Operation Unit

SPOTCHEM D-00

SD-9810 | Operating Manual

arkray,inc.

1 Premise

Thank you for purchasing our operation unit, the SPOTCHEM D-00 SD-9810.

This manual contains important information on the functions of the SPOTCHEM D-00 SD-9810.

This manual is issued by ARKRAY, Inc.
Read carefully prior to starting up the unit.
It is recommended to retain this operating manual for future use.

The SPOTCHEM D-00 (SD-9810) control unit is intended for the operation of SD-3810, SD-4810 and SD-4820, which are intended for the quantitative and automated measurement of several physiological markers in whole blood, serum, and plasma. This control unit is intended for use with SPOTCHEM D reagent strips/plates/packs. Sample types vary depending on reagent. For information about the analyte, the function and the target disease/condition as well as the intended use population, please refer to the reagent instructions for use. For *in vitro* diagnostic use and professional use only.

This product conforms to the EMC Standard IEC61326-2-6:2012(EN61326-2-6:2013).
Class of emission: CISPR 11 Class A
This instrument is an IVD medical instrument.

CE

This product conforms to Regulation (EU) 2017/746.

NOTE: This instrument 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 instrument is operated in a commercial environment. This instrument generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the operating manual, may cause harmful interference to radio communications. Operation of this instrument in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

The electromagnetic environment should be evaluated prior to operation of the device. Do not use this device in close proximity to sources of strong electromagnetic radiation, as these may interfere with the proper operation.

2 Introduction

Read this operating manual thoroughly before using the instrument. This operating manual gives an outline of the instrument and the proper procedures for operation and maintenance.
Follow the instructions in this operating manual in order not to defeat the purpose of protective features of the instrument.

If you have had or could have had any serious incident related to the device, please report it directly to the manufacturer or through the authorised representative and to your local regulatory authority.

If you want to obtain information included in this operating manual in a language other than English, contact your distributor.

- **BE CAREFUL WHEN HANDLING BLOOD.**
  This system (SPOTCHEM D-Concept) uses blood as sample. Blood may be contaminated by pathogenic microbes that can cause infectious diseases. Improper handling of blood may cause infection to the user or other individuals by pathogenic microbes.
- **This system is to be operated by qualified persons only. A qualified person is one having adequate knowledge of clinical testing and the disposal of infectious waste. Thoroughly read this operating manual before use.**
- **Discard used instruments in accordance with local regulations for biohazardous waste.**

NOTE:
- This instrument is precision equipment. Be careful when handling it and do not subject it to strong shocks or vibration.
- Do not place a collection cup or any other vessel containing a sample or other liquid on the unit. The sample or other liquid can get inside the instrument and damage it.

3 Symbols

The following symbols are used in this operating manual and labels on this instrument to call your attention to specific items.
For the meaning of symbols indicated on the labels (including the shipping box) not described below, refer to the leaflet included in the package.

■ For your safety

Follow the instructions given here to prevent exposure to pathogenic microbes.

Follow the instructions given here to prevent injury and property damage.

■ For optimal performance

IMPORTANT: Follow the instructions given here to obtain accurate measurement results.

NOTE: Information useful for preventing damage to the instrument or parts and other important information you should keep in mind.

REFERENCE: Additional explanations that help you make the best use of the instrument and information on related functions.

4 About the Operating Manuals

The following operating manuals are provided with each SPOTCHEM D-Concept instrument.
Read the operating manuals for each measurement unit after first reading the “SPOTCHEM D-00 Operating Manual”.

● SPOTCHEM D-00 (operation unit) Operating Manual (this manual)

First read this manual.

The SPOTCHEM D-00 is an operation unit that can be connected to a measurement unit or existing model for operating and making settings of the connected unit(s). This operating manual describes the necessary operations for and how to make the various settings for taking measurements.

● SPOTCHEM D-01 (measurement unit) Operating Manual

The SPOTCHEM D-01 is a measurement unit that uses the SPOTCHEM D reagent pack to take various measurements. This operating manual describes the method of measurements and maintenance.

