will automatically advance one number each time a new patient specimen is downloaded.
5. Press the **[F1]** key to start the download process. The instrument will notify the interfaced computer that information for the worklist is being requested. After communication between the computer and instrument is established, the worklist transfer begins. The instrument can accept up to 100 patient demographics. The **Worklist Menu** screen will reappear when the download is complete.



NOTE: For each sample, the instrument must download either a specimen/patient ID or patient name (last and first). If neither is available, the instrument will skip to the next patient specimen.

6. If you do not wish to download a worklist, press the **[F2]** key to return to the **Worklist Menu** screen.

Viewing and Editing a Worklist



NOTE: To add clarity and specimen type information to the worklist, you need to access the **View/Edit Worklist** screen.

1. From the **Worklist Menu** screen, press the **[F3]** key. The **View/Edit Worklist** screen will be displayed.

VIEW / EDIT WORKLIST		
SEQ	0025	
SPEC / PAT ID	123456789012345	
LAST NAME	Brownwagonister	
FIRST NAME	Sylvestere	
CLARITY	Cloudy	↔
SPEC TYPE	Random	↔
F1 NEXT	F2 BACK	F3 DELETE
	F4 WORKLIST	

4. Specimen Processing

This screen allows you to review, edit, and/or delete current specimens from the existing worklist. The first specimen's information in the current worklist will be displayed on the screen.

2. To select a data text field, advance through the fields using the [↑] or [↓] keyboard keys until you are in the desired field.

RUN WORKLIST	
Place the urine strip for this specimen on the transport belt.	
SEQ	0025
SPEC / PAT ID	123456789012345
LAST NAME	Brownwagonister
FIRST NAME	Sylvestere
F1 WORKLIST F2 MAIN MENU F3 RUN STAT	

3. To edit the field, press the [Del] key to delete the entire contents of the data field, and re-enter the appropriate information.
4. To delete the specimen and all associated information from the worklist, press the [F3] key. A confirmation message asking you to confirm the deletion will be displayed. Using the [Enter] key:
 - a. Select **YES** and then press the [F1] key to delete the specimen;
 - b. Select **NO** and then press the [F1] key if you do not wish to delete the specimen.
5. To move to the next specimen on the worklist, press the [F1] key.
6. To return to the previous specimen on the worklist, press the [F2] key.
7. Once you have finished making any changes to the worklist, press the [F4] key to return you to the **Worklist Menu** screen.

4. Specimen Processing

Running a Worklist

1. From the **Main Menu** screen, press the **[F1]** key to display the **Worklist Menu** screen.
2. From the **Worklist Menu** screen, press the **[F4]** key to display the **Run Worklist** screen. The first specimen's information from the stored worklist will be displayed, thus identifying the specimen to be run by the operator.

The green LED light on the instrument will be illuminated, indicating that the instrument is activated and waiting for a urine test strip to be placed on the transport mechanism.



NOTE: If the waste container is nearly full (> 125 strips), you must empty it before beginning "Run Patient" analysis.



NOTE: The urine specimen should be fresh, well-mixed and un-centrifuged. If refrigerated, allow the specimen to return to room temperature.

3. Dip the urine test strip into the urine, making sure all the test pads are wet.



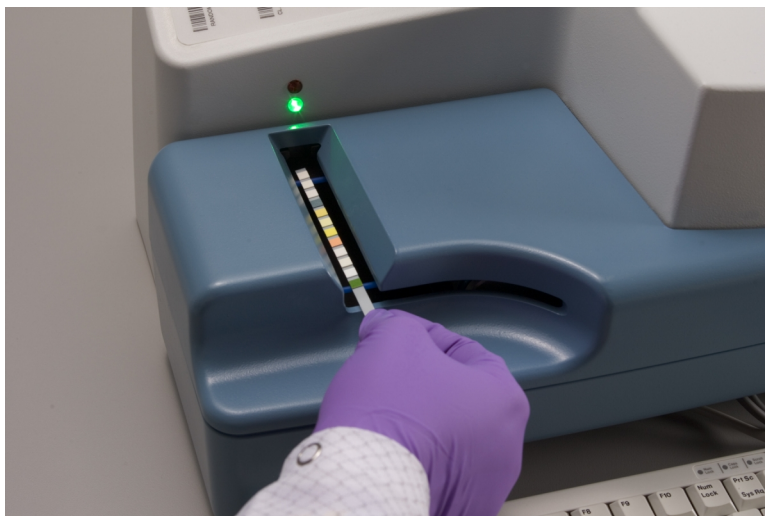
4. Immediately remove the urine test strip from the urine, dragging the edge of the strip against the side of the container as you remove the strip.

4. Specimen Processing

5. Blot the urine test strip by touching the edge of the strip to a paper towel. Do not drag the strip across the paper towel; touch the edge only.



6. Place the urine test strip on the transport belt of the instrument with the test pads facing up. Slide the strip forward until the strip touches the end stop. A sensor will detect the presence of the strip and the red LED light will be turned on along with the green LED light.



NOTE: If you move the strip away from the sensor prior to being transported, you will be prompted to remove the urine strip from the transport belt and press the **[F1]** key to continue.

4. Specimen Processing

7. Approximately two minutes after the urine strip is transported for analysis, the printer will print the results; unless printing has been set to “Print Function Only”.
8. Once the strip is transferred to the incubation belt, the transport belt will stop, the green LED light will again come on and the screen will be updated to identify the next specimen to be run. Place the next specimen on the transport belt and the system will repeat the process. Continue until all samples have been tested.
9. After the last specimen has been analyzed from the worklist, the printer will print the results for all of the specimens processed from the worklist, unless printing has been set to “Print Function Only”. Refer to [Setting up the printer](#).

Printing a Worklist

1. From the **Worklist Menu** screen, press the **[F5]** key to print a copy of the worklist.
2. The screen notifies you that the worklist is being transmitted to and printed by the printer (internal or external).
3. To stop the printing process, press the **[F1]** key. This will return you to the **Worklist Menu** screen.
4. All printouts begin with a customized header (refer to [Setting up the printer](#) or the instrument name.) Following the header information is the sequence number and specimen information for each of the specimens on the worklist. If the information for a line is not present, the line is skipped.

Midtown County Health
10257 Crescent Blvd., Suite 3
Monroe, Texas 12345
Telephone: 555-555-7755

WORKLIST

1	123456789012345 Last Name, First Name
2	123456789023456
3	LastName, First Name
4	123456789034567 Last Name, First Name

4. Specimen Processing

Running a Stat

While you are running a batch of urines in the “Worklist” mode, you can interrupt the batch mode operation to run one or more stat specimens.

1. From the **Run Worklist** screen, press the **[F3]** key. The **Stat Interrupt** screen will be displayed.

STAT INTERRUPT	
Enter information, then place urine strip on transport belt.	
SEQ	0001
SPEC / PAT ID	
LAST NAME	
FIRST NAME	
CLARITY	↔
SPEC TYPE	↔
F1 RUN WORKLIST	F2 MAIN MENU

When entering the “Run Stat” mode the urine strip sensor will be active and the green LED will be illuminated.



NOTE: If the waste container is nearly full (> 125 strips), you will be required to empty it prior to beginning “Run Patient” analysis.

2. To run a stat specimen, you can enter patient identification information, such as patient ID, first and last name, or you can use the sequence number assigned by the software.



