



Introduction

Thank you for purchasing the Element DC® Veterinary Chemistry Analyzer

The Element DC is a diagnostic medical device for veterinary hospital use to analyze blood by colorimetric end-point, rate and ISE tests, using the DRI-CHEM SLIDES.

Before using this equipment, please read this manual carefully to follow the precautions so that you can operate it correctly.

Keep the manual near the Element DC, so that you can refer to it whenever necessary.

CAUTIONS

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2. The information contained in this manual may be subject to change without prior notice.
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Safe Usage and Handling Precautions

This section contains safety precautions which must be followed for the safe operation of the Element DC® Veterinary Chemistry Analyzer.

Before using this equipment, please read this chapter carefully and follow the precautions given, so that you can operate it correctly.

1.1 Definition of Specific Safety Precautions

Specific safety precautions are noted by the terms **WARNING**, **CAUTION**, **IMPORTANT**, and additional information by **NOTE**. The respective meanings are as follows:

 **WARNING**

Indicates hazardous situations that may lead to serious injury, even death or the transmission of infectious agents if the precaution is not followed.

 **CAUTION**

Indicates hazardous situations that may lead to minor or moderate injury or physical damage if the caution is not followed.

 **IMPORTANT**

Indicates improper handling that could have an adverse effect on the accuracy of the measurement values if the precaution is not followed.

Indicates procedures requiring special attention, instructions that must be followed, supplementary explanations, etc.

1.2 Precautions Before Operating This Equipment

 **CAUTION**

Before using this equipment, please read this Instruction Manual carefully so that you can operate the equipment correctly.

 **CAUTION**

Whenever you operate this equipment, be sure to observe the precautions described in this manual. Failure to do so may subject you to injuries, cause property damage, or produce incorrect test results.

 **CAUTION**

This equipment is only to be operated by personnel appropriately trained for its intended use and correct operation.

 **CAUTION**

The operators must be appropriately trained for the usage of the key (sampler cover lock) to follow the usage and its cautionary statements. Refer to *Section 1.13, Sampler Cover*.

 **CAUTION**

Do not remodel the Element DC. Otherwise, the safety will not be guaranteed.

 CAUTION

In the mode functions described in *Section 6*, there are 2 kinds of modes: one is the administrator mode, which can only be operated by administrators; another is the normal mode, which can be operated by normal operators. The important mode functions, which affect test results such as correlation coefficient settings, can only be operated in the administrator mode. The administrator modes must be operated only by the administrators who have the responsibility for the use of the analyzer. Inputting a password in the password input dialogue allows the administrators to operate the administrator modes.

1.3 Biohazards and Disposal

 WARNING

As used (contaminated) consumables (*e.g.*, DRI-CHEM SLIDES, DRI-CHEM AUTO TIPS, DRI-CHEM MIXING CUPS and sample tubes) and contaminated swabs or cloths used for cleaning the equipment are infectious waste, process the waste correctly in compliance with any applicable regulations in your country, such as by incineration, melting, sterilization or disinfection.

 WARNING

When discarding the Element DC body that may be contaminated with blood samples, be sure to process it correctly in compliance with any applicable regulations in your country because it must never be disposed of as a general waste.

 WARNING

When handling samples (blood) and performing maintenance (cleaning the analyzer), always follow biohazard procedures (*e.g.*, wearing gloves, lab coat, and safety goggles), referring to the sample handling rules of your facility. If any part of the body comes in contact with samples, immediately rinse the contaminated body part thoroughly under running water and then use ethyl alcohol as a disinfectant. Seek medical assistance if necessary.

 WARNING

Do not touch used slides and tips with bare hands as this may cause contamination. If any part of the body comes in contact with contaminated consumables, immediately rinse the contaminated body part thoroughly under running water and then use ethyl alcohol as a disinfectant. Seek medical assistance if necessary.

 WARNING

When samples come into contact with the analyzer components, immediately clean and disinfect the components.

1.4 Explosive Hazards

 WARNING

As this equipment is not explosion-proof, be sure not to use flammable and explosive gas around the equipment.

1.5 Electrical Hazards

 WARNING

The power supply voltage applied to the equipment is AC100–240V.

To avoid electrical shock, observe the following precautions:

Avoid installation sites where water may splash, *etc.*, on the equipment.

Make sure that the equipment is properly grounded to a protective earth lead for indoor wiring.

Make sure that all cables have been properly connected.

 WARNING

Plug the power cable of the equipment into an outlet with a grounding receptacle. If the equipment is not grounded to a protective earth lead, this may cause electrical shock.

 WARNING

When plugging the power cable in or removing it from an outlet, be sure to hold onto the plug body, not just the cable, to prevent damage to the cable.

 WARNING

Do not remove covers or other parts that are secured with screws to avoid electrical shock that may result from exposure to hazardous voltage, or injury from moving parts.

1.6 Electromagnetic Compatibility (EMC)

NOTE: This equipment conforms to the following EMC requirements:

FCC Part 15 Subpart B:2006, Class A

ICES-003 Issue No. 4, Class A

This is a class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interference in which case the user will be required to correct the interference at his own expense.

This Class A digital apparatus complies with Canadian ICES-003.

If this equipment does cause harmful interference to other devices, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving device.

Increase the separation between the equipment.

Connect the equipment into an outlet on a circuit different from that to which the other device(s) are connected.

Consult the manufacturer or field service technician for help.

 CAUTION

Do not use other devices (such as mobile phone) which generate and can radiate radio frequency energy near the Element DC. Otherwise, physical damage or malfunction on the Element DC may occur.

1.7 Moving Parts

 WARNING

Do not place your hands near the moving part (sampler, slide transfer bar, spotting part) whenever operating the equipment, including maintenance. Also use care not to get your hands, hair, clothing, or accessories caught in moving part.

 WARNING

During sample processing, ensure the LCD under cover and sampler cover are closed and locked with the key to prevent injuries and biohazard. If fingers touch the tip which has sample inside, the sample will spill out from the tip to cause biohazard. When the display reads [Ready to test], the sampler cover can be opened.

1.8 Installation Site Requirements

WARNING

Plug the power cable of the equipment into an outlet with a grounding receptacle. If the equipment is not grounded to a protective earth lead, this may cause electrical shock.

CAUTION

Avoid the following installation sites:

Places where spills or water leakage may occur.

Places where the equipment is exposed to direct sunlight.

Places near sources of heat such as heaters.

Places where the temperature may drastically change.

Places where the equipment is subject to vibration or its support table is unstable.

1. Install the equipment in the following environmental conditions:

Location: Indoor use

Illumination: Below 6,000 cd/m² (lux) (Below 3,000 cd/m² (lux) when using the sample barcode reader)

Altitude: Up to 2,000 m

Transient overvoltage category: II

Pollution degree: 2

Operating temperature: 59°F to 89°F (15°C to 32°C)

Operating humidity: 30% to 80% RH (no vapor condensation)

2. Use the equipment under the following electrical requirements:

Voltage limit: 100–240 V

Frequency: 50–60 Hz

Supply voltage fluctuations: ± 10%

Rated current: 2.5–1.1 A

Phase: Single

Type of protection against electrical shock: CLASS 1 EQUIPMENT

3. Plug the Element DC into an independent AC outlet separate from other devices.

4. Empty space is necessary at least 4 in (10 cm) on the back and the both sides of the equipment (Empty space on the back is necessary to unplug the power cable connector from the appliance inlet of the equipment).

5. Unplug the equipment from the AC outlet if it will not be used for an extended period of time.

1.9 Test Results for Diagnosis

WARNING

In case that an analyzer malfunction error(s) is (are) displayed (printed) before/during test processing, or warning indications are printed out along with test results, the test results may NOT be accurate. Refer to *Section 5: Troubleshooting* and rerun the tests.

IMPORTANT

Make a diagnosis in a comprehensive manner, considering other relative test results or clinical situation.

1.10 DRI-CHEM SLIDES

(Henceforth, DRI-CHEM SLIDE is shortened into “slide” in this manual.)

WARNING

Do not touch used slides with bare hands as this may cause contamination. If any part of the body comes in contact with used slides, immediately rinse the contaminated body part thoroughly under running water and then use ethyl alcohol as a disinfectant. Seek medical assistance if necessary.

WARNING

As used slides are infectious waste, process the waste correctly in compliance with any applicable regulations in your country, such as by incineration, melting, sterilization or disinfection.

IMPORTANT

The slides should be stored in a refrigerator [35.6°F to 46.4°F (2°C to 8°C)] without unwrapping to avoid humidity, light, and heat.

Only the required number of slides should be taken out of the refrigerator and warmed up to room temperature before unwrapping the individual packages.

Complete the measurement within 30 minutes after unwrapping the individual package.

Do not touch either the center part of the surface or the back of the colorimetric test slides.

Do not touch the thread bridge part of the electrolyte slide.

Do not scratch (damage) the printed dot-code on the backside of the slides.

A new slide must be used for each measurement. Do not reuse.

NOTE: Types of slide packages and containers for liquids (*e.g.*, diluent, reference fluid) are subject to change without notice.

List of DRI-CHEM SLIDES for the Element DC.

Classification		Test name	
Biochemical Tests	Enzymes	ALP	Alkaline Phosphatase
		v-AMY	Amylase
		CPK	Creatine Phosphokinase
		GGT	Gamma Glutamyltransferase
		GOT/AST	Aspartate Aminotransferase
		GPT/ALT	Alanine Aminotransferase
		LDH	Lactate Dehydrogenase
		v-LIP	Pancreatic Lipase
	General Chemistry	ALB	Albumin
		BUN	Blood Urea Nitrogen
		Ca	Calcium
		CRE	Creatinine
		GLU	Glucose
		IP	Inorganic Phosphorus
		Mg	Magnesium
		NH ₃	Ammonia
		TBIL	Total Bilirubin
		TCHO	Total Cholesterol
		TCO ₂	Total Carbon Dioxide
		TG	Triglyceride
		TP	Total Protein
		UA	Uric Acid
		Electrolytes	Na
	K		Potassium
	Cl		Chloride

NOTE: Specifications and capabilities are subject to change without notice.

1.11 QC Card System

1. QC cards are packed together with slides in the same box. Before you start using a new lot of slides, read the QC card using the QC card reader. It is advisable to store the QC card in the box it comes in until the accompanying lot of slides has been used.

The analyzer can store a maximum of 2 lots of slide information for each test name.

When more than 2 lots of QC information are read, the oldest QC information will be deleted.

2. Read the QC card when no slide is in the process of being analyzed.

1.12 Handling Samples

WARNING

When handling samples (blood), always follow biohazard procedures (*e.g.*, wearing gloves, lab coat, and safety goggles), referring to the sample handling rules of your facility. If any part of the body comes in contact with samples, immediately rinse the contaminated body part thoroughly under running water and then use ethyl alcohol as a disinfectant. Seek medical assistance if necessary.

IMPORTANT

When using plasma or serum, check that the samples have not undergone hemolysis, and that they do not contain any fibrin deposits.

1.13 Sampler Cover

WARNING

During sample processing, ensure the cover under the screen and the sampler cover are closed and locked with the key to prevent injuries and biohazard. If fingers touch the tip which has sample inside, the sample will spill out from the tip to cause biohazard. When the display reads "Ready to test", the sampler cover can be opened.

1.14 Diluents and Reference Fluid

CAUTION

When handling diluent or reference fluid, always follow chemical procedures (*e.g.*, wearing gloves, lab coat, and safety goggles), referring to the Instructions for Use for fluids and sample handling rules of your facility.

IMPORTANT

For ISE tests, the reference fluid is necessary. Refer to the Instructions for Use for the slides.

IMPORTANT

Do not use products other than specified products designed for the Element DC, as using non-specified products could cause inaccurate test results and damage the analyzer.

1.15 DRI-CHEM AUTO TIPS, Sample Tubes and DRI-CHEM MIXING CUPS

(Henceforth, DRI-CHEM AUTO TIPS is shortened to “tips”, Sample Tubes to “tubes”, and DRI-CHEM MIXING CUPS to “mixing cups” in this manual.)

The sampler of the Element DC performs pipetting automatically. However, it is necessary to prepare the DRI-CHEM AUTO TIPS, Sample Tubes (Heparin Tube or Plain Tube) and DRI-CHEM MIXING CUPS designed for use with the Element DC.

The Sample Tubes include the following:

Heparin Tube 1.5

Heparin Tube 0.5

Plain Tube 1.5

Plain Tube 0.5

WARNING

Do not touch used tips, tubes, and mixing cups with bare hands as this may cause contamination. If any part of the body comes in contact with contaminated consumables, immediately rinse the contaminated body part thoroughly under running water and then use ethyl alcohol as a disinfectant. Seek medical assistance if necessary.

WARNING

As used tips, tubes, and mixing cups are infectious waste, process the waste correctly in compliance with any applicable regulations in your country, such as by incineration, melting, sterilization or disinfection.

IMPORTANT

Use new DRI-CHEM AUTO TIPS, Sample Tubes and DRI-CHEM MIXING CUPS for each sample. Do not reuse old tips and mixing cups.

IMPORTANT

Do not use products other than specified products designed for the Element DC, as using non-specified products could cause inaccurate test results and damage the analyzer.

1.16 Light Source Lamp

CAUTION

The light source lamp gets very hot. Before replacing the lamp, turn the power off and wait for at least 5 minutes.

1. The light source lamp is a halogen lamp. Do not touch the glass surface of the lamp with bare hands.
2. The lamp is expendable. A spare lamp should be kept on hand in case the lamp burns out.

1.17 Recording Paper

1. Use specified recording paper for the Element DC.
2. Do not use paper other than the type specified, as this could damage the printer head.

1.18 Warning Labels

Warning labels and safety labels on the Element DC are:

High temperature caution label

Lamp caution label

Biohazard label

Key caution label

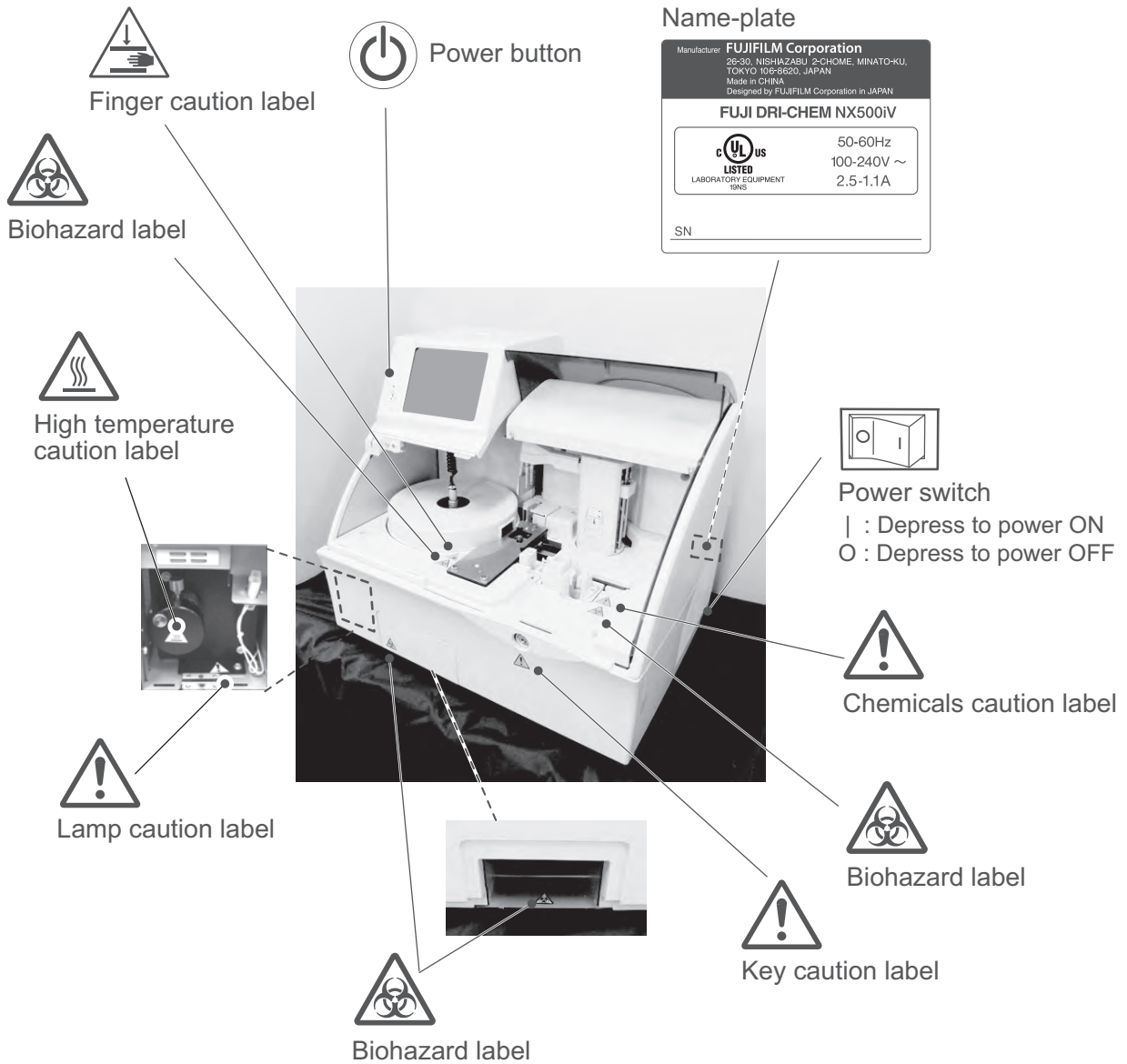
Chemicals caution label

Finger caution label

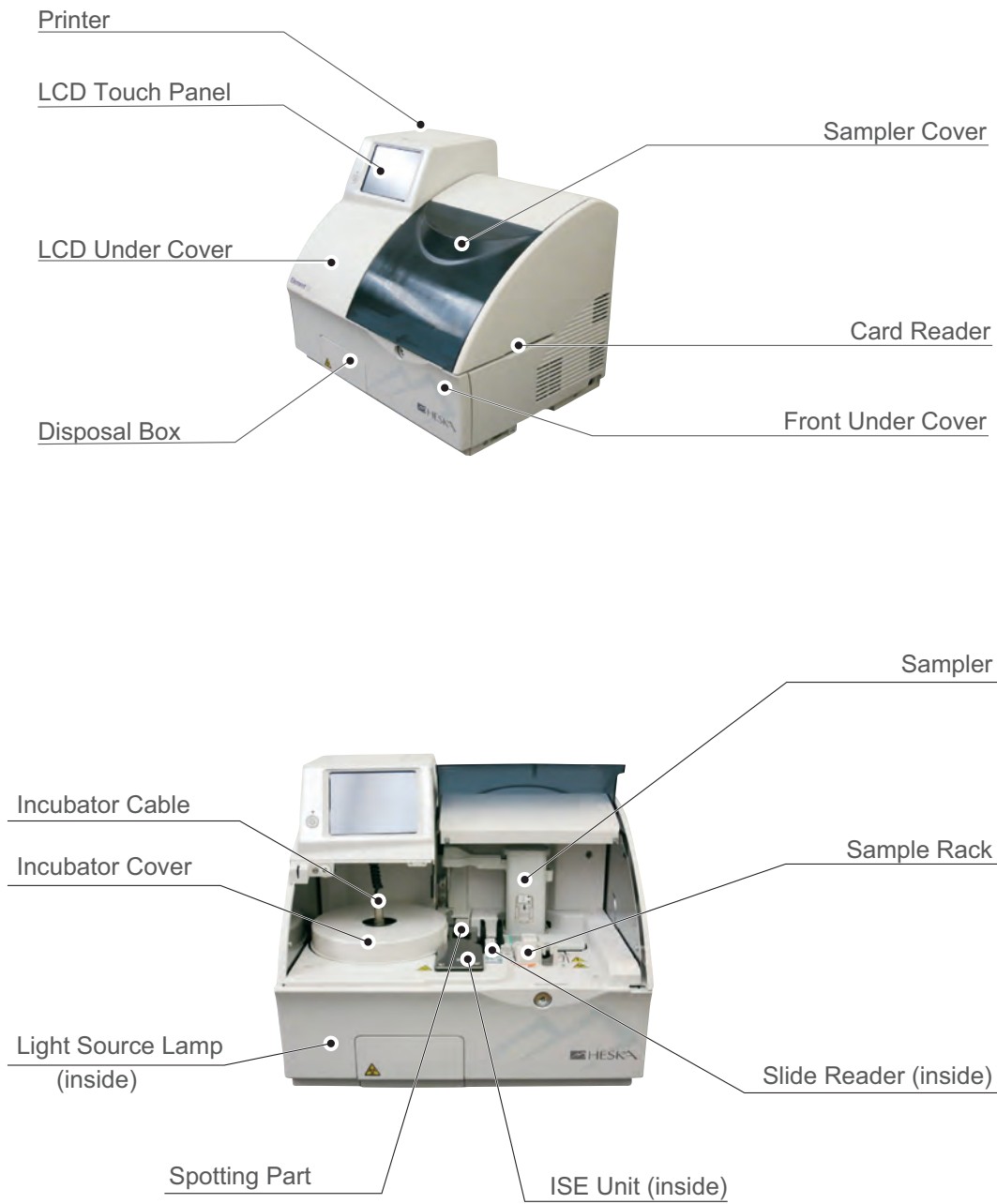
Name-plate

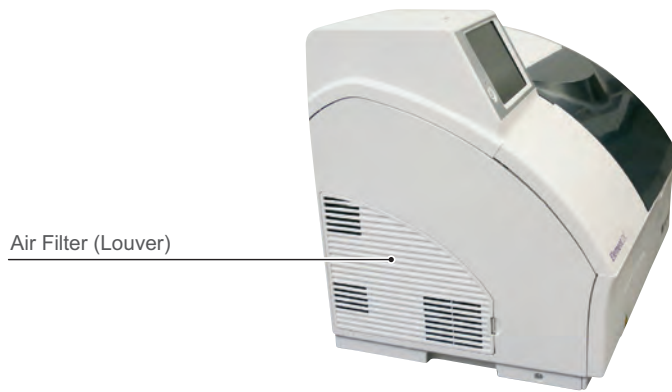
Power switch

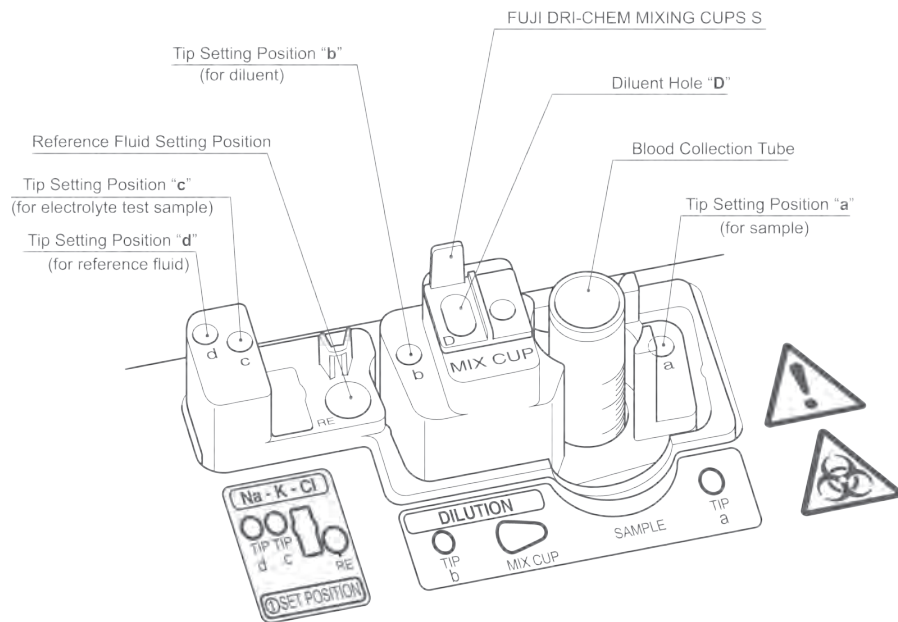
Power button



2.1 Component Names








2.2 Names and Functions of Touch Panel Display

Setting, measuring operation, and confirming test results and messages of the analyzer are performed with the touch panel display. The analyzer employs a pressure-sensitive panel, and this makes it possible for users to operate wearing gloves.

2.2.1 TOP Dialogue

By touching  at the upper left of each dialogue, the TOP dialogue is displayed.

1. Help button

The Help button is used for displaying the help dialogue. (Refer to *Section 2.2.5*)

2. Measurement button

The Measurement button is used for displaying the test preparation dialogue for a new test.

3. Mode Function button

The Mode Function button is used for displaying the MODE FUNCTION menu dialogue. (Refer to *Section 2.2.3* and *Section 6*.)

4. Power OFF button

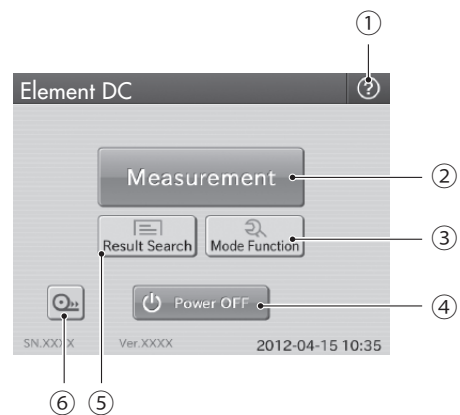
The Power OFF button is used for turning off the power of the analyzer. (Refer to *Section 3.7.5*)

5. Result Search button

The Result Search button is used for displaying the result search dialogue. (Refer to *Section 2.2.4*)

6. Feed button

The feed button is used for advancing recording paper in the printer. Paper advances each time the button is pressed.



IMPORTANT

The test preparation dialogue displayed after rebooting the analyzer is the same one before the reboot (either the basic or advanced dialogue).

2.2.2 Test Preparation Dialogue

The test preparation dialogue is for preparing and setting a test. The dialogue is displayed after the power is turned on and the analyzer starts up.

IMPORTANT

In dialogues (including test preparation dialogue) displayed when performing tests, there are 2 kinds of dialogue: one is the basic dialogue, which does not display the sample state display area; another is the advanced dialogue, which displays the sample state display area. By using the Display/Hide Sample State Display button, operators can display/hide the area. This manual gives operating instructions taking the advanced dialogue (with the sample state display area) as an example.

1. The TOP Dialogue button

The TOP DIALOGUE is used for returning to the TOP dialogue.

2. Sample Information Setting Area

The sample information setting area displays sample information (No., ID, Animal, Sample type and Dilution). Touch each field in the area, input sample information and change the input contents.

- a. [No.]: Sequence No. (In the work list test preparation dialogue, sample No. is displayed.)

By touching **NO. FIELD**, the screen keyboard is displayed and you can change numbers. Up to 9 digits can be entered. If more than 9 digits are entered or the field is blank, the content in the field is not confirmed even after touching **OK**.

IMPORTANT

Change the displayed information with the Sample No./ID settings of MODE FUNCTION.

[No. display:]: Select YES or NO. When touching NO, the sample No. field is grayed out and you cannot enter or change numbers.

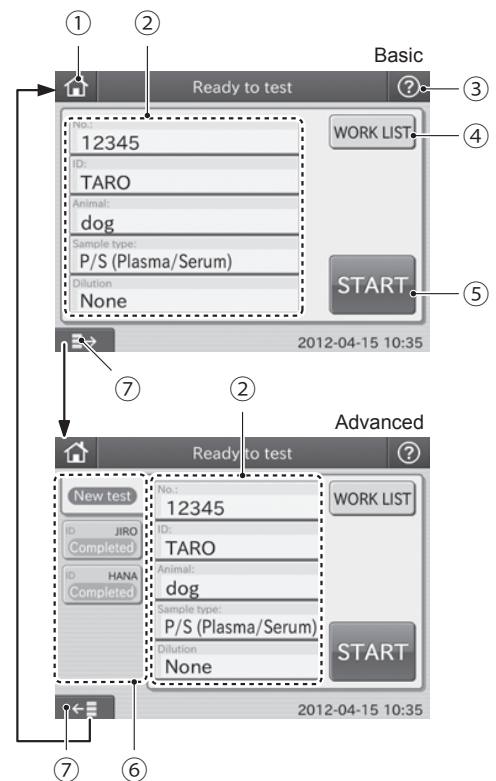
[Keep sequence No.]: Select YES or NO. When touching NO, the sequence No. is reset and starts with "1" when power is cycled. When touching YES, the sequence No. is incremented (the latest No. + 1).

- b. [ID]: Sample ID or patient name (in the work list test preparation dialogue, patient ID is displayed).

When touching ID field, the screen keyboard dialogue appears. Enter alphanumeric characters (up to 13 characters), and touch **OK**.

IMPORTANT

Sample ID can be input with the sample barcode reader. (Refer to *Section 3.9*)



c. [Animal]: Reference interval settings

When touching **ANIMAL FIELD**, the animal dialogue is displayed. Select the animal. If there is more than one animal page, touch the ◀ or ▶ button to switch page.

NOTE: To cancel the reference interval settings, touch X.

d. [Sample type]: Sample type Plasma/Serum (P/S)

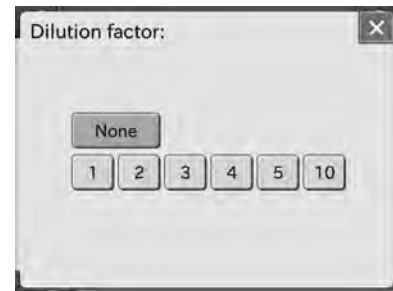
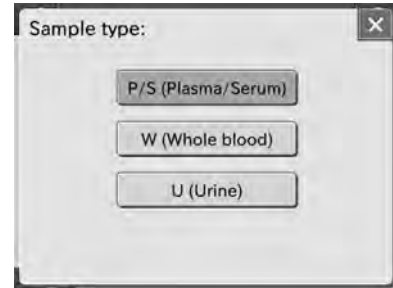
When touching **SAMPLE TYPE FIELD**, the sample type dialogue is displayed. Select the sample type to be tested.

NOTE: To cancel the sample type setting, touch X.

e. [Dilution]: Dilution factor (None, 1, 2, 3, 4, 5 and 10)

When touching **DILUTION FIELD**, the dilution factor selection dialogue is displayed. Select the dilution factor to be used for the test.

NOTE: To cancel the dilution factor setting, touch X.



3. HELP button

The help button is used for displaying the help dialogue. (Refer to Section 2.2.5)

4. WORK LIST button

The WORK LIST button is used for obtaining test requests from a host PC by connecting the analyzer to PMS (Practice Management Software). (Refer to Section 3.8.2)

5. START button

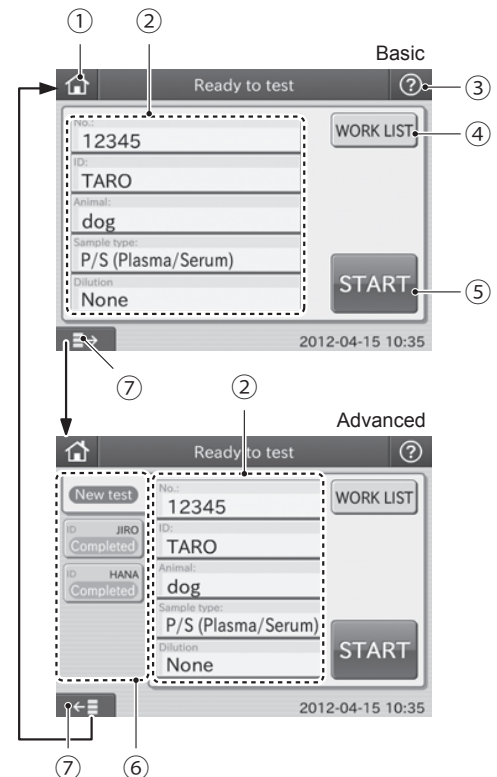
The START button is used for starting tests.

6. Sample State Display Area

The latest 20 samples' histories can be displayed. If the number of sample histories reaches 21, the oldest one is deleted. When touching New test, the default test preparation dialogue is displayed.

7. DISPLAY/HIDE SAMPLE STATE DISPLAY button

The display/hide sample state display area button is used for displaying or hiding the sample state display area. The dialogue with the sample state display area is called "advanced" and without the area is called "basic".



Operation Steps and Screen Displays for Basic Dialogue

1. Before Testing

Make sure [Ready to test] is displayed.

Input the sample information.

If the device is connected to PMS, you can obtain test requests by touching WORK LIST in the test preparation dialogue before performing tests.

Place sample rack, slide cartridge, tips, and sample.

Close and lock the sampler cover with the key.

Touch **START** to start a test.

2. Being Spotted

[Spotting] dialogue is displayed.

The dialogue is displayed until all sides are spotted.

Touch **STOP** to cancel spotting.

Spotted slides are measured.

3. Being Tested (After Spotting Process)

Test preparation dialogue for the next sample will be displayed as soon as spotting complete for all slides.

When multiple samples are being measured, an approximate remaining time to complete all tests is displayed as a guide, not the remaining time to complete each test.

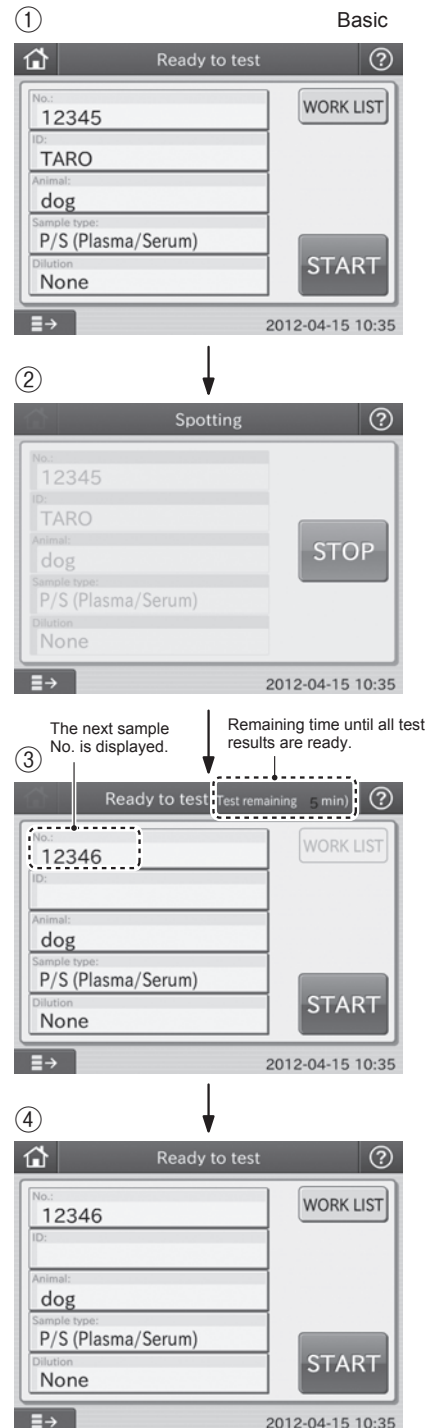
A new sample can be placed and measured before all tests are complete.