● SPOTCHEM D-02 (measurement unit) Operating Manual

The SPOTCHEM D-02 is a measurement unit that uses the SPOTCHEM D single reagent, multiple reagent and electrolyte plate to take various measurements. This operating manual describes the method of measurements and maintenance.

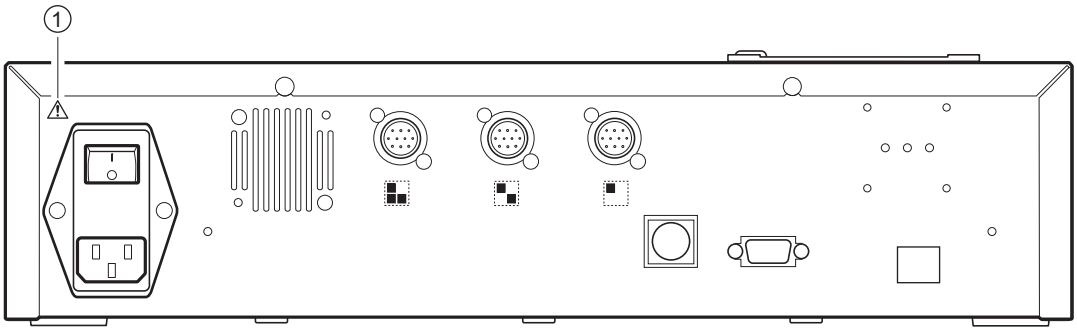
● SPOTCHEM D-03 (measurement unit) Operating Manual

The SPOTCHEM D-03 is a measurement unit that uses the SPOTCHEM D single reagent and multiple reagent to take various measurements. This operating manual describes the method of measurements and maintenance.

5 Caution Labels

This instrument has several caution labels on the areas that have potential dangers. Please learn potential dangers warned by each label and observe the precautions described below.

■ Rear side



① Power input terminal

This is the power cord connector. Use the included power cord to prevent electrical shock and fires. Do not use any other electrical cords. When the power does not turn on, the fuse could be blown. Please contact your local distributor.

Table of Contents

Chapter 1 Before Use

This chapter describes what should be known before using this instrument.

SPOTCHEM D-Concept

1-1 Overview

1-1-1 Features

● Simple operation

All operation and control of the connected measurement unit can be performed from the instrument's operator panel (excluding existing models).

● Unit designing

This unit (operation unit) and measurement units are provided as separate units, thereby enabling you to combine the required measurement units for an optimal system configuration.

● Barcodes available for control

The optional handheld barcode reader can be connected to the instrument. This reads the sample barcode and assigns the read barcode as an ID.

● Large color LCD

The instrument employs a large, easy-to-view color LCD screen that makes the settings required for measurement and the settings in the menu screen easy to understand and operate. When the printer's printing paper runs out, a lot card reading error occurs etc., a description of the problem and the measures to be taken are displayed in a message to allow countermeasures to be taken smoothly.

● Can be connected to existing models

This instrument can connect to SPOTCHEM D-Concept Series measurement units as well as other existing units made by ARKRAY to check and print the measurement results.

● Space-saving

This instrument can connect to up to 3 measurement units stacked on top of each other. This allows the functions of 3 units to be used in the footprint for 1 unit and provides more efficient use of space.

● Data management using connected external devices

Measurement results can be effectively utilized by using the optional data management software and external devices.

1-1-2 Specifications

SPOTCHEM D-00 (SD-9810)