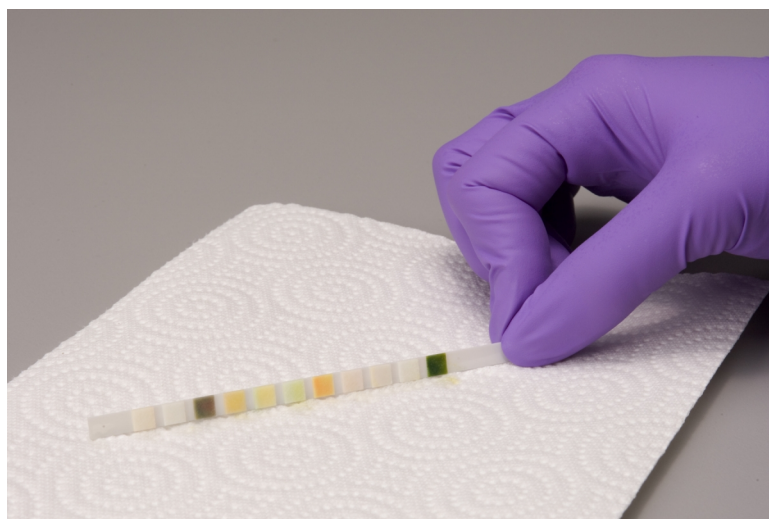
NOTE: The sequence number assigned to the stat specimen will be the next number following the last patient specimen assigned when you created the current “worklist” (e.g., sequence number for last specimen created in current “worklist” was 25, the stat sequence number will be 26).

3. If desired, enter the urine clarity and specimen type, see [Clarity](#) and [Spec Type](#).
4. Dip the urine test strip into the urine. Make sure all the test pads are wet.

4. Specimen Processing



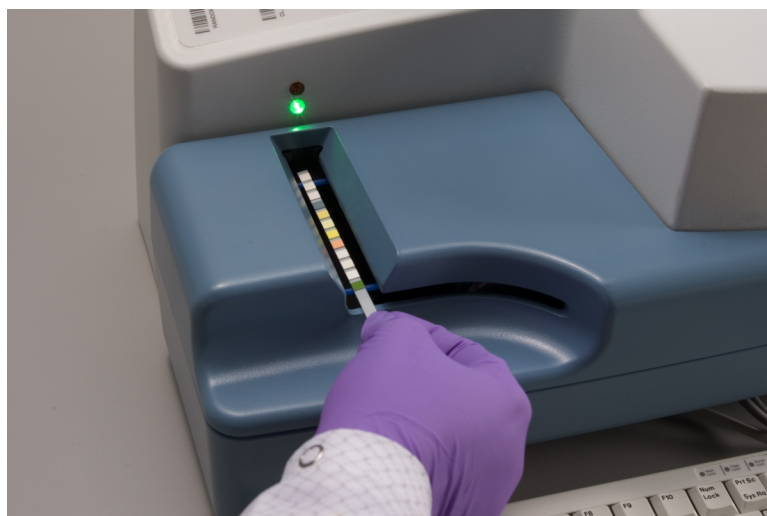
5. Immediately remove the urine test strip from the urine, dragging the edge of the strip against the side of the container as you remove the strip.
6. Blot the urine test strip by touching the edge of the strip to a paper towel.



NOTE: Do not drag the strip across the paper towel, touch the edge only.

4. Specimen Processing

7. Place the urine test strip with the test pads facing up on the transport belt of the instrument until the strip touches the end stop. A sensor will detect the presence of the strip and the red LED light will be turned on along with the green LED light.



NOTE: If you move the strip away from the sensor before it is transported, a message screen will prompt you to remove the urine strip from the transport belt and press the **[F1]** key to continue.

8. The incubation belt transports the strip to be analyzed and then on to the waste container. At the end of analysis, the internal printer will print the results, unless otherwise setup (see [Setting up the printer.](#)) The screen then displays the **Stat Interrupt** screen, ready for another stat specimen.
9. To run another stat sample, enter the patient information, dip the urine test strip, then place it onto the transport belt as described previously.
10. To return to the worklist interrupted by the Stat, from the **Stat Interrupt** screen, press the **[F1]** key to return to the **Run Worklist** screen.
11. If the stat specimen analysis is not completed, the screen will notify you that the **"Urine strip is still on the incubation belts for analysis. Please wait for end of measurement(s)."** As soon as the results are printed for the stat(s), the screen will return to the **Run Worklist** screen, and the next specimen to be run is displayed. The instrument will continue displaying the previously created worklist until all samples have been analyzed.

5 Controls

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Setting the Control Run Frequency

1. From the **Main Menu**, press the **[F4]** key to display the **Controls Menu** screen. This screen allows you to set up new control files, view or edit file setup information, print, view or delete control file results, or run a control and store the results in the highlighted file. In addition, it allows you to set a reminder to run controls at a specified frequency.
2. From the **Controls Menu** screen, use the **[↑]** or **[↓]** arrow keys or the **[Enter]** key to move to the left field of the frequency fields.

CONTROLS MENU		
FILE	LOT#	EXP
FILE 1	1212UC2006	03/20/2006
FILE 2	1213UC2006	03/20/2006
FILE 3		
FREQ	1	Hours ↔
F1 SETP	F2 VIEW	F3 RUN
F4 PRINT	F5 DELETE	F6 MAIN MENU

3. To specify how often a control is to be run, enter a number between 1 and 30 in the text field. Press the **[→]** arrow key or the **[Enter]** key to move to the right frequency field.
4. The right frequency field allows the operator to toggle through the following options:
 - Blank entry field
 - Hours
 - Days
 - Weeks
 - Months
5. Use the **[←]** or **[→]** arrow keys to select the desired option. The entries will be locked in when exiting the screen.



NOTE: The frequency time applies to all controls. When the designated frequency timing for running controls has been exceeded, the instrument will prompt the user to run control(s). The prompt will appear before each specimen is run in the "Run Patient" mode, or before the first specimen in the "Worklist" mode is run. A control must be run before the timer will reset.

Setting a Control File

Creating a Control File

1. From the **Main Menu**, press the **[F4]** key to display the **Controls Menu** screen.
2. From the **Controls Menu** screen, use the **[↑]** or **[↓]** arrow keys, the **[Tab]** key or the **[Enter]** key to select the file to setup.
3. Press the **[F1]** key to display **File # Control Setup** screen. This screen allows you to enter a lot number and expiration date for a specific quality control material.

FILE 1 CONTROL SETUP		
Lot Number	<input type="text"/>	
	mm/dd/yyyy	
Expiration Date	/ /	
F1 NEXT	F2 PRINT	F3 CONTROLS
	F4 MAIN MENU	

4. Enter the desired lot number in the **Lot Number** text field (up to 12 alphanumeric characters). Press the **[↓]** arrow key or the **[Enter]** key to move to the next field.
5. Enter the desired expiration date in the **Expiration Date** text field. Press the **[↓]** arrow key or the **[Enter]** key to move to the next field.
6. Press the **[F1]** key to lock in the selections made and advance to the assay portion of the **File 1 Control Setup** screen.