Open the sampler cover, and replace a sample with the preliminary preparation for the measurement, and touch **START**.

4. End of Testing

After all tests are completed, the remaining time disappears from the LCD touch panel.

A measurement for the new sample can be started.



Operation Steps and Screen Displays for Advanced Dialogue

1. Before Testing

Make sure [Ready to Test] is displayed.

Touch **NEW TEST**, and input the sample information.

If the device is connected to PMS, you can obtain test requests by touching **WORK LIST** in the test preparation dialogue before performing tests.

Place sample rack, slide cartridge, tips, and sample.

Close and lock the sampler cover with the key.

Touch **START** to start a test.

2. Being Spotted

[Spotting] is displayed.

The dialogue is displayed until all sides are spotted.

Touch **STOP** to cancel spotting. Spotted slides are measured.

3. Being Tested (After Spotting Process)

After completing the spotting, the measurements start and [Testing] is displayed.

An approximate remaining time to complete the test is displayed as a guide.

NOTE: When multiple samples are being measured, an approximate remaining time to complete each test can be checked.

The measurement can be continued with a new sample.

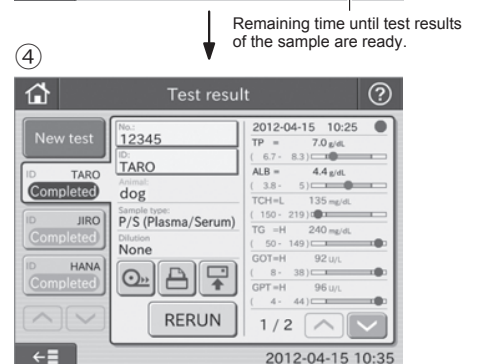
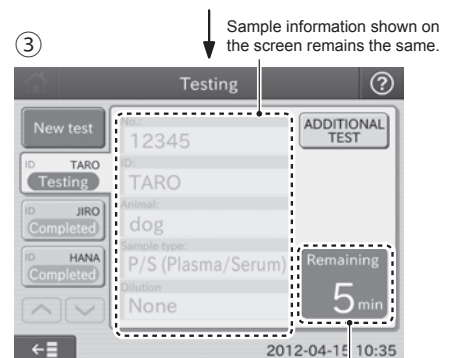
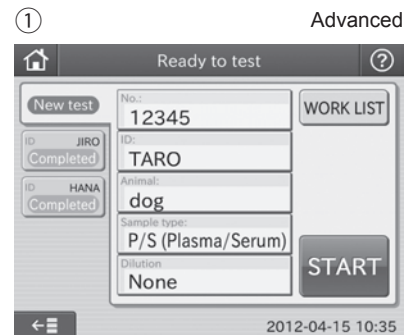
Open the sampler cover, and replace a sample with the preliminary preparation for the measurement, and touch **START**.

4. End of Testing

After all tests are completed, the remaining time disappears from the LCD touch panel.

When performing a new test, touch **NEW TEST** to prompt the new test preparation dialogue.

Open the sampler cover, and replace a sample with the preliminary preparation for the measurement, and touch **START**.



2.2.3 Mode Function Dialogue

Mode functions are used for changing functions, inputting or printing parameters, or cleaning the analyzer, etc.

1. TOP DIALOGUE button

The TOP DIALOGUE button is used for returning to the TOP dialogue.

2. CONTROL button

The CONTROL button is used for measuring with the control mode. The correlation coefficients reset to $a=1$ and $b=0$, the units reset to Unit (A) and the dilution factors reset to no dilution. (Refer to Section 6.2)

NOTE: this is not used for Heska Chemistry Control.

3. MODE FUNCTION buttons <Normal>

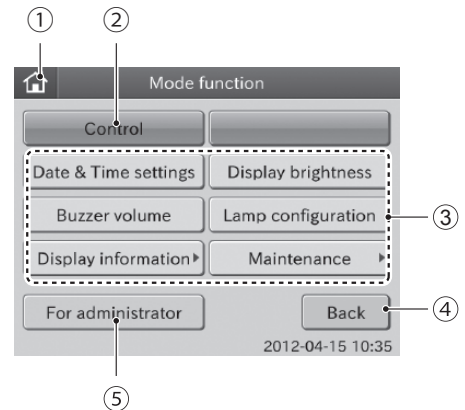
The MODE FUNCTION buttons are used for displaying a respective MODE FUNCTION dialogue to be used by normal operators. (Refer to Section 6)

4. BACK button

The BACK button is used for returning to the [TOP Dialogue].

5. FOR ADMINISTRATOR button <Admini.>

The FOR ADMINISTRATOR button is used for displaying the MODE FUNCTION menu dialogue. Inputting a password is needed to enter into the administrator mode. (Refer to Section 6)



2.2.4 Result Search Dialogue

A maximum of latest test results for 100 samples can be displayed in sequence beginning with newest data.

1. TOP Dialogue button

The TOP DIALOGUE button is used for returning to the TOP DIALOGUE.

2. DATE button

The DATE button is used for displaying the search result dialogue by date.

3. HELP button

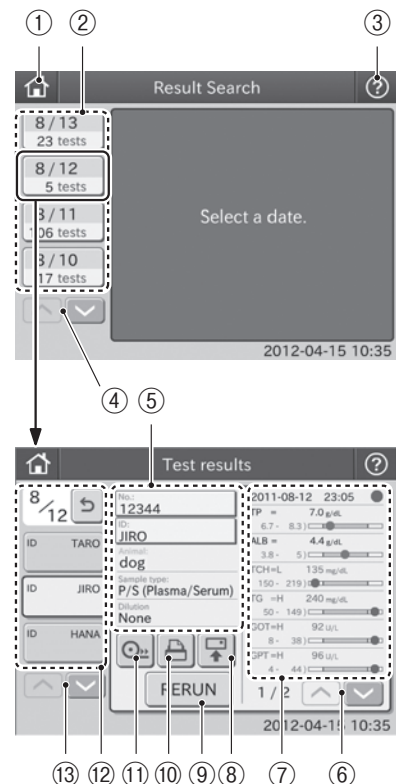
The HELP button is used for displaying the help dialogue. (Refer to Section 2.2.5)

4. DATE SCROLL button

The DATE SCROLL button is used for scrolling up or down a list of the test date buttons.

5. Test Information Setting Area

The No., ID, Animal, Sample type and Dilution fields are displayed in the Test Information Setting Area. By touching NO. or ID, the preset information can be changed.



6. Result data SCROLL button

The Result data SCROLL button is used for scrolling up or down a list of the test results.

7. Result Data Display Area

Test results are displayed in the result data display area. You can display or hide indicator. (Refer to Section 6.9.4)

8. RETRANSMISSION button

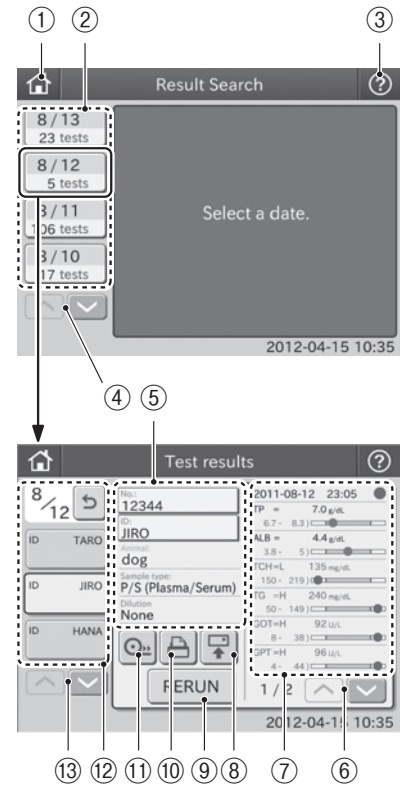
The RETRANSMISSION button is used for sending the test results of the sample displayed in the dialogue to PC (PMS).

9. RERUN button

The RERUN button is used for perform the next test with the same No., ID, Animal and Sample type information. Information in the Dilution field can be changed.

10. REPRINT button

The REPRINT button is used for printing all test results of the sample displayed.



Display indicator

2011-08-12 23:05	
TP = 7.0 g/dL	
(6.7 - 8.3)	
ALB = 4.4 g/dL	
(3.8 - 5)	
TCH=L 135 mg/dL	
(150 - 219)	
TG =H 240 mg/dL	
(50 - 149)	
GOT=H 92 U/L	
(8 - 38)	
GPT=H 96 U/L	
(4 - 44)	
1 / 2	

Hide indicator

2011-08-12 23:05	
TP = 7.0 g/dL	
ALB = 4.4 g/dL	
TCH=L 135 mg/dL	
TG =H 240 mg/dL	
GOT=H 92 U/L	
GPT=H 96 U/L	
BUN=H 52.5 mg/dL	
CRE =H 5.3 mg/dL	
UA =H 11.1 mg/dL	
GLU=H 290 mg/dL	
1 / 1	

Green: All test results within reference interval
 Red: One or more test results outside reference interval

Test Results Lower Limit Test Results Upper Limit



Test Results

Green: Within reference interval
 Red: Outside reference interval

11. FEED button

The FEED button is used for advancing recording paper in the printer.

12. SAMPLE HISTORY button

The SAMPLE HISTORY button is used for displaying all sample test histories by day.

13. SAMPLE HISTORY SCROLL button

The SAMPLE HISTORY SCROLL button is used for scrolling up or down a list of sample histories.

2.2.5 Help Dialogue

The procedure of [Set (Blood)] or [Maintenance] (periodic maintenance) is displayed.

[Others] provides descriptions of the test result signs.

Operation method

1. ITEM button

The ITEM button is used for displaying help items.

2. X button

The X button is used to close the help dialogue.

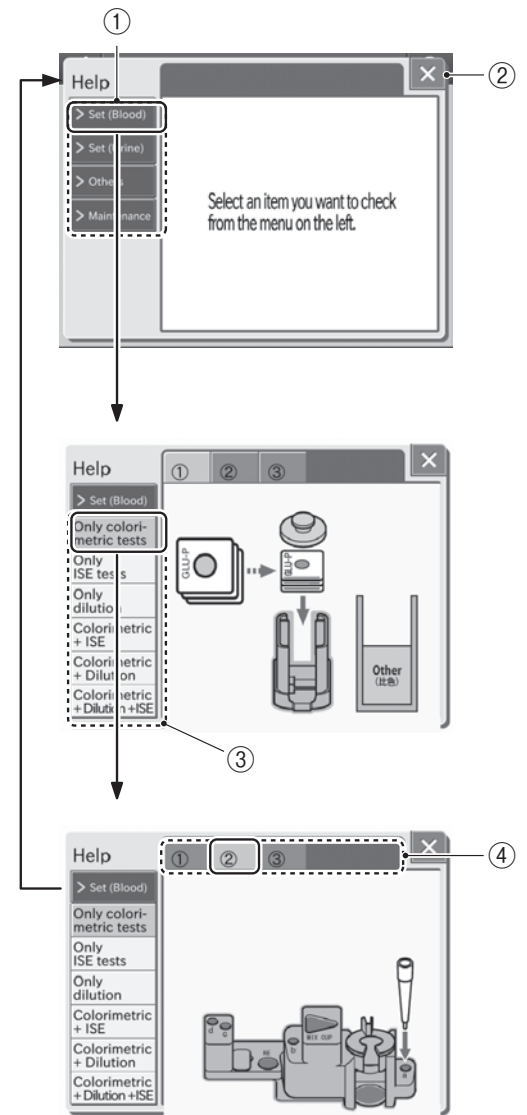
3. ITEM DETAIL buttons

The ITEM DETAIL buttons are used for displaying details of a respective help item.

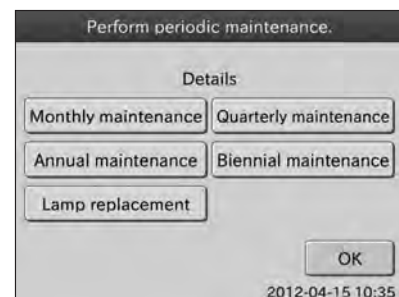
4. STEP buttons

The STEP buttons are used for displaying a respective help procedure.

NOTE: At the beginning of a month, the [Perform periodic maintenance] dialogue may be displayed.



By touching the appropriate maintenance button, the help dialogue is displayed. Perform the periodic maintenance according to instructions. For further information of the periodic maintenance, refer to *Section 4, Periodic Maintenance*.



2.3 Names and Functions of Screen Keyboard

There are 2 kinds of screen keyboards: one is the ten-key keyboard; another is the alphanumeric keyboard. When entering numbers or letters during operation or setting, the screen keyboard pops up automatically.

2.3.1 Ten-Key Input Dialogue

Numeric characters are input with ten-key.



~



NUMERIC button

The NUMERIC buttons are used for inputting numeric characters.



PERIOD button

The PERIOD button is used for inputting a decimal point.



- (Minus) button

The - (Minus) button is used for inputting the minus (-) sign.



BKSP (Backspace) button

The BKSP (Backspace) button is used for deleting the character on the left side of the cursor.



CLEAR button

The CLEAR button is used for deleting all input data.



CURSOR MOVE buttons

The CURSOR MOVE buttons are used for moving the cursor character-by-character to right or left each time the either button is pressed.



OK button

The OK button is used for confirming input data.



X button

The X button is used for deleting all input data and exit the screen keyboard dialogue.

2.3.2 Alphanumeric Input Dialogue

Alphanumeric characters are input. The input dialogue can be switched with the **ABC** button, **abc** button, **123** button or **#** button.



<If the **ABC** button is selected>

Capital letters and numbers can be input.



NUMERIC buttons

The NUMERIC buttons are used for inputting numeric characters.



ALPHABETICAL (Capital letters) buttons

The ALPHABETICAL buttons are used for inputting alphabet in capital letters.



BKSP (Backspace) button

The BKSP (Backspace) button is used for deleting the character on the left side of the cursor.



CLEAR button

The CLEAR button is used for deleting all input data.



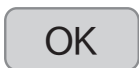
CURSOR MOVE buttons

The CURSOR MOVE buttons are used for moving the cursor character-by-character to right or left each time the either button is pressed.



SPACE button

The SPACE button is used for inputting space for one character.



OK button

The OK button is used for confirming input data.



X button

The X button is used for deleting all input data and exit the screen keyboard dialogue.

ABC

<If the abc button is selected>

Lower case letters and numbers can be input.



NUMERIC buttons

The numeric buttons are used for inputting numeric characters.

ALPHABETICAL (Lower case letters) buttons

The ALPHABETICAL buttons are used for inputting alphabet in lower case letters.



BKSP (Backspace) button

The BKSP (Backspace) button is used for deleting the character on the left side of the cursor.



CLEAR button

The CLEAR button is used for deleting all input data.



CURSOR MOVE buttons

The CURSOR MOVE buttons are used for moving the cursor character-by-character to right or left each time the either button is pressed.



SPACE button

The SPACE button is used for inputting space for one character.



OK button

The OK button is used for confirming input data.



X button

The X button is used for deleting all input data and exit the screen keyboard dialogue.

123

<If the 123 button is selected>

Numeric characters can be input with ten-key.

Refer to *Section 2.3.1* for names and functions of the ten-key buttons.



#

<If the # button is selected>

Symbols and numeric characters can be input.



NUMERIC buttons

The NUMERIC buttons are used for inputting numeric characters.



SYMBOL buttons

The SYMBOL buttons are used for inputting symbols.



BKSP (Backspace) button

The BKSP (Backspace) button is used for deleting the character on the left side of the cursor.



CLEAR button

The CLEAR button is used for deleting all input data.



CURSOR MOVE buttons

The CURSOR MOVE buttons are used for moving the cursor character-by-character to right or left each time the either button is pressed.



SPACE button

The SPACE button is used for inputting space for one character.



OK button

The OK button is used for confirming input data.



X button

The X button is used for deleting all input data and exit the screen keyboard dialogue.

Operation

This section provides an overview of the operations and the process that the Element DC needs to produce test results.

3.1 Slide Loading

The analyzer can compensate for the differences between the slide production lots by reading the QC card in the box of slides.

The slides are unwrapped and loaded in the slide cartridge after they reach room temperature. ISE slides can be loaded along with colorimetric (CM) slides.

The slide cartridge can contain a maximum of 20 slides (including ISE slides) at one time.

The analyzer determines the test name from the slide information printed on the reverse side of the slide.

3.2 Sample Loading

Single-use, disposable sample tubes (0.5 ml or 1.5 ml) can be set in the sample rack. Each tube has a maximum and minimum volume for sample.

When running ISE tests, the reference fluid must be loaded prior to the test.

When diluting the sample automatically, a mixing cup and the diluent must be loaded for automatic tests.

3.3 Sampling and Spotting

The sampler detects the surface of the sample, aspirates a required volume of sample, and spots it on the slide. If the analyzer is operated in dilution mode, the sampler aspirates the diluent, mixes it with the sample, and spots the diluted sample on the slides.

3.4 Incubation

The incubator can hold a maximum of 12 CM slides and one ISE slide. The incubator incubates the CM slides for approximately 6 minutes at 98.6°F (37°C) and the ISE slide for approximately 1 minute at 86°F (30°C). If slides remain in the slide cartridges, they will be transported one by one into the incubator until the cartridge is empty.

3.5 Photometer and Potentiometer Readout

By touching START, the analyzer performs tests automatically.

The photometer head below the incubator reads the reflectance of the slides as well as the white reference plate and the black reference plate. The analyzer uses the reflectance readings, together with the reference readings, the standard curves, and the QC information to determine the concentrations of the samples.

The potentiometer head below the ISE incubator reads the electrical potential of the ISE slide. The analyzer determines the concentrations of the electrolyte in the sample using the electrical potential readings, together with the standard curves.

The test results are printed out and can also be transmitted to an external computer if necessary.

3.6 Disposal of Consumables

Used slides and tips are discarded into a disposal box. The used sample tubes, diluent, reference fluid, and mixing cups must be replaced by hand.

3.7 Preparations

To turn the power on the first time, depress the [I] side of the power switch which is located the right side of the analyzer. The analyzer boots up. Then, use the panel power button to turn the analyzer on and off.

NOTE: If analyzer will not be used for a long period of time, depress the [O] side of the power switch.



3.7.1 List for Daily Maintenance before Use

According to *Section 3.7.2*, please perform the daily maintenance before use.

Item	Contents	Reference Section
Cleaning disposal box	Dispose of used slides and tips.	3.7.2 (1)
Checking air filter	Check that the air filter on the left side of the analyzer is set.	3.7.2 (2)
Removing used consumables	Dispose of used mixing cup and remaining reference fluid and remove remaining sample.	3.7.2 (3)
Checking recording paper	When a red line appears along the sides of the recording paper, replace the recording paper roll with a new one.	3.7.2 (4)
Checking date & time	If either the date or time is incorrect, adjust it using the [Date & Time Settings] of MODE FUNCTION.	3.7.3 (4)

3.7.2 Preparations before Turning the Power On (Daily Maintenance before Use #1)

1. Remove the disposal box and dispose of the tips and slides.

i **IMPORTANT**

If the box is completely full, slide transfer error or tip eject error may occur causing adverse effects on test results.

2. Check that the air filter is set.

i **IMPORTANT**

If the analyzer is used without setting the filter, adverse effects on test results may occur.

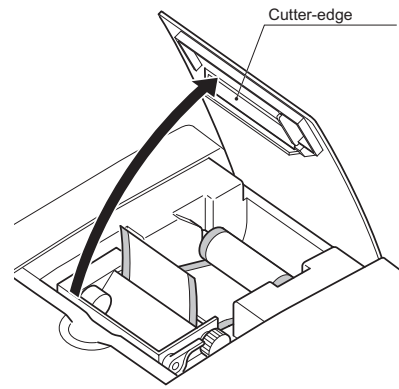
3. Dispose of used mixing cup and remaining reference fluid and remove remaining sample.
4. Check remaining recording paper.

When a red line appears along the sides of the recording paper, replace the recording paper roll with a new one. Refer to *Section 4.5* for replacing.



 **WARNING**

Do not touch the edge of the paper cutter with bare hands.

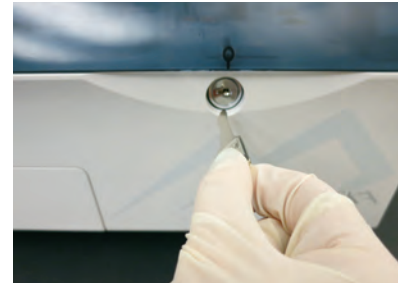


3.7.3 Turning the Power On (Daily Maintenance before Use #2)

1. Close the sampler cover.
2. Lock the sampler cover with the key.

 **WARNING**

During sample processing, ensure the LCD under cover and sampler cover are closed to prevent injuries and biohazard. When the display reads [Ready to test], the sampler cover can be opened.



3. Turn the power button on.
Press **POWER**.

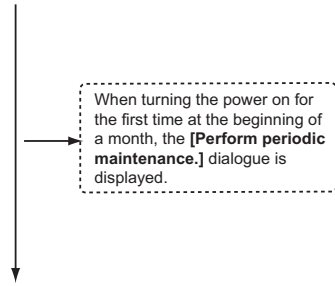
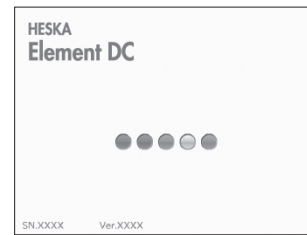
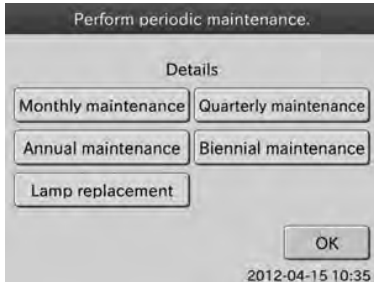


NOTE: If power switch is not turned on, depress the [I] side of the power switch. The analyzer boots up. Pressing **POWER** is not necessary.

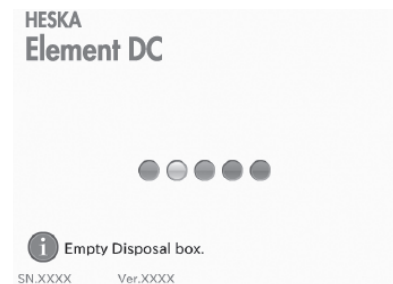


NOTE: Turning the power on for the first time or leaving the power continuously off for a long time may cause the date error (error code: E0500) prompting the resetting of the date. In this case, set the date and the time using the [Date & Time Settings] of MODE FUNCTION. (Refer to *Section 6.3*)

NOTE: At the beginning of a month, the [Perform Periodic Maintenance] dialogue may be displayed.



By touching the appropriate maintenance button, the help dialogue is displayed. Perform the periodic maintenance according to instructions. For further periodic maintenance information, refer to *Section 4, Periodic Maintenance*.

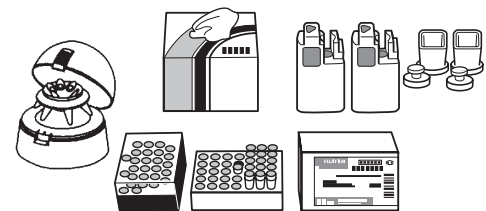
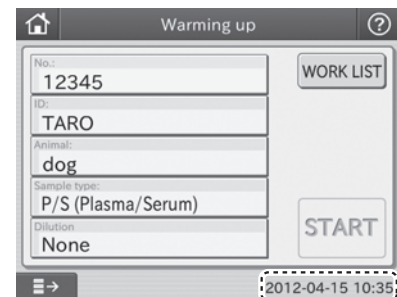


4. Check the [Warming Up] dialogue. Or check printed date and time. If either the date or time is incorrect, adjust it using the [Date & Time Settings] of MODE FUNCTION. (For details, refer to *Section 6.3*.)

IMPORTANT

In case that the date and time are not adjusted correctly, the analyzer may fail to determine the expirations of the slides, so that the test results may NOT be accurate.

5. Prepare the necessary peripheral accessories. Take out the slides from the refrigerator and allow them to stand without unwrapping until they reach room temperature.
6. The test preparation dialogue is displayed. (Refer to *Section 2.2.2*)



3.7.4 List for Daily Maintenance after Use

According to *Section 3.7.5*, please perform the daily maintenance after use.

Item	Contents	Reference Section
Cleaning disposal box	Empty the disposal box of used slides and tips.	3.7.5 (2)
Removing used consumables	Dispose of used mixing cup and remaining reference fluid and remove remaining sample.	3.7.5 (3)
Cleaning spotting part and sample rack	Clean the spotting part and around the sample rack.	3.7.5 (4)

3.7.5 Turning the Power Off (Daily Maintenance after Use)

1. Press Power button or **Power OFF** on the LCD touch panel.

 **WARNING**

Do not turn off the power during measurement process and mode operations. Otherwise, physical damage may occur.

If the power is turned off during measurement process, load consumables (tips, etc.) and perform the tests from the beginning. Be sure to replace the mixing cup for tests that require dilution.

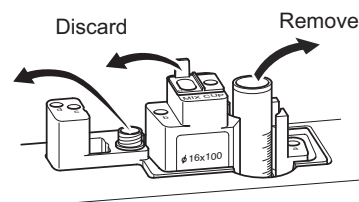
NOTE: If analyzer will not be used for a long time, depress the [O] side of the power switch.



2. Remove the disposal box and dispose of the tips and slides.



3. Dispose of used mixing cup and remaining reference fluid and remove remaining sample.



4. Clean around the sample rack and the spotting part.

Use swabs moistened with ethyl alcohol as a disinfection for cleaning.

 **WARNING**

When disinfecting (cleaning) the analyzer, always follow biohazard procedures (e.g., wearing gloves, lab coat, and safety goggles).

If any part of the body comes in contact with contaminated parts, immediately rinse the contaminated body part thoroughly under running water and then use ethyl alcohol as a disinfectant. Seek medical assistance if necessary.

 **WARNING**

As contaminated swabs used for cleaning the analyzer are infectious waste, process the waste correctly in compliance with any applicable regulations in your country, such as by incineration, melting, sterilization or disinfection.

5. If the LCD touch panel is dirty, use a soft cloth or a cloth damped with a small amount of ethyl alcohol to clean by wiping gently.
6. Close the sampler cover.

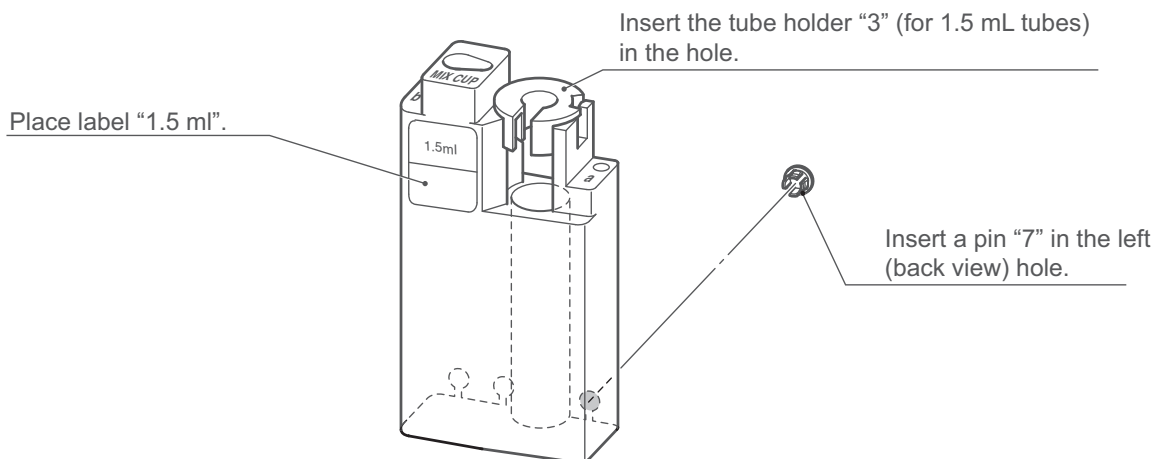
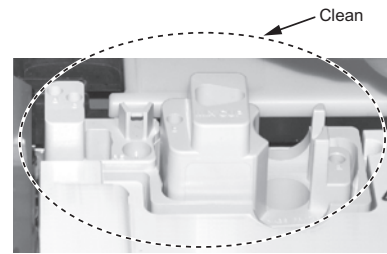
3.7.6 Sample Racks

Sample racks depend on sample tubes to be used.

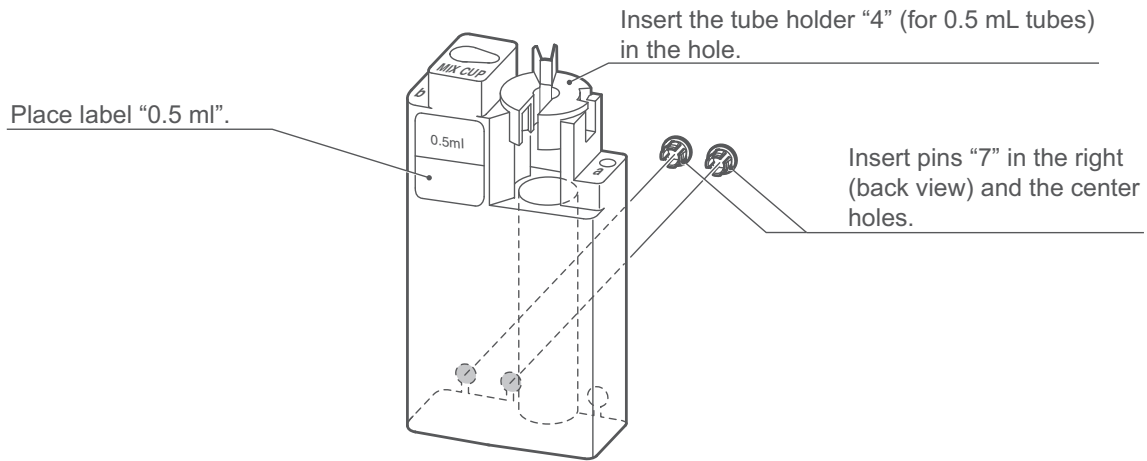
 **IMPORTANT**

Assembling incorrectly may cause adverse effects on test results due to incorrect suction or analyzer damage; assemble the sample racks correctly.

1. Sample rack assembly for a 1.5 mL sample tube.



2. Sample rack assembly for a 0.5 mL sample tube.



The tube contents of a blood collection tube determine which slide is applicable.

The following is general information about tube contents and the applicable tests.

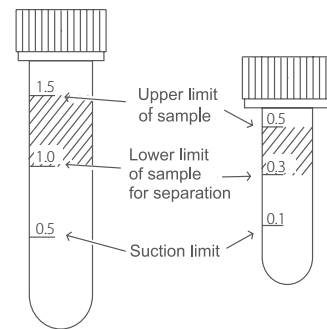
- a. Heparin tube
 - Applicable to all tests (For GLU and NH₃, measure the samples as soon as possible after blood collection).
 - General color of cap: Green
- b. Plain tube (no additives, available coagulant contained)
 - Applicable to other than GLU and NH₃
 - General color of cap: Red

3.7.7 Producing Samples Using Sample Tubes

1. Obtaining plasma samples

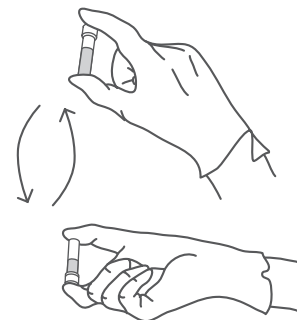
- a. Untreated whole blood can be collected and placed directly into heparin tubes (green cap). Whole blood samples already containing lithium heparin from another collection tube can be transferred into non-heparinized tubes (red cap).

NOTE: The top surface of the sample fluid must be within the shaded section of the tubes as shown in the figure to the right. If the blood in the tube is below the suction limit mark, the analyzer will indicate an insufficient sample volume error.



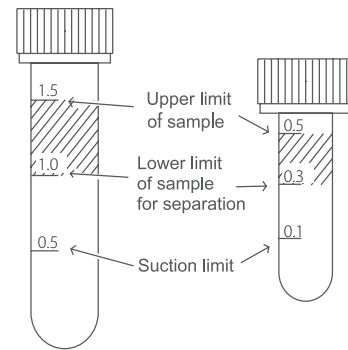
NOTE: For aspirating only the supernatant fluid (plasma) of the centrifuged sample (to avoid aspiration of red blood cells), at least 1.0 ml (for 1.5 ml tube) or 0.3 ml (for 0.5 ml tube) of the whole blood sample should be put in each tube.

- b. Put caps on the tubes and mix the contents by rotating them five or six times.
- c. Centrifuge the samples using a commercially available centrifuge.



2. Obtaining serum samples

- a. Collect whole blood samples not processed with anticoagulant into standard glass clinical plain tubes. Allow sample to clot at room temperature for at least 20 minutes (40 minutes for horses).
- b. Centrifuge the sample using a commercially available centrifuge.
- c. Transfer the separated serum into a 0.5 ml non-heparinized tube (red cap) and place in the instrument for analysis.



NOTE: The top surface of the sample fluid must be within the shaded section of the tubes as shown in the top-right figure. If the serum in the tube is below the suction limit mark, the analyzer will indicate an insufficient sample volume error.

3.7.8 QC Card System

1. Overview

The QC card system compensates for variations between production lots of DRI-CHEM SLIDES and ensures uniform performance.

2. Inputting lot compensation coefficients using the QC card

The lot compensation coefficients are magnetically recorded on QC cards, and one QC card is packed with each box of slides. When data is input from a new card, the previously stored lot compensation coefficients are updated. In addition to the lot compensation coefficients, each QC card also has slide data essential for performing measurements. Therefore, read in the new QC cards when you switch to a new box of slides.

NOTE: The analyzer can memorize a maximum of 2 lots of slide information for each individual slide and each panel type. When more than 2 lots of QC information are read, the oldest QC information will be deleted.

NOTE: A QC card is not supplied for ISE (Na, K, Cl) slides.

3. Using QC cards

Read QC cards when a new test slide type will be used or when changing to a new lot of slides.

- a. Make sure [Ready to test] or [Warming up] is displayed.
- b. Insert a QC card into the card reader on the right-hand side of the Element DC, and pull it towards you slightly.
- c. The test name and lot number are indicated on the display and the printer.
- d. This completes the input procedure.

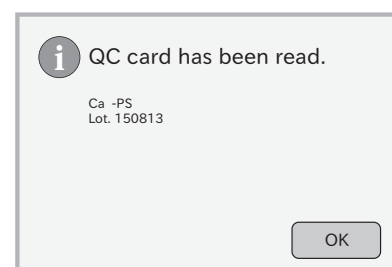


NOTE: When [QC ERR] is displayed, read the QC card once again.

NOTE: If multiple QC cards are inserted into the card reader, the information on the last QC card inserted is displayed.

4. Using DI cards

When you receive DI cards from the manufacturer due to a change of the slide's manufacturing process, read the DI cards according to the instruction. Reading method is the same as for the QC card.



3.8 Measurements

3.8.1 Basic Measurements (excluding ISE tests and tests that require dilution)

1. Make sure [Ready to Test] is displayed.
2. Open the sampler cover.
3. Set a sample rack.

Set a specified sample rack for the test tube to be used at the 1 SET POSITION (indicated by the label) on the analyzer.