Item	Specifications
Configuration	Instrument, accessories
Number of connected devices	Up to 3
Existing models that can be connected	SPOTCHEM EZ SP-4430, SPOTCHEM IM SI-3510, SI-3511, SPOTCHEM EL SE-1520
Startup time	Approximately 1 minute
Display	Large, 320 × 240-dot color LCD
Printer	58-mm-wide printing paper printer
Data storage capacity	Measurement results: 100 measurements for each connected device (Maximum 300 measurements) Trouble list: 50 records for each connected device including the SPOTCHEM D-00 (Maximum 200 records)
External output	RS-232C (EIA-574) 1 port Ethernet (10 BASE-T ethernet) 1 port (option) *Cannot be used simultaneously
Communication speed	RS-232C: 2400, 4800, 9600, 19200, 38400 bps
Barcode reader	Handheld barcode reader (option)
Operating environment	Temperature: 10 to 30°C Humidity: 20 to 80% RH (no condensation)
Storage environment	Temperature: 1 to 30°C Humidity: 20 to 80% RH (no condensation)
Environment during transport	Temperature: -10 to 60°C Humidity: 20 to 80% RH (no condensation) (The environmental humidity level also should not exceed the absolute humidity corresponding to 40°C/85% RH.)
Dimensions	408 (W) × 330 (D) × 103 (H) mm
Weight	Approximately 5 kg
Supply voltage (Instrument)	AC 100 - 240 V (Main power supply voltage variation must be within ±10%), 50/60 Hz
Sound pressure level	80 dB
Power input	300 VA or less
Location of use	Indoor use only
Altitude	2,000 m
Pollution degree	2
Over voltage category	II
Expected life	5 years (according to company data)*1

*1: The manufacturing date is included in the serial number as shown below.

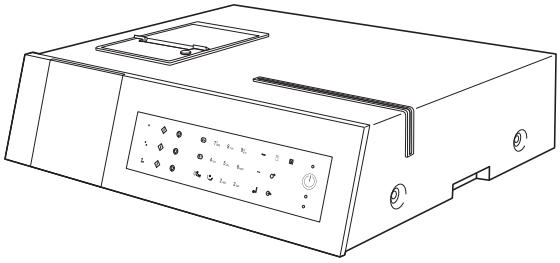
- 2nd and 3rd digits of the serial number: The last 2 digits of the manufacturing year
- 4th and 5th digits of the serial number: The manufacturing month

1-2 Unpacking

The following items are included with this instrument. Check that all of these items are included. If any items are missing or defective, please contact your distributor.

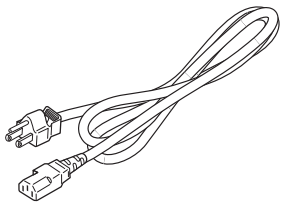
> **NOTE:**
> For reagents and consumables used for measurement, refer to the manual of each measurement unit.

1-2-1 Instrument

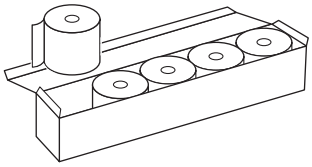


Items included	Description	Quantity
Instrument	SPOTCHEM D-00	1

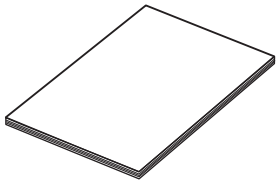
1-2-2 Accessories



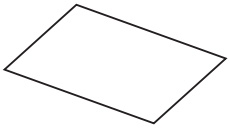
① Power cord



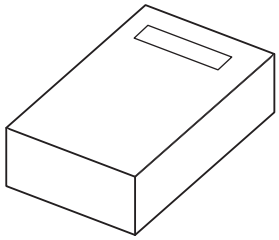
② Printing paper



③ Operating manual



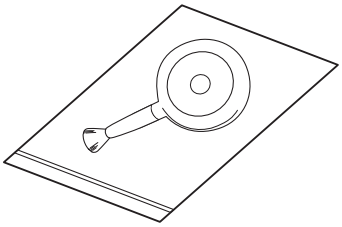
④ List of errors/troubles



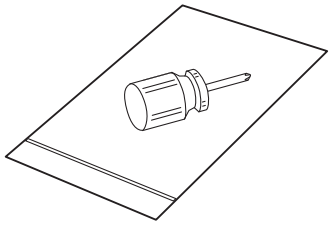
⑤ Accessories packing box

Item No.	Items included	Description	Quantity
①	Power cord	Rating: 250V 10A	1
②	Printing paper	58-mm-wide × 25-m-long roll, 5 rolls/box	1
③	Operating manual		1
④	List of errors/troubles		1
⑤	Accessories packing box		1