5. Controls

FILE 1 CONTROL SETUP				
	LOWER LMT		UPPER LMT	
Bilirubin	35	↔	70	↔
Urobilinogen	70	↔	200	↔
Ketones	25	↔	300	↔
Asc. Acid	20	↔	40	↔
Glucose	150	↔	≥1000	↔
Protein	30	↔	≥500	↔
Blood	++	↔	+++	↔
pH	6	↔	8	↔
Nitrite	Pos	↔	Pos	↔
Leukocytes	75	↔	500	↔
S. Gravity	1.010	↔	1.020	↔
F1 PRINT	F2 CONTROLS		F3 MAIN MENU	

7. This screen allows you to enter the appropriate assay information for each of the chemistries. There are two toggle fields for each of the chemistries, a lower and an upper limit.



NOTE: The toggle fields contain values dependent upon which units have been selected in **Setup**, (i.e., conventional, S.I., or qualitative). Refer to **Setting units** on Chapter 3 - Setup. A control value that falls outside of the selected values will be flagged with an * when the results are displayed or printed.

8. Use the [←] or [→] arrow keys to move through the options in each toggle field and select the desired control value for both the upper and lower limit. Use the [↑] or [↓] arrow keys, the [Tab] key or the [Enter] key to move between fields.
9. If desired, press the [F1] key to print out a copy of the control file information.

5. Controls

Editing Control File Information



WARNING: Making edits in a control file will delete all results stored in memory for this file.

1. From the **Main Menu**, press the **[F4]** key to display the **Controls Menu** screen.
2. From the **Controls Menu** screen, to select a file to be edited, use the **[↑]** or **[↓]** arrow keys to move to the desired file number, and then press the **[F1]** key to display the **File Control Setup** screen. A message will appear warning that all results for this file will be deleted.

FILE 1 CONTROL SETUP
DELETE LOT # and EXP?
DELETE ASSAY INFO, LOT # and EXP?
EDIT EXISTING INFO?
PRINT EXISTING SETUP INFO?
F1 CONTINUE F2 CONTROLS F3 MAIN MENU

This screen allows you to:

- **Delete Lot # and Exp?**—delete the existing lot number, expiration date, and run data.
 - **Delete Assay Info, Lot # and Exp?**—delete all existing file information (lot #, exp. date, assay information and run data).
 - **Edit Existing Info?**—leave all existing information intact, allowing the editing of desired parameters only (such as lot numbers), but deleting run data of the selected file.
 - **Print Existing Setup Info?**—print existing control set up information for the selected file.
3. Use the **[↑]** or **[↓]** arrow keys to move between the choices. Press the **[F1]** key to lock in the highlighted field selection and perform the action requested.

5. Controls

4. Make the appropriate modifications and press the **[F3]** key to lock in the selections and return to the **Controls Menu** screen.
5. Press the **[F4]** key to lock in the selections and return to the **Main Menu** screen.

Deleting Control File Information

1. From the **Main Menu**, press the **[F4]** key to display the **Controls Menu** screen.
2. From the **Controls Menu** screen, use the **[↑]** or **[↓]** arrow keys to select the desired file number and press the **[F1]** key. If “File 1” had been selected, a screen similar to the following will be displayed.

FILE 1 CONTROL SETUP
WARNING*
The results of selected file will be deleted.
Press F1 to delete and continue.
F1 CONTINUE F2 CONTROLS F3 MAIN

3. Press the **[F1]** key if you wish to carry out the desired deletion. The instrument will advance to the **File # Control Setup** screen when finished.
4. Press the **[F2]** key to return to the **Controls Menu** screen without deleting anything.
5. Press the **[F3]** key to return to the **Main Menu** screen without deleting anything.

Running Controls

1. From the **Main Menu** screen, press the **[F4]** key to display the **Controls Menu** screen.
2. Using the **[↑]** or **[↓]** arrow keys, select the control file corresponding to the control material you want to run.
3. From the **Control Menu** screen, press the **[F3]** key to display the **Run Controls** screen. The green LED light on the instrument will be illuminated, indicating the instrument is activated and waiting for a urine test strip to be placed on the transport mechanism.

RUN CONTROLS	
Please place the urine strip on transport belts.	
SEQ	001
FILE NUMBER	FILE 1
LOT NUMBER	1212UC06
EXP. DATE	03/20/2006
F1 CONTROLS	F2 MAIN MENU

This screen allows you to run a specified quality control material and have its results stored in the selected file. The sequence number of the control is displayed at the top of the screen and reflects the number of controls that have been run for this specific control file. The instrument has the capability to store up to 100 runs in each file.



NOTE: You cannot run a control material that has not been previously set up in a control file. Refer to [Setting a Control File](#).

4. Dip a urine test strip into the control material corresponding to the control identified on the screen. Place the test strip onto the transport belt with the test pads facing up. Slide the strip forward until the strip touches the end stop.



NOTE: If you move the strip away from the sensor prior to being transported, a message screen will appear requesting that you remove the urine strip from the transport belt and press the **[F1]** key to continue.

5. Controls

5. At the end of the analysis, the results will be displayed on the screen for review and acceptance.

FILE 1		SEQ	021
Bili	35	Bld	++
Uro	140	pH	8
Ket	100	Nit	Pos
A. Acid	20	Leu	75
Gluc	50*	S.G.	1.010*
Prot	100		
F1 ACCEPT	F2 REJECT	F3 MAIN MENU	



NOTE: Results for a parameter that fall outside the identified limits will be flagged with an * on all displays or printouts of those results. The flagging information will be stored along with the results in the control file.

To accept the results

6. Press the **[F1]** key to accept the displayed results. The results will then be stored in the appropriate control file, and printed on the internal printer, unless printing has been set to "Print Function Only" (refer to [Setting up the printer](#)). The instrument will then return the display to the **Controls Menu** screen where you can select a different control material and repeat this process.

To reject the results

7. Press the **[F2]** key to reject the displayed results. Rejecting the results will remove the results from memory and return the display to the **Run Controls** screen where the control material may be rerun.
8. Press the **[F3]** key to exit this screen, reject the results and remove them from memory, and return the display to the **Main Menu** screen.



NOTE: When the control file is full, it will prevent the addition of any more results until the entire file has been cleared. (See [Deleting Control File Information](#).)

5. Controls

Control Results

Viewing Control Results

1. From the **Main Menu** screen, press the **[F4]** key to display the **Control Menu** screen.
2. From the **Control Menu**, use the **[↑]** or **[↓]** arrow keys to select the file to be viewed. Press the **[F2]** key to display the **View QC Runs** screen for the selected file.

FILE 1 - VIEW QC RUNS - FILE 1	
Bilirubin	Blood
Urobilinogen	pH
Ketones	Nitrite
Asc. Acid	Leukocytes
Glucose	S. Gravity
Protein	
F1 VIEW	F2 CONTROLS
F3 MAIN MENU	

This screen allows you to review the quality control results for each of the chemistry parameters.

3. Use the **[↑]** or **[↓]** arrow keys or the **[Tab]** key to select a parameter and then press the **[F1]** key. The screen will display a series of screens allowing you to view all the stored results (along with flagging) for the selected chemistry.