NOTE: Be sure to set the sample rack down to the bottom.

4. Obtain test information from PMS (If the device is connected to PMS).

If the device is connected to PMS, you can obtain patient IDs and test requests from PMS by using the **WORK LIST** button. (For details, refer to *Section 3.8.2*)

5. Load slides in a slide cartridge.

Place slides to be tested, printed test name facing up, in a slide cartridge. Be sure to put a slide weight on top of the slide cartridge.

NOTE: A maximum of 20 slides can be loaded in the slide cartridge.

NOTE: When performing dilution or ISE tests for one sample, there are rules for slide stacking orders. (Refer to *Section 3.8.3 and 3.8.4*)

6. Place the slide cartridge in the analyzer.

Place the slide cartridge properly with the label side facing the 2 SET POSITION (indicated by the label) in the analyzer.

NOTE: Be sure to set the slide cartridge firmly in place so that it is not lifted. Otherwise, a reading error may occur.

7. Put DRI-CHEM AUTO TIPS (henceforth, "tip") into hole "a" on the sample rack.
8. Set a sample tube in the sample rack.

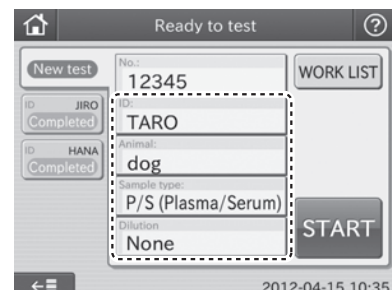
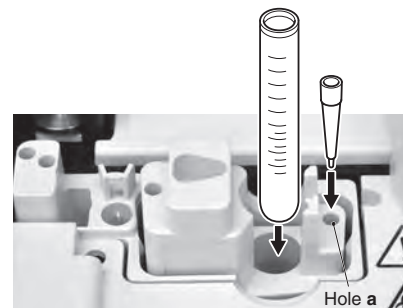
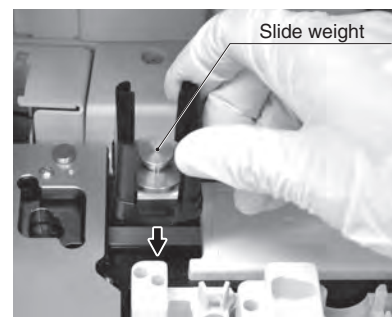
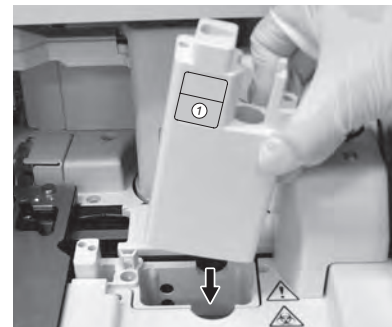
Remove the cap from the blood collection tube or sample tube which contains sample. Put the tube in the sample rack.

To avoid an error, make sure there are no bubbles in the sample. Use a centrifuge to remove bubbles.

9. Input or select sample information.

Input or select sample information (No., ID, Animal, Sample type and Dilution) at the test preparation dialogue.

For further information of the settings of the test preparation dialogue, refer to *Section 2.2.2*. Refer to *Section 2.3* for input at the screen keyboard dialogue.



i IMPORTANT

The sample type and the sample type setting of the Element DC must be same. Otherwise, the wrong test result will be obtained.

i IMPORTANT

For further information of the reference interval settings, refer to the Reference interval settings of MODE FUNCTION.

i IMPORTANT

Be careful not to input wrong No. or ID.

10. Close the sampler cover.

11. Lock the sampler cover with the key.

! WARNING

During sample processing, ensure the LCD under cover and sampler cover are closed to prevent injuries and biohazard. When the display reads [Ready to Test] or [Testing], the sampler cover can be opened.

12. Start testing.

a. Touch **START** to begin testing.

i IMPORTANT

The disposal box must remain closed during testing. Otherwise, the results may be affected by opening it.

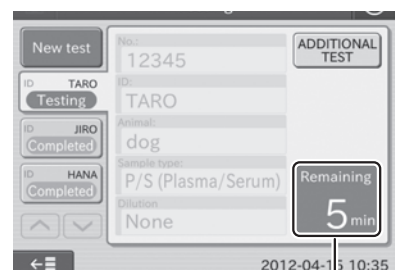
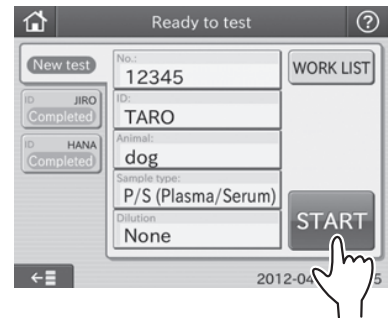
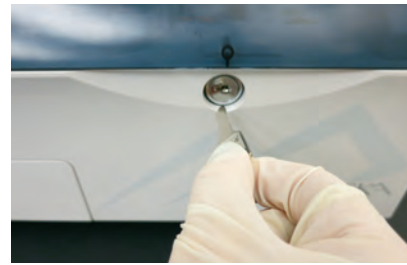
b. Automatic spotting starts. The spotting dialogue is displayed.

NOTE: Touch **STOP** to cancel spotting. Those slides that have already spotted will be measured, and test results will be displayed.

c. [Spotting] on top of the dialogue will change to [Testing] after spotting is complete, and the remaining time to complete tests will be displayed.

NOTE: When performing the next test with the same No., ID, Animal and Sample type as those of the previous test, touch **ADDITIONAL TEST**. Only the setting of the Dilution field can be changed.

NOTE: On basic dialogue, test preparation dialogue for the next sample will be displayed as soon as spotting complete.



Displays estimated time (min.) to complete the current measurements. When the remaining time is less than 1 minute, [Wait a minute.] is displayed.

 WARNING

Do not open the disposal box during test processing. Otherwise, the analyzer may fail to properly eject used slides and tips.

 WARNING

Do not touch used slides and tips with you bare hands as this may increase your risk of infection. If you accidentally touch those slides and tips, immediately wash your hands with running water and then use ethyl alcohol as a disinfectant. Seek medical assistance if necessary.

 IMPORTANT

Do not open the disposal box during test processing. Otherwise, adverse effects on test results may occur.

- d. After the test is completed, the test result dialogue is displayed.

NOTE: When performing the next test with the same **No.**, **ID**, **Animal** and **Sample** type as those of the previous test, touch the **RERUN** button. Only the setting of the **Dilution** field can be changed.

NOTE: When performing a new test by changing the test factors, touch the **New test** button.

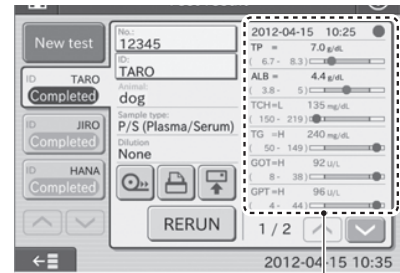
- 13. Empty the disposal box when not performing a test. The disposal box capacity is 100 slides and 50 tips.

(Supplement) About Automatic Test Start

If the analyzer is not used for a period of time, the light source lamp is turned off to save lamp life. This time period is set in the lamp configuration MODE FUNCTION.

While the lamp is off, touch panel display goes dark.

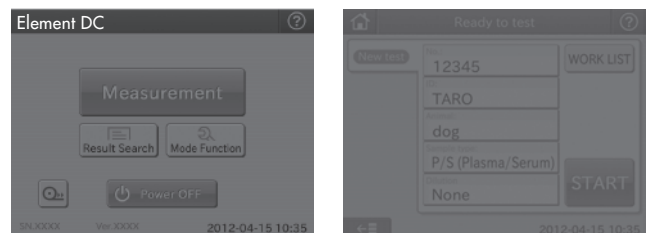
By touching the panel to start tests again, the display indicates [Lamp Warming Up].



Test result display area



A certain period of time has passed



Touch the panel

By touching **START** (Reserve) while the test preparation dialogue is displayed, the analyzer is set to start tests automatically when ready. The display indicates [Test Reserved].

NOTE: To cancel the automatic test start, touch the **STOP** button.

NOTE: When performing tests that require dilution, touch **START** (Reserve) to set the automatic test start after setting a dilution factor in the dilution field.

3.8.2 Usage of the WORK LIST button

If the device is connected to PMS, you can obtain patient IDs and test requests by touching the **WORK LIST** button in the test preparation dialogue before performing tests.

NOTE: PMS is sold separately.

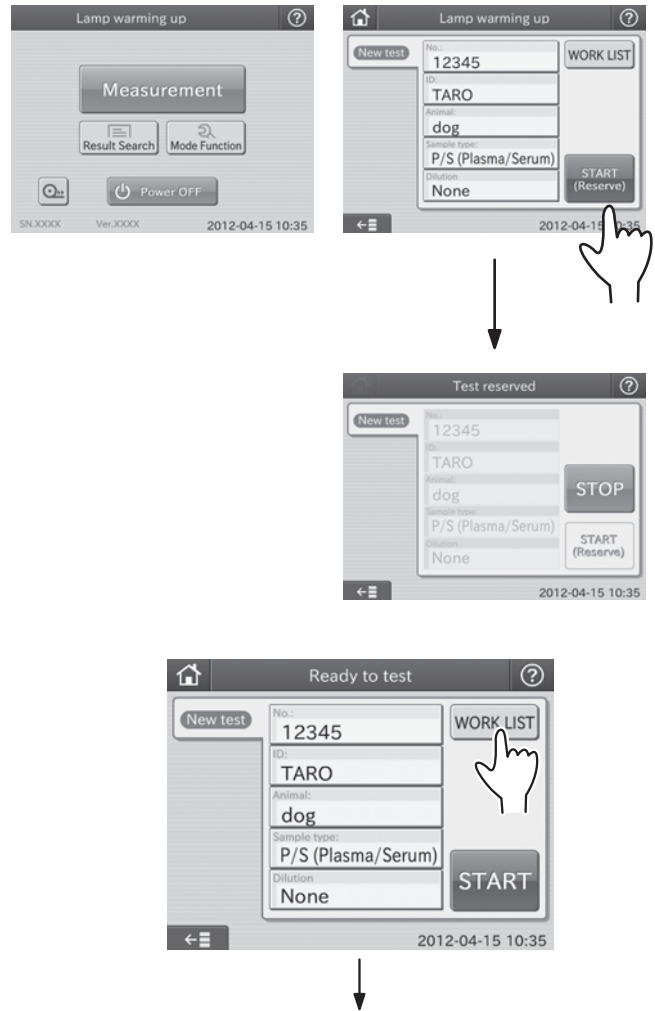
1. Touch the **WORK LIST** button.

The Element DC receives a work list (a list of patients and their samples to be tested) from PMS.

The work list index dialogue is displayed.

NOTE: Use the Work list selection setting of MODE FUNCTION to display the list. (Section 6.9.6)

PMS refers to [Sample No.] as [Sample ID], and to [Sample ID] as [Patient ID].




2. Touch an item listed.

The requested item is displayed in the work list test preparation dialogue.

If there is more than one list, touch the ◀ or ▶ button to move to another page.

NOTE: By touching **CANCEL**, the display returns to the test preparation dialogue.

NOTE: By touching **CONFIRMATION**, the work list test name dialogue is displayed. If no item is selected, the display returns to the work list index dialogue.

By touching , a test name of the selected patient is printed out.

If there is more than one test name list, touch ◀ or ▶ to move to another page.

By touching **CANCEL**, the display returns to the work list index dialogue.

By touching **OK**, the work list test preparation dialogue is displayed.

NOTE: A patient name is displayed in the No. field of the work list test preparation dialogue.

NOTE: A sample ID or patient ID is displayed in the **ID** field of the work list test preparation dialogue. Use the **WORK LIST SELECTION SETTING** of **MODE FUNCTION** to select the **SAMPLE ID/PATIENT NAME** button or **PATIENT ID/PATIENT NAME** button.

3. Prepare slides.

Prepare appropriate number of slides per test request.

4. Perform the measurements.

For the testing procedures, refer to each instruction (*Section 3.8.1 Basic Measurement, 3.8.3 ISE Tests, 3.8.4 Tests that Require Dilution*).

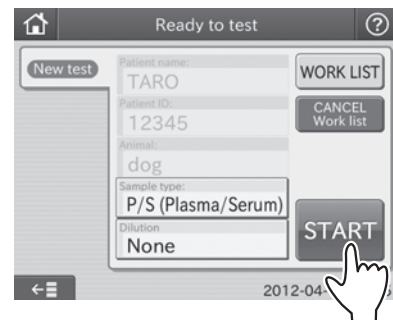
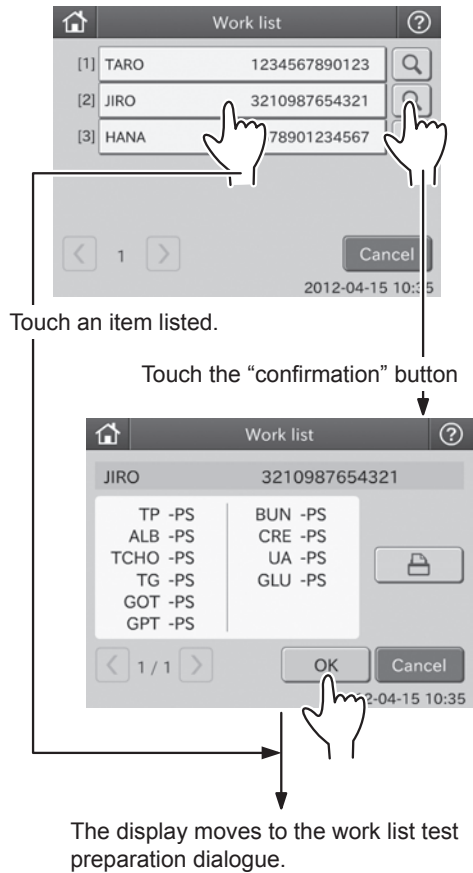
NOTE: Select a sample type by touching the [Sample Type] field.

NOTE: In case of tests that require dilution, select a dilution factor touching the [Dilution] field.

NOTE: To cancel the test for the patient, touch **CANCEL WORK LIST**. The display returns to the test preparation dialogue.

5. After the tests are completed, the test results will be transmitted.

After the tests are completed, the test results will be transmitted to the PMS automatically.



3.8.3 ISE Tests

1. Make sure [Ready to Test] is displayed.
2. Open the sample cover.
3. Set a sample rack.

Set a specified sample rack for the test tube to be used at the 1 SET POSITION (indicated by the label) on the analyzer.

NOTE: Be sure to set the sample rack down to the bottom.

4. Obtain test information from PMS (If the device is connected to PMS).

If the device is connected to PMS, you can obtain patient IDs and test requests from PMS by using the **WORK LIST** button. (For details, refer to *Section 3.8.2.*)

5. Load an ISE slide in a slide cartridge.

Place an ISE slide, the arrow indications facing up and pointing to the right, in a slide cartridge. Be sure to put a slide weight on top of the slide cartridge.

NOTE: The arrows on the ISE slide point in the opposite direction to the movement of the slide transfer.

NOTE: Two or more ISE slides cannot be tested for one sample.

6. Place the slide cartridge in the analyzer.

Place the slide cartridge properly with the label side facing the 2 SET POSITION (indicated by the label) in the analyzer.

NOTE: Be sure to set the slide cartridge firmly in place so that it is not lifted. Otherwise, a reading error may occur.

7. Put tips into holes "c" and "d" on the sample rack.

8. Set a sample tube in the sample rack.

IMPORTANT

If the sample tube is set in the reference fluid setting position, wrong test results will be obtained. Be sure to set in the sample position on the sample rack.

Remove the cap from the sample tube which contains sample. Put the tube in the sample rack.

To avoid an error, make sure there are no bubbles in the sample. Use a centrifuge to remove bubbles.

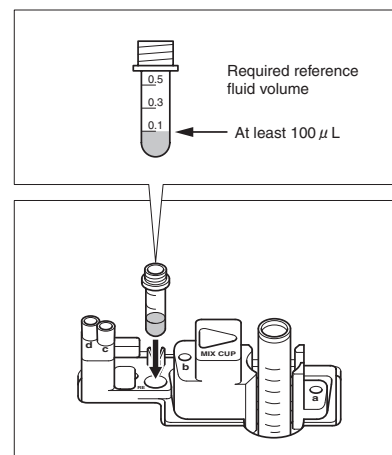
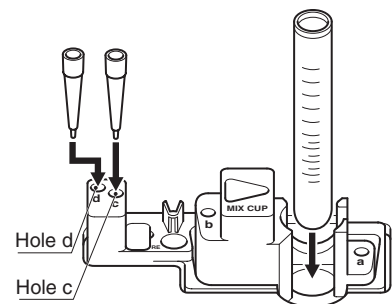
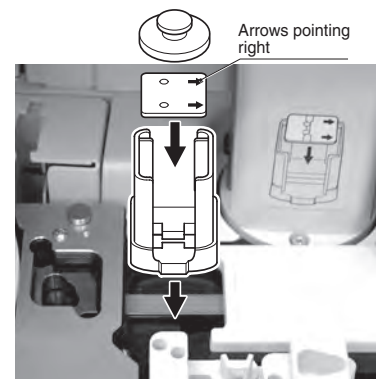
9. Prepare the reference fluid.

Pour at least 100 μL of reference fluid into the 0.5 ml plain tube (red cap) and insert it into the set position just before the test. Do not put a cap on the tube.

IMPORTANT

If the reference fluid is set in the sample setting position, wrong test results will be obtained. Be sure to set in the reference fluid position.

NOTE: There is a 50 μL dead volume for reference fluid, which cannot be aspirated.



NOTE: Do not use a heparin tube (green cap).

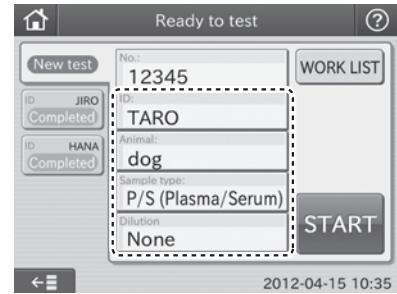
NOTE: As reference fluid evaporates gradually, dispose of remaining liquid after the tests.

10. Input or select sample information.

Input or select sample information (No., ID, Animal, Sample type and Dilution) at the test preparation dialogue.

For further information of the settings of the test preparation dialogue, refer to *Section 2.2.2*.

Refer to *Section 2.3* for input at the screen keyboard dialogue.



i IMPORTANT

The sample type and the sample type setting of the Element DC must be same. Otherwise, the wrong test result will be obtained.

i IMPORTANT

For further information of the reference interval settings, refer to the Reference interval settings of MODE FUNCTION.

i IMPORTANT

Be careful not to input wrong No. or ID.

11. Close the sampler cover.
12. Lock the sampler cover with the key.
13. Start the test.
14. After the tests are completed, dispose of the remaining reference fluid and remove the remaining sample.

! WARNING

During sample processing, ensure the LCD under cover and sampler cover are closed to prevent injuries and biohazard. When the display reads [Ready to test], the sampler cover can be opened.

i IMPORTANT

When discarding reference fluid, always follow chemical procedures (e.g., wearing gloves, lab coat, and safety goggles), referring to the chemical handling rules at your facility. If any part of the body comes in contact with reference fluid, immediately rinse the contaminated body part thoroughly under running water.

i IMPORTANT

Dispose of reference fluid in compliance with chemical handling rules at your facility and any applicable regulations in your country.

3.8.4 Tests That Require Dilution

There are 2 ways to perform tests that require dilution. One is using the dilution buttons to set a dilution factor. Another is using the [Dilution factor] in the MODE FUNCTION to preset dilution factors for each test name and its sample type. Using the dilution buttons is explained in this section.

NOTE: When setting a dilution factor using the dilution buttons in the test preparation dialogue, the dilution factor setting by the [Dilution factor] of MODE FUNCTION is ignored.

NOTE: In case of tests that require dilution, the test results are multiplied by the dilution factor before printing; no recalculation will be necessary. The printed result values can be reported to the doctors directly.

NOTE: One dilution factor can be set for one sample.

NOTE: Maximum number of dilution tests for one mixing cup is 3.

1. Make sure [Ready to Test] is displayed.
2. Open the sampler cover.
3. Set a sample rack.

Set a specified sample rack for the test tube to be used at the 1 SET POSITION (indicated by the label) on the analyzer.

NOTE: Be sure to set the sample rack down to the bottom.

4. Obtain test information from PMS (If the device is connected to PMS).

If the device is connected to PMS, you can obtain patient IDs and test requests from PMS by using **WORK LIST** in the test preparation dialogue. (For details, refer to *Section 3.8.2*)

5. Load slides in a slide cartridge.

Place slides to be tested, printed test name facing up, in a slide cartridge. Be sure to put a slide weight on top of the slide cartridge.

6. Place the slide cartridge in the analyzer.

Place the slide cartridge properly with the label side facing the 2 SET POSITION (indicated by the label) in the analyzer.

NOTE: Be sure to set the slide cartridge firmly in place so that it is not lifted. Otherwise, a reading error may occur.

7. Put tips into holes "a" and "b" on the sample rack.
8. Set a sample tube in the sample rack.

Remove the cap from the sample tube which contains the sample. Place the tube in the sample rack.

NOTE: To avoid an error, make sure there are no bubbles in the sample. Use a centrifuge to remove bubbles.

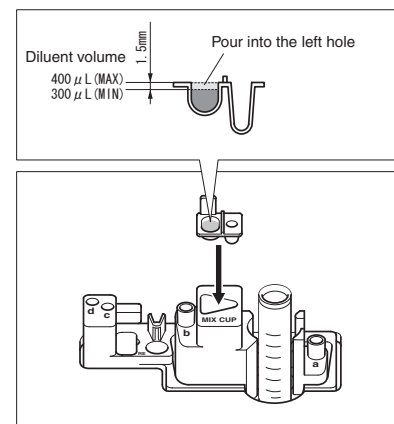
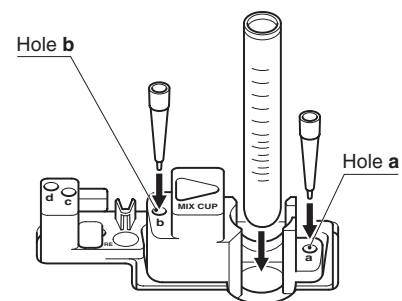
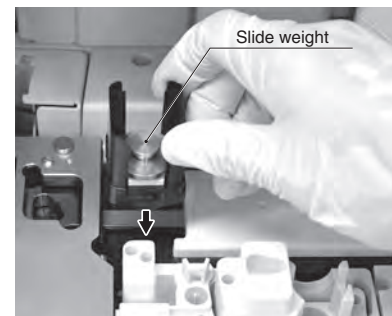
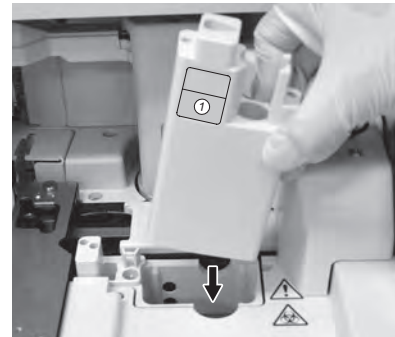
9. Place a DRI-CHEM MIXING CUP (henceforth, mixing cup) into sample rack.

Place a mixing cup on the sample rack (MIX CUP) and pour in 300–400 μL of diluent into the left-hand hole (indicated "D") of the mixing cup.

IMPORTANT

Be sure to set a mixing cup. Otherwise, sample will be dropped directly onto the sample rack as this may cause contamination.

NOTE: Do not pour liquid into the right-hand hole of the mixing cup.

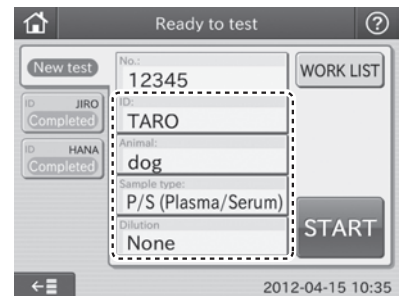


10. Input or select sample information.

Input or select sample information (No., ID, Animal, Sample type and Dilution) at the test preparation dialogue.

For further information of the settings of the test preparation dialogue, refer to *Section 2.2.2*.

Refer to *Section 2.3* for input at the screen keyboard dialogue.



i IMPORTANT

The sample type and the sample type setting of the Element DC must be same. Otherwise, the wrong test result will be obtained.

i IMPORTANT

For further information of the reference interval settings, refer to the Reference interval settings of MODE FUNCTION.

i IMPORTANT

Be careful not to input wrong No. or ID.

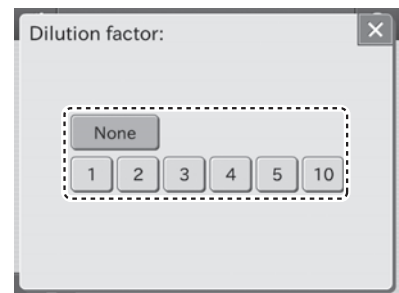
i IMPORTANT

Select [None], [1], [2], [3], [4], [5] or [10] for a dilution factor.

NOTE: A Dilution factor of 1 means no dilution will be performed. (The [Dilution factor] of MODE FUNCTION is ignored.)

NOTE: [None] means no dilution usually, but if the dilution is preset by the [Dilution factor] of MODE FUNCTION, the dilution will be performed.

NOTE: Touch X at the top right of the dialogue to cancel a dilution setting.



11. Close the sampler cover.

12. Lock the sampler cover with the key.

! WARNING

During sample processing, ensure the LCD under cover and sampler cover are closed to prevent injuries and biohazard. When the display reads [Ready to test], the sampler cover can be opened.

13. Touch **START** to start testing.

The tests start with a set dilution factor.

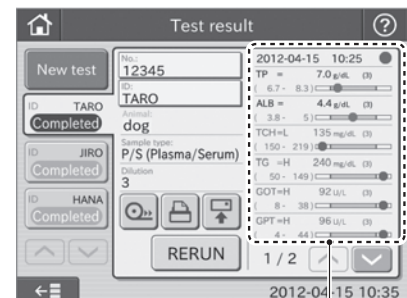
i IMPORTANT

The disposal box must remain closed during testing. Otherwise, the results may be affected by opening them.

14. After the tests are completed, the test result dialogue is displayed.

NOTE: When performing the next test with the same No., ID, Animal and Sample type as those of the previous test, touch **RERUN**. Only the setting of the Dilution field can be changed.

NOTE: When performing a new test by changing the test factors, touch **NEW TEST**.



Test result display area

15. After the tests are completed, dispose of the used mixing cup and remove the remaining sample.

⚠ WARNING

When discarding used mixing cups, always follow biohazard procedures (e.g., wearing gloves, lab coat, and safety goggles), referring to the sample handling rules at your facility. If any part of the body comes in contact with samples, immediately rinse the contaminated body part thoroughly under running water and then use ethyl alcohol as a disinfectant. Seek medical assistance if necessary.

⚠ WARNING

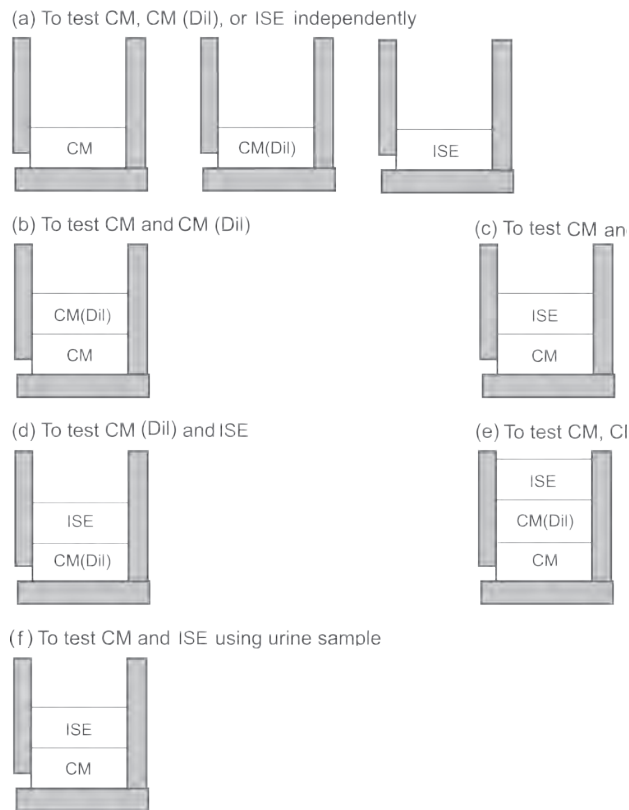
As used mixing cups are infectious waste, process the waste correctly in compliance with any applicable regulations in your country, such as by incineration, melting, sterilization or disinfection.

3.8.5 Setting Slides

Be sure to follow the slide stacking rules as shown below.

i IMPORTANT

Complete the measurement within 30 minutes after unwrapping the individual package.



NOTE: CM: Colorimetric test that does not require dilution

CM (Dil): Colorimetric test that requires dilution

NOTE: Always put an ISE slide first or last.

NOTE: A maximum of 20 slides can be loaded in a slide cartridge.

Inappropriate slide stacking orders

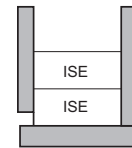
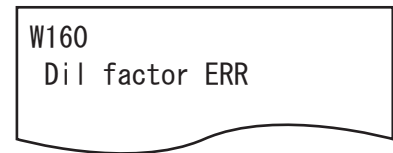
Avoid performing tests with more than one dilution factor setting for one sample.

NOTE: One dilution factor can be set for one sample.

The example shows 2 ISE slides stacked on the slide cartridge. When performing an ISE test, tips are disposed of each time an ISE slide is measured. As a result, the warning will occur before starting the test for the second ISE slide to stop the sampling process.

When the warning occurs, the analyzer has already finished the measurements for the sample and an ISE slide is remaining on the slide cartridge. When performing the ISE test, perform the test from the beginning.

NOTE: Avoid performing 2 or more ISE tests for one sample.



3.8.6 Rerunning Tests

To rerun tests, touching RERUN will run the test using the previous sample No., sample ID, sample type settings and reference interval settings. Using RERUN can help avoid entering the test information and running the test again if an error occurs and the test could not be run.

IMPORTANT

Only use the RERUN button for automatically entering the previous sample No. and sample ID.

1. Check that the display reads [Ready to Test].
2. Open the sampler cover.
3. Check the sampler cover.

Check that the sample rack is set in 1 SET POSITION and that the amount of the sample is sufficient.

4. Set the slide into the slide cartridge.

Insert the slide cartridge above the name of the slide to be tested. Be sure to put a slide weight on top of the slide cartridge.

NOTE: Slide cartridges must be set in the correct slide order for each sample when testing dilution or testing electrolyte.

5. Set the slide cartridge.

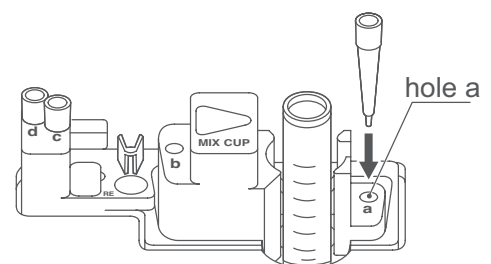
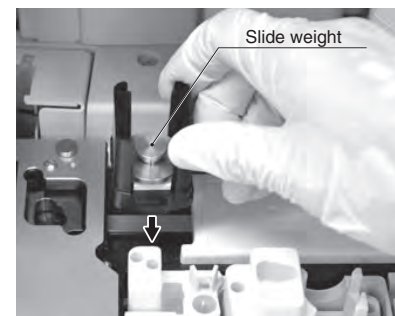
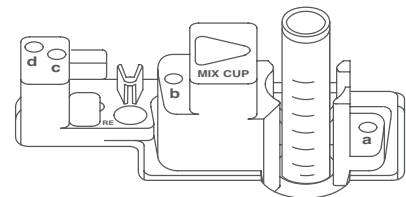
Align orientation of the cartridge and set in 2 SET POSITION.

NOTE: Firmly set the slide cartridge so that it is not raised. Failure to do so may result in the slide being read incorrectly.

6. Set the tip into hole a of the sample rack.

NOTE: When testing dilution, set the tip into hole b of the sampler rack and the mixing cup into the MIX CUP position of the sample rack, and inject the diluent into the hole (highlighted with arrow D) on the left side of the mixing cup.

NOTE: When testing the electrolyte, set the tip in holes c and d, and reference fluid in the set position.



7. Touch **RERUN**.

Touching RERUN displays the previous test information of sample ID, sample No., Animal, Sample type, excluding Dilution, in the rerun test preparation dialogue.

NOTE: When testing dilution, touch the Dilution field to set the dilution factor.

8. Close the sampler cover.

9. Lock the sampler cover with the key.

WARNING:

During sample processing, ensure the LCD under cover and sampler cover are closed to prevent injuries and biohazard. When the display reads [Ready to test], the sampler cover can be opened.

10. Touch **START** to start testing.

IMPORTANT

The disposal box must remain closed during testing. Otherwise, the results may be affected by opening it.

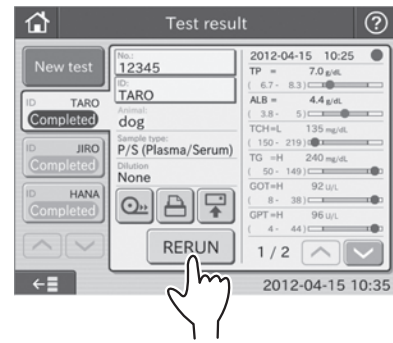
NOTE: By touching **CANCEL RERUN**, the test preparation dialogue for a new test is displayed.

11. After the test is completed, the test result dialogue is displayed.

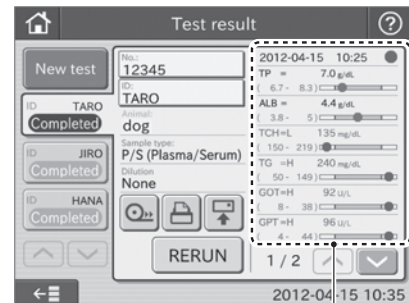
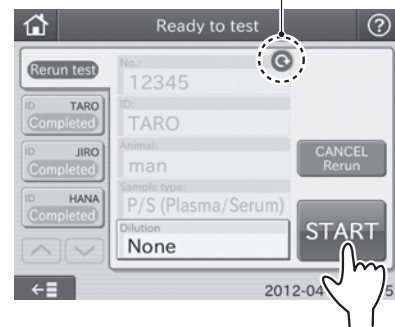
NOTE: When performing the next test with the same No., ID, Animal and Sample type as those of the previous test, touch **RERUN**. Only the setting of the Dilution field can be changed.

NOTE: When performing a new test by changing the test factors, touch **NEW TEST**.

12. After the tests are completed, remove the sample container



The rerun test mark is displayed



Test result display area

3.9 Sample Barcode Reader

By using the sample barcode reader, the sample ID can be easily input.