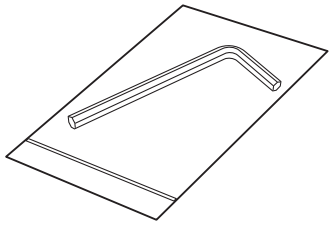
1-2-3 Accessories Packing Box



① Blower brush



② Philips screwdriver



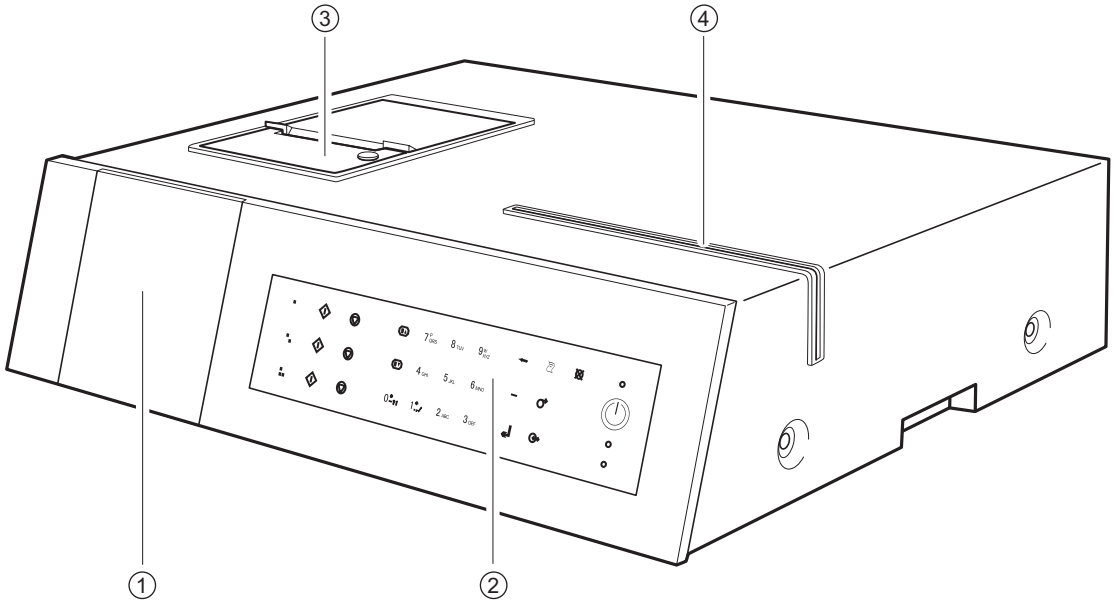
③ Hexagonal wrench

Item No.	Name	Description	Quantity
①	Blower brush	Used for the measurement unit maintenance.	1
②	Philips screwdriver	Used for the measurement unit maintenance.	1
③	Hexagonal wrench	Used for the measurement unit installation.	1

This blower brush contains natural rubber latex which may cause allergic reactions. If you feel unwell, immediately stop using the product and consult a doctor.