FILE 1 - VIEW QC RUNS - Glucose				
Run #	Date	Time	Opr	Results
91	03/23/2006	08:25	1	>1000*
92	03/23/2006	12:30	2	500
93	03/23/2006	22:15	3	500
94	03/23/2006	08:25	21	150
95	03/23/2006	12:30	22	500
96	03/23/2006	22:15	23	500
97	03/23/2006	08:25	11	150
98	03/23/2006	12:25	12	500
F1 NEXT		F2 PREV	F3 VIEW QC	

5. Controls

4. Each screen displays up to 10 results for the designated chemistry. No units are displayed. Each control file holds the results for up to 100 runs. The results are displayed with the run number, date and time run, and the operator's numerical identifier (if available).
 - Press the **[F1]** key to display the next series of results for that chemistry.
 - Press the **[F2]** key to display the previous series of results for that chemistry.
 - Press the **[F3]** key to exit the display screen and return to the **View QC Runs** screen where you may select to view another chemistry control.

Printing Control Results

1. From the **Main Menu** screen, press the **[F4]** key to display the **Control Menu** screen.
2. From the **Control Menu**, use the **[↑]** or **[↓]** arrow keys to select the control file to be printed, and then press the **[F4]** key.

All printouts will include:

- Header information
 - Name of file, followed by lot number and expiration date
 - All results and flagging for each of the chemistry parameters, the date and time of the run and the operator's identifier.
3. Press the **[F1]** key to stop printing, if desired. The printing will stop after print queue is emptied.
 4. At the end of printing the screen will return to the **Controls Menu** screen.

Deleting Control Results

1. In the **Controls Menu** screen, use the **[↑]** or **[↓]** arrow keys to select the control file to delete, and then press the **[F5]** key. A message will appear warning you that you are about to permanently delete all the control results for that file and asking for confirmation.
 - Press the **[F1]** key to delete all control results for that file. When complete, the screen will return to the **Controls Menu** screen.

5. Controls

- Press the **[F2]** key to exit the screen without deleting any results from the selected file. The screen will return to the **Controls Menu** screen.
- Press the **[F3]** key to exit the screen without deleting any results from the selected file. The screen will return to the **Main Menu** screen.

6 Results

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6. Results

Entering Microscopic Results

This function provides you with the ability to recall urine specimens that have already had chemistry analysis, so that you may enter their microscopic analysis information. Specimens for microscopic exam entry or editing can be accessed by date, time, specimen / patient ID, or patient last name.

1. From the **Main Menu**, press the **[F6]** key, then press the **[F1]** key. The **Microscopic Entry** screen will be displayed.

MICROSCOPIC ENTRY			
	mm/dd/yyyy	hh:mm	↔
START DATE / TIME	/ /	:	am
END DATE / TIME	/ /	:	am
SPEC / PAT ID			
PAT LAST NAME			
F1 ENTER F2 MICROSCOPIC F3 MAIN MENU			

2. Once you have entered the search criteria for the urine specimens you want to access, press the **[F1]** key to display the **Enter Microscopic** screen for the first urine specimen.

This screen will display the patient's / specimen's ID number and last name, if entered, along with the date and time of the chemistry analysis. Microscopic entry is completed exclusively with toggle fields. Many of the parameters have the ability to change the descriptors as well as enter a quantifier.

123456789012345	Johnson	0025
	03/23/2006	12:07 pm
1. RBCs		↔
2. WBCs		↔
3. Bacteria	↔	↔
4. Epis	↔	↔
5. Crystals	↔	↔
6. Crystals	↔	↔
7. Yeast	↔	↔
8. Casts	↔	↔
F1 MORE	F4 CHEM	
F5 MICROSCOPIC	F6 MAIN MENU	

6. Results

123456789012345	Johnson	0025
	03/23/2006	12:07 pm
1. RBCs		↔
2. WBCs		↔
3. Bact Rods	↔	↔
4. Epis	↔	↔
5. Crystals	↔	↔
6. Crystals	↔	↔
7. Yeast	↔	↔
8. Casts	↔	↔
F1 MORE	F4 CHEM	
F5 MICROSCOPIC	F6 MAIN MENU	

The parameters allowing for the changing of descriptors are as follows:

Descriptors	Sub-category Abbrev.	Full Name
RBCs		
WBCs		
Bacteria	BacChain BactCoci BactRods	Bacterial chains Bacterial cocci Bacterial rods
Epis	Sq Epi Trans Epi Renal Epi	Squamous epithelials Transitional epithelials Renal epithelials
Crystals	Tri Phos CaOx Ca Carb Ca Phos Uric Acid Leuc Cyst Tyro Amorph Na Urate AmBiurat	Triple phosphate Calcium oxalate Calcium carbonate Calcium phosphate Uric Acid Leucine Cystine Tyrosine Amorphous urates/phosphates Sodium urates Ammonium biurate
Yeast	YeastBud YeastHyp	Budding yeast Hyphaed yeast
Casts	HyalCast Epi Cast WBC Cast	Hyaline cast Epithelial cast White Blood Cells cast

6. Results

Descriptors	Sub-category Abbrev.	Full Name
	RBC Cast Gr Cast FnGrCast CrGrCast CellCast Brd Cast Fat Cast Waxy Cast	Red Blood Cells cast Granular cast Fine granular cast Coarse granular cast Cellular cast Broad cast Fatty cast Waxy cast
Trich		Trichomonas
Oval Fat	Oval Fat Fat Drop	Oval fat body Fat droplets
Mucus		
Sperm		

- Use the [↑] or [↓] arrow keys, the [Enter] key, or the [Tab] key to move around within the toggle fields to select (highlight) a desired field.
- Use the [←] or [→] arrow keys to toggle through the selections. For example, you wish to change the Bacteria descriptors. With the Bacteria identifier field active, toggle through the bacteria selections, (e.g., BacChain, BactCoci, or BactRods to access the desired descriptor).



NOTE: The quantifier selections for each of the microscopic parameters can be viewed by printing them out (see [Print a Copy of Microscopic Setup](#)).

- Once you have made your selection, use the [↑] or [↓] arrow keys, or the [Enter] key to lock in your selection and move to the next field.



NOTE: Any microscopic field with an associated quantifier field that is left blank will not be reported or stored under Results.

- Enter desired information for all parameters on this screen. If necessary, press the [F1] key to move to the next **Enter Microscopic** screen for additional parameter entries for this specimen.

6. Results

123456789012345	Johnson	0025
	03/23/2006	12:07 pm
1. Trich		↔
2. Crystals		↔
3. Oval Fat	↔	↔
4. Mucus	↔	↔
5. Sperm	↔	↔
6. Color	↔	↔
7. Clarity	↔	↔
8. Spec Type	↔	↔
F1 BACK	F4 CHEM	
F5 MICROSCOPIC	F6 MAIN MENU	



NOTE: This is the only place you can also edit the color, clarity and specimen type for the urine results presented in this screen.

7. To enter results for the next specimen press the **[F3]** key. The next specimen's fields for entering or editing microscopic results will be displayed. (If there are no microscopic results to be entered or edited for a specimen, press the **[F3]** key to advance to the next specimen.)

1234567890	Johnson
03/23/2006 12:07	
Bili Neg	Bld Neg
Uro Norm	pH 7
Ket 100	Nit Pos
A. Acid Neg	Leu 75
Gluc 150	S.G. 1.015
Prot Neg	
F2 PREV	F3 NEXT
F5 MICROSCOPIC	F4 MICRO
	F6 MAIN MENU

8. To view a specimen's chemistry results, press the **[F4]** key while displaying the specimen's microscopic entry screen.