Prior to using the sample barcode reader, it is necessary to set the communicating configuration by using the barcode reader of mode function. (Refer to Section 6.8.4)

CAUTION

The sample barcode reader specified for the Element DC can be used.

Do not connect a barcode reader other than specified for the Element DC. Otherwise, physical damage or danger of fire may result.

IMPORTANT

Depending on the printing quality of barcode labels or malfunction of the sample barcode reader, wrong barcode data may be read. Make sure that the barcode data (sample ID) printed on the test results are correct.

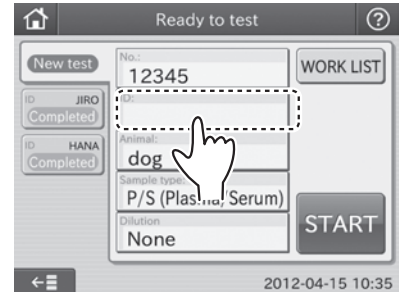
NOTE: Please carefully read the instruction included with the sample barcode reader before using it. A maximum of 13 alphanumeric characters can be input for a sample ID. Always use the sample barcode reader below 3,000 cd/m² (lux), avoiding direct sunlight.

NOTE: Turn on the analyzer after connecting the sample barcode reader to the analyzer.

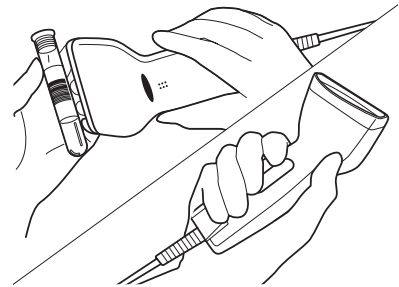
NOTE: The sample barcode reader is an optional accessory.

3.9.1 Operating Procedures

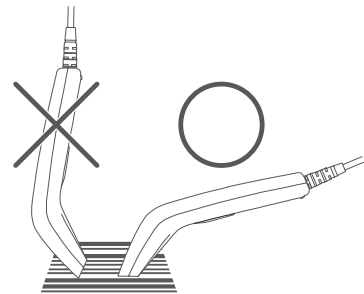
1. Touch **ID FIELD** to display the screen keyboard.



2. Read a barcode labeled on the sample tube by pressing the sample barcode reader button.



NOTE: Position the sample barcode reader properly facing to the barcode label. Otherwise, a wrong reading may occur.



- After completing the reading, a beep will be heard and the Sample ID will be displayed.

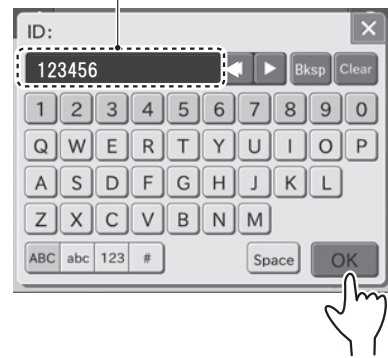
IMPORTANT

Make sure that the barcode data (sample ID) displayed in the test result dialogue is correct. Wrong reading will cause an incorrect report to doctors.

NOTE: When re-inputting barcode by the barcode reader, touch the **ID FIELD** in the test preparation dialogue, and then read the barcode again.

- Touch **OK** to confirm the Sample ID. The display returns to the test preparation dialogue.

Sample ID scanned by the barcode reader

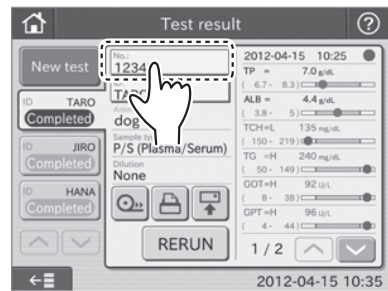


3.10 Editing Sample No. and Sample ID

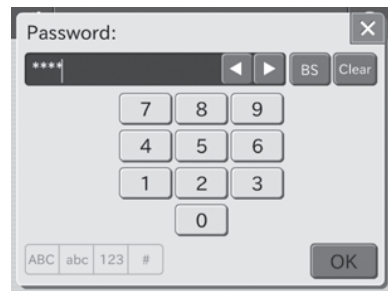
This is used to edit sample No. and sample ID of test results. The edited data can be sent to host computer.

- To edit a sample No., touch **NO.** on the test result dialogue.

NOTE: It can be edited from the result search dialogue.



- Enter the administrator password.

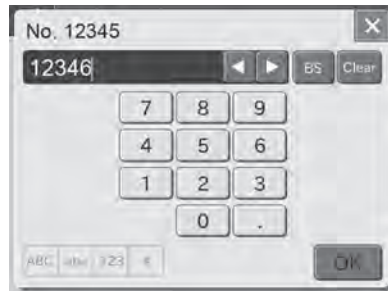


- Edit a Sample No.

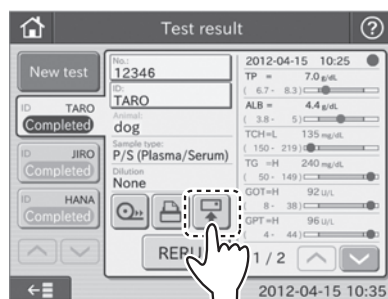
IMPORTANT

Be careful not to input wrong No.

- Touching **OK** returns to the previous dialogue.
- Editing a Sample ID can be edited in the same manner.



- Using **RETRANSMISSION**, the edited data can be sent to host computer.



To transmit to host computer

Periodic Maintenance

In order to keep the Element DC performance at its best, perform the periodic maintenance by users and the specific maintenance by technical support (dealer).

 **WARNING**

When performing maintenance (cleaning the analyzer), always follow biohazard procedures (e.g., wearing gloves, lab coat, and safety goggles).

If any part of the body comes in contact with contaminated parts or swabs, immediately rinse the contaminated body part thoroughly under running water and then use ethyl alcohol as a disinfectant. Seek medical assistance if necessary.

 **WARNING**

Before cleaning the analyzer, always be sure to unplug the AC power cable.

 **WARNING**

As contaminated swabs or cloths used for cleaning the analyzer are infectious waste, process the waste correctly in compliance with any applicable regulations in your country, such as by incineration, melting, sterilization or disinfection.

 **CAUTION**

Before performing cleaning and maintenance of the analyzer, get training from technical support.

 **IMPORTANT**

After cleaning the analyzer, plug in the AC power cable, and be sure to check the operation of the analyzer by turning on the power switch.

 **IMPORTANT**

If you do not perform the periodic maintenance in the manual, the analyzer's performance and specifications will not be maintained, and adverse effects on test results may occur.

 **IMPORTANT**

Be sure to reassemble the parts removed for maintenance and tighten thumbscrews securely. Otherwise, adverse effects on test results may occur.

 **CAUTION**

Refer to each section for information about usable solvents for cleaning and decontamination. For further information, please contact your technical support (dealer) for assistance.

 **CAUTION**

Do not use alcohol for cleaning the sampler cover (translucent), otherwise the surface will be damaged.

NOTE: When cleaning the outer covers of the equipment, wipe using a soft cloth moistened with water or ethyl alcohol for disinfection (excluding the sampler cover).

4.1 User Daily/Periodic Maintenance

According to the following table, please perform daily/periodic maintenance and replacement of parts by users.

Check points	Cleaning interval	Replacement interval	Procedure
Air filter	Once a month	-	Refer to <i>Section 4.2</i>
Incubator	Once every 3 months or when inaccurate test results occur	-	Refer to <i>Section 4.3</i>
Spotting part	When slide transfer error or tip ejection error etc. occurs	-	Refer to <i>Section 4.3</i>
Slide reader	When reading errors occur frequently	-	Refer to <i>Section 4.4</i>
Recording paper	-	Appearance of red lines (both sides of paper)	Refer to <i>Section 4.5</i>
Light source lamp	-	When a photometer gain setting error occurs, or the lamp's cumulative illumination time exceeds 1000 hours	Refer to <i>Section 4.6</i>
Sampler O-ring	-	Once a year	Refer to <i>Section 4.7</i>
ISE unit	Once every 3 months or when inaccurate test results occur	-	Refer to <i>Section 4.3</i>

IMPORTANT

After maintenance, plug in the AC power cable, and be sure to check the operation of the analyzer by turning on the power switch.

4.2 Cleaning the Air Filters

The air filter should be checked and cleaned at least once a month.

IMPORTANT

If the air filter is not cleaned, the temperature inside the analyzer will increase resulting in adverse effects on test results.

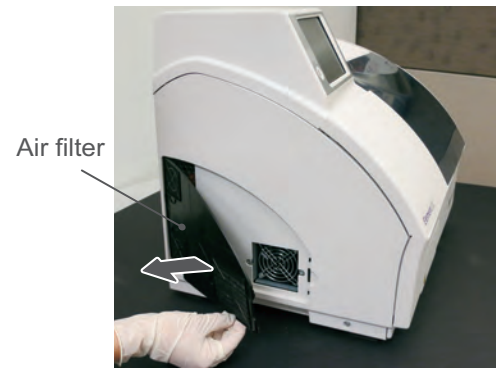
4.2.1 Cleaning procedures

1. Turn off the power of the Element DC.
2. Remove the louver, and then take out the air filter.



3. Remove dust adhering to the filter with a vacuum cleaner or running water.

If washing the filter with running water, make sure it is dried well before putting it back.



4. Set the filter in the louver and close cover.

i IMPORTANT

If the analyzer is used without setting the filter, adverse effects on test results may occur.



4.3 Cleaning the Incubator, Spotting Part, and ISE Unit

Test results are affected by stains (e.g., blood sample) inside of the incubator and ISE unit. These parts should be checked and cleaned at least once every three months.

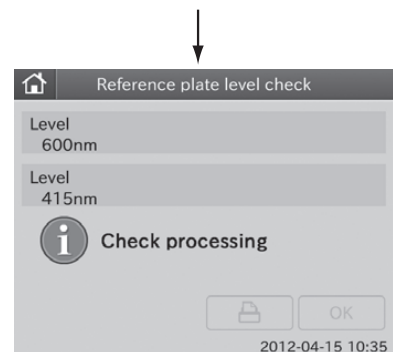
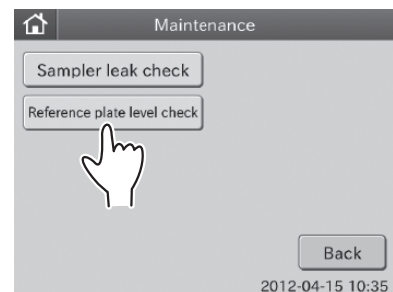
When a slide transfer error or a tip ejecting error occurs, clean the spotting part.

i IMPORTANT

If the incubator, spotting part and ISE unit are dirty with specimens such as blood, adverse effects on test results may occur.

1. Execute the Reference plate level check.
 - a. Touch **MAINTENANCE** in the MODE FUNCTION menu dialogue. The MAINTENANCE menu dialogue is displayed.
 - b. Touch **REFERENCE PLATE LEVEL CHECK** in the MAINTENANCE menu dialogue to execute the check.

After the check is complete, the check result dialogue is displayed.



2. Confirm the results displayed in the Reference plate level check dialogue.

a. If the result is [1 (0%) OK], cleaning is not needed.

Touch  to return to the TOP dialogue.

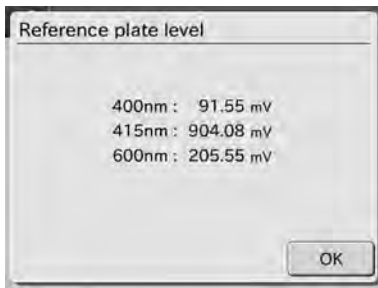
b. If the result is [2(50%) OK] or [3(80%) NG], cleaning is needed.

Touch **OK** to return to the maintenance menu dialogue.

 **IMPORTANT**

Perform cleaning according to the procedures starting with step 3 below.

NOTE: When touching Result details, the check result details dialogue is displayed.



By touching **OK**, the check result details dialogue disappears.

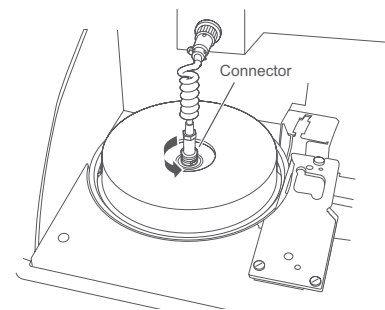
NOTE: By touching , the check results are printed out.

3. Cleaning the Incubator.

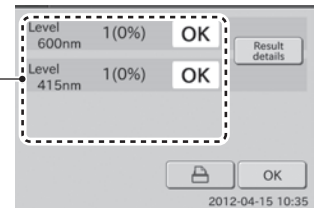
 **WARNING**

Before cleaning the following parts, always be sure to turn the power switch off and unplug the AC power cable.

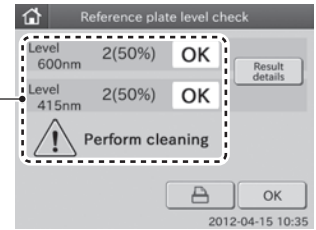
a. Unplug the connector of the incubator cable by turning it counterclockwise.



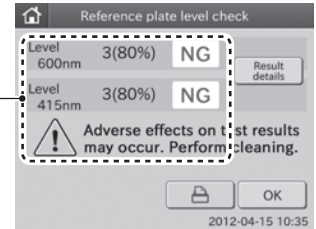
Check result:
[1(0%) OK]



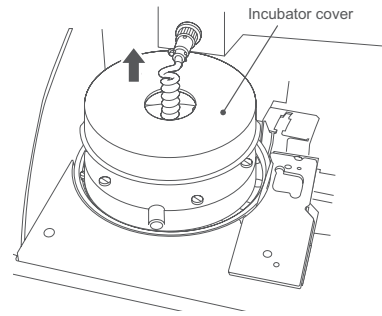
Check result:
[2(50%) OK]



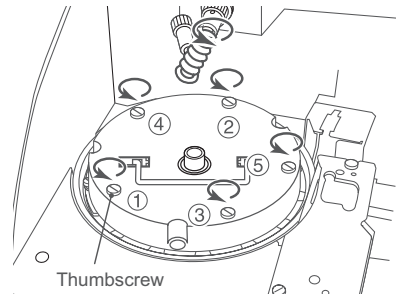
Check result:
[3(80%) NG]



b. Remove the incubator cover.

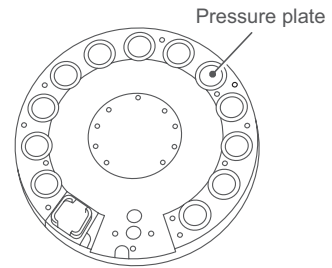


c. Unscrew 5 screws on upper incubator and remove the incubator.



d. Wipe off 13 pressure plates on the underside of the incubator with soft gauze-like cloth or cotton swab moistened and tightly wrung out with sterilizing ethyl alcohol or isopropyl alcohol.

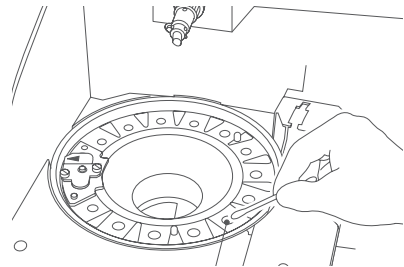
e. Dry the pressure plates by facing the incubator backside (pressure plate surface) up.



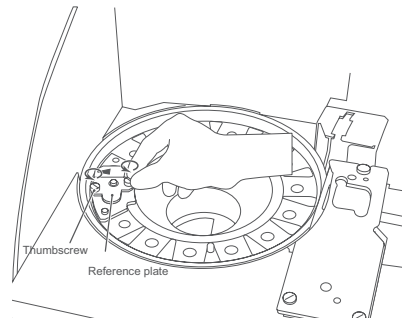
i IMPORTANT

Do not touch the surface of the pressure plates with bare hands. Otherwise, adverse effects on test results may occur.

f. Clean the incubator cells in the same way.



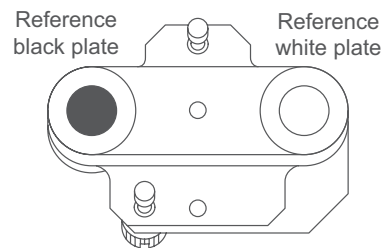
g. Unscrew 2 screws fixing the reference plate and remove the plate from the body.



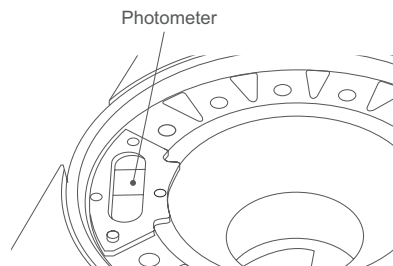
- h. Turn over the reference plate and clean the white plate and the black plate with a dry cotton swab.

i IMPORTANT

Do not touch the surface of the black plate and the white plate with bare hands. Otherwise, adverse effects on test results may occur.



- i. Clean the photometer head with a dry cotton swab.

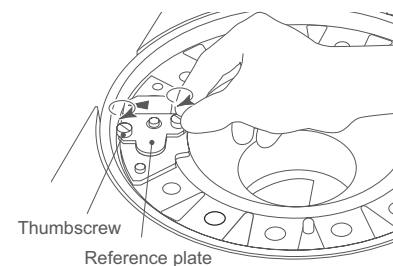


- j. Remount the reference plate.

The arrow mark on the reference plate should point away from the center. Screw the 2 thumbscrews evenly.

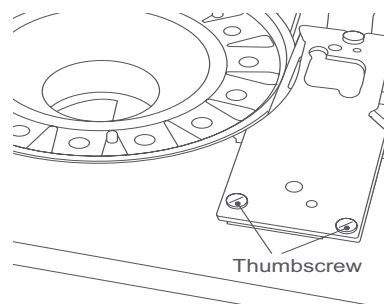
i IMPORTANT

Tighten the two thumbscrews securely. Otherwise, adverse effects on test results may occur.

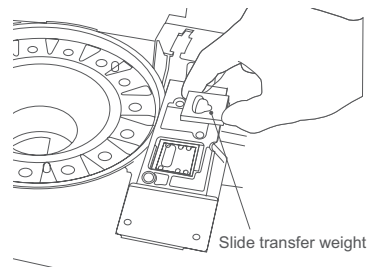


4. Cleaning the spotting part.

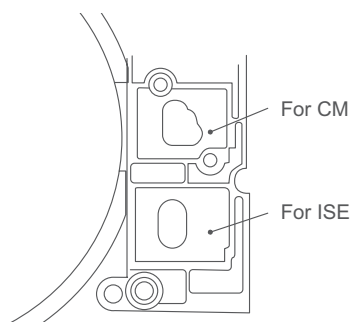
- a. Unscrew 2 thumbscrews and pull the spotting part cover frontward to remove.



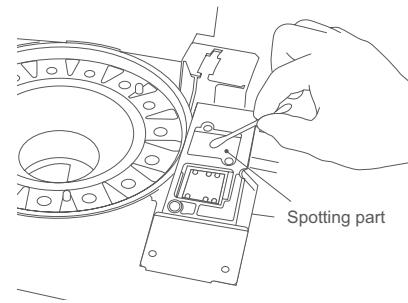
- b. Remove 2 slide transfer weights of the spotting part. Wipe off the slide transfer weights with soft gauze-like cloth or cotton swab moistened with water.



NOTE: There are 2 types of the slide transfer weight (for CM/ISE). Make sure to set properly when reassembling.



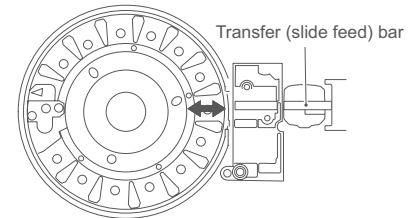
- c. Wipe off the spotting part with soft gauze-like cloth or cotton swab moistened with water.



5. Cleaning the slide transfer bar.

Wipe off the slide transfer bar with soft gauze-like cloth or cotton swab moistened with water.

NOTE: For the slide transfer bar left edge, move the slide transfer bar to the right.



6. Cleaning the ISE probe unit.

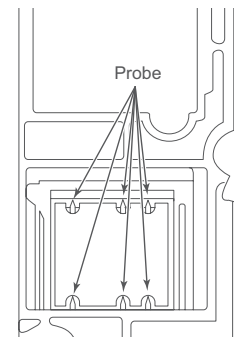
Press on the black plastic piece to make probes accessible.

Make sure there is no dust on the six ISE probes. When cleaning the ISE probes, wipe off the dust using a dry cotton swab.

NOTE: Do not use solvents, such as methyl alcohol or isopropyl alcohol.

CAUTION

ISE probes are needle-shaped parts. Do not touch directly by hands. Be careful not to bend the probes.



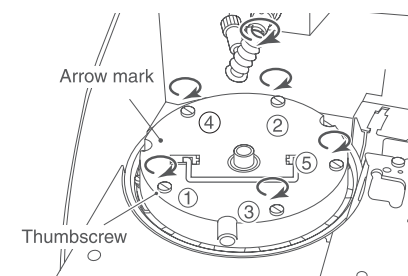
7. Reassembly

- a. Reassemble the upper incubator.

Align the arrow mark on the upper incubator with the arrow mark on the analyzer. Screw 5 thumbscrews in the order (1 to 5) evenly.

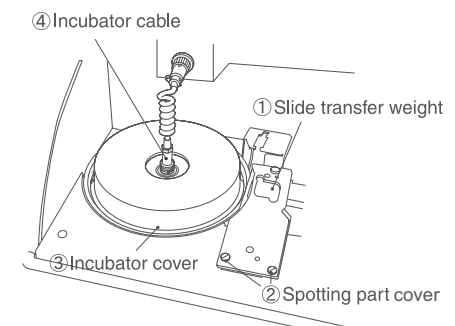
IMPORTANT

Tighten the five thumbscrews securely. Otherwise, adverse effects on test results may occur.



- b. Reassemble each part as shown in the figure to the right.

- ① Set the slide transfer weights.
- ② Set the spotting part cover and screw the thumbscrews.
- ③ Set the incubator cover.
- ④ Positioning the connector of the incubator cable in the groove, plug it into the incubator, turn it to the right and tighten securely.



i IMPORTANT

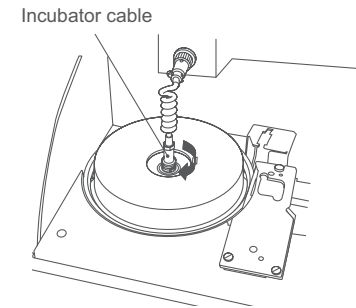
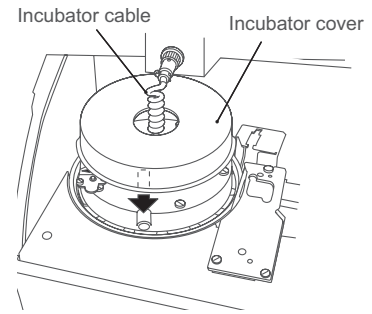
Tighten the thumbscrews securely. Otherwise, adverse effects on the test results may occur.

i IMPORTANT

Be sure to set incubator cover. If the analyzer is used without setting the cover, adverse effects on test results may occur.

NOTE: To avoid stressing the cable, ensure that the incubator cable is not twisted. Otherwise, the cable will be damaged in a short time.

- c. After reassembly, re-execute Reference plate level check, and confirm the results.



4.4 Cleaning the Slide Reader

When the slide reader is dirty, reading errors may occur frequently. Perform cleaning to avoid these errors.

i IMPORTANT

If the analyzer is used without cleaning the slide reader, adverse effects on test results may occur.

4.4.1 Cleaning procedure

1. Remove the slide cartridge and the sample rack.
2. Shift the slide transfer bar beneath the cover on the right-hand side.



3. Clean the slide reader.

Clean the glass window of the slide reader with a cotton swab moistened with water, ethyl alcohol or isopropyl alcohol for disinfection.

Immediately dry the window with a clean cotton swab.

Ensure there are no streaks present by inspecting the lens using a flashlight or other light source.



4.5 Replacing the Recording Paper

A red line appearing along the sides of the recording paper means that the printer is nearly out of paper. Replace the recording paper roll with a new one.

NOTE: Use specified recording paper for the Element DC.

4.5.1 Replacement procedure

1. Open the printer cover.

 **CAUTION**

Do not touch the edge of the paper cutter with bare hands.

2. Cut off the remaining paper to remove.

Lift the remaining paper roll and cut it off before the insertion opening to remove.

3. Lift the lever to release the paper lock.
4. Pull the remaining paper out in the advancing direction.
5. Cut off the left-hand and right-hand corners of the end of the new paper.

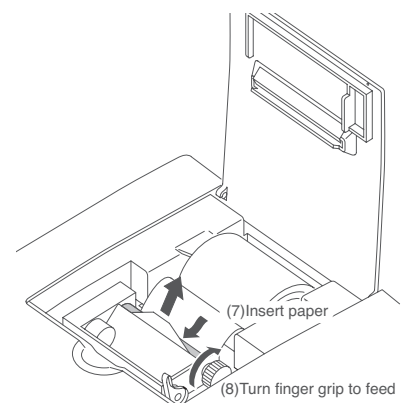
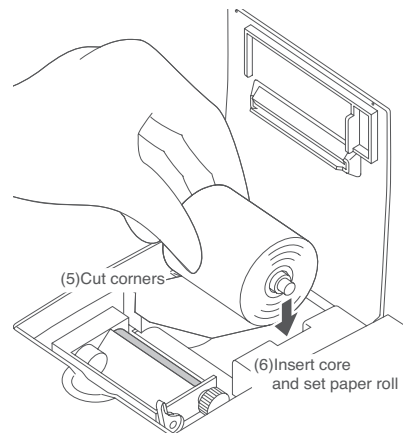
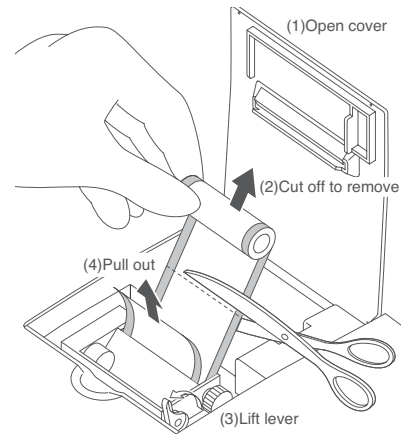


6. Insert the core into the paper roll and put the paper roll into its loading space.

NOTE: Set the paper roll so the paper is pulled from under the paper roll as shown below.

NOTE: Set the paper roll so the paper is pulled from under the paper roll as shown below.

7. Insert the paper under the rubber roller.
8. Turn the finger grip to advance the paper and remove any slack.



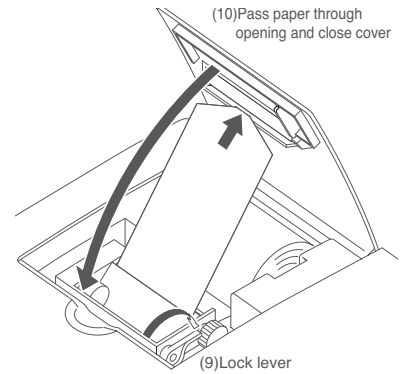
9. Lock the lever.

Make sure that the paper will advance straight and then lower the lever to lock the paper.

10. Close the printer cover.

Pass the paper through the cutter opening on the printer cover and close the cover.

11. Press **FEED** to check that the paper is fed normally.



4.6 Replacing and Cleaning the Light Source Lamp

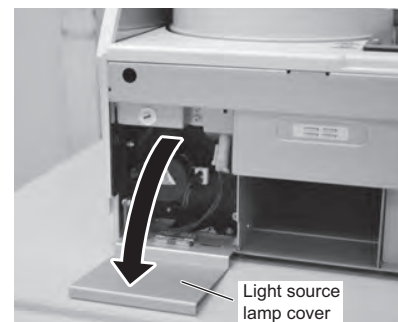
The average life of the lamp is 1000 hours. It is necessary to replace the light source lamp if a photometer gain error occurs or if the lamp's cumulative illumination time has exceeded 1,000 hours.

CAUTION

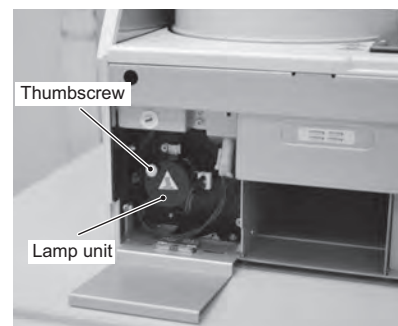
The light source lamp gets very hot. Before replacing the lamp, turn off the power and wait for at least five minutes. The lamp can be safely replaced once it has cooled down.

4.6.1 Replacement and cleaning procedures

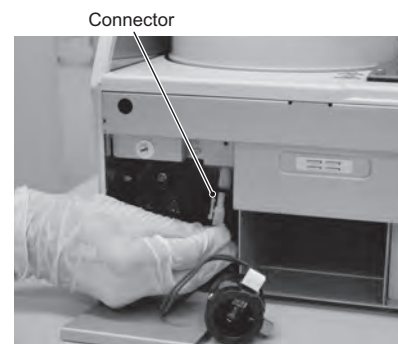
1. Remove disposal box and front under cover. Then, open the cover of the light source lamp located on the bottom left side of the analyzer.



2. Unscrew a thumbscrew as shown in the left figure and remove the lamp unit.

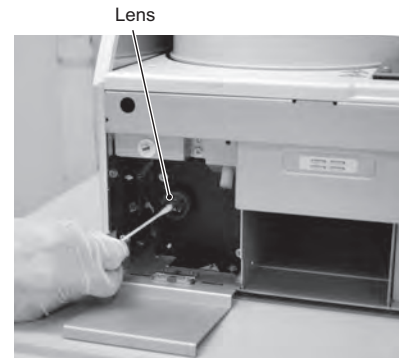


3. Unplug the connector of the light source lamp and remove the lamp unit.



- Wipe off the light source unit lens in the analyzer using a dry cotton swab.

NOTE: If cleaning with alcohol, always wipe off the lens using a dry cotton swab to dry it well.



- Unscrew the thumbscrew of the lamp unit and replace the lamp with a new one.

i **IMPORTANT**

Tighten the thumbscrew securely. Otherwise, adverse effects on test results may occur.

NOTE: When replacing the lamp, hold it by its base. Do not touch the glass surface with bare hands.

- Remount the lamp connector and insert the lamp unit into the analyzer with thumbscrew facing up. Screw in thumbscrew securely.

i **IMPORTANT**

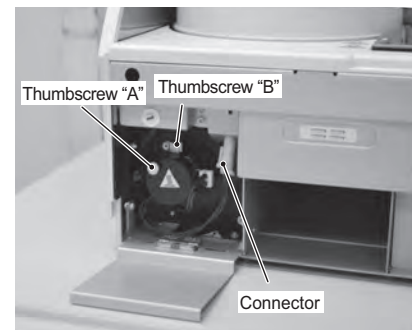
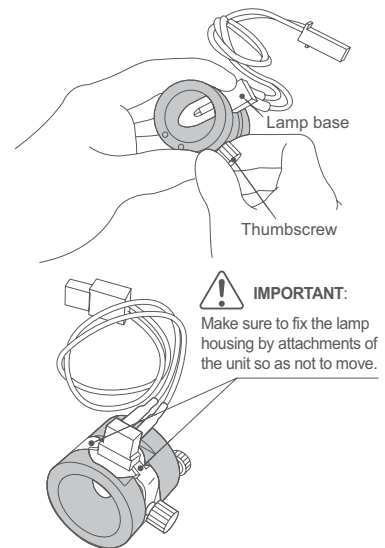
Tighten the thumbscrew securely. Otherwise, adverse effects on test results may occur.

- Close the lamp source unit cover, replace the front under cover and the disposal box. Then turn on the analyzer.

i **IMPORTANT**

Be sure to set the disposal box. Otherwise, adverse effects on test results will occur.

- After the analyzer has started up, reset the lamp's cumulative illumination time to 0 using the Lamp configuration of MODE FUNCTION. (Refer to *Section 6.6*)



4.7 Inspecting and Replacing the Sampler O-ring

The sampler nozzle O-ring wears with use. Periodic inspection (once a month) and replacement (once a year) is necessary.

IMPORTANT

If the analyzer is used without inspecting and replacing the sampler O-ring, spotting volume may be inaccurate to cause adverse effects on test results.

4.7.1 Inspecting the Sampler O-ring

Inspecting procedures

1. Execute the Sampler Leak Check.
 - a. Touch **MAINTENANCE** in the MODE FUNCTION menu dialogue. The maintenance menu dialogue is displayed.
 - b. Touch **SAMPLER LEAK CHECK** in the MAINTENANCE menu dialogue.

The sampler leak check dialogue is displayed.
2. Perform the leak check for the sample tip.
 - a. Touch **SAMPLE TIP**.



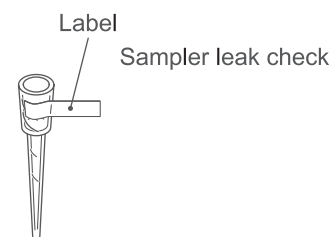
The dialogue that prompts the setting of a leak check tool appears.



- b. Put the sampler leak check tool into hole "a" on the sample rack.
- c. Close the sampler cover.
- d. Lock the sampler cover with the key.

WARNING

During sample processing, ensure the LCD under cover and sampler cover are closed to prevent injuries and biohazard. When the display reads [Ready to test], the sampler cover can be opened.



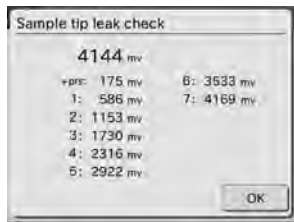
e. Touch **OK**.

The sampler leak check is executed, and the leak check proceeding dialogue is displayed.

After the leak check is complete, the leak check result dialogue is displayed.

NOTE: By touching , the check results are printed out.

NOTE: When touching **RESULT DETAILS**, the check result details dialogue is displayed.

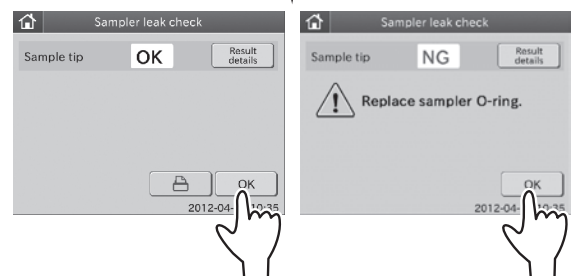
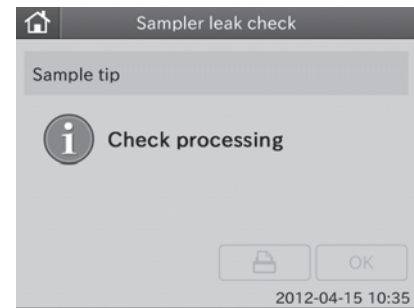
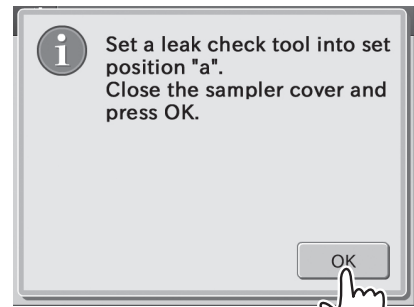


By touching **OK**, the check result details dialogue disappears.

f. Remove the leak check tool from the nozzle by hand.