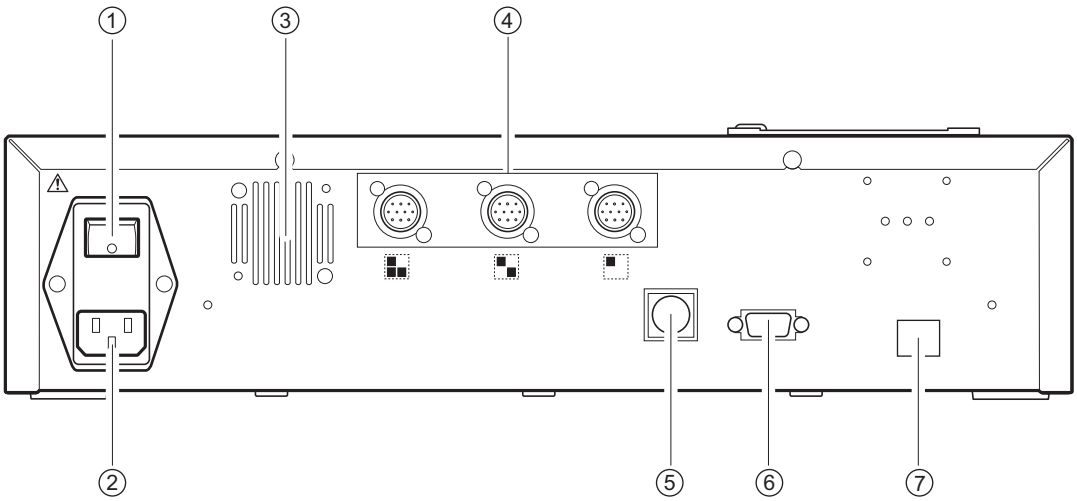
1-3 Part Names and Functions

1-3-1 Front Side of Instrument



Item No.	Name	Function
①	Display	Displays instrument operation status, measurement results, errors etc.
②	Operator panel	Contains the buttons for operating the instrument, such as for measurement start and numerical entry. For details, see “1-4 Operator Panel” (page 1-9).
③	Printer	This is a thermal printer. Prints the measurement results and parameter setting descriptions.
④	Magnetic card reader	Used to read lot cards containing the reagent data etc.

1-3-2 Rear Side of Instrument



Item No.	Name	Function
①	Main switch	Turns on/off the main power. During normal use, turn the power on (| side) and during the specified maintenance or when not using the instrument for a long time, turn the power off (◯ side).
②	Power input terminal	Connects the power cord.
③	Cooling fan	Expels warm air from inside the unit to prevent overheating.
④	Measurement unit connecting terminals	Connect the various SPOTCHEM D-Concept measurement units (or existing equipment).
⑤	Handheld barcode connecting terminal	Connects the handheld barcode reader (options). For details, see “When connecting the handheld barcode reader” (page 1-8).
⑥	External device connecting terminal 1 (RS-232C)	RS-232C interface for external device connection. For details, see “When connecting external devices” (page 1-8).
⑦	External device connecting terminal 2 (Ethernet)	An ethernet board can be connected to this terminal to allow LAN connection. For details, see “When connecting external devices” (page 1-8).

■ When connecting external devices

NOTE: Use the communication cable specified by ARKRAY when connecting the instrument to external devices. For details, please contact your local distributor.

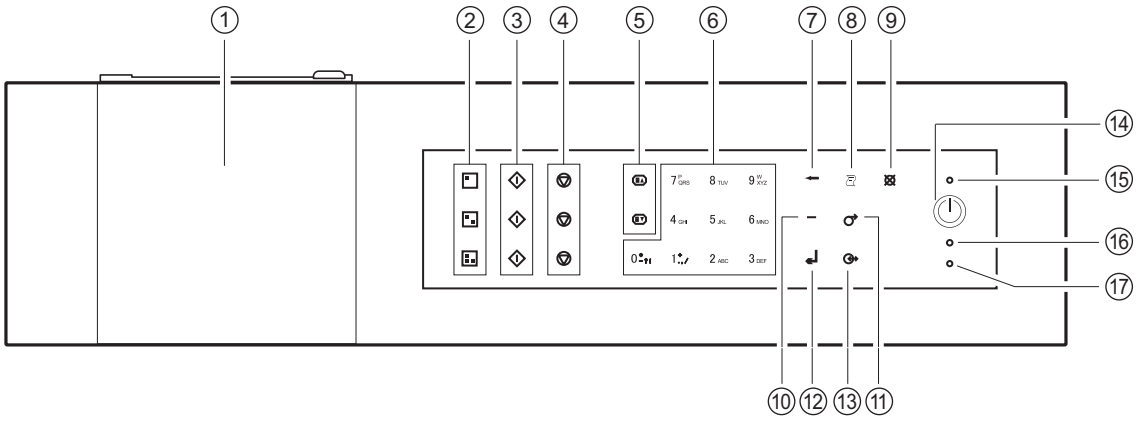
■ When connecting the handheld barcode reader

A handheld barcode reader (option) can be connected to the instrument in order to read the printed barcode for automatic input of sample IDs.

NOTE: Use the handheld barcode reader specified by ARKRAY. For details, please contact your local distributor.