NOTE: No editing of chemistry results is allowed. This screen is for viewing the chemistry results for this specimen only.

6. Results

9. To display the same specimen's microscopic results again, press the **[F4]** key while displaying the specimen's chemistry results. This will return you to the first ***Microscopic Entry*** screen.
10. Press the **[F5]** key to return to the ***Microscopic Entry*** screen or press the **[F6]** key to return to the ***Main Menu*** screen.

6. Results

Viewing Results

1. Press the **[F3]** key with the **Main Menu** screen active to bring up the **Results** screen.

RESULTS			
	mm/dd/yyyy	hh:mm	↔
START DATE / TIME	/ /	:	am
END DATE / TIME	/ /	:	am
SPEC / PAT ID			
PAT LAST NAME			
OPER NUMBER			
F1 VIEW	F2 PRINT	F3 TRANSMIT	
F4 DELETE		F5 MAIN MENU	

This screen provides you with the ability to review, print, delete or transmit results on specimens that have already been run and are stored in patient storage. The specimens may be recalled by date, specimen or patient ID, patient last name, and/or operator number.



NOTE: Not all fields for date and time are required. For example, to bring up all specimens for one day, enter the “Start Date” and “End Date”. To bring up all specimens for one day during a particular hour, enter the “Start Date / Time” and the “End Date / Time”.

Limiting Result Parameters

In addition to viewing complete results from the **Results** screen, it is also possible to limit your results by the following parameters:

To view results...

by start date

for more than one day

by specimen or patient ID

by last name

by operator number

Press the **[F1]** key after doing this...

enter the desired start date by month, day, year, and time

to enter both a start date and end date (both are required)

enter the specimen or patient ID

enter the patient's last name

enter the number associated with the operator name and Log On ID

6. Results

RESULTS	
	mm / dd / yyyy hh:mm ↔
START DATE / TIME	03 / 23 / 2006 12:00 pm
END DATE / TIME	03 / 24 / 2006 02:00 pm
SPEC/PAT ID	12345678901234
PATIENT LAST NAME	
OPERATOR LAST NAME	
F1 VOIR	F2 IMPR
F4 SUPPRIMER	F3 TRANSMETTRE
	F5 MENU PRINC

You can also search using more than one field, (e.g., start date and patient ID, start and end date, etc. as shown above). With the desired search fields defined, press the **[F1]** key to view results.

The instrument will display the results for each specimen of the search through a combination of two screens (one for chemistry results and one for microscopic results).

123456789012345	Johnson	0025
	03/23/2006	12:07 pm
Bili	Neg	Bld ++#
Uro	Norm	pH 6
Ket	Neg	Nit Pos#
A. Acid	Neg	Leu 75#
Gluc	≥1000*	S.G. 1.030
Prot	≥500#	Color Yellow
Clarity	Slt Cloudy	S. Type Random
F1 MICRO	F2 PREV	F3 NEXT
		F4 RESULTS

Use the **[F1]** key to toggle between these two screens, the **[F2]** key to view the previous result, the **[F3]** key to view the next result, and the **[F4]** key to return to the **Results** screen.

123456789012345	Johnson	0025
	03/23/2006	12:07 pm
RBCs	3-5	Casts
WBCs	25-50	Casts
Bacteria	++	Trich
Epis		Oval Fat
Crystals		Mucus
Crystals		Sperm
Yeast	Few	
F1 CHEM	F2 PREV	F3 NEXT
		F4 RESULTS

6. Results

Printing Results

1. Press the **[F3]** key with the **Main Menu** screen active to bring up the **Results** screen.

RESULTS			
	mm/dd/yyyy	hh:mm	↔
START DATE / TIME	/ /	:	am
END DATE / TIME	/ /	:	am
SPEC / PAT ID			
PAT LAST NAME			
OPER NUMBER			
F1 VIEW	F2 PRINT	F3 TRANSMIT	
F4 DELETE		F5 MAIN MENU	

2. Select the results you wish to print by specifying the date, specimen or patient ID, patient last name, or operator number in the search fields.
3. Press the **[F2]** key to print results. A screen will appear indicating that results are being printed.
4. Press the **[F1]** key to stop printing, if desired. The printing will stop after the print queue is emptied.
5. At the end of printing, the screen will revert back to the **Results** screen.

6. Results

An example printout is shown below.

Printed results will include:

- Header Information
- Date and time of analysis
- Sequence Number
- Patient First and Last Name, if available
- Specimen or patient ID
- Operator, if available
- Clarity, if available
- Color
- Specimen Type
- Chemistry results
- Microscopic results if available

Midtown County Health
10257 Crescent Blvd. Suite 3
Monroe, Texas 12345
Telephone: 555-555-7755

DATE 03/25/2006 SEQ 0001
TIME 11:36am

Pt Stephen Brown

Spec/Pat ID 1234567890

OP 21

Clarity	Cloudy
Color	Amber
Spec Type	Random
Bilirubin	Neg
Urobilinogen	Norm
Ketones	Neg
Asc. Acid	Neg
Glucose	150 mg/dL *
Protein	Neg
Blood	0.03 mg/dL #
pH	8
Nitrite	Pos
Leukocytes	75 WBCs/uL #
S. Gravity	1.030
RBCs	5-10 HPF
WBCs	25-50 HPF
BacChain	2+
Sq Epi	2+
Tri Phos	Few
YeastBud	Moderate

COMMENTS

Transmitting Results

1. Press the **[F3]** key with the **Main Menu** screen active to bring up the **Results** screen.

RESULTS	
mm/dd/yyyy hh:mm ↔	
START DATE / TIME	/ / : am
END DATE / TIME	/ / : am
SPEC / PAT ID	
PAT LAST NAME	
OPER NUMBER	
F1 VIEW	F2 PRINT
F4 DELETE	F3 TRANSMIT
	F5 MAIN MENU

2. Select the results you wish to transmit by specifying desired date(s), specimen or patient ID, patient last name, or operator number in the search fields.
3. Press the **[F3]** key to send results to the laboratory information system (LIS). A screen will appear indicating that results are being transmitted. Transmitted results will include:
 - Date and time of analysis
 - Sequence number
 - Patient first and last name, if available
 - Specimen or patient ID
 - Operator's name, if available
 - Specimen type, if available
 - Color
 - Clarity, if available
 - Chemistry results with flagging
 - Microscopic results, if available
4. Press the **[F1]** key to stop the transmission, if desired.
5. At the end of transmission, the screen will revert back to the **Results** screen.

Deleting Results

1. From the **Main Menu**, press the **[F3]** key to bring up the **Results** screen.

RESULTS		
mm/dd/yyyy hh:mm ↔		
START DATE / TIME	/ /	: am
END DATE / TIME	/ /	: am
SPEC / PAT ID		
PAT LAST NAME		
OPER NUMBER		
F1 VIEW	F2 PRINT	F3 TRANSMIT
F4 DELETE	F5 MAIN MENU	

2. Select the results you wish to delete by specifying desired date(s), specimen or patient ID, patient last name, or operator number in the search fields.
3. Press the **[F4]** key to delete results from patient storage.



WARNING: If no entry has been made into any of the search fields, the instrument will delete **ALL** results from patient storage. You will receive a warning message asking for confirmation to delete results.