Open the sampler cover and remove the leak check tool from the nozzle by hand.

NOTE: Touch **OK** to return to sampler leak check dialogue.



3. Perform leak check for the dilution tip.

a. Touch **DILUTION TIP**.

The dialogue that prompts the setting of a leak check tool appears.

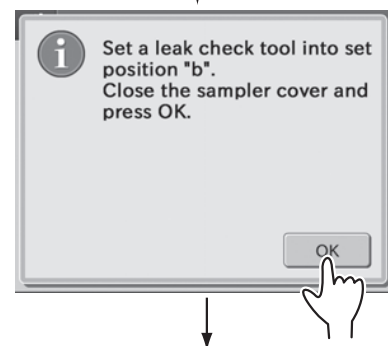
b. Put the sampler leak check tool into hole "b" on the sample rack.

c. Close the sampler cover.

d. Lock the sampler cover with the key.

e. Touch **OK**.

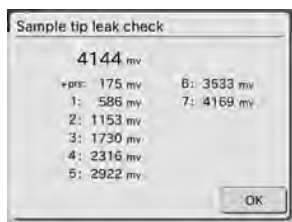
The sampler leak check is executed, and the leak check proceeding dialogue is displayed.



After the leak check is complete, the leak check result dialogue is displayed.

NOTE: By touching , the check results are printed out.

NOTE: When touching **RESULT DETAILS**, the check result details dialogue is displayed.



By touching **OK**, the check result details dialogue disappears.

- f. Remove the leak check tool from the nozzle by hand.
Open the sampler cover and remove the leak check tool from the nozzle by hand.

NOTE: Touch **OK** to return to sampler leak check dialogue.

4. Replace the sampler O-ring when an error occurs.

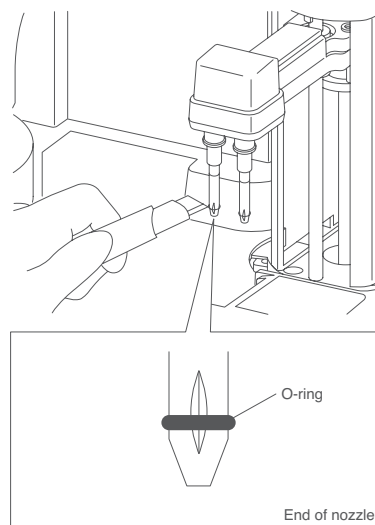
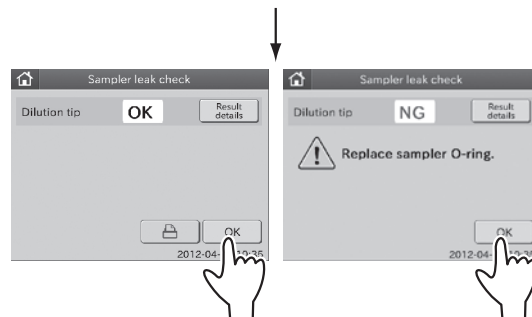
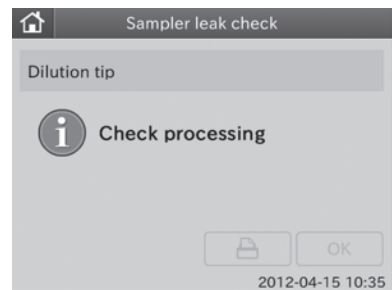
4.7.2 Replacing the Sampler O-ring

Replace the sampler O-ring once a year.

Replacement procedure:

1. Open the sampler cover.
2. Turn the sampler nozzle toward you.
3. Cut off the used O-ring to remove.
Cut off the used O-ring (bring the razor blade knife into contact with the vertical notch on the end of the nozzle).
4. Mount a new O-ring.
Mount a new O-ring in the groove around the nozzle by sliding it from the end of the nozzle.
5. Perform leak check for O-ring.

After completing the replacement, perform leak check.
(Refer to *Section 4.7.1*)



Troubleshooting

WARNING

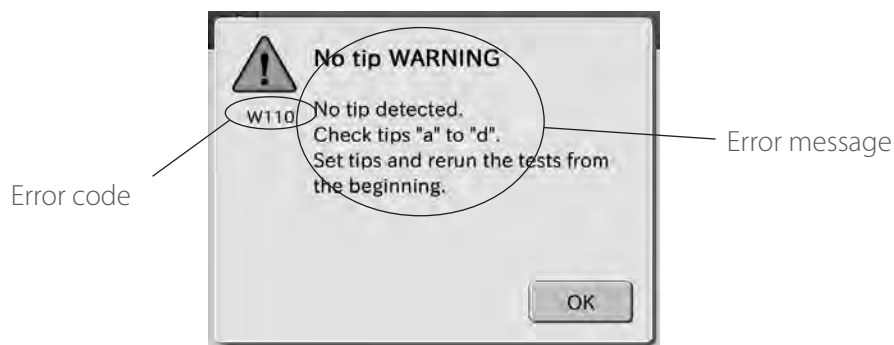
When performing troubleshooting, always follow biohazard procedures (e.g., wearing gloves, lab coat, and safety goggles).

If any part of the body comes in contact with contaminated parts, immediately rinse the contaminated body part thoroughly under running water and then use ethyl alcohol as a disinfectant. Seek medical assistance if necessary.

5.1 Error Indications

If analyzer errors are displayed or printed before/during test processing, or warning indications are printed out along with test results, the test results may NOT be accurate. Refer to the related troubleshooting pages and rerun the test.

Printout Example



5.1.1 Error Codes Table

Error Code	Error Description	Reference Section	Reference Page
E010	LCD under cover is open during test	5.2.13	88
E021	Disposal box is open during test	5.2.13	88
E035	Photometer controller malfunction	5.2.8	83
E036	Reference black plate error	5.2.5	80
E050	Burned-out light source lamp	5.2.5	80
E510	A/D controller malfunction	5.2.5	80
E0100	Tip sensor error	5.2.4	77
E0110–E0113	Clogging detected during sample sampling	5.2.4	77
E0120	Failed to detect sample surface	5.2.4	78
E0121,E0122	Clogging detected during diluent sampling	5.2.4	78
E0123	Failed to detect diluent surface	5.2.4	77
E0124–E0128	Clogging detected during sampling (diluted sample, reference fluid)	5.2.4	78




Error Code	Error Description	Reference Section	Reference Page
E0129	Failed to detect reference fluid surface	5.2.4	77
E0140–E0146	Liquid volume error	5.2.4	77
E0200–E0210	Errors related to slide transfer	5.2.6	81
E0300–E0302	Reference white plate read error during initialization	5.2.8	83
E0500, E0501	Date error	5.2.8	83
E0509, E0510	Circuit board malfunction	5.2.8	83
E0532	Circuit board malfunction	5.2.8	83
E0600–E0603	Incubator operation error	5.2.6	81
E0700–E0702	ISE unit operation error	5.2.6	81
E0900–E0903	Interference filter operation error	5.2.5	80
E1000–E1002	Sampler vertical operation error	5.2.4	79
E1100–E1103	Sampler rotational operation error	5.2.4	79
E1200–E1204	Syringe operation error	5.2.4	79
E1500–E1504	Temperature control error	5.2.7	82
E1510–E1514	Temperature control error	5.2.7	82
E1521	Room temperature error	5.2.7	82
E1600–E1603	Sample disk operation error	5.2.6	81
E1700–E1703	Sample disk operation error	5.2.6	81
E30xx	Circuit board malfunction	5.2.8	83
E5000–E5035	Circuit board malfunction	5.2.8	83
E5050	USB memory has not been set	5.2.8	83
E5100	Printer error	5.2.2	76
E5201–E5204	Slide reader control error	5.2.8	83
E5500	Circuit board signal error	5.2.8	83
E5510	Slide position error	5.2.5	80
E5600–E5603	Circuit board signal error	5.2.8	83
E9999	Controller malfunction	5.2.8	83
EFFxx	Circuit board signal error	5.2.8	83

“x” means given value.

Error Code	Error Description	Reference Section	Reference Page
W010	Keyboard is open	5.2.13	87
W020	Disposal box is open	5.2.13	88
W022	Disposal box is full of slides	5.2.13	88
W030	Low light intensity	5.2.5	80
W040, W041	Sample type setting and slide sample type do not match	5.2.10	84
W060	Insufficient sample during sampling	5.2.4	77
W070	Interference filter malfunction	5.2.5	80

Error Code	Error Description	Reference Section	Reference Page
W090, W097, W099	Data communication error	5.2.12	87
W110	No tip has been set	5.2.4	76
W112	No tip for the next test	5.2.4	76
W115, W116	Tip eject error	5.2.4	77
W120	Tip sensor error	5.2.4	77
W140	An ISE slide is loaded in incorrect direction	5.2.10	84
W141, W142	Errors related to ISE tests	5.2.11	85–86
W150, W160	Errors related to dilution	5.2.4	78
W170	No QC card has been read	5.2.9	84
W173	Slide reader cannot read slide information	5.2.3	76
W175	No slides have been set	5.2.10	84
W200	Errors related to sample barcode reader	5.2.12	87
W210	Sample rack setting error	5.2.13	88
W220	LAN communication error	5.2.12	87
W500–W503	Faulty fan	5.2.13	88
W5110	No paper	5.2.2	76
W5120	Wrong setting of printer head	5.2.2	76

5.1.2 Printout Indications Table

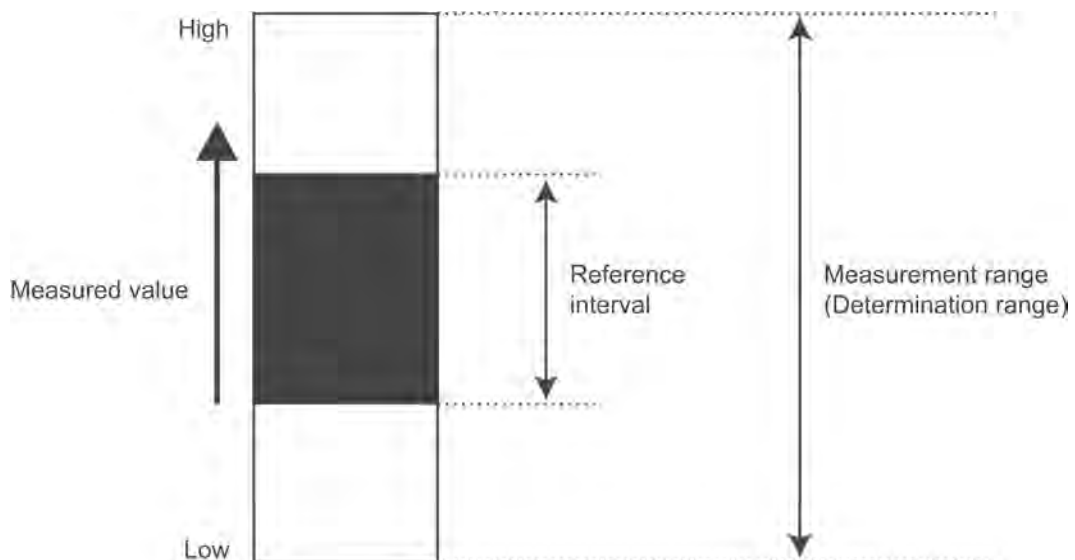
Printout Message	Description and status	Solution
H	Testing value exceeds the upper limit of the preset reference interval.	-
L	Testing value falls below the lower limit of the preset reference interval.	-
>	Testing value exceeds the upper limit of the measurement range.	-
<	Testing value falls below the lower limit of the measurement range.	-
@	Testing value is out of the measurement range.  IMPORTANT The testing value may NOT be accurate. Rerun the test.	-
+OR	Testing value for ISE test exceeds the upper limit of the measurement range.	Refer to <i>Section 5.2.11</i>
-OR	Testing value for ISE test falls below the lower limit of the measurement range.	Refer to <i>Section 5.2.11</i>
+,-, \$	Temperature control error.  IMPORTANT The testing value may NOT be accurate. Refer to the related troubleshooting pages and rerun the test.	Refer to <i>Section 5.2.7</i>
*, ?	Fluctuation of light source intensity.  IMPORTANT The testing value may NOT be accurate. Refer to the related troubleshooting pages and rerun the test.	Refer to <i>Section 5.2.5</i>

Printout Message	Description and status	Solution
E	Impossible to calculate the concentration of the sample because of some interruption (e.g., slide jam) of testing. The test results will be printed out as "*****".	Check other errors previously occurred, and perform the necessary troubleshooting.
&	Abnormal high testing value.	Rerun the tests. Perform tests that require dilution, following the directions on the <i>Instructions for Use</i> of the slides.
#	The valid term of the slide has expired. i IMPORTANT The testing value may NOT be accurate. Refer to the related troubleshooting pages and rerun the test. i IMPORTANT Expired slides cannot be used. Use valid slides for expiration date.	-
¥	Unspotted slide.	Rerun the tests.
C	Testing value is a result in control mode.	The control mode can be canceled by the control mode in MODE FUNCTION.
ERR = xxx	Errors related to ISE test results. ("x" indicates the numeric number from 0 to 8.) i IMPORTANT The testing value may NOT be accurate. Refer to the related troubleshooting pages and rerun the test.	Refer to <i>Section 5.2.11</i>

(Supplement) About Measurement Range

The measurement range (determination range) and the reference interval differ in value for each test. The relation between the measurement range and the reference interval is shown below. For details, refer to the *Instructions for Use* for the slides.

NOTE: The values of the reference intervals can be set by using the [Reference Interval Settings] of MODE FUNCTION (Refer to *Section 6.9.3*).



5.2 Troubleshooting

NOTE: To stop beeping when an error occurs, touch **STOP** or **BUZZER OFF**.

NOTE: When an error occurs, the analyzer will terminate the measurements. When rerunning the sample, perform the settings (sample No. sample ID, sample type, reference interval, and dilution factor) and the consumable's loading (tip and mixing cup) from the beginning to start the re-measurements.

NOTE: When an error occurs, the analyzer will terminate the measurements and reset the settings (sample No. sample ID, sample type, reference interval, and dilution factor). In this case, **RERUN** is useful to input the previous sample's settings automatically.

5.2.1 Startup Errors

1. When the analyzer does not start after the power switch is depressed:

Check that the power cable is properly connected and the circuit protector is not turned off. Then try turning on the analyzer again.

If the analyzer does not start, please contact Heska's Technical Support Services for assistance.

If the circuit protector is turned off (button protruding), contact Heska's Technical Support Services for assistance.

5.2.2 Display or Printer Trouble


1. White lines appear or certain parts of characters are not printed out:

- The printer head has malfunctioned. Please contact Heska's Technical Support Services for assistance.

2. Printer Errors

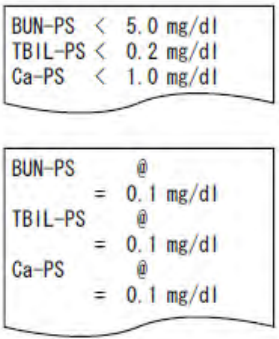
Error Code	Error Message	Error Status	Solution
W5110	Printer ERR No paper.	No paper	Replace the recording paper, referring to <i>Section 4.5</i> .
W5120	Printer ERR Lower the printer head.	Wrong setting of the printer head	Check that the lever of the printer head is locked (down), referring to <i>Section 4.5</i> .
E5100	Printer ERR	Paper jam	Turn the power off and remove the jammed paper, referring to <i>Section 4.5</i> and then turn the power on again. If the error still occurs, please contact Heska's Technical Support Services for assistance. NOTE: The test results can be displayed after the tests completed by Result Search. (Refer to <i>Section 2.2.4</i>)

5.2.3 Slide Reading Error

Error Code	Error Message	Error Status	Solution
W173	Slide info read ERR No slide information. Check the slide.	Slide reader cannot read slide information printed on the reverse side.	Perform the following troubleshooting and rerun the tests. a. After the measurements are completed, clean the slide reader, referring to <i>Section 4.4</i> .  CAUTION Be sure to turn the power switch off after the measurements completed when cleaning the slide reader. During the measurements, the slide transfer bar will move. b. Check that the analyzer is not exposed to bright external light. c. Check that the dot-print part of the slide has no stain or dust. If the error still occurs, please contact Heska's Technical Support Services for assistance.

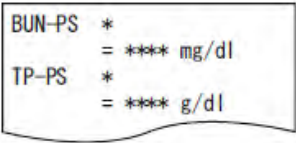
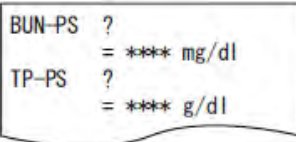
5.2.4 Sampler Errors

Error Code	Error Message	Error Status	Solution
W110	No tip WARNING No tip detected. Check tips "a" to "d". Set tips and rerun the tests from the beginning.	During the tip detection process, the analyzer could not detect the tip.	Put a tip in the setting position and rerun the tests from the beginning.
W112	Test condition WARNING No tip detected. Check tips "a" to "d". Set tips and rerun the tests from the beginning.	The tip has already been used up and there is no tip for the next sampling.	Put a tip in the setting position and rerun the tests from the beginning.
W115 W116	Tip eject WARNING Remove a tip from the nozzle. Empty the disposal box.	The analyzer has failed to eject a tip.	Remove the tip from the sampler nozzle by hand and empty the disposal box.
E0100	Faulty tip detection sensor Prior to tip detection, a tip has already been detected.	Tip detection sensor is faulty.	Turn the power off and empty the disposal box, and then turn the power on.
W120	Tip eject WARNING Remove a tip from the nozzle. Empty the disposal box.	A tip remains on the nozzle.	Remove the tip from the sampler nozzle by hand and empty the disposal box.
E0120	Sample surface detection ERR Sample is insufficient. Check the sample.	No sample surface found.	Perform the following troubleshooting. a. Touch STOP or BUZZER OFF to stop the beep.
W060	Sample shortage WARNING Sample is insufficient. Check the sample rack and the tip. Check the sample volume. Load a new DRI-CHEM AUTO TIP and rerun the tests from the beginning.	Sample was found, but the volume is insufficient.	b. Make sure that the appropriate sample rack specified for the sample tube is used. Also, check that DRI-CHEM AUTO TIPS are used. c. Make sure that the sample volume is above the aspiration limit. If it is below the limit, add more sample. Refer to <i>Section 3.7.7</i> for allowable sample volume. d. Put a new DRI-CHEM AUTO TIP in the sample rack to rerun the tests from the beginning.
E0140 E0142	Sample surface detection ERR Sample volume is too much. Check the sample.	Liquid volume is excessive.	Check the liquid volume and rerun the tests from the beginning. E0140 => Check the sample. E0141 => Check the diluent. E0142 => Check the reference fluid.
E0123	Diluent surface detection ERR Diluent is insufficient. Check the diluent.	No diluent surface has been found.	Check the diluent volume. Replace the mixing cup, add diluent, and set tips, and then rerun the tests from the beginning.
E0143	Diluent is insufficient. Check the diluent.	Diluent surface has been found, but the volume is insufficient.	Check the diluent volume. Replace the mixing cup, add diluent, and set tips, and then rerun the tests from the beginning.
E0129	Reference fluid surface detection ERR Reference fluid is insufficient. Check the reference fluid.	No reference fluid surface has been found.	Check the reference fluid volume. Set consumables (tips, etc.) and rerun the tests from the beginning.
E0144	Reference fluid is insufficient. Check the reference fluid.	Reference fluid surface has been found, but the volume is insufficient.	Check the reference fluid volume. Set consumables (tips, etc.) and rerun the tests from the beginning.
W150	Dilution test count over Sampling from a mixing cup was required more than 3 times. Set consumables (a mixing cup, diluent and reference fluid) and rerun the tests from the beginning.	Sampling from a mixing cup was required more than 3 times.	Set tips, a mixing cup, diluent, and reference fluid as required and rerun the tests from the beginning.

Error Code	Error Message	Error Status	Solution
W160	Dilution factor mismatch Different dilution factors were programmed for a sample. Set consumables (a mixing cup, tips, diluent and reference fluid) and rerun the tests from the beginning.	Tests that require different dilution factors were programmed for a sample. Or, a test that does not require dilution was programmed after another test that requires dilution for a sample.	Set tips, a mixing cup, diluent, and reference fluid as required and rerun the tests from the beginning.
Spotting error		When sample has not been spotted onto slides, "<" or "@" marks will appear repeatedly. Measured values with "@" marks may NOT be accurate. Rerun the tests again.	Perform the following troubleshooting: a. Make sure that a DRI-CHEM AUTO TIPS is used. b. Make sure that the tip has not been previously used. c. Make sure that there are no bubbles on the sample surface of the tube. d. Make sure that the appropriate sample rack specified for the test tube or Sample Tube is used. e. Inspect the sampler O-rings. (Refer to <i>Section 4.7.1</i>) If the error still occurs after the above troubleshooting, please contact Heska's Technical Support Services for assistance.
E0110 E0111 E0112 E0113 E0124 E0125	Sample aspiration ERR Check the sample.	Clogging error has been detected during sample aspiration. Fibrin deposition in the sample may occur.	Remove fibrin from the sample, and set consumables (tips and/or a mixing cup, <i>etc.</i>) and rerun the tests from the beginning. If the error still occurs, the piping system may be clogged. Please contact Heska's Technical Support Services for assistance.
E0121 E0122 E0126	Diluent aspiration ERR Check the diluent.	Clogging error has been detected during diluent or reference fluid sampling.	Check that the mixing cup with diluent or the plain tube 0.5 ml with reference fluid is set properly in the sample rack. Replace the mixing cup and set consumables (tips and diluent, <i>etc.</i>), and rerun the tests from the beginning. If the error still occurs, the piping system may be clogged. Please contact Heska's Technical Support Services for assistance.
E0127 E0128	Reference fluid aspiration ERR Check the reference fluid.		
E1000 E1001	Sampler up/down motor ERR	Motor drive error has occurred.	Perform the following troubleshooting: a. Turn the power switch off. b. Make sure that no foreign matter (tips or slides) is present around the sampler movement area. Remove foreign matter if exists. c. Turn the power switch on. d. If the error still occurs, please contact Heska's Technical Support Services for assistance.
E1002	Sampler up/down motor operation ERR		
E1100 E1101 E1103	Sampler rotation motor ERR		
E1102	Sampler rotation motor operation ERR		
E1200 E1201 E1203	Syringe motor ERR		
E1202 E1204	Syringe motor operation ERR		

5.2.5 Photometer Errors


When errors related to the photometer have occurred, perform the following and rerun the tests.

Error Code	Error Message	Error Status	Solution
E036	Soiled black plate Reference black plate soiled. Clean the black plate.	The light source lamp unit, the reference plates, or the photometer may be dirty, or the lamp or the interference filter may have deteriorated. When the disposal box is open during testing, the "E021" will occur and the "*" mark will appear on the test results. Always close the disposal box during testing.	Turn the power switch off, and perform cleaning as follows: 1. Lens cleaning (in the lamp unit) ==> (Refer to <i>Section 4.6</i>) Reference plate cleaning ==> (Refer to <i>Section 4.3</i>) 2. Photometer cleaning ==> (Refer to <i>Section 4.3</i>) After the cleaning, turn the power switch on. If the error still occurs, replace the light source lamp. (Refer to <i>Section 4.6</i>) If the error still occurs, please contact Heska's Technical Support Services for assistance.
W030	Lamp replacement WARNING Low light intensity. Clean photometer.		
W070	Filter degradation WARNING Filter degradation detected. Clean the photometer.		
[*]			
[?]			
E050	Lamp replacement ERR Low light intensity. Replace the lamp.	The light source lamp is burned out.	Turn the power switch off, and replace the light source lamp. After the replacement, turn the power switch on. (Refer to <i>Section 4.6</i>)
E510	Faulty A/D controller	The circuit board has malfunction (abnormal reference white plate reading).	Turn the power switch off and on. If the error still occurs, please contact Heska's Technical Support Services for assistance.
E0900 E0901 E0903	Filter motor ERR	Interference motor drive error has occurred.	
E0902	Filter motor operation ERR		
E5510	Slide slip ERR	The slide is off position during measurement.	Please contact Heska's Technical Support Services for inspection of the incubator pressure plates.

5.2.6 Transfer Errors

Error Code	Error Message	Error Status	Solution
E0200 E0205 E0208 E0209	Feed motor ERR	The disposal box may be full of slides, or slides may remain in the incubator or the spotting part.	Turn the power switch off, and perform the following: 1. Empty the disposal box. 2. Incubator cleaning (Refer to <i>Section 4.3</i>). 3. Spotting part cleaning (Refer to <i>Section 4.3</i>). If the error still occurs, please contact Heska's Technical Support Services for assistance.
E0206 E0207	Feed motor ERR Rerun the tests.		
E0210	Feed motor ERR		
E0600 E0601	Incubator motor ERR		
E0602	Incubator motor ERR		
E0603	Incubator motor ERR Check Disposal box.		
E0700 E0701	Probe motor ERR		
E0702	Probe motor operation ERR		
E1600 E1601 E1603	Transfer change motor ERR		
E1602	Transfer change motor ERR		
E1700	Eject motor ERR The sensor failed to turn ON.		
E1701	Eject motor ERR The sensor failed to turn OFF.		
E1702	Eject motor ERR		
E1703	Eject motor ERR Check Disposal box.		

5.2.7 Temperature Control Errors

Error Code	Error Message	Error Status	Solution
E1500	Temperature control ERR Check room temperature. Clean air filter.	 IMPORTANT Measured values with "+" or "-" marks may NOT be accurate. Perform the following troubleshooting and rerun the tests. When "+" or "-" marks appear on test results or the following errors occur: E1500, E1501, E1512 (CM incubator temperature) E1504, E1510, E1513 (ISE incubator temperature) E1521 (Environmental temperature) Incubator temperature is not within the controlled range.	Perform the following troubleshooting. a. Make sure the room temperature is between 59–89°F (15–32°C). If it is out of the range, air-condition or heat the room. b. Turn the power switch off. c. Clean the air filter. (Refer to <i>Section 4.2</i>) d. After the incubator has cooled down (about 10 minutes), turn the power switch on. If the error still occurs, please contact Heska's Technical Support Services for assistance.
E1501 E1512	Temperature control ERR Check room temperature. Turn power SW OFF.		
E1504	ISE temperature control ERR Check room temperature. Clean air filter.		
E1510 E1513	ISE temperature control ERR Check room temperature. Turn power SW OFF.		
E1521	Room temperature WARNING Check room temperature. Clean air filter.		

Error Code	Error Message	Error Status	Solution
E1502	Temperature control ERR Incubator temperature sensor disconnected. Check the incubator cable.	When "\$" marks appear on test results or the following errors occur: E1502, E1503, E1511	Turn the power switch off, and reconnect the incubator cord. NOTE: Plug the connector of the incubator cable to the analyzer and lock it by turning it clockwise. (Refer to <i>Section 4.3</i>) If the error still occurs, please contact Heska's Technical Support Services for assistance.
E1503	Temperature control ERR Incubator heater disconnected. Check the incubator cable.	The incubator cable may not be plugged in or disconnected.	
E1511	ISE temperature control ERR		
E1514	Temperature control WARNING Wait for ready to measure.	When starting the measurements, the incubator temperature is not ready.	Wait a moment until the temperature becomes ready.

5.2.8 Circuit Board Malfunction

Error Code	Error Message	Error Status	Solution
E0500 E0501	Date ERR Set date & time.	The built-in clock has been reset.	Set the date and time using the Date & Time settings of MODE FUNCTION. (Refer to <i>Section 6.3</i>) If the error still occurs, please contact Heska's Technical Support Services for assistance. Turning the power on for the first time or turning the power continuously off for a long time may cause the date error.
E0500	No USB memory Cannot find USB memory.	No USB memory has been set.	Insert a USB memory into the terminal. If the error still occurs, please contact Heska's Technical Support Services for assistance.
E035	Light too intense	The circuit board has malfunctioned.	If the error still occurs after turning the power off and on, please contact Heska's Technical Support Services for assistance.
E0300 E0302	Gain setting ERR		
E0509	Faulty A/D controller		
E0510	Faulty A/D controller		
E0532	ISE A/D conversion ERR		
E30XX	Memory recovery error		
E5000 E5014 E5020 E5035	USB memory read ERR Failed to read USB memory.		
E5201	Slide lot read unit ERR		
E5202	Slide lot read unit ERR		
E5203	Slide lot read unit ERR		
E5204	Slide lot read unit ERR		
E5500	Abnormal sample spreading on slide		
E9999	Check errors which occurred before this error and then turn power SW OFF and ON.		
EFFXX	Calculation ERR		
E5600– E5603	CAN communication ERR Check the specification and the connection of the communication cable.		

5.2.9 QC Card/DI Card Read Error

Error Code	Error Message	Error Status	Solution
E4000	QC card ERR Read QC card again.	The analyzer could not read QC card information.	Read the QC card again. (Refer to <i>Section 3.7.8</i> .) If the error still occurs, please contact Heska's Technical Support Services for assistance.
E4001	QC card ERR Read QC card after the measurement completed.		
E4003– E4009	QC card ERR Read QC card again.		
E4010	QC card ERR No type information corresponding to the slide. Read QC card corresponding to the slide.	When reading a QC card for panel slides, no standard curve information for the Slide Type Number are memorized in the analyzer.	Read the QC card corresponding to the Slide Type Number in the panel slide package.
E4011	QC card ERR Cannot save data.	There is no memory area for saving QC information of the panel slide.	A maximum of 10 panel data can be memorized in the analyzer.
E4012	QC card ERR No DI info found. Cannot read this card.	No DI card information for the slide.	Contact Heska's Technical Support Services for assistance.
W170	No QC card info No QC information. Read QC card.	The QC card corresponding to the slide in the slide cartridge has not been read.	Read the QC card corresponding to the slide code of the error printout.

5.2.10 Slide Loading Errors

Error Code	Error Message	Error Status	Solution
W040 W041	Incorrect sample WARNING The sample type set in analyzer does not correspond to the read sample type. Set the sample type by the SAMPLE button and the slide's sample type corresponding to the sample. Rerun the tests from the beginning.	The sample type setting by the SAMPLE button does not correspond to the slide's sample type loaded in the slide cartridge. (Example) A slide for plasma/serum has been loaded while selecting [W] by the SAMPLE button.	The sample type setting by the SAMPLE button and the slide's sample type to be used must correspond to the sample to be measured. Rerun the tests from the beginning.
W140	ISE slide direction ERR Incorrect loading direction of ISE slide. Check the ISE slide.	An ISE slide is loaded in incorrect direction in the slide cartridge.	Load the ISE slide in correct direction in the slide cartridge and rerun the test from the beginning.
W175	No slide Slides have not been set. Rerun the tests from the beginning.	No slides are loaded in the slide cartridge.	Load slides to be tested, and rerun the tests from the beginning.

5.2.11 Errors Related to ISE Tests

1. When a self-test error has been detected

Error Code	Error Message	Error Status	Solution
E0530 E0531	ISE self-test ERR	A self-test error has been detected before starting ISE tests.	Turn the power switch off and on, and then rerun the tests from the beginning. If the error still occurs, please contact Heska's Technical Support Services for assistance. Without turning the power off and on after "E0530" or "E0531", the "W141" will occur. In this case, turn the power switch off and on.

2. W141

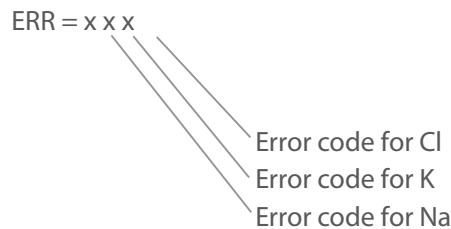
Error Code	Error Message	Error Status	Solution
W141	Unacceptable ISE test ISE tests cannot run. Turn the power SW OFF and ON. Rerun the tests from the beginning.	E0530—E0532 occurred; analyzer has not been turned off (reset).	Turn the power switch off and on, and then rerun the tests from the beginning.

3. When an error code (ERR = xxx) is printed out along with the test results:

During ISE tests, the following will be checked.

Check Menu	Description
Drift check	Checks abnormal time course (voltage) during testing
Impedance check	Checks the slide impedance after the test completed
Over range check	Checks that the test results are within the measurement range

If any errors are detected, [ERR = xxx] will be printed out along with the test results. The 3-digit figures are error codes for Na (sodium), K (potassium), and Cl (chloride).



NOTE: " x " indicates a numeric number from 0 to 8.

Error code description

Code	Description
0	No problem
1	Drift error
2	Impedance error
3	Outside of the measurement range (This is not an analyzer malfunction.)
4	Drift error and impedance error
5	Impedance error and outside of the measurement range
6	Drift error and outside of the measurement range
7	Drift error, impedance error, and outside of the measurement range
8	Impossible measurement

4. W142

Error Code	Error Message	Error Status	Solution
W142	Unacceptable ISE test ISE tests cannot run.	ISE probe unit not loaded inside analyzer for attempted ISE slide test.	—

5.2.12 Errors Related to Data Communication or Sample Barcode Reader

- a. When the error codes are other than 0 or 3:
 Sample or reference fluid may not be sufficiently absorbed into a slide.
 Perform the following troubleshooting.

- ① Perform the test once again and check the following:

Aspirated fluids (sample and reference fluid) in the tips are almost equal in volume.

If the aspirated volume is not normal, perform inspection or replacement of sampler O-ring. (Refer to *Section 4.7*)

Spotted fluids in the spotting holes on the slide are almost equal in volume.

If the fluids are not spotted into the spotting holes normally, contact Heska's Technical Support Services for assistance.

- ② Clean the probes in the ISE unit and the spotting part. (Refer to *Section 4.3*)

NOTE: If the error still occurs after the above troubleshooting is performed, please contact Heska's Technical Support Services for assistance.

- b. When the error code is displayed with number 3, it does not mean the analyzer malfunction. This means the concentration of the sample is outside of the measurement range.

NOTE: Refer to the *Instructions for Use* for the slide measurement range.

```

2009-12-20      10:10
No. 3
[-]
Na-PS = **** mEq/l
K-PS  = **** mEq/l
Cl-PS = **** mEq/l
ERR = 741
    
```

```

2009-12-20      10:10
No. 4
[-]
Na-PS = 132 mEq/l
K-PS  < -OR mEq/l
Cl-PS = 73 mEq/l
ERR = 030
    
```

Error Code	Error Message	Error Status	Solution
W090 W097 W099	Serial communication ERR Check the specification and the connection of the communication cable.	Serial communication has malfunctioned.	When data communication errors occur, perform the following: <ul style="list-style-type: none"> • Make sure that the communication cable has been connected properly. • Make sure that the status of the host computer is ready to communicate. • Make sure that the communication settings have been set correctly. (See <i>Section 6.8.3</i>) If the error still occurs, please contact Heska's Technical Support Services for assistance.
W200	Barcode reader ERR No response from the barcode reader.	The sample barcode reader has not been connected to the analyzer.	Connect the sample barcode reader to the USB Connector of the analyzer. If the error still occurs, please contact Heska's Technical Support Services for assistance.