1-4 Operator Panel

All SPOTCHEM D-Concept measurements are performed from the instrument's operator panel. This section explains the names and functions of the buttons on the operator panel.



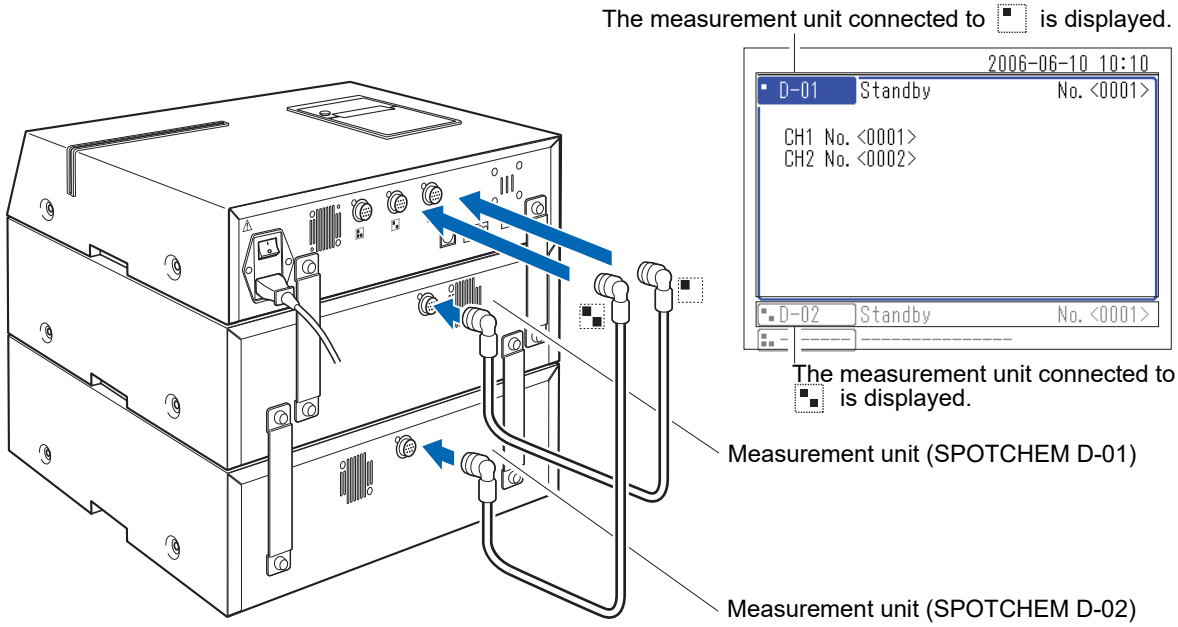
Item No.	Symbol	Function
①	(None)	Shows the instrument status and setting information. For details, see "2-1 Screens" (page 2-2).
②		Press one of these buttons to select a measurement unit (or existing model).
③		Press this button to start measurement.
④		Press this button to cancel measurement.
⑤		Use these buttons to turn the pages of measurement result, search results etc.
⑥	0 ~ 9	• Use these buttons to numerical values. • Use these buttons to specify a menu number during menu operation. • Alphabetic characters can be entered when entering sample ID etc. • Press [0] in the status indication screen to return to the [Main menu] screen.
⑦	←	Press this button to delete the most recent entry.
⑧		Press this button to print the measurement results.
⑨		Press this button to: • cancel the processing being currently conducted; • return to the upper-level menu; • return to the previous screen without saving settings; or • return to the status indication screen from the [Main menu] screen.
⑩	—	Press this button in the numerical value or password entry screen to: • move the cursor to the right when entering character strings; or • move the cursor between input fields when entering date and time. Use this button in the item selection screen to highlight an item.
⑪		Press and hold this button to feed the printing paper.

Item No.	Symbol	Function
⑫		Press this button to confirm the setting information.
⑬		Press this button to transfer the measurement results to the connected external device if any.
⑭		Press this button to turn the power on/off during normal use.
⑮	(None)	Lights up blue when the power is turned on.
⑯	(None)	Flashes orange when communicating with an external device.
⑰	(None)	Flashes red when an error occurs.