DELETE RESULTS		
SELECTING [F1] WILL DELETE SELECTED DATA FROM PATIENT STORAGE PERMANENTLY!!		
F1 DELETE	F2 RESULTS	F3 MAIN MENU

- Press **[F1]** confirm the deletion and return to the **Results** screen.
- Press **[F2]** return to the **Results** screen without deleting results.
- Press **[F3]** return to the **Main Menu** screen without deleting results.

7

Maintenance & Service

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Maintenance

Recommended Maintenance & Cleaning

Instrument parts that may be cleaned or disinfected:

- Main Housing
- Transport Mechanism Enclosure
- Waste Container
- Chassis
- Strip Catch Plate
- Pulleys

DO NOT wash or rinse:

- Keyboard
- Printer
- Power supply
- LCD display screen
- Electrical or computer connection

Daily Maintenance

Material needed: Iris System Cleanser ([REF](#) 800-3203)

1. Power OFF instrument.
2. Wipe (do not spray) surfaces that come in contact with specimens/ strips with Iris System Cleanser. Rinse with water and dry with a soft cloth or paper towel. Avoid excess moisture.
3. Empty waste container of strips and clean with Iris System Cleanser. Rinse with water and dry with a soft cloth or paper towel. Refer to [Emptying Waste Container](#).
4. Examine belt assembly and pulleys for debris, damage, belts off track, twisting or spills.

7. Maintenance & Service

Weekly Maintenance

1. Clean belt assembly. Refer to [Cleaning the Belt Assembly](#).

Emptying Waste Container

Material needed: Iris System Cleanser (REF 800-3203)

1. To empty the waste container, slide the transport mechanism enclosure towards you and away from the instrument.



2. Set the container on the counter or some other flat surface. (An error message may be displayed on the screen.)

WARNING!

Transport mechanism enclosure is ajar.

Please remove all urine strips on belts!

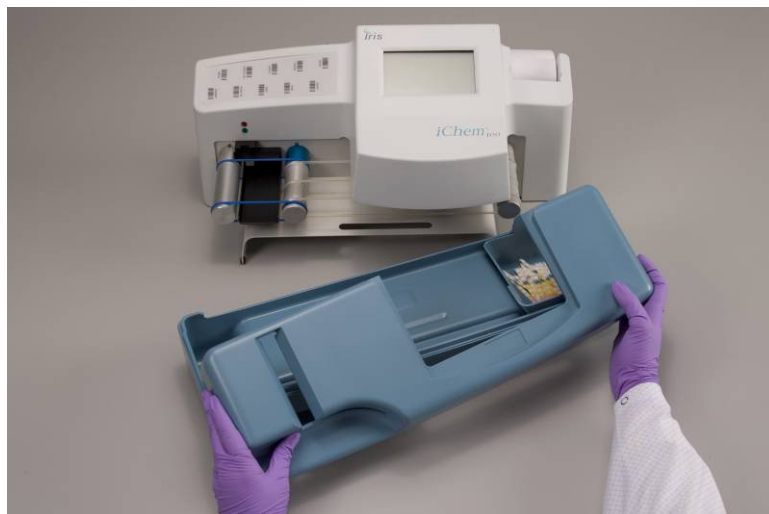
After replacing enclosure,
Press F1 if enclosure was not emptied, or
Press F2 if enclosure was emptied.

F1 NOT EMPTIED

F2 EMPTIED

3. Remove the lid of the transport mechanism enclosure.

7. Maintenance & Service



4. Remove the waste container from the enclosure and discard the urine test strips in an appropriate waste container.
5. Clean with Iris System Cleanser, rinse with water and dry with a soft cloth or paper towel.



6. The entire transport mechanism enclosure can be cleaned with Iris System Cleanser and then rinsed with water and dried, or wiped with a damp cloth at this time, if needed.
7. Replace the waste container in the transport mechanism enclosure and replace the lid.

7. Maintenance & Service

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Urine Chemistry Analyzer

8. Slide the transport mechanism enclosure back on the instrument until you hear a click. This assures you that it is properly positioned for running.



9. Press **[F2]** if you emptied the waste container, or press **[F1]** if you did not. The instrument will reset the counter when emptied.

7. Maintenance & Service

Cleaning the Belt Assembly

Material needed: Iris System Cleanser (REF 800-3203)

1. Press the power switch located at the back right of the instrument to power the instrument off.
2. Remove the transport mechanism enclosure by sliding it towards you and away from the instrument. The belt assembly is now visible.
3. Gently remove belts from transport and incubation pulleys. Wash with soap and water, and then dry them with a soft cloth or paper towel.



NOTE: Do not soak the belts.



4. Wipe the incubation and transport rollers with Iris System Cleanser and dry carefully.

7. Maintenance & Service

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Urine Chemistry Analyzer



5. Replace the belts in their original grooved positions.



6. Replace the cover and slide the transport mechanism enclosure back on the instrument until you hear a click indicating that it is properly positioned for running.
7. Press the power switch located at the back right of the instrument to power the instrument on.
8. After replacing the belts (and prior to running strips), run the Transport **[F3]** and Incubation **[F4]** drives for 1 minute to reseal belts and remove any twists. Refer to [Load Drive Test](#) and [Inc Drive Test](#).

7. Maintenance & Service

Replacing the Belts

Material needed: 3 incubation belts (REF 800-7014)
1 transport belts (REF 800-7504)

1. Press the power switch located at the back right of the instrument to power the instrument off.
2. Remove the transport mechanism enclosure by sliding it towards you and away from the instrument. The belt assembly is now visible.



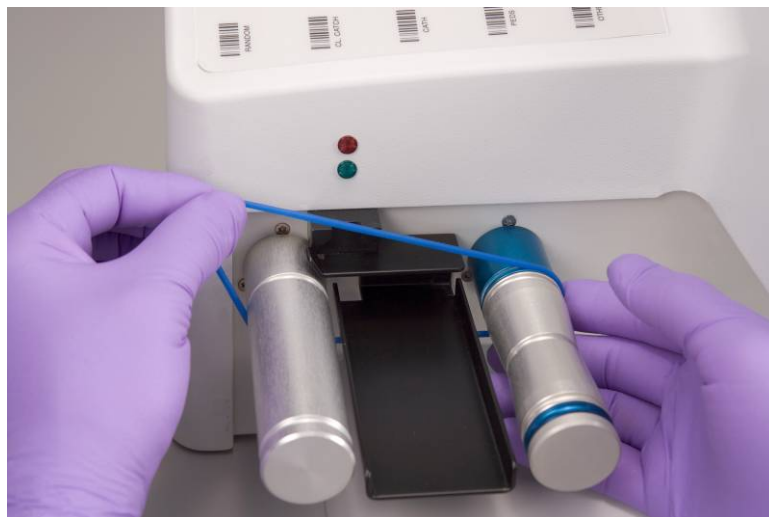
3. Remove the front blue transport belt by sliding it towards you and off of the pulley assembly; discard it.
4. Repeat this process with the three incubation belts and the last transport belt.

The belt pulleys are color-coded for easy identification and replacement of the belts. The grooves of the center transition pulley are colorless for the three (3) incubation belts and blue for the two (2) transport belts.

5. Replace the back transport belt first, by sliding the belt around the middle pulley. Then pulling slightly, slide the other end of the belt around the far left pulley, as shown below.