Error Code	Error Message	Error Status	Solution
W220	LAN communication ERR Check the specification and the connection of the communication cable.	LAN communication ERR	When data communication errors occur, perform the following: <ul style="list-style-type: none"> • Make sure that the communication cable has been connected properly. • Make sure that the status of the host computer is ready to communicate. • Make sure that the communication settings have been set correctly. (See <i>Section 6.8.3</i>) If the error still occurs, please contact Heska's Technical Support Services for assistance.

5.2.13 Other Errors

Error Code	Error Message	Error Status	Solution
W010	Keyboard open Close keyboard and then touch START .	The START button has been touched when the keyboard is open.	Close the keyboard, and touch START .
E010	Keyboard open Keyboard opened during measurement. Close keyboard and run the tests from the beginning.	The keyboard is open during testing.	Close the keyboard, and rerun the tests from the beginning.
W020	Disposal box open Put Disposal box to the end and then press START .	The START button has been touched when the disposal box is open.	Close the disposal box, and touch START .
E021	Disposal box open Disposal box opened during measurement. Close Disposal box and run the tests from the beginning.	The disposal box is open during testing.	Close the disposal box, and rerun the tests from the beginning.
W022	Disposal box full Disposal box became full of slides and tips. Discard slides and tips to empty the box when measurement is not in progress.	The disposal box is full of slides and tips.	Empty the disposal box when the measurements are not in progress. When the number of discarded slides in the disposal box reaches 100, or when the number of used tips reaches 50, W022 will occur. Once the disposal box is pulled out, the count will be reset. Always empty the disposal box every time it is pulled out.
W500	Faulty exhaust fan	Fan has malfunctioned.	Contact Heska's Technical Support Services for assistance.
W500	Faulty pressure fan for power supply box		
W501	Faulty incubator fan		
W501	Faulty pressure fan for upper rear panel		
W502	Faulty pressure fan for lower rear panel		
W503	Faulty cooling fan for ISE		
W210	Rack status was changed after pressing START . Start over the measurement.	A fan is faulty.	Contact Heska's Technical Support Services for assistance.

6.1 Mode Setting Procedure and Description

There are 2 kinds of modes: one is the administrator mode, which can only be operated by administrators; another is the normal mode, which can be operated by normal operators.

The important modes, which affect test results such as correlation coefficients settings, can only be operated in the administrator mode. The administrator modes must be operated only by the administrators who have responsibility over the analyzer. By touching **FOR ADMINISTRATOR** in the MODE FUNCTION menu dialogue and then inputting a password, the ADMINISTRATOR MODE FUNCTION menu dialogue is displayed.

For information about how to display the MODE FUNCTION menu dialogue, refer to *Section 2.2.3*.

6.1.1 Mode Setting Procedure

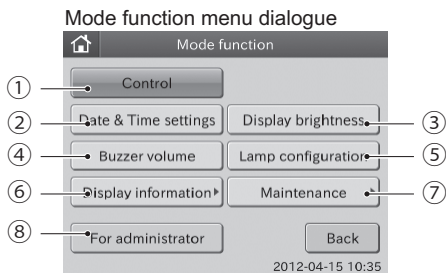
Mode Function Menu	Main Setting Menu	Sub-Setting Menu	Reference Section	Operator
Control	Start control measurement			Normal
	Additional test	-	6.2	
	Rerun			
Date & time settings	-	-	6.3	
Display brightness	-	-	6.4	
Buzzer volume	Error sound	-	6.5.1	
	Test end sound	-	6.5.2	
Lamp configuration	-	-	6.6	
Display information	Error log	-	6.7.1	
	Display temperature & humidity	-	6.7.2	
	Lot information	-	6.7.3	
	DI card information	-	6.7.4	
Maintenance	Sampler leak check	Sample tip	4.7.1	
		Dilution tip		
	Reference plate level check	-	4.3	
For administrator	Basic/External I/F settings	Language setting	6.8.1	Admin
		Date format setting	6.8.2	
		Host I/F settings	6.8.3	
		Barcode reader	6.8.4	
For administrator	Display settings	Unit conversion	6.9.1	
		Display method for outside of measurement range	6.9.2	
		Reference interval settings	6.9.3	
		Result display setting	6.9.4	
		Sample No./ ID settings	6.9.5	
		Work list selection setting	6.9.6	

Mode Function Menu	Main Setting Menu	Sub-Setting Menu	Reference Section	Operator
For administrator	Coefficients/Test settings	Correlation coefficients	6.10.1	Admin
		Lot compensation coefficients	6.10.2	
		Dilution factor	6.10.3	
		Spotting count	6.10.4	
		Print sheets of test results	6.10.5	

6.1.2 How to Select Each Mode

In the MODE FUNCTION menu dialogue, touch a **MODE FUNCTION** to be set.

NOTE: When touching **FOR ADMINISTRATOR**, a password entry dialogue appears. Enter a password. If you do not know the password, touch **X** to return to the MODE FUNCTION menu dialogue.



① Control button pressed

② Date & Time settings button pressed

③ Display brightness button pressed

④ Buzzer volume button pressed

⑤ Lamp configuration button pressed

⑥ Display information button pressed

⑦ Maintenance button pressed

⑧ For administrator button pressed

↓

Administrator mode
function menu dialogue

6.2 Control Mode <Normal>

6.2.1 Execution of the Control Mode

This mode is only used for FUJI DRI-CHEM CONTROL QP-L or QP-H. This mode is not used for Heska Chemistry Control.

When the control mode is selected, the analyzer calculates the concentration with the correlation coefficients for all tests reset to $a=1$ and $b=0$.

Correlation coefficients for all test names ==> Resets to ($a=1$, $b=0$)

Units ==> Resets to Unit (A)

Dilution factors ==> Resets to no dilution

In each test result dialogue, the indication [Control Mode] appears.

6.3 Date & Time Settings <Normal>

This mode is used to change date and time.

1. Touch **DATE & TIME SETTINGS** in the MODE FUNCTION menu dialogue.

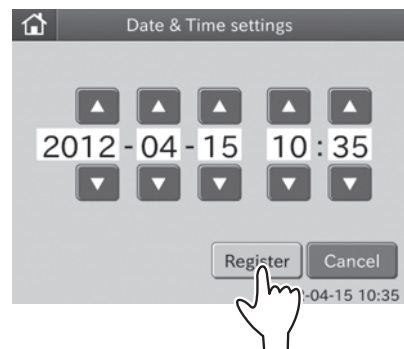
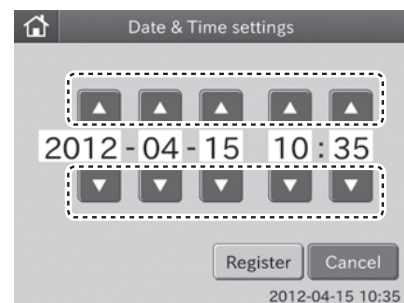
The date and time setting dialogue is displayed.

2. Touch ▲ or ▼ to change date and time.

3. Touch **REGISTER**.

The set date and time are registered, and then the display returns to the MODE FUNCTION menu dialogue.

NOTE: To cancel setting, touch **CANCEL**.



6.4 Display Brightness <Normal>

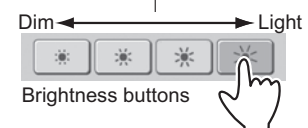
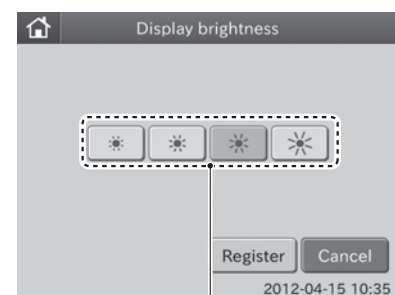
This mode function is used to adjust the touch screen brightness.

1. Touch **DISPLAY BRIGHTNESS** in the MODE FUNCTION menu dialogue.

The brightness setting dialogue is displayed.

2. Touch **DESIRED BRIGHTNESS**.

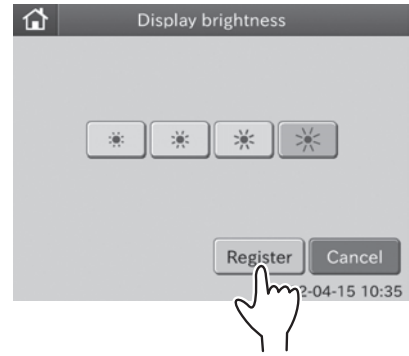
When touching desired brightness, the touch screen brightness is changed accordingly.



3. Touch **REGISTER**.

The set screen brightness is registered, and then the display returns to the MODE FUNCTION menu dialogue.

NOTE: To cancel setting, touch **CANCEL**.



6.5 Buzzer Volume <Normal>

This mode is used to change the beep sound settings (error warning, end of a test).

6.5.1 Error Sound

1. Touch **BUZZER VOLUME** in the MODE FUNCTION menu dialogue.

The buzzer volume dialogue is displayed.

 **IMPORTANT**

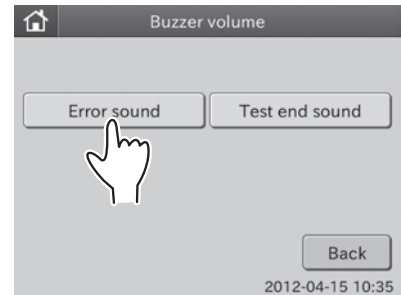
There are 2 types of buzzer sound: one is error sound; another is test end sound.

2. Touch **ERROR SOUND**.

The error sound dialogue is displayed

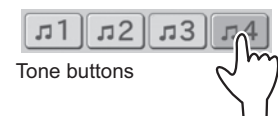
3. Touch **DESIRED VOLUME**.

When touching **DESIRED VOLUME**, a sound, which you have selected, will be heard.



4. Touch **DESIRED TONE**.

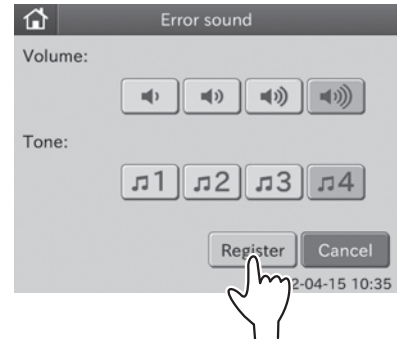
When touching **DESIRED TONE**, a sound, which you have selected, will be heard.



5. Touch **REGISTER**.

The set error sound is registered, and then the display returns to the MODE FUNCTION menu dialogue.

NOTE: To cancel setting, touch **CANCEL**.



6.5.2 Test End Sound

1. Touch **BUZZER VOLUME** in the MODE FUNCTION menu dialogue.

The buzzer volume dialogue is displayed.

i **IMPORTANT**

There are 2 types of buzzer sound: one is error sound; another is test end sound.

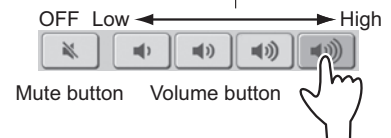
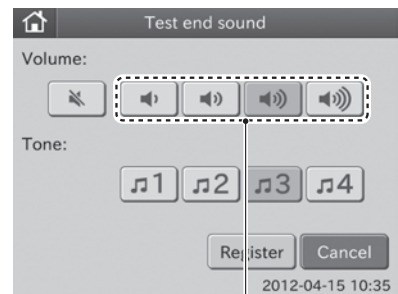
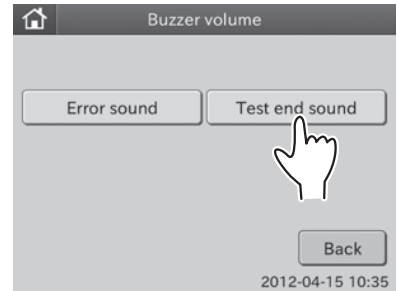
2. Touch **TEST END SOUND**.

The test end sound dialogue is displayed.

3. Touch **DESIRED VOLUME**.

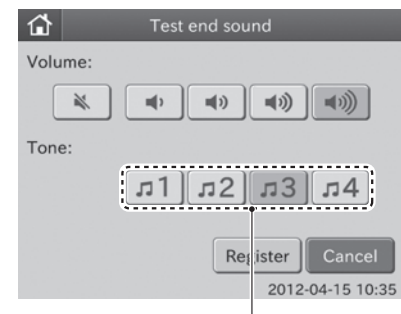
When touching **DESIRED VOLUME**, a sound, which you have selected, will be heard.

NOTE: To turn off the sound, touch **MUTE**.



4. Touch **DESIRED TONE**.

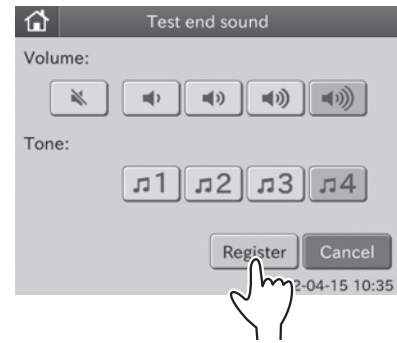
When touching **DESIRED TONE**, a sound, which you have selected, will be heard.



5. Touch **REGISTER**.

The set test end sound is registered, and then the display returns to the MODE FUNCTION menu dialogue.

NOTE: To cancel setting, touch **CANCEL**.



6.6 Lamp Configuration <Normal>

This mode is used to display and reset the cumulative illumination time of the lamp currently installed in the analyzer.

The illumination time will be counted up to 9,999 hours without reset.

When replacing the light source lamp, reset the cumulative illumination time using this mode.

This mode is used to select whether to turn off the light source lamp or not, if the analyzer has not been used for 20 minutes in the state of [Ready to Test] on the display.

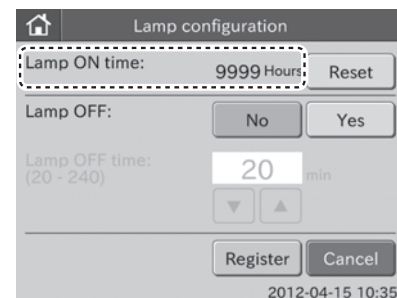
The default setting turns the lamp off after 20 minutes.

NOTE: The average life of the lamp is about 1,000 hours if the lamp is continuously lit. If the power is continuously switched on for 24 hours in the "Lamp on" selection, the lamp will be used up in about 40 days.

1. Touch **LAMP CONFIGURATION** in the MODE FUNCTION menu dialogue.

The **LAMP CONFIGURATION** is displayed.

- Display and reset of lamp's cumulative illumination time: 2
- To leave lamp ON: 3
- To turn the lamp OFF: 4



2. Display and reset of lamp's cumulative illumination time.

- a. Check lamp's cumulative illumination time (Lamp On time) shown in the lamp configuration dialogue.

NOTE: The illumination time will be counted up to 9,999 hours. If the time exceeds the maximum, the time is counted up from 0 hour.

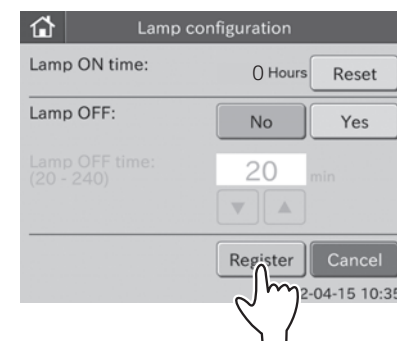
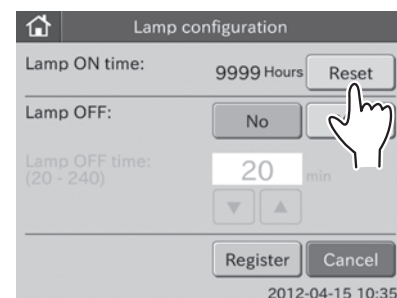
- b. Touch **RESET**.

Lamp's cumulative illumination time is reset to 0 hours.

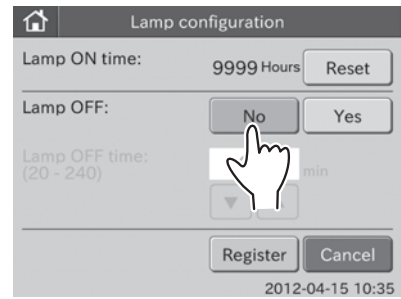
- c. Touch **REGISTER**.

The resetting of cumulative illumination time is registered, and then the display returns to the MODE FUNCTION menu dialogue.

NOTE: To cancel setting, touch **CANCEL**.



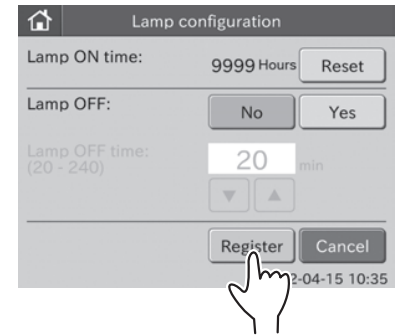
3. To leave the lamp ON
 - a. Touch **NO** in the [Lamp OFF:].
The [Lamp OFF Time:] field is grayed out and becomes invalid.



- b. Touch **REGISTER**.

The [Lamp OFF:] is set to "No", and then the display returns to the MODE FUNCTION menu dialogue.

NOTE: To cancel setting, touch **CANCEL**.



4. To turn the lamp OFF
 - a. Touch **YES** in the [Lamp OFF:].
The [Lamp OFF Time:] field becomes valid.

NOTE: To cancel setting, touch **CANCEL**.

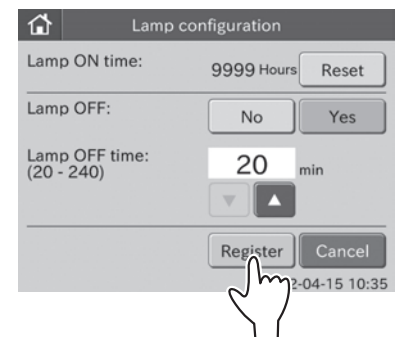
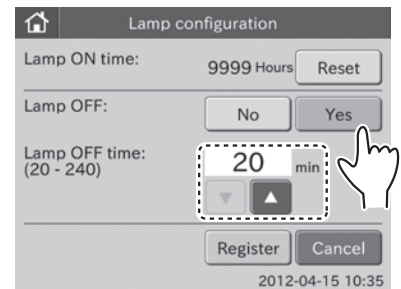
- b. Touch ▲ or ▼ in the [Lamp OFF Time:] to set the time.

NOTE: The time can be set within the range of 20 to 240 minutes in units of 10 minutes.

- c. Touch **REGISTER**.

The lamp OFF is set to "Yes", and then the display returns to the MODE FUNCTION menu dialogue.

NOTE: To cancel setting, touch **CANCEL**.



6.7 Display Information <Normal>

This mode is used to display the following:

- Error log
- Display temperature & humidity
- Lot information
- DI card information

6.7.1 Error log

This mode is used to display error logs memorized in the analyzer.

1. Touch **DISPLAY INFORMATION** in the MODE FUNCTION menu dialogue.

The display INFORMATION menu dialogue is displayed.

2. Touch **ERROR LOG** in the menu dialogue.

The error log dialogue is displayed.

If there are 6 or more error logs, you can see all error logs by touching ◀ or ▶.


NOTE: A maximum of 100 latest error logs can be displayed in sequence beginning with newest log.

NOTE: Date and time of error, error code and error name are displayed.

NOTE: When touching , the error detail dialogue appears.

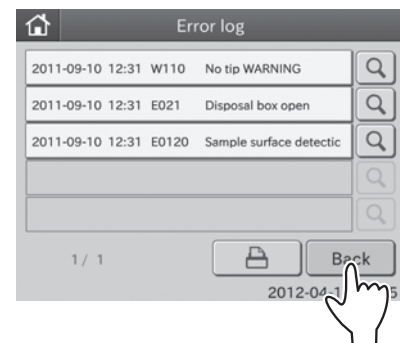
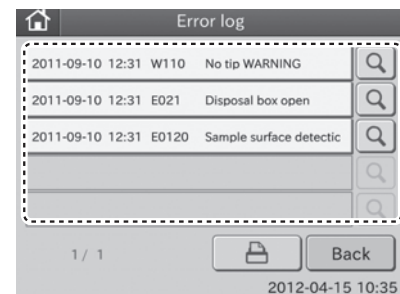
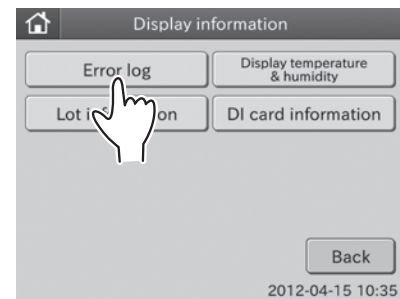


By touching **OK**, the error detail dialogue disappears.

NOTE: When touching , all error logs, which have been registered, are printed out.

3. Touch **BACK**.

The display returns to the INFORMATION menu dialogue.

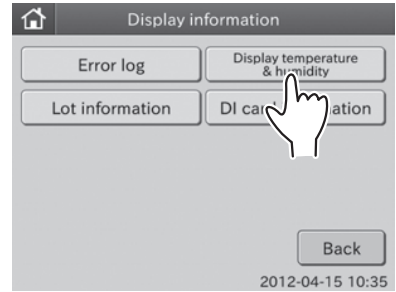


6.7.2 Display Temperature & Humidity

This mode is used to display CM & ISE incubator temperature and environmental temperature & humidity (inner body).

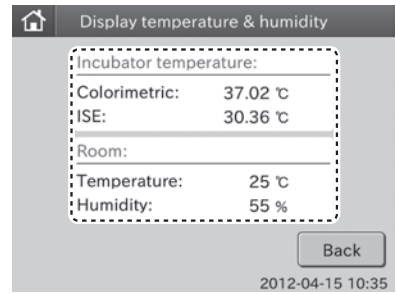
1. Touch **DISPLAY INFORMATION** in the MODE FUNCTION menu dialogue.

The display INFORMATION menu dialogue is displayed.



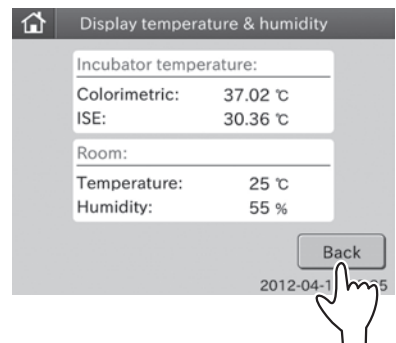
2. Touch **DISPLAY TEMPERATURE & HUMIDITY** in the menu dialogue.

The display temperature & humidity dialogue is displayed.



3. Touch **BACK**.

The display returns to the INFORMATION menu dialogue.



6.7.3 Lot Information

This mode is used to display or print out the slide lot numbers presently recorded in the analyzer.

1. Touch **DISPLAY INFORMATION** in the MODE FUNCTION menu dialogue.

The display INFORMATION menu dialogue is displayed.



2. Touch **LOT INFORMATION** in the menu dialogue.


The lot information dialogue is displayed.

By touching ◀ or ▶, you can see all lot information.

NOTE: Test name, test type, lot No. and expire date are displayed.

NOTE: Test names are displayed in ascending order of test code.

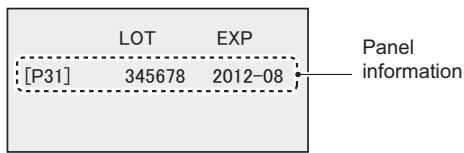
Sample types are displayed in order of: [P/S] and [W].

NOTE: When touching , all lot information presently registered are printed out.

NOTE: If the data of panel card is memorized, panel type is shown with “[]”.

3. Touch **BACK**.

The display INFORMATION menu dialogue is displayed.

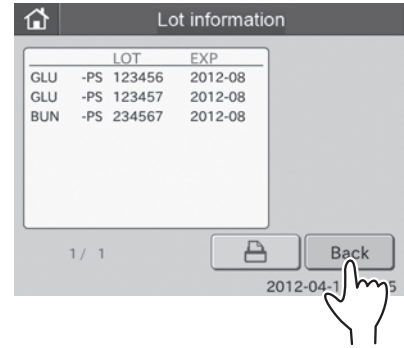
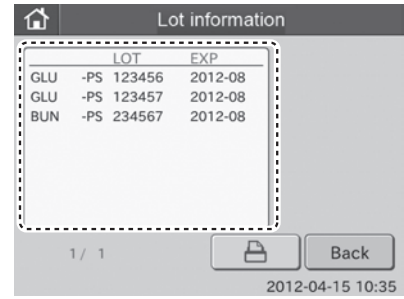


6.7.4 DI Card Information

This mode is used to display DI card information presently recorded in the analyzer memory.

1. Touch **DISPLAY INFORMATION** in the MODE FUNCTION menu dialogue.

The display INFORMATION menu dialogue is displayed.



2. Touch **DI CARD INFORMATION** in the menu dialogue.

The DI card information dialogue is displayed.

By touching ◀ or ▶, you can see all test name buttons.

NOTE: A test name that DI card and QC card are read into the analyzer is displayed as a button.

Display information on the selected test: 3

Display information on all tests: 4

(Example) GLU




3. Display information on the selected test.

- a. Touch desired test name.

The DI card information item dialogue is displayed.
By touching ◀ or ▶, you can see all test information.

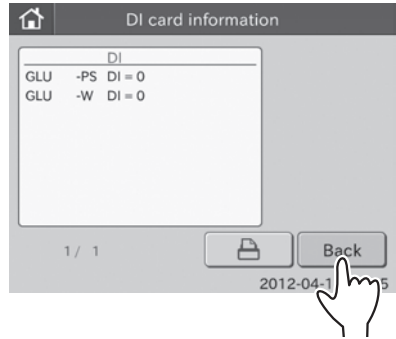
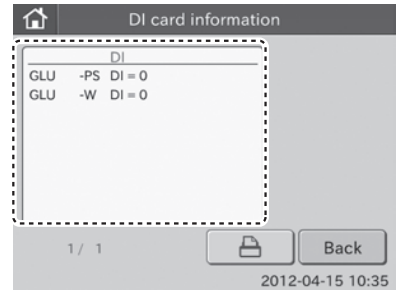
NOTE: Test name, sample type and DI value are displayed.

NOTE: Sample types are displayed in order of: [P/S] and [W].

NOTE: When touching , all lot information presently registered are printed out.

- b. Touch **BACK**.

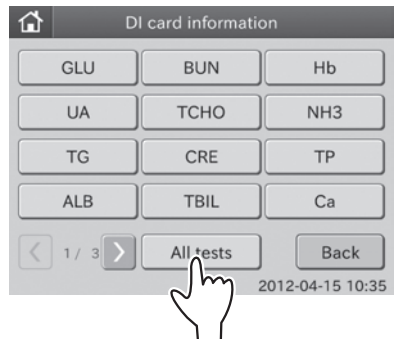
The display returns to the DI CARD INFORMATION menu dialogue.



4. Display information on all tests

- a. Touch **ALL TESTS**.


All tests are displayed in the dialogue.

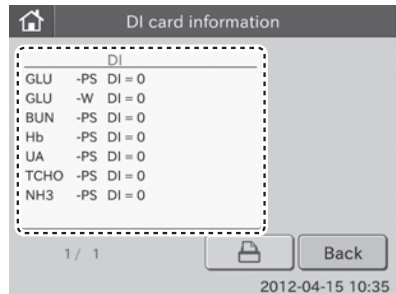


By touching ◀ or ▶, you can see all tests.

NOTE: Test name, sample type and DI value are displayed.

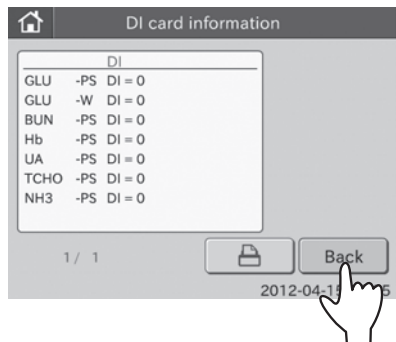
NOTE: Test names are displayed in ascending order of test code.
Sample types are displayed in order of: [P/S] and [W].

NOTE: When touching , all lot information presently registered are printed out.



- b. Touch **BACK**.

The display returns to the DI CARD INFORMATION menu dialogue.



6.8 Basic/External I/F Settings <Admini.>

This mode is used to display the following.

- Language setting
- Date format setting
- Host I/F settings
- Barcode reader

6.8.1 Language Setting

This mode is used to set a language to be used in the equipment.

1. Touch **BASIC/EXTERNAL I/F SETTINGS** in the ADMINISTRATOR MODE FUNCTION menu dialogue.

The basic/external I/F setting menu dialogue is displayed.

NOTE: For information about how to display the ADMINISTRATOR MODE FUNCTION menu dialogue, refer to *Section 6.1.2*.

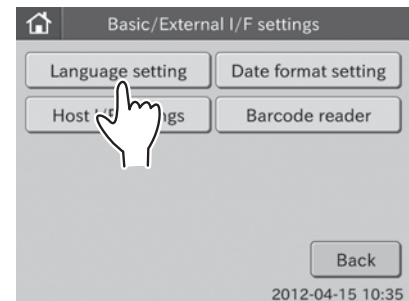
2. Touch **LANGUAGE SETTING** in the menu dialogue.

The language setting dialogue is displayed.

NOTE: The following 9 languages are selectable.

- Japanese
- English
- French
- German
- Italian
- Spanish
- Russian
- Portuguese
- Chinese

3. Touch desired language.



4. Touch **REGISTER**.

The selected language is registered, and then the display returns to the BASIC/EXTERNAL I/F SETTING menu dialogue.

NOTE: The registered language is reflected after rebooting the equipment.



6.8.2 Date Format Setting

This mode is used to set the order of the date (year, month and day).

1. Touch **BASIC/EXTERNAL I/F SETTINGS** in the ADMINISTRATOR MODE FUNCTION menu dialogue.

The BASIC/EXTERNAL I/F SETTING menu dialogue is displayed.

NOTE: For information about how to display the ADMINISTRATOR MODE FUNCTION menu dialogue, refer to *Section 6.1.2*.

2. Touch **DATE FORMAT SETTING** in the menu dialogue.

The date format setting dialogue is displayed.

NOTE: The following 3 formats are selectable.

[YYYY-MM-DD]

(e.g., 2012-08-31)

NOTE: In order for results to transmit to PMS, date format must be set to [YYYY-MM-DD].

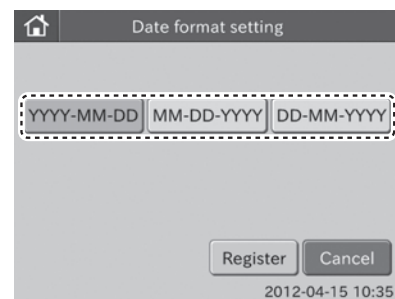
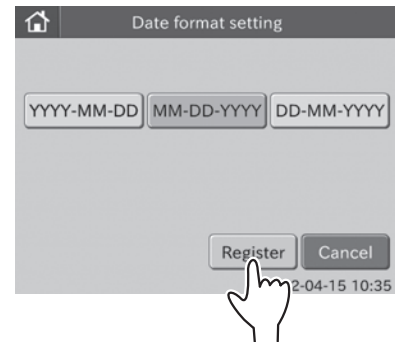
[MM-DD-YYYY]

(e.g., 08-31-2012)

[DD-MM-YYYY]

(e.g., 31-08-2012)

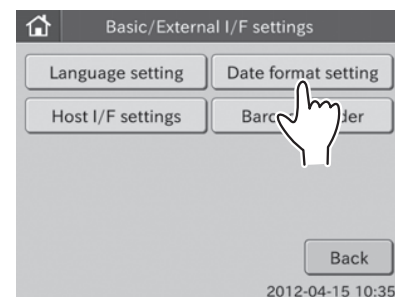
3. Touch **DESIRED DATE FORMAT**.



4. Touch **REGISTER**.

The selected date format is registered, and then the display returns to the BASIC/EXTERNAL I/F SETTING menu dialogue.

NOTE: The registered date format is reflected after rebooting the equipment.



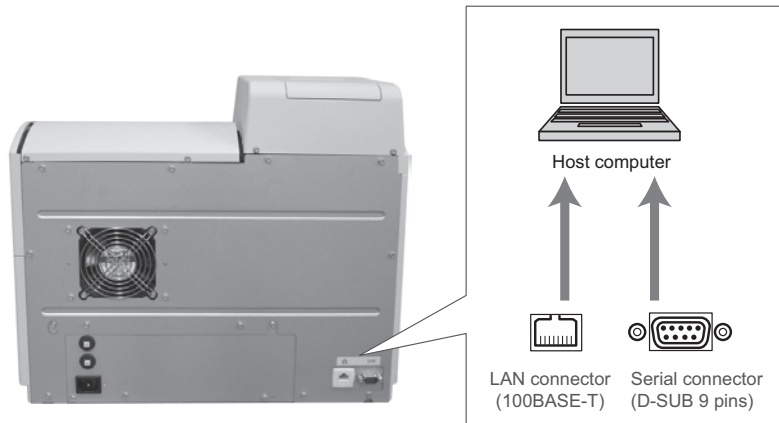
6.8.3 Host I/F Settings

This mode is used to connect the Element DC to a host computer (PC) and to set communication parameters. Also, this mode is used for turning the built-in printer ON/OFF.

NOTE: Do not connect the Element DC to the host computer, which has not been approved by IEC/UL60950-1.

NOTE: When connecting to the host computer, select either D-SUB 9-pin connector or 100BASE-T connector on the rear panel. It is impossible to communicate through both connections at the same time.

NOTE: Perform the host I/F settings after connecting the communication cable to the D-SUB 9-pins or the 100BASE-T.



1. Touch **BASIC/EXTERNAL I/F SETTINGS** in the ADMINISTRATOR MODE FUNCTION menu dialogue.

The BASIC/EXTERNAL I/F SETTING menu dialogue is displayed.

NOTE: For information about how to display the ADMINISTRATOR MODE FUNCTION menu dialogue, refer to *Section 6.1.2*.

NOTE: The USB connector is only for the barcode reader.

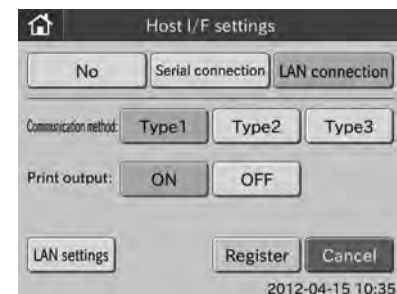
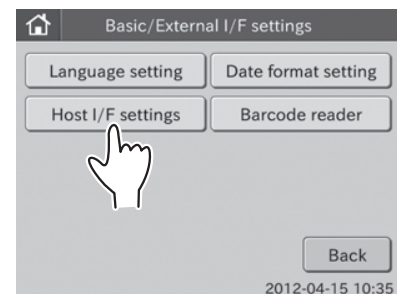
2. Touch **HOST I/F SETTINGS** in the menu dialogue.