7. Maintenance & Service

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6. Position the belt, without twisting it, into the blue grooves.
7. Take an incubation belt and slide it around the far right pulley. Pulling slightly, slide the other end of the belt around the middle pulley, as shown below.



8. Position the belt, without twisting it, into the clear grooves.
9. Repeat steps 7 and 8 for the 2nd and 3rd clear incubation belts.
10. Replace the front transport belt last, by sliding the belt around the far left pulley, then pulling slightly, slide the other end of the belt around the middle pulley.

7. Maintenance & Service



11. Position the belt, without twisting it, into the blue grooves.
12. Replace the transport mechanism enclosure by sliding it back on the instrument until you hear a click indicating that it is properly positioned for running.
13. Press the power switch located at the back right of the instrument to power the instrument on.
14. After replacing the belts, and prior to running strips, check the belts using the **[F3]** and **[F4] *Diagnostic*** menu options, see [Load Drive Test](#) and [Inc Drive Test](#). Run the belts for at least one minute to reseal the belts and remove any twists.

7. Maintenance & Service

As needed - Replacing the Paper Roll

Material needed: Thermal paper rolls (REF 800-7511)

1. Tear off any excess paper from the paper feed.
2. Pull out the remaining paper and remove the empty core.
3. Feed the paper manually under the printer roller with the inside face of the paper upward and away from you.



4. Make sure the instrument is powered on.
5. Press the **[Page Up]** key until the paper comes through the opening at the top of the instrument as shown above.
6. Place the paper roll into the paper holder at the top of the instrument.

Diagnostics

This function provides you with a set of diagnostic functions to help troubleshoot an instrument performance issue. Selecting one of the functions will activate the instrument to perform the specific function.

1. From the **Main Menu** screen, press the **[F7]** key, then press the **[F4]** key. The **Diagnostics** screen will be displayed.

DIAGNOSTICS	
F1 LCD TEST	F6 RGB TEST
F2 PRINTER TEST	F7 MECHANICAL TEST
F3 LOAD DRIVE TEST	F8 INTERNL STD TEST
F4 INC DRIVE TEST	F9 SERVICE MENU
F5 LED TEST	F10 MAIN MENU



NOTE: The transport mechanism enclosure can be removed while performing any of the tests.

LCD Test

1. From the **Diagnostics** screen, press the **[F1]** key to activate the LCD display to perform a number of diagnostic procedures that tests its operational capabilities, (completely reversed screen, clear screen and a screen with alphanumeric characters). Press the **[F1]** key until the **Diagnostics** screen is displayed.

Printer Test

1. Insure that paper is present before testing.
2. From the **Diagnostics** screen, press the **[F2]** key to print several lines of alphanumeric characters.

7. Maintenance & Service

Load Drive Test

This test is performed after cleaning or replacing the transport belts to reseal belts and remove any twists.

1. From the **Diagnostics** screen, press the **[F3]** key to activate the transport belts on which the urine test strips are loaded. After one minute, press the **[F1]** key to stop the belts.

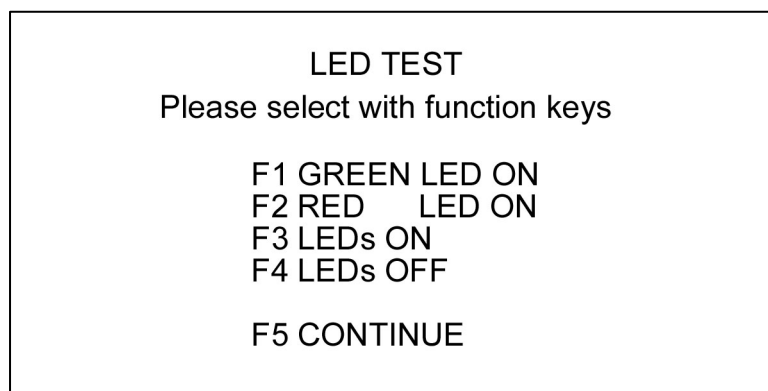
Inc Drive Test

This test is performed after replacing the incubation belts to reseal belts and remove any twists.

1. From the **Diagnostics** screen, press the **[F4]** key to activate the incubation belts on which the urine test strips are transported for analysis. After one minute, press the **[F1]** key to stop the belts.

LED Test

1. Remove the transport mechanism enclosure before performing the test.
2. From the **Diagnostics** screen, press the **[F5]** key to bring up the LED Test screen.



3. Use the designated function keys to activate the different LED light combinations and observe the LED lights located above the transport belts on the left side of the instrument.

7. Maintenance & Service

Press the [F] key	LED ON	LED OFF
[F1]	Green	Red
[F2]	Red	Green
[F3]	Red and Green	-
[F4]	-	Red and Green

- When completed, press the **[F5]** key to return to the **Diagnostics** screen.

RGB Test

- Remove the transport mechanism enclosure while performing the test.
- From the Diagnostics screen, press the **[F6]** key to bring up the following RGB (Red, Green, and Blue LEDs) optics test screen.

<p style="text-align: center;">RGB TEST</p> <p style="text-align: center;">Please select with function keys</p> <p style="text-align: center;">F1 START RGB MEASUREMENT</p> <p style="text-align: center;">F2 CONTINUE</p>
--

- Press the **[F1]** key to activate the RGB test. Observe under the second incubation roller (right of the instrument) to see if all three wavelengths (red, green and blue) illuminate. Repeat this step, if necessary.
- Press the **[F2]** key to return to the **Diagnostics** screen.

Mechanical Tests

1. Remove the transport mechanism enclosure while performing the test.
2. From the **Diagnostics** screen, press the **[F7]** key to bring up the **Mechanical Test** Screen.

<p>MECHANICAL TEST</p> <p>Please select with function keys</p> <p>F1 STOP POSITION F2 PASS POSITION F3 HOME POSITION F4 INTERNAL STANDARD DOWN</p> <p>F5 CONTINUE</p>

3. Use the designated function keys to activate the different mechanical functions. Check for correct positions under the optics.

Press the [F] key	Action	Use for
[F1]	Position the urine test strip alignment device at its lowest position.	Stopping the urine test strips for alignment and measurement at the optics.
[F2]	Position the urine test strip alignment device at its middle position.	Allowing the urine test strips to pass the optics and to go into the waste container.
[F3]	Return the urine test strip alignment device to its home position.	
[F4]	The internal standard should move to its lower position touching the incubation belts.	Test the functionality of the internal moveable standard.
[F5]	Return to the Diagnostics screen.	

Internal Standard Test

This test is designed to verify the optics system via a check of the non-moveable “fixed” standard.

1. Make sure the transport mechanism enclosure is in place on the instrument before performing the test.
2. From the **Diagnostics** screen, press the **[F8]** key to initiate the test. The screen will display *"Internal Standard will be measured. Please wait."*
3. If the calibration check is acceptable, the screen will return to the **Diagnostics** screen. If the calibration check fails, the following screen will be displayed.

FAILURE
Call Technical Service.

Measurement cannot be run anymore.

ERROR#:
xxxx

F1 TO CONTINUE

If this test fails, repeat it at least one more time. If it fails again, contact Iris Technical Support group (see [Before Calling for Service](#)).

Exit Diagnostics

1. You may exit the **Diagnostics** screen at anytime by pressing the **[F9]** key to return to the **Service Menu** screen, or pressing the **[F10]** key to return to the **Main Menu** screen.

7. Maintenance & Service

Before Calling for Service



NOTE: Before calling for Service, please make a note of any error messages displayed.

In the US Call Technical Services for assistance:

Iris Diagnostics
9172 Eton Avenue
Chatsworth, CA 91311
USA

Telephone

+1-800-PROIRIS (776-4747)
+1-818-709-1244

Fax +1-818-700-9661

Outside the US, call your Local Distributor for assistance

Stay close to the system and be prepared to explain the nature of the problem.

Provide:

- Your name
- Account name
- Telephone number with area code
- *iChem100* serial number

Describe:

- Error messages
- Operation in process when problem/error occurred
- Problem

7. Maintenance & Service

Maintenance Log

QC/Maintenance Log

Month _____ Year: _____ Instrument Serial Number: _____

Daily

	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Wipe surfaces with Iris Cleanser																															
Empty waste container																															
Clean Waste Container																															
Examine belts and pulleys																															
Run Controls																															
Initials																															

Weekly

As needed

Date																															
Clean the Belt Assembly																															
Replace the Belts																															
Initials																															
Date																															
Replace Paper Roll																															
Initials																															

8

Installation

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8. Installation

Shipping Cartons

The iChem100 is shipped in one carton. Open the carton and check the packaged items. If any of the items are damaged or missing, immediately notify Iris Diagnostics or your distributor.

Unpacking



1. Position the shipping container upright and open the top flaps.

NOTE: If using a utility knife, extend the blade to an appropriate length to avoid cutting any internal components.

2. Remove accessories and set aside.
3. Remove secondary cardboard organizer.
4. Remove the instrument by slowly lifting it vertically out of the shipping container by the foam end caps. Place the instrument on a stable surface.
5. Remove foam end caps and place them in the shipping container for storage.
6. Check the contents of the box with the shipping list shown below:
 - iChem100 Urine Chemistry Analyzer
 - Keyboard
 - Keyboard Cover
 - External Power Supply
 - Power Supply Adapters (US, EU)
 - 2 sets of Belts (Transport and Incubation)
 - Operators Manual
 - 3 rolls of Thermal Paper
 - Barcode Reader and Cable (Optional)



NOTE: If the instrument is stored at a temperature below 59°F and above 90°F (below 15°C and above 32°C) or at a humidity below 20% and above 80% relative humidity (RH), allow the instrument to acclimate to the final environment temperature for a minimum of two (2) hours.

8. Installation

Installation

1. Place the iChem100 Urine Chemistry Analyzer on a clean, dry, and flat surface.



NOTE: Always make sure the instrument's power switch is in the "OFF" (down) position before connecting or disconnecting the cables or accessories.

2. Attach the cable from the barcode reader to the instrument, as shown below. The barcode reader has a split cable. The longer cable segment attaches to the instrument.



3. Attach the cable from the keyboard to the barcode reader cable.



NOTE: The barcode reader has a **split** cable. The shorter cable segment attaches to the **keyboard**.

4. Attach the power adapter attachment that is appropriate for your wall socket to the external power supply.
5. Attach the power supply's cable plug into its receptor located on the back of the instrument.
6. Plug the external power supply into a wall power outlet. Make sure the instrument is plugged into a grounded power line that meets the voltage requirements: 100 to 250 VAC \pm 10%, 50/60 Hz.

8. Installation



NOTE: Use only a power **adaptor** providing an output of 7.5 Vdc @ 3.3 A.

7. Remove the red magnetic shield (if present) from the optics area before powering on the instrument. To access the optics area, remove the transport mechanism enclosure by sliding it towards you and away from the instrument (see figure below). To remove the shield, gently pull downward on the edges of the red magnetic shield.



8. Slide the transport mechanism enclosure back on the instrument until it clicks in place. This assures you that it is properly positioned for running.
9. Press the power switch located on the back right of the instrument to power the instrument on.

8. Installation

Install the paper roll

1. Discard the first 10" - 12" of the paper roll to prevent printer jamming due to the glue.
2. Feed the paper manually under the printer roller with the inside face of the paper upward and away from you.



3. Press the **[Page Up]** key until the paper comes through the opening at the top of the instrument as shown above.
4. Perform the initial setup - see [Chapter 3](#).
5. Consult [Chapter 4 - Specimen Processing](#) prior to analyzing specimens for the first time.

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Table of Results

Parameter	Conventional Units	S. I. Units	Qualitative Units
Bilirubin	Neg 1mg/dL 2mg/dL 4mg/dL	Neg 17µmol/L 35µmol/L 70µmol/L	Neg + ++ +++
Urobilinogen	Norm 2mg/dL 4mg/dL 8mg/dL 12mg/dL	Norm 35µmol/L 70µmol/L 140µmol/L 200µmol/L	Norm + ++ +++ ++++
Ketones	Neg 25mg/dL 100mg/dL 300mg/dL	Neg 2.5mmol/L 10mmol/L 30mmol/L	Neg + ++ +++
Ascorbic Acid	Neg 20mg/dL 40mg/dL	Neg 1.14mmol/L 2.28mmol/L	Neg + ++
Glucose	Neg 50mg/dL 150mg/dL 500mg/dL ≥1000mg/dL	Neg 3mmol/L 8mmol/L 28mmol/L ≥56mmol/L	Neg + ++ +++ ++++
Protein	Neg 30mg/dL 100mg/dL ≥500mg/dL	Neg 0.3g/L 1g/L ≥5g/L	Neg + ++ +++
Blood Hemoglobin	Neg 0.03mg/dL 0.2mg/dL 1mg/dL	Neg 0.3mg/L 2mg/L 10mg/L	Neg + ++ +++
Blood RBCs	Neg 5-10RBCs/µL 50RBCs/µL 300RBCs/µL	Neg 5-10RBCs/µL 50RBCs/µL 300RBCs/µL	Neg 5-10RBCs/µL 50RBCs/µL 300RBCs/µL

Parameter	Conventional Units	S. I. Units	Qualitative Units
pH	5	5	5
	6	6	6
	7	7	7
	8	8	8
	9	9	9
Nitrite	Neg Pos	Neg Pos	Neg +
Leukocytes	Norm 25WBCs/μL 75WBCs/μL 500WBCs/μL	Norm 25WBCs/μL 75WBCs/μL 500WBCs/μL	Norm 25WBCs/μL 75WBCs/μL 500WBCs/μL
Specific Gravity	1.000	1.000	1.000
	1.005	1.005	1.005
	1.010	1.010	1.010
	1.015	1.015	1.015
	1.020	1.020	1.020
	1.025	1.025	1.025
	1.030	1.030	1.030
	1.035	1.035	1.035

Parameter	
Color	Blank, Colorless, Straw, Yellow, Orange, Amber, Red, Red Brown, Green, Brown, Black, Other
Clarity	Via barcode reader: Clear, Slt Cloudy, Cloudy, Bloody, Other Via keyboard: Clear, Hazy, Slt Cloudy, Cloudy, Turbid, Bloody, Other
Specimen Type	Via barcode reader: Random, CI Catch, Cath, Peds, Other Via keyboard: Random, CI Catch, Cath, Peds, First am, 24 hrs, Fasting, Gluc Tol, S Pubital, Other

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