The HOST I/F SETTINGS menu dialogue is displayed.

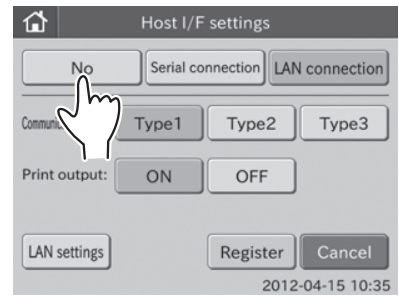
To not connect to the host computer: 3

To use the serial connection: 4

To use the LAN connection: 5



3. To not connect to the host computer
 - a. Touch **NO**.

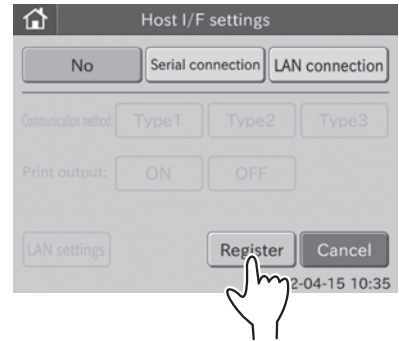


NOTE: Other buttons except for **REGISTER** and **CANCEL** are grayed out and become unselectable.

- b. Touch **REGISTER**.

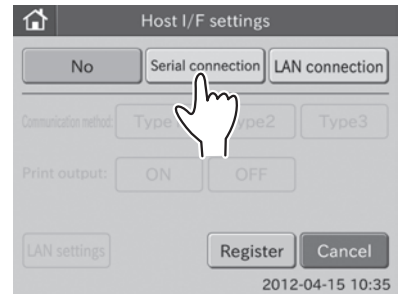
The host I/F setting is set to [No], and then the display returns to the BASIC/EXTERNAL I/F SETTING menu dialogue.

NOTE: To cancel setting, touch **CANCEL**.



4. To use the serial connection
 - a. Touch **SERIAL CONNECTION**.

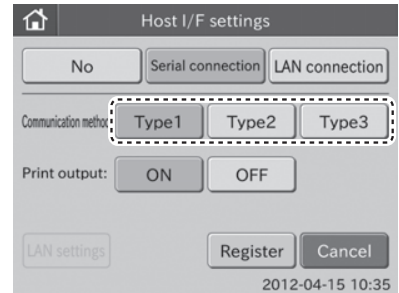
NOTE: LAN SETTINGS becomes unselectable.



- b. Select a communication method.

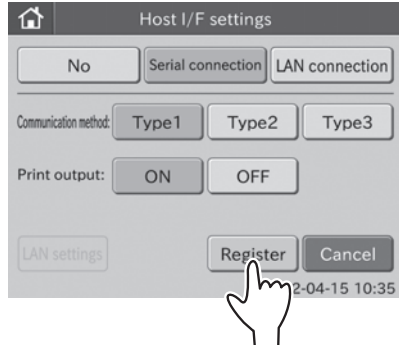
The following 3 communication methods are selectable.

- Type 1: two-way communication
- Type 2: one-way transmission (bidirectional format)
- Type 3: one-way transmission (standard format)



- c. Select ON or OFF for print output.

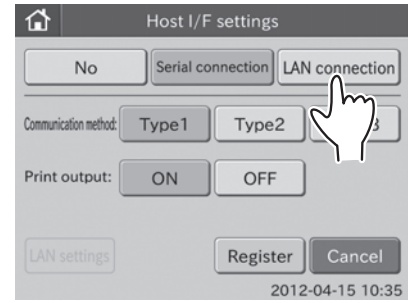
Select **ON** to use the printer. Select **OFF** to not use the printer.



d. Touch **REGISTER**.

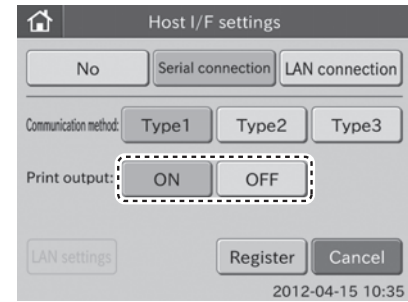
The host I/F setting is set to [Serial Connection], and then the display returns to the BASIC/EXTERNAL I/F SETTING menu dialogue.

NOTE: To cancel setting, touch **CANCEL**.



5. To use the LAN connection

a. Touch **LAN CONNECTION**.



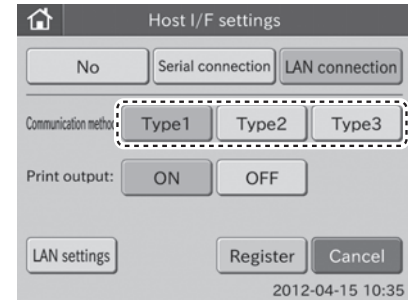
b. Select a communication method.

NOTE: The following 3 communication methods are selectable.

Type 1: two-way communication

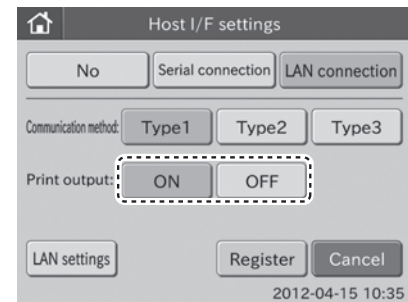
Type 2: one-way transmission (bidirectional format)

Type 3: one-way transmission (standard format)



c. Select **ON** or **OFF** for print output.

Select **ON** to use the printer. Select **OFF** to not use the printer.



d. Touch **LAN SETTINGS**.

The LAN settings dialogue is displayed.

NOTE: The LAN settings' defaults are as follows.

Element DC settings

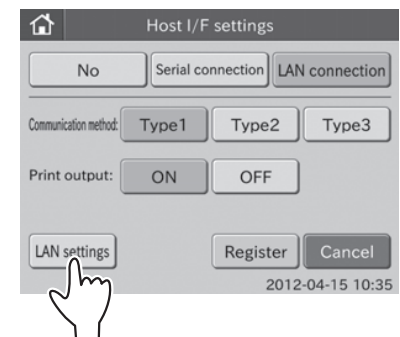
IP address: 192.168.100.1

Port No.: 65535

PC settings

IP address: 192.168.100.2

Port No.: 65535



e. Touch **EDIT**.

The screen keyboard to enter the IP address (Element DC) appears.

For information about input method of the screen keyboard dialogue, refer to *Section 2.3*.

NOTE: To cancel **EDIT** and return to the LAN settings dialogue, touch **X**.

f. Enter the IP address (Element DC), and then touch **OK**.

The screen keyboard to enter the Port No. (Element DC) is displayed.

g. Enter Port No. (FDC), and then touch **OK**.

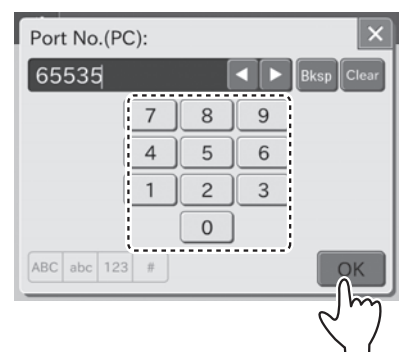
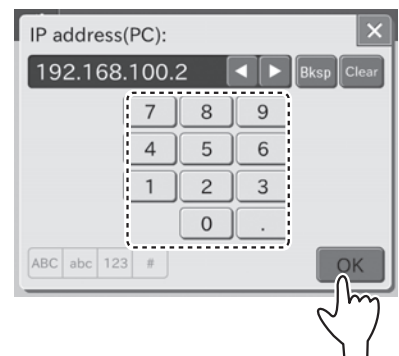
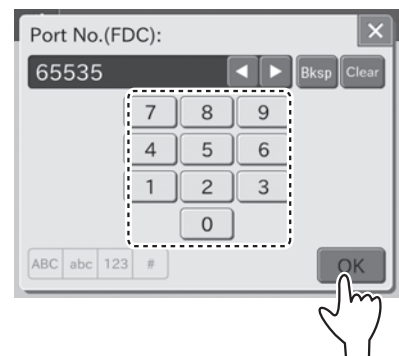
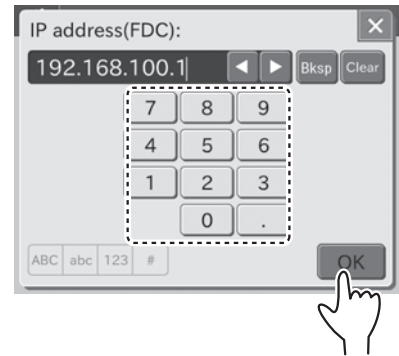
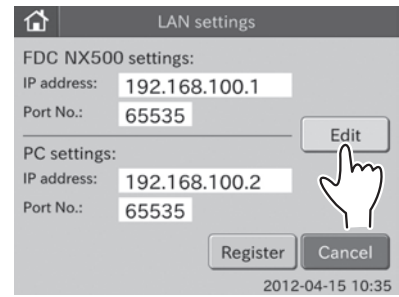
The screen keyboard to enter the IP address (PC) is displayed.

h. Enter the IP address (PC), and then touch **OK**.

The screen keyboard to enter the Port No. (PC) is displayed.

i. Enter the Port No. (PC), and then touch **OK**.

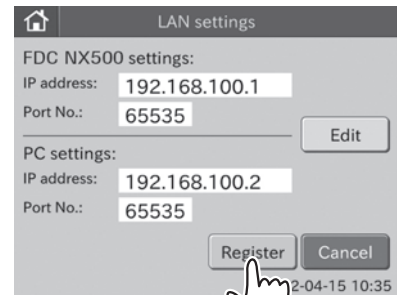
The display returns to the LAN settings dialogue.



j. Touch **REGISTER**.

The LAN settings are registered, and then the display returns to the HOST I/F SETTINGS menu dialogue.

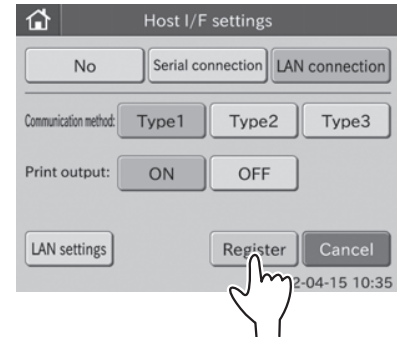
NOTE: To cancel setting, touch **CANCEL**.



k. Touch **REGISTER**.

The host I/F setting is set to [LAN connection], and then the display returns to the BASIC/EXTERNAL I/F SETTING menu dialogue.

NOTE: To cancel setting, touch **CANCEL**.

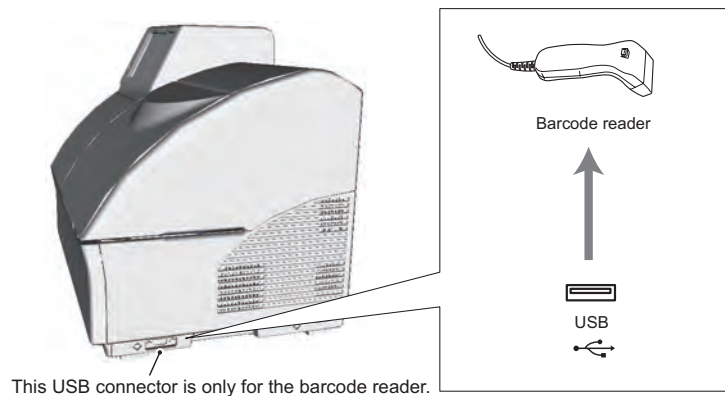


6.8.4 Barcode Reader

This mode is used to perform the setting to connect the sample barcode reader to the USB connector.

 **CAUTION**

The sample barcode reader specified for the Element DC can be used. Do not connect a barcode reader other than one specified for the Element DC. Otherwise, physical damage or danger of fire may result.

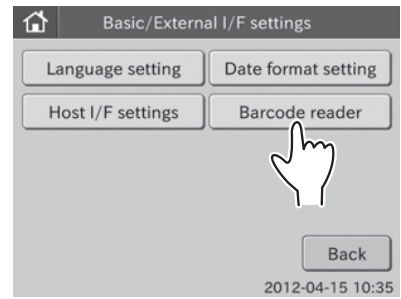


1. Touch **BASIC/EXTERNAL I/F SETTINGS** in the ADMINISTRATOR MODE FUNCTION menu dialogue.

The basic/external I/F setting menu dialogue is displayed.

NOTE: For information about how to display the ADMINISTRATOR MODE FUNCTION menu dialogue, refer to *Section 6.1.2*.

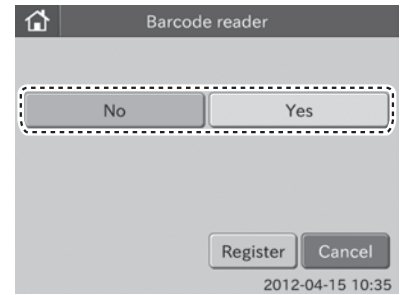
2. Touch **BARCODE READER** in the menu dialogue.



The BARCODE READER SETTING menu dialogue is displayed.

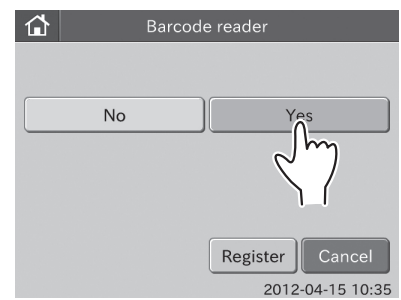
To use the barcode reader: 3

To not use the barcode reader: 4



3. To use the barcode reader

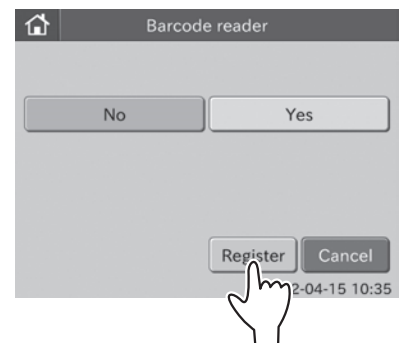
a. Touch **YES**.



b. Touch **REGISTER**.

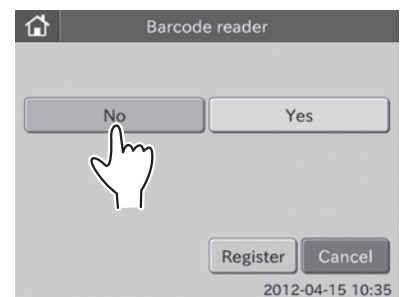
The barcode reader setting is set to [Yes], and then the display returns to the BASIC/EXTERNAL I/F SETTING menu dialogue.

NOTE: To cancel setting, touch **CANCEL**.



4. To not use the barcode reader

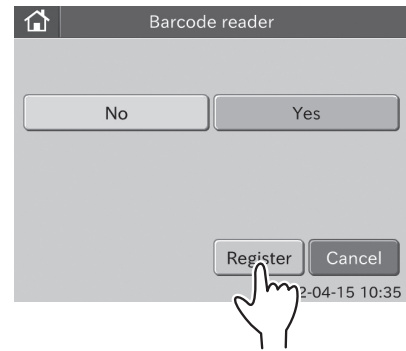
a. Touch **NO**.



b. Touch **REGISTER**.

The barcode reader setting is set to [No], and then the display returns to the BASIC/EXTERNAL I/F SETTING menu dialogue.

NOTE: To cancel setting, touch **CANCEL**.



6.9 Display Settings <Admini.>

The following settings are possible in this mode.

- Unit conversion
- Display method for outside of measurement range
- Reference interval settings
- Result display setting
- Sample No./ID settings
- Work list selection setting

6.9.1 Unit Conversion

This mode is used to set Unit (A) and Unit (B) for each test name.

1. Touch **DISPLAY SETTINGS** in the ADMINISTRATOR MODE FUNCTION menu dialogue.

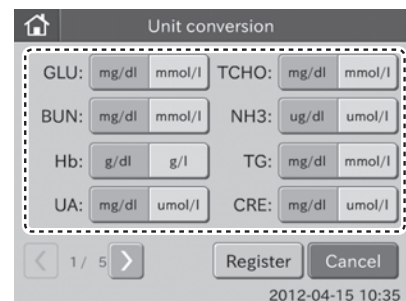
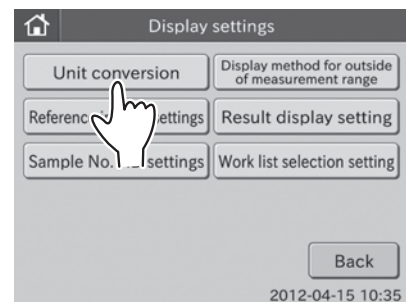
The display settings menu dialogue is displayed.

NOTE: For information about how to display the ADMINISTRATOR MODE FUNCTION menu dialogue, refer to *Section 6.1.2*.

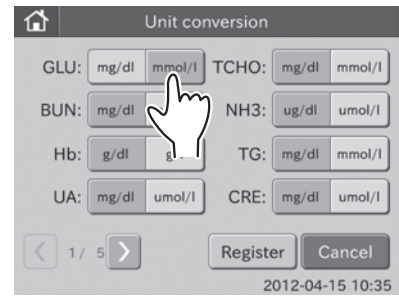
2. Touch **UNIT CONVERSION** in the menu dialogue.

NOTE: Test names are displayed in order of new QC reading date.

NOTE: Touch ◀ or ▶ to display the desired page of test names.

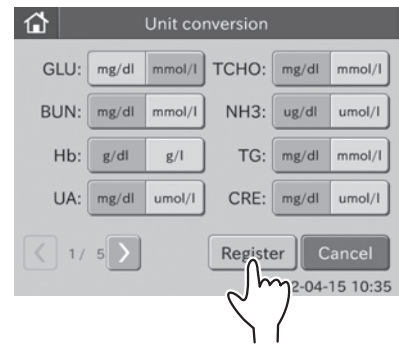


3. Touch **UNIT** to be changed.
(e.g.,) Change the unit for GLU from [mg/dl] to [mmol/l].



4. Touch **REGISTER**.
The set unit conversion is registered, and then the display returns to the DISPLAY SETTINGS menu dialogue.

NOTE: To cancel setting, touch **CANCEL**.



6.9.2 Display Method for Outside of Measurement Range

This mode is used to switch the display method for results outside of the measurement range for all tests.

1. Touch **DISPLAY SETTINGS** in the ADMINISTRATOR MODE FUNCTION menu dialogue.

The display settings menu dialogue is displayed.

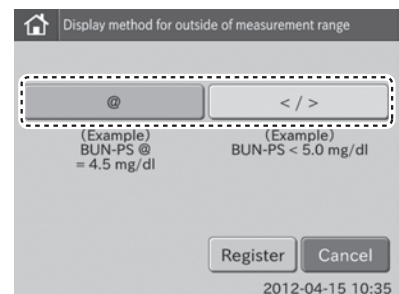
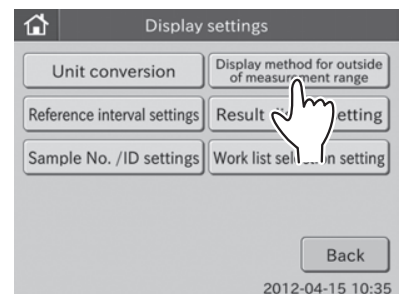
NOTE: For information about how to display the administrator MODE FUNCTION menu dialogue, refer to *Section 6.1.2*.

2. Touch **DISPLAY METHOD FOR OUTSIDE OF MEASUREMENT RANGE** in the menu dialogue.

The display method for outside of measurement range dialogue is displayed.

To display a numeric value with "@" mark for the value outside of the measurement range: 3

To print out the value outside of the measurement range using the "<" or ">" mark: 4

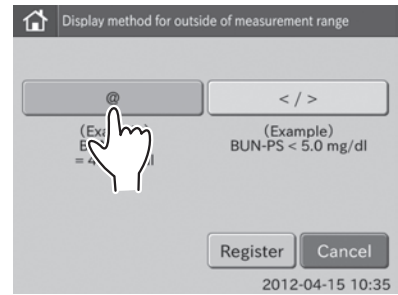


3. To display a numeric value with “@” mark for the value outside of the measurement range

a. Touch @.

 **IMPORTANT**

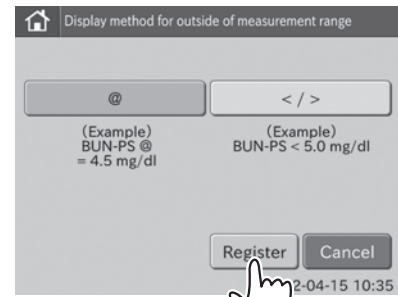
Measured values with a “@” mark may NOT be accurate. Rerun the tests.



b. Touch REGISTER.

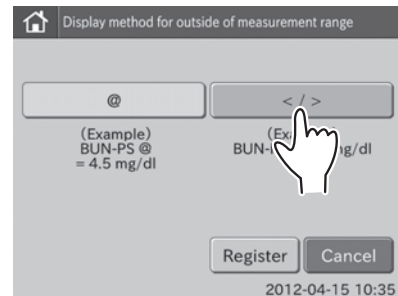
The set @ is registered, and then the display returns to the DISPLAY SETTINGS menu dialogue.

NOTE: To cancel setting, touch **CANCEL**.



4. To print out the value outside of the measurement range using the “<” or “>” mark

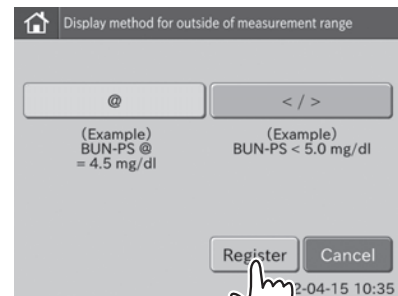
a. Touch </>.



b. Touch REGISTER.

The set </> is registered, and then the display returns to the DISPLAY SETTINGS menu dialogue.

NOTE: To cancel setting, touch **CANCEL**.



6.9.3 Reference Interval Settings

This mode is used to change the display order of items shown in the dialogue, and also is used to edit or add items.

A reference interval must be set for each item name and sample type ([P/S or W]).

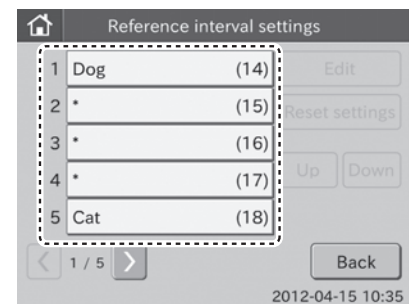
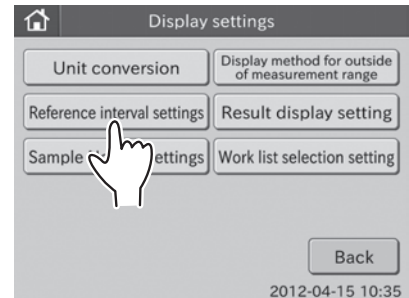
1. Touch **DISPLAY SETTINGS** in the ADMINISTRATOR MODE FUNCTION menu dialogue.

The display settings menu dialogue is displayed.

NOTE: For information about how to display the ADMINISTRATOR MODE FUNCTION menu dialogue, refer to *Section 6.1.2*.

2. Touch **REFERENCE INTERVAL SETTINGS** in the menu dialogue.

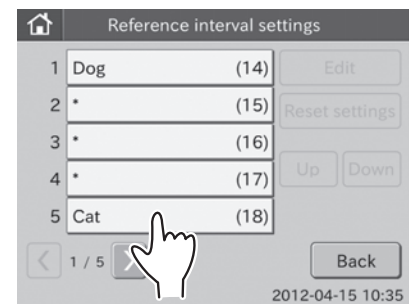
The list dialogue is displayed.



3. Touch the desired name.

(e.g.,) Select [Cat (18)]

NOTE: Touch ◀ or ▶ to display the desired name.



The selection dialogue is displayed.

NOTE: EDIT, RESET SETTINGS, UP and DOWN become selectable.

NOTE: When touching RESET SETTINGS, the lower and upper limits for the selected name item are cleared.



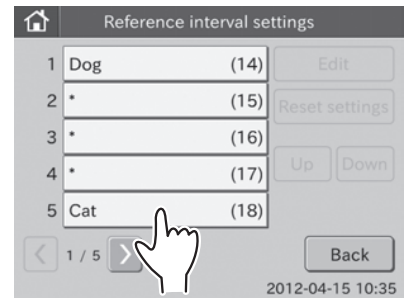
To change the display order of reference interval items in the dialogue: 1

To edit a reference interval item : 2

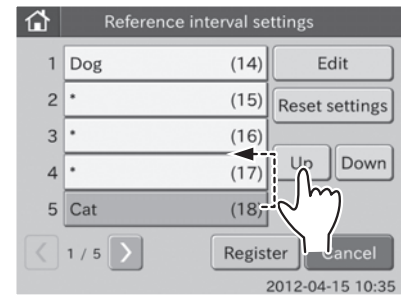
To edit a reference interval item: 3

1. To change the display order of reference interval items in the dialogue.

- a. Touch the item to be changed.
(e.g.,) Select [Cat (18)]
The selection dialogue is displayed.



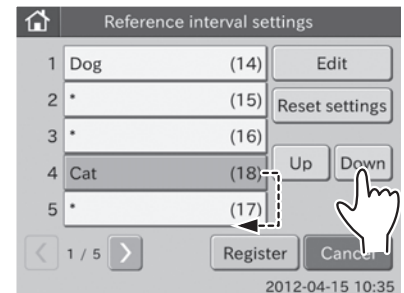
- b. Touch **UP**.



The [Cat (18)] moves up by one row.



- c. Touch **DOWN**.



The [Cat (18)] moves down by one row.

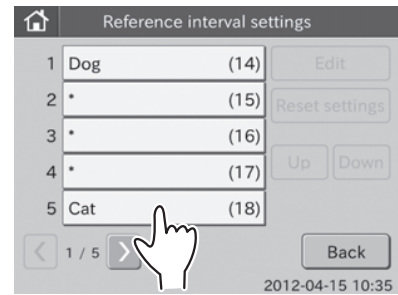
- d. Touch **REGISTER**.

The changed display order is registered, and then the display returns to the reference interval item list dialogue.

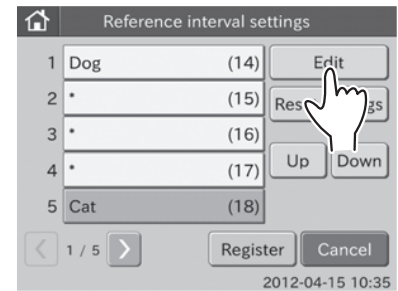
NOTE: To cancel setting, touch **CANCEL**.



2. To edit a reference interval item
 - a. Touch the item to be changed.
(e.g.,) Select [Cat (18)]
The selection dialogue is displayed.



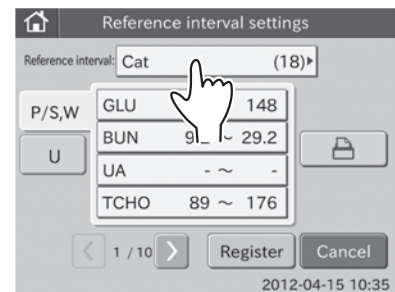
- b. Touch **EDIT**.



The edit dialogue is displayed.

NOTE: By touching [P/S, W] the display switches from one tab to another.

- c. Touch **REFERENCE INTERVAL ITEM**.



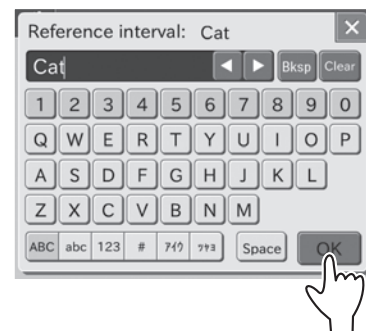
The screen keyboard appears.

For information about input method of the screen keyboard dialogue, refer to *Section 2.3*.

NOTE: To cancel editing and return to the edit dialogue, touch **X**.

- d. Enter name in the [Reference interval:] field, and then touch **OK**.

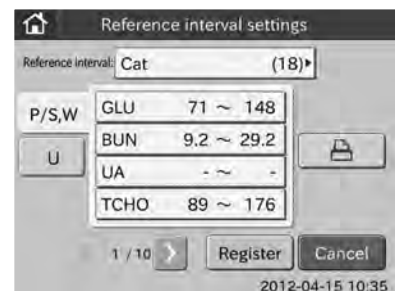
The edit dialogue is displayed.



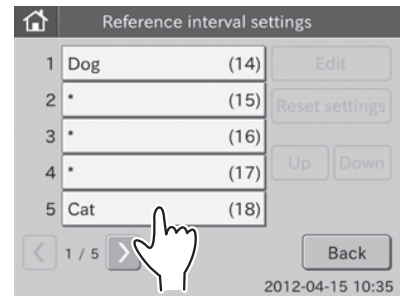
- e. Touch **REGISTER**.

The edited display order is registered, and then the display returns to the reference interval item list dialogue.

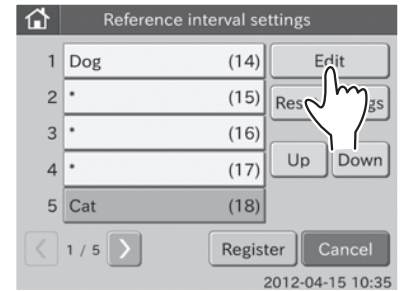
NOTE: To cancel setting, touch **CANCEL**.



3. To edit a reference interval item
 - a. Touch the item to be changed.
(e.g.,) Select [Cat (18)]
The selection dialogue is displayed.



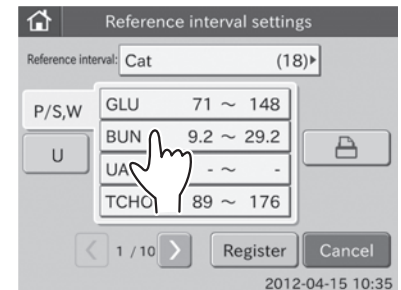
- b. Touch **EDIT**.





The edit dialogue is displayed.

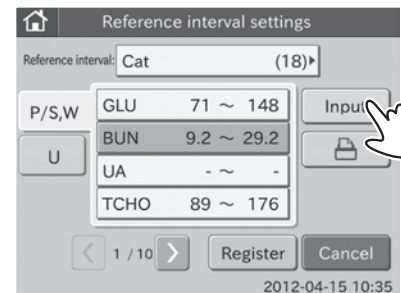
NOTE: By touching [P/S, W] the display switches from one tab to another.

- c. Touch desired test name.
The test details dialogue is displayed.



NOTE: **INPUT** and  become selectable. When touching , all reference interval items presently recorded are printed out.

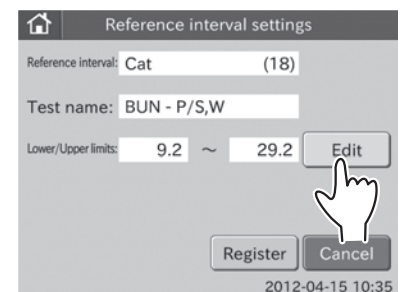
- d. Touch **INPUT**.
The edit dialogue for an individual test name is displayed.
The screen keyboard appears.
For information about input method of the screen keyboard dialogue, refer to *Section 2.3*.



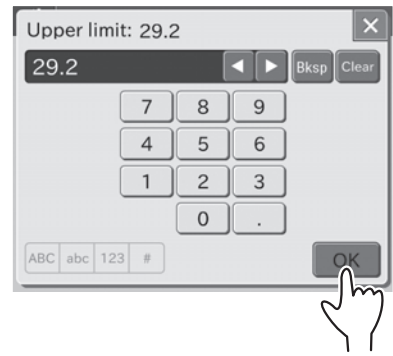
NOTE: To cancel editing and return to the edit dialogue, touch **X**.

- e. Touch **EDIT**.
The screen keyboard to input the lower limit appears.
For information about input method of the screen keyboard dialogue, refer to *Section 2.3*.

NOTE: To cancel editing and return to the reference interval item edit dialogue, touch **X**.



- f. Enter values in the [Lower limit:] field, and then touch **OK**.
The screen keyboard to input the upper limit appears.
- g. Enter values in the [Upper limit:] field, and then touch **OK**.
The edit dialogue for an individual test name is displayed.

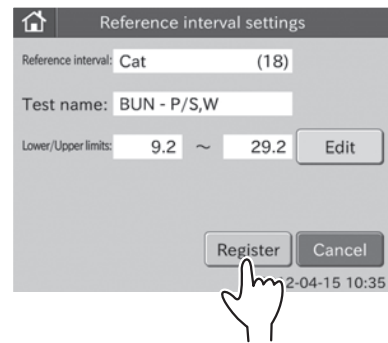


- h. Touch **REGISTER**.
The reference intervals are registered, and then the test details dialogue is displayed.

NOTE: To cancel setting, touch **CANCEL**.

- i. Touch **REGISTER** in the dialogue currently displayed.
The display returns to the reference interval item setting dialogue.

NOTE: To cancel setting, touch **CANCEL**.



6.9.4 Result Display Setting

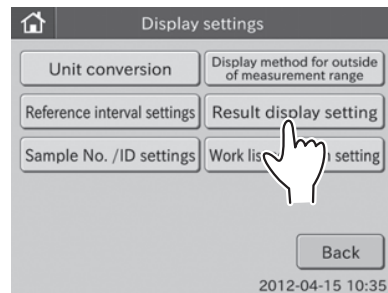
This mode is used to set the display/not display of indicator in test result.

Also, the print out /not printout of reference intervals is set.

1. Touch **DISPLAY SETTINGS** in the ADMINISTRATOR MODE FUNCTION menu dialogue.

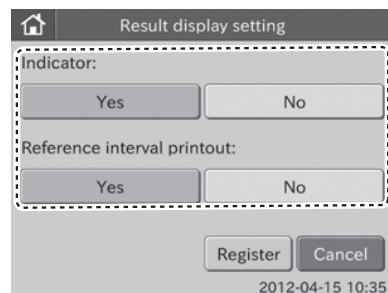
The display settings menu dialogue is displayed.

NOTE: For information about how to display the MODE FUNCTION menu dialogue, refer to *Section 6.1.2*.

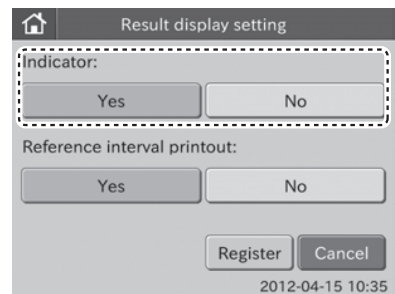


2. Touch **RESULT DISPLAY SETTING** in the menu dialogue.

The result display setting dialogue is displayed.



3. Touch **YES** or **NO** in the [Indicator:].

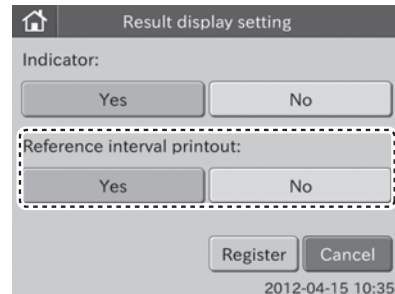


4. Touch **YES** or **NO** in the [Reference interval printout:].

5. Touch **REGISTER**.

The result display settings are registered, and then the display returns to the DISPLAY SETTINGS menu dialogue.

NOTE: To cancel setting, touch **CANCEL**.



6.9.5 Sample No./ID Settings

This mode is used to set the display/not display of sample No. in test result.

Also, the save/not save of sequence No. assigned by the analyzer is set.

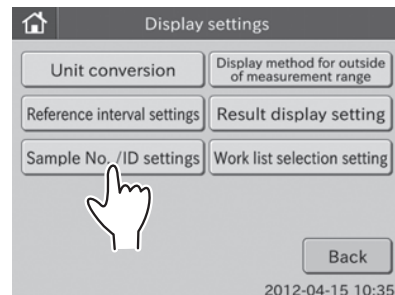
1. Touch **DISPLAY SETTINGS** in the ADMINISTRATOR MODE FUNCTION menu dialogue.

The display settings menu dialogue is displayed.

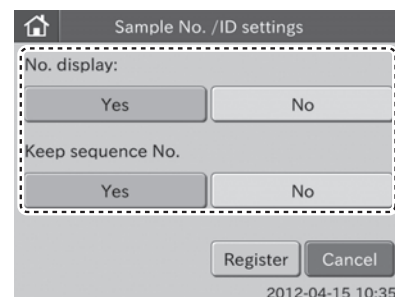
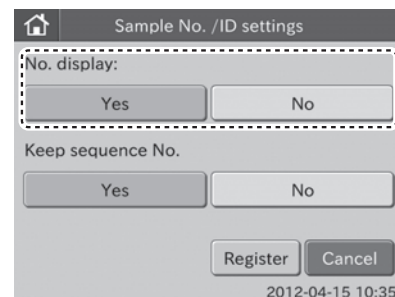
NOTE: For information about how to display the administrator MODE FUNCTION menu dialogue, refer to *Section 6.1.2*.

2. Touch **SAMPLE NO./ID SETTINGS** in the menu dialogue.

The sample No./ID settings dialogue is displayed.



3. Touch **YES** or **NO** in the [No. display:].

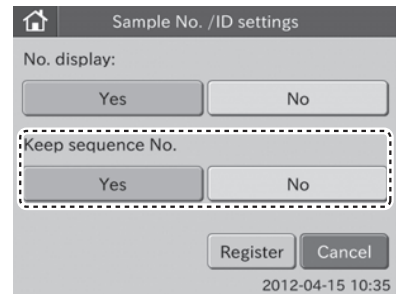


4. Touch **YES** or **NO** in the [Keep sequence No:].

5. Touch **REGISTER**.

The sample No./ID settings are registered, and then the display returns to the DISPLAY SETTINGS menu dialogue.

NOTE: To cancel setting, touch **CANCEL**.



6.9.6 Work List Selection Setting

This mode is used to set the work list index display.

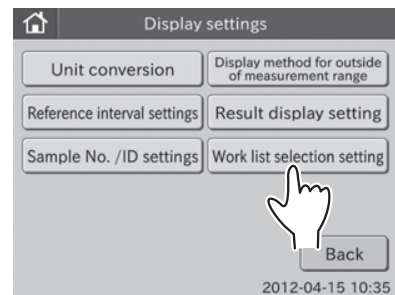
1. Touch **DISPLAY SETTINGS** in the ADMINISTRATOR MODE FUNCTION menu dialogue.

The display settings menu dialogue is displayed.

NOTE: For information about how to display the ADMINISTRATOR MODE FUNCTION menu dialogue, refer to *Section 6.1.2*.

2. Touch **WORK LIST SELECTION SETTING** in the menu dialogue.

The work list selection setting dialogue is displayed.

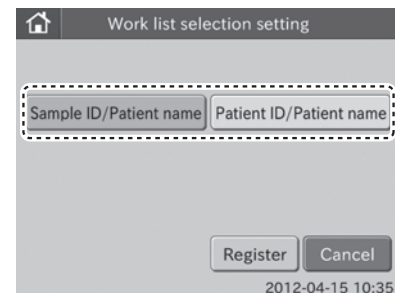


3. Touch **SAMPLE ID/PATIENT NAME** or **PATIENT ID/PATIENT name**.

4. Touch **REGISTER**.

The work list selection setting is registered, and then the display returns to the DISPLAY SETTINGS menu dialogue.

NOTE: To cancel setting, touch **CANCEL**.



6.10 Coefficients/Test Settings <Admini.>

This mode is used to set the following.

- Correlation coefficients
- Lot compensation coefficients
- Dilution factor
- Spotting count
- Print sheets of test results

6.10.1 Correlation Coefficients

This mode is used to input, reset or print out correlation coefficients (a, b) for each test and for each sample type (P/S, and W). For further details, refer to the *Description of the Correlation Function* at the end of this section.



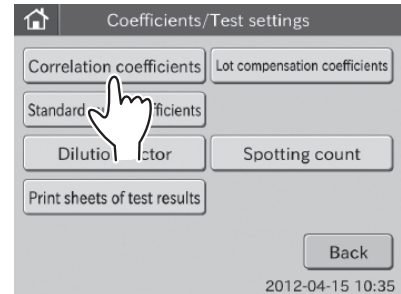
IMPORTANT

Incorrect inputs for (a, b) will cause incorrect test results. Make sure that the inputs (a, b) are correct using this mode.

1. Touch **COEFFICIENTS/TEST SETTINGS** in the ADMINISTRATOR MODE FUNCTION menu dialogue.

The coefficients/test settings menu dialogue is displayed.

NOTE: For information about how to display the ADMINISTRATOR MODE FUNCTION menu dialogue, refer to *Section 6.1.2*.




2. Touch **CORRELATION COEFFICIENTS** in the menu dialogue.

The correlation coefficients TOP dialogue is displayed.

By touching ◀ or ▶, you can see all correlation coefficients presently input.

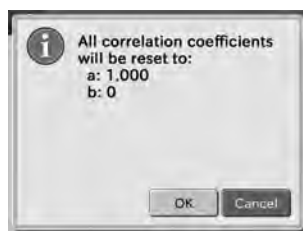
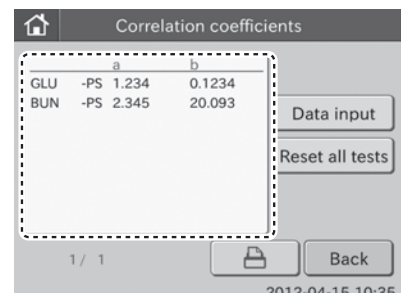
NOTE: Test name, sample type and correlation coefficients (a, b) are displayed.

NOTE: Test names are displayed in ascending order of test code. Sample types are displayed in order of: [P/S, W].

NOTE: By touching , all correlation coefficients presently input are printed out.

NOTE: To cancel setting, touch **BACK**.

NOTE: When touching **RESET ALL TESTS**, the reset confirmation dialogue appears.



Touch **OK** to reset all correlation coefficients. Touch **CANCEL** to cancel a reset.

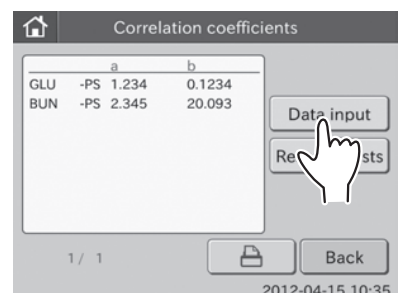
The display returns to the correlation coefficients TOP dialogue.

3. Touch **DATA INPUT**.

The test names selection dialogue is displayed.

By touching ◀ or ▶, you can see all test names.

NOTE: All test names presently recorded in the analyzer memory are displayed.

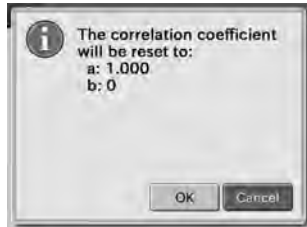


4. Touch the test name to be edited.

The edit dialogue is displayed.

NOTE: The sample type presently recorded in the analyzer has been selected.

NOTE: When touching **RESET**, the reset confirmation dialogue appears.

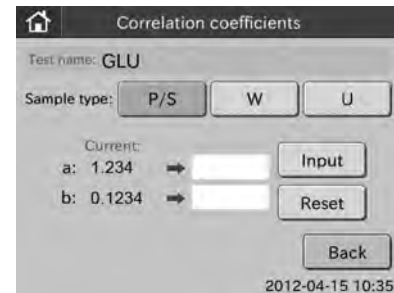


Touch **OK** to reset the selected test name and the correlation coefficients for the selected sample type. Touch **CANCEL** to cancel a reset. The display returns to the correlation coefficients TOP dialogue.

NOTE: To cancel setting, touch **BACK**.

5. Change to another sample type.
 - a. Touch desired sample type.

(Example) GLU



6. Input correlation coefficients (a, b).
 - a. Touch **INPUT**.

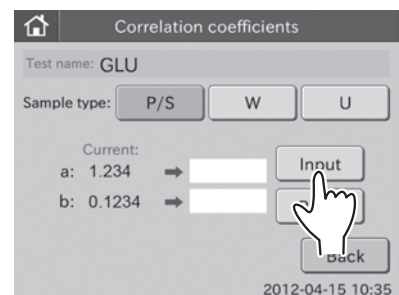
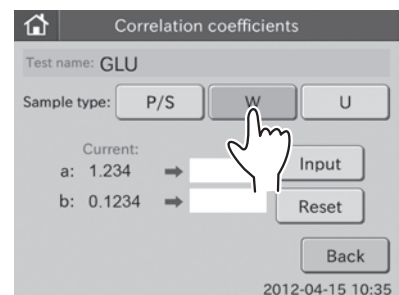
The screen keyboard to input the correlation coefficient (a) appears.

For information about input method of the screen keyboard dialogue, refer to *Section 2.3*.

NOTE: To cancel the input and return to the edit dialogue, touch the **X** button.

- b. Input value in the [a:], and then touch **OK**.

The screen keyboard to input the correlation coefficient (b) appears.



c. Input value in the [b:], and then touch **OK**.

The screen keyboard disappears, and the input correlation coefficients (a, b) are displayed in the edit dialogue.

i **IMPORTANT**


Incorrect inputs for (a, b) will cause incorrect test results. Make sure that the inputs (a, b) are correct using this mode.

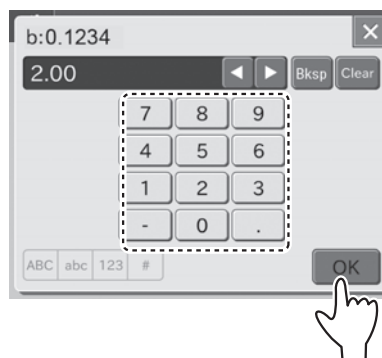
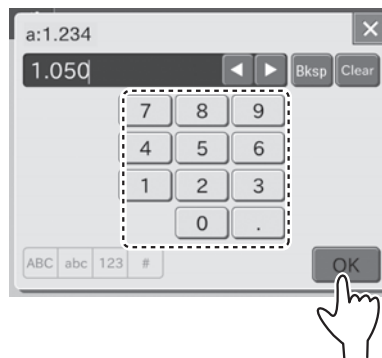
NOTE: If values for (a, b) have already been input, old values will not be canceled as follows. If the old values are represented as (a1, b1), and the new values as (a2, b2), the resulting values for (a, b) will be determined according to the following formulas:

$$a = a1 \times a2$$

$$b = a1 \times b2 + b1$$

For further details, refer to the *Description of the Correlation Function* at the end of this section.

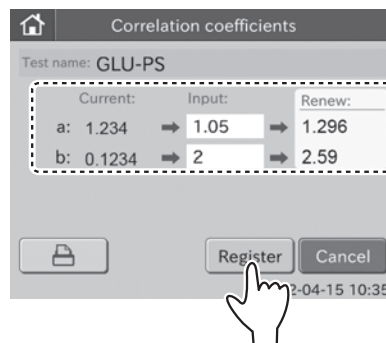
NOTE: When touching , the current values (a, b), input values (a, b) and renew values are all printed out.



7. Touch **REGISTER**.

The input values are registered, and then the display returns to the correlation coefficients TOP dialogue.

NOTE: To cancel setting, touch **CANCEL**.



i **IMPORTANT**

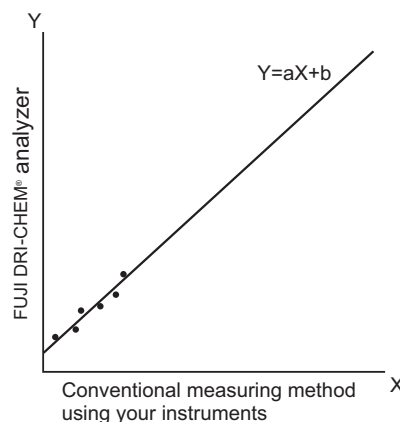
Description of the correlation function

This function is designed to determine the correlation between the measured data obtained using the Element DC and the data obtained using the conventional measuring method with your own instruments.

On the X-axis, the measured data obtained using your instruments are plotted and on the Y-axis, the measured data obtained using the Element DC.

The correlation regression equation in this case is:

$$Y = aX + b$$



Once values for the two coefficients (a, b) are recorded in the analyzer memory, the Element DC performs compensation calculations internally using the formula:

$$X = (Y-b)/a$$

In this way, the Element DC's measured data (Y) are adjusted to match those that would be obtained using your instruments with the conventional method.

NOTE: In order to obtain a better correlation, it is essential to exercise caution regarding the amount of data and the sample.

1. It is able to set separate a and b values for each different sample type.
2. The correlation function is independent of other compensation functions.
3. If values for (a, b) have already been input, old values will not be canceled as follows. If the old values are represented as (a1, b1), and the new values as (a2, b2), the resulting values for (a, b) will be determined according to the following formulas:

$$a = a1 \times a2$$

$$b = a1 \times b2 + b1$$

4. Measurement range after inputting coefficients (a, b).

Depending on the values input for (a, b), the apparent limits of the measurement range will shift as follows.

(Example) GLU measurements

If $a = 1$ and $b = 0$ ($Y = X$), the measurement range is 10–600 mg/dL. But by inputting regression coefficients as shown, the lower limit changes to A and the upper limit to B.

If the regression formula is $Y = 0.98X + 5$:

$$A = 5 \text{ mg/dL}$$

$$B = 607 \text{ mg/dL}$$

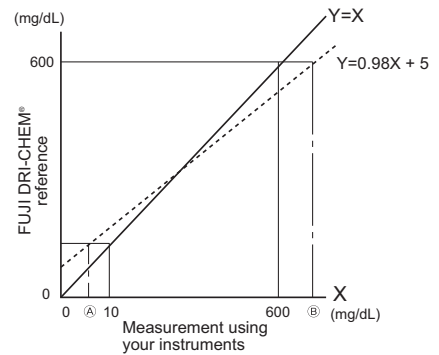
If the regression formula is $Y = 1.1X - 5$:

$$A = 14 \text{ mg/dL}$$

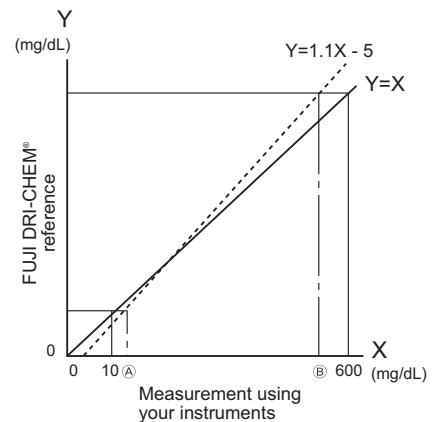
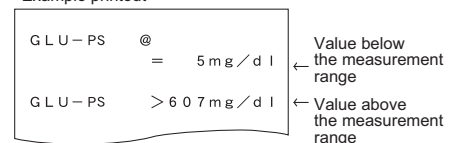
$$B = 550 \text{ mg/dL}$$

If the measured data is below the measurement range, a "@" indication is printed out, as shown at the top of the example printout.

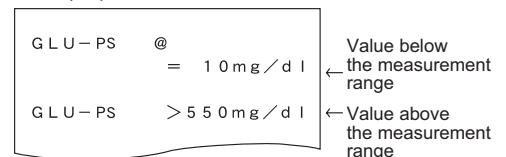
If the measured data is above the measurement range, a greater-than indication ">" is printed out, as shown in the example printout.



Example printout



Example printout



i IMPORTANT

Measured values with a “@” mark may NOT be accurate. Rerun the tests.

6.10.2 Lot Compensation Coefficients

This mode is used to input the values (c, d, e) printed on the QC cards included with slides. This mode is needed if it is not possible to read in the data directly from a QC card that was lost or damaged.

i IMPORTANT

Incorrect inputs for (c, d, e) will cause incorrect test results.

Make sure that the inputs for (c, d, e) are correct using this mode.

i IMPORTANT

In this mode, it is possible to input values for (c, d, e) only for the slide lots which Slide Type Number’s standard curve information has already been memorized in the analyzer. It is necessary to read in the QC card for the slide lots which have a new Slide Type Number.

NOTE: The Slide Type Number is the most significant digit of a lot No.

(Example) The Slide Type Number of “Lot No. 123456” is 1.

1. Touch **COEFFICIENTS/TEST SETTINGS** in the ADMINISTRATOR MODE FUNCTION menu dialogue.

The COEFFICIENTS/TEST SETTINGS menu dialogue is displayed.

NOTE: For information about how to display the ADMINISTRATOR MODE FUNCTION menu dialogue, refer to *Section 6.1.2*.

2. Touch **LOT COMPENSATION COEFFICIENTS** in the menu dialogue.

A list of selection buttons is displayed.

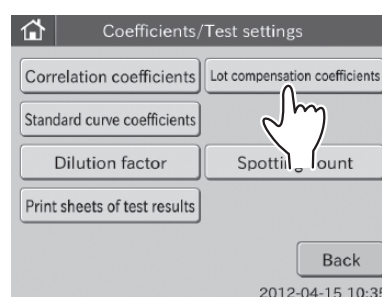
By touching ◀ or ▶, you can see all “Test Name-Sample Type” buttons.

NOTE: All of the test names and sample types that QC card reading is completed are displayed as “Test Name-Sample Type” buttons.

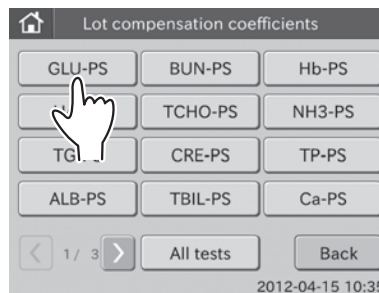
NOTE: ISE test names (test codes 90 to 99) are displayed without sample type.

NOTE: When touching **ALL TESTS**, the lot information dialogue is displayed. Refer to *Section 6.7.3* for information about lot information dialogue.

NOTE: To cancel setting, touch **BACK**.




3. Select **TEST NAME-SAMPLE TYPE** to be edited.



After selecting the button, the dialogue shown at the left is displayed.

By touching ◀ or ▶, you can see all lot No.s for the selected "Test Name-Sample Type".

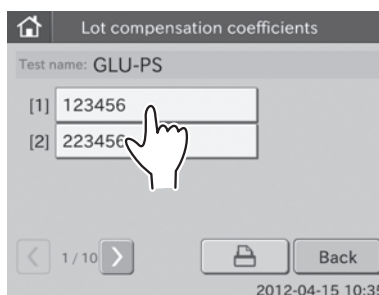
NOTE: When touching , the lot compensation coefficients for each lot No. of the selected "Test Name-Sample Type" are printed out.

NOTE: To cancel setting, touch **BACK**.

4. Touch the lot No. that you want to input the lot compensation coefficients.

The edit dialogue is displayed.

NOTE: To cancel setting, touch **BACK**.

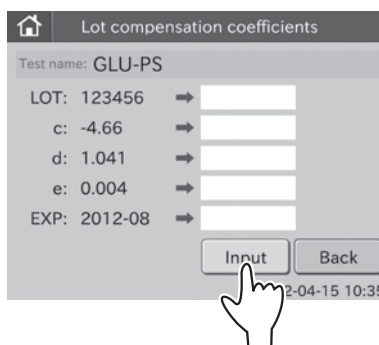


5. Touch **INPUT**.

The screen keyboard to input lot No. appears.

For information about input method of the screen keyboard dialogue, refer to *Section 2.3*.

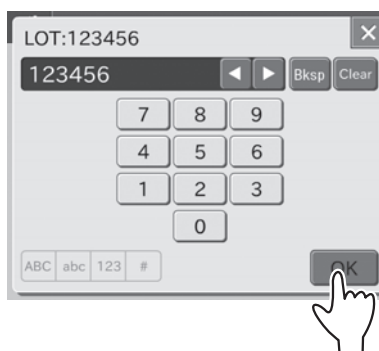
NOTE: To cancel inputting and return to the edit dialogue, touch **X**.



6. Input the lot No., and then touch **OK**.

The screen keyboard to input the lot compensation coefficient (c) appears.

NOTE: The most significant digit (the Slide Type Number) is fixed. Input the new Lot No. from the second digit.



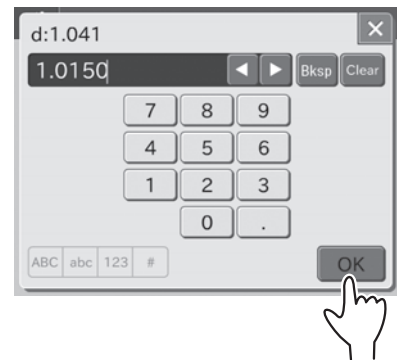
7. Input value in the [c:], and then touch **OK**.

The screen keyboard to input the lot compensation coefficient (d) appears.



8. Input value in the [d:], and then touch **OK**.

The screen keyboard to input the lot compensation coefficient (e) appears.



9. Input value in the [e:], and then touch **OK**.

The screen keyboard to input the expiration appears.




10. Input the expiration, and then touch **OK**.

The screen keyboard disappears. Then, the edit dialogue is displayed.

i **IMPORTANT**

Incorrect inputs for (Lot, c, d, e, EXP) will cause incorrect test results.

Make sure that the inputs (Lot, c, d, e, EXP) are correct using this mode.

NOTE: When touching , the values for the before/after editing are printed out.



11. Touch **REGISTER**.

The input values are registered, and then the display returns to the lot No. list dialogue.

NOTE: To cancel setting, touch **CANCEL**.

6.10.3 Dilution Factor

This mode is used to set dilution factors for each test and for each sample type (P/S or W).

When performing tests without setting a dilution factor in the Dilution field of the test preparation dialogue, the analyzer performs tests according to the preset dilution factors in this mode.

1. Touch **COEFFICIENTS/TEST SETTINGS** in the ADMINISTRATOR MODE FUNCTION menu dialogue.

The COEFFICIENTS/TEST SETTINGS menu dialogue is displayed.

NOTE: For information about how to display the ADMINISTRATOR MODE FUNCTION menu dialogue, refer to Section 6.1.2.

2. Touch **DILUTION FACTOR** in the menu dialogue.

The dialogue to set dilution factors is displayed.

By touching touch ◀ or ▶, you can see all tests presently recorded.

NOTE: Test name, sample type and dilution factor are displayed.

NOTE: Test names are displayed in ascending order of test code. Sample types are displayed in order of: [P/S] and [W].

NOTE: When touching , all dilution factors that are presently input are printed out.

NOTE: To cancel setting, touch **BACK**.

3. Touch **DATA INPUT**.

The test name selection dialogue is displayed.

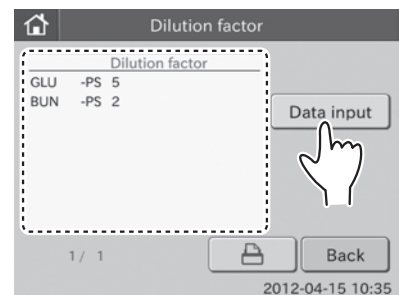
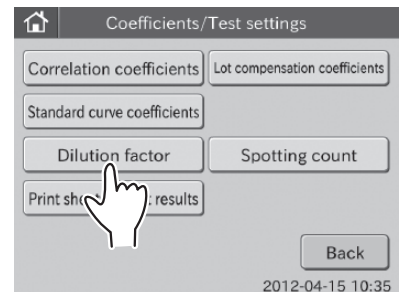
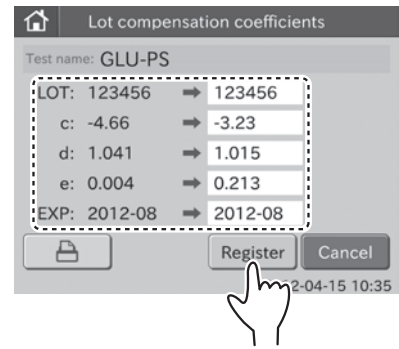
By touching ◀ or ▶, you can see all test names.

NOTE: All tests presently recorded in the analyzer are displayed.

NOTE: To cancel setting, touch **BACK**.

4. Touch the test name button to be edited.

The data input dialogue is displayed.



(Example) GLU

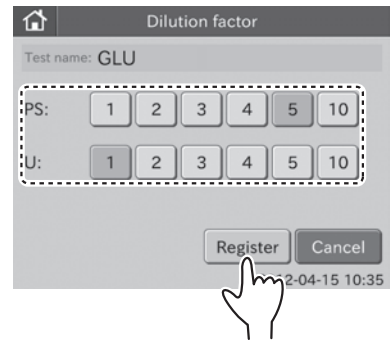


5. Select the desired dilution factors for the [PS:], and then touch **REGISTER**.

Dilution factor settings are registered, and the display returns to the dilution factor dialogue.

NOTE: A dilution factor of 1 means no dilution. A dilution factor of 2 is a 1:1 dilution, etc.

NOTE: To cancel setting, touch **CANCEL**.



6.10.4 Spotting Count

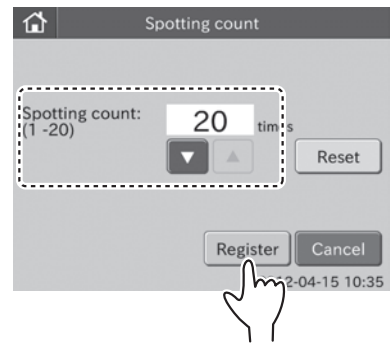
The number of tests per one sample in automatic sampling can be changed within the range of 1 to 20.

When the spotting count is reset, the number is set for 20. The default setting of the spotting count is "RESET".

1. Touch **COEFFICIENTS/TEST SETTINGS** in the ADMINISTRATOR MODE FUNCTION menu dialogue.

The coefficients/test settings menu dialogue is displayed.

NOTE: For information about how to display the ADMINISTRATOR MODE FUNCTION menu dialogue, refer to *Section 6.1.2*.



2. Touch **SPOTTING COUNT** in the menu dialogue.

The dialogue to set spotting count is displayed.

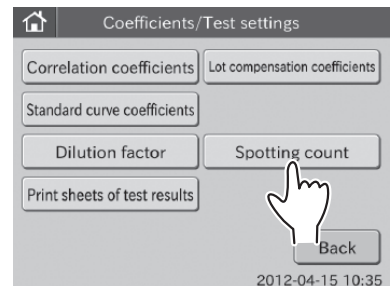
NOTE: When touching **RESET**, the count becomes "20".

NOTE: To cancel setting, touch **CANCEL**.

3. Specify the spotting count using ◀ or ▶, and then touch **REGISTER**.

The specified count is registered, and then the display returns to the COEFFICIENTS/TEST SETTINGS menu dialogue.

NOTE: To cancel setting, touch **CANCEL**.



6.10.5 Print Sheets of Test Results

This mode is used to set a number of test result print sheets (selectable 1, 2, or 3).

1. Touch **COEFFICIENTS/TEST SETTINGS** in the ADMINISTRATOR MODE FUNCTION menu dialogue.

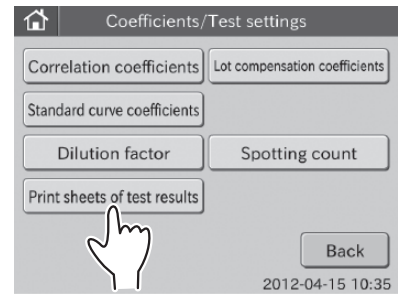
The coefficients/test settings menu dialogue is displayed.

NOTE: For information about how to display the administrator MODE FUNCTION menu dialogue, refer to *Section 6.1.2*.

2. Touch **PRINT SHEETS OF TEST RESULTS** in the menu dialogue.

The dialogue to set a number of test result print sheets is displayed.

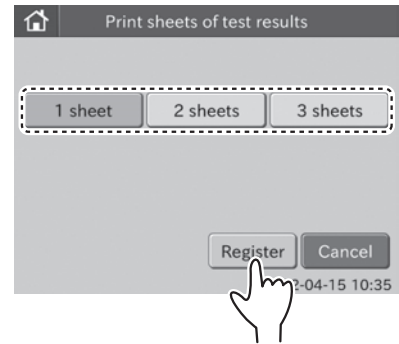
NOTE: To cancel setting, touch **CANCEL**.



3. Select the desired number of sheets, and then touch **REGISTER**.

The setting is registered, and then the display returns to the **COEFFICIENTS/TEST SETTINGS** menu dialogue.

NOTE: To cancel setting, touch **CANCEL**.



7.1 Data Communication

The Element DC Veterinary Chemistry Analyzer can transmit test results to the host computer or PC which has already been approved by IEC/UL60950-1.

Do not connect the Element DC Veterinary Chemistry Analyzer to a host computer or PC which has not been approved by IEC/UL60950-1.

To communicate, it is necessary to prepare the software and a cable to receive data. When using this function for the first time, please contact your technical support for assistance.

8.1 Specifications and Standard Accessories

8.1.1 Specifications

Throughput:	128 tests per hour (simultaneous CM and ISE tests)
Number of incubator cells:	CM 12, ISE 1
Incubation temperature:	98.6°F (37°C) (CM) 86°F (30°C) (ISE)
Incubation time:	1 to 6 minutes
Number of slides that can be loaded at a time:	20
Sampler:	
Pipetting fluid volume:	Below 50µL (automatic switching)
Dilution:	Automatic dilution (dilution factor: max. 10)
Slide ejection:	Automatic ejection (max. 100 slides into the disposal box)
Used tip ejection:	Automatic ejection (into the disposal box)
Measurement wavelengths:	400 nm, 415 nm, 505 nm, 540 nm, 577 nm, 600 nm, 625 nm, 650 nm
Light source:	Halogen lamp (6 V, 10 W)
Measurement precision:	0.0004 OD/5 minutes
Measurement accuracy:	± 0.005 OD (600 nm)
Display:	5.7 inch color touch panel
Warming up time:	Approx. 10 minutes/77°F (25°C), approx. 20 minutes/59°F (15°C)
Environmental conditions:	
Location:	Indoor use
Illumination:	Below 6,000 cd/m ² (lux) (Below 3,000 cd/m ² (lux) when using the sample barcode reader)
Altitude:	Up to 6,560 ft. (2,000 m)
Transient overvoltage category:	II
Pollution degree:	2
Operating temperature:	59 to 89°F (15 to 32°C)
Operating humidity:	30 to 80% RH (no vapor condensation)
Storage and transportation conditions:	
Temperature:	14 to 122°F (-10 to 50°C)
Humidity:	10 to 90% RH (no vapor condensation)
Electrical requirements:	
Voltage limit:	100–240 V
Frequency:	50–60 Hz
Supply voltage fluctuations:	± 10%
Rated current:	2.5–1.1 A
Phase:	Single
Type of protection against electrical shock:	CLASS 1 EQUIPMENT
Sound level:	Under 70 dB (includes beep sound)
Data transfer:	RS232C interface (1 port), LAN (1 port), USB interface (1 port, bar code reader only)
External dimensions:	18.5 (W) x 14.2 (D) x 16.5 (H) in. (470 (W) x 360 (D) x 420 (H) mm)
Weight:	53 lb. (24 kg)

8.1.2 Standard Accessories

Slide cartridges	2
Slide weights	2
Light source lamp	1
O-ring	2
Sample rack assembly kit	1 set
Sampler leak check tools	2
DRI-CHEM AUTO TIPS	1 case
DRI-CHEM TUBE 0.5 (0.5mL type)	1 pack
DRI-CHEM MIXING CUPS S	1 box
Tip label	1
Instruction manual	1
Installation quick guide	1
Power cable	1

NOTE: Do not change AC power cable to inappropriate one.

NOTE: Specifications and capabilities are subject to change without notice.

8.2 Consumables and Optional Accessories

For purchasing consumables or optional accessories listed below, please contact the dealer from whom you purchased the Element DC.

8.2.1 Consumables

Accessories Package

*DRI-CHEM AUTO TIPS 96 tips/box, 6 boxes/case

Sample Tubes

HEPARIN TUBE 1.5 (1.5 mL containing heparin Li) 500 tubes per box

HEPARIN TUBE 0.5 (0.5 mL containing heparin Li) 500 tubes per box

PLAIN TUBE 1.5 (1.5 mL plain) 500 tubes per box

PLAIN TUBE 0.5 (0.5 mL plain) 500 tubes per box

*Light source lamp 1

*O-ring 1

*DRI-CHEM MIXING CUPS 100 cups per box

Chemicals

DRI-CHEM CONTROL QN

DRI-CHEM REFERENCE FLUID RE

Types of packages or containers for consumables are subject to change without notice.

8.2.2 Optional Accessories

Name	Package
Sample barcode reader	1
*Sample rack assembly kit	1 set
*Slide cartridge	1
*Slide weight	1



CAUTION

The sample barcode reader specified for the Element DC can be used. Do not connect a sample barcode reader other than one specified for the Element DC. Otherwise, damage or danger of fire may result.

NOTE: Parts names marked with " * " are the same parts packed with the Element DC.

NOTE: Specifications and capabilities are subject to change without notice.

Glossary of the Display and Printout Messages

Because the display spaces and printouts are limited, some abbreviations are used.

Periods will not be used after abbreviations on the display and printout messages.

Abbreviation	Meaning
A/D	Analog/Digital
aft	after
avg	average
BCC	Block Check Character
BCR	Barcode Reader
BPS	Bits Per Second
cal	calibration
calib	calibration
CM	colorimetric
coeff	coefficient
com	communication
ctrl	control
dil	dilution
ERR	error
exp	expiration
horiz	horizontal
incu	incubator
info	information
KB	keyboard
NG	No Good
NSS	Normal Saline Solution
OD	Optical Density
para	parameter
PM	potentiometric
pos	position
prog	program
prs	pressure
RBP	Reference Black Plate
ref	reference
RTC	Real Time Clock
RWP	Reference White Plate
seq	sequence
spd	speed
spl	sample
std	standard
suc	suck
temp	temperature
vert	vertical
VRC	Vertical Redundancy Check



For further assistance, please call Heska's Technical Support Services at 800.464.3752, option 3.