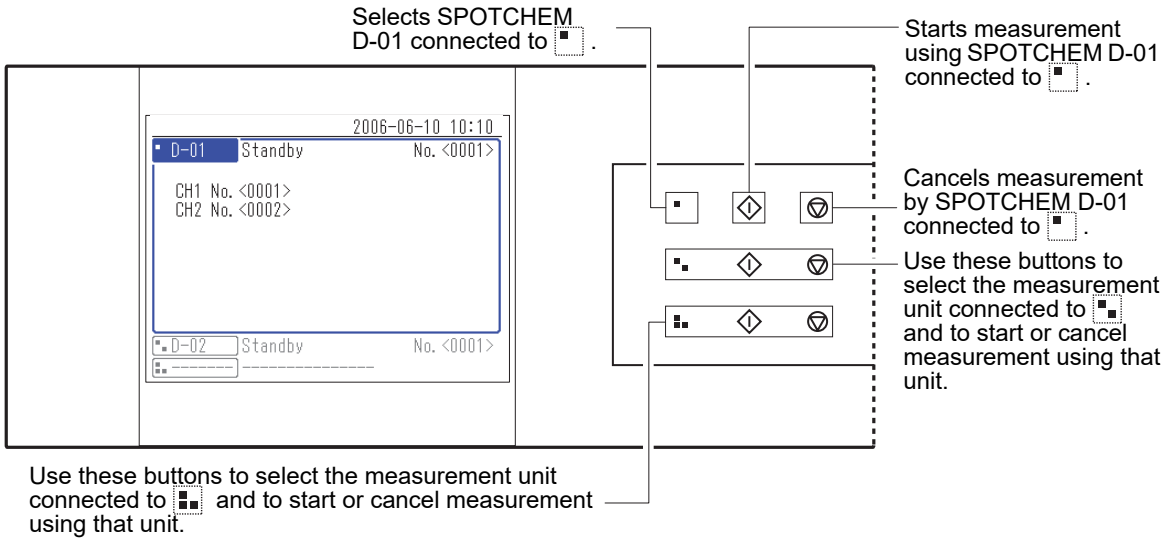
1-5 Measurement Unit Connection and Display

The connecting terminals ( ) on the rear side of this instrument connected to a measurement unit (or existing model) correspond to the buttons on the operator panel. The on-screen position of the measurement unit connected to this instrument is determined by the connected terminals.

The following shows an example of SPOTCHEM D-01 connected to and SPOTCHEM D-02 connected to on this instrument. The relationship between the connected terminals and the on-screen positions of the measurement units is as follows:



To operate a connected measurement unit (or existing model), press the buttons on the operator panel corresponding to that unit.
The following is an example of using the button.



1-6 Installation

1-6-1 Precautions for Installation

Before installing the instrument, read the following items and always take proper safety precautions.

Install the instrument under the supervision of a serviceperson.

- Determine a location for the instrument and assemble it in that location.
  Do not move the instrument with the measurement unit or external device connected. Separate the measurement unit and external device from the instrument before moving it. For safety reasons, always transport the instrument with both hands holding handles.
- During installation, be careful not to get your hands trapped under the instrument.
- Install the rear side of the instrument at least 20 cm away from walls. Inadequate clearance between the instrument and wall may cause overheating of the instrument or undesirable load on cable connections, thus resulting in fire or incorrect measurement results. You will have trouble trying to turn off the main power switch and disconnect connectors in the event of errors or trouble.
- Install the left side of the instrument (as seen from the front of the instrument) at least 20 cm away from walls. Inadequate clearance between the instrument and walls may prevent maintenance work.
- Use the fixing brackets on measurement unit to fix the instrument to the measurement units. Failure to do so may cause the instrument to fall due to strong external forces or vibrations resulting in damage to the instrument and personal injury.
- When disconnecting a measurement unit from the instrument for maintenance or other works, always disconnect the fastening brackets first.
- Install the instrument where temperature and humidity can be maintained in the following ranges.
  Temperature: 10 to 30°C
  Humidity: 20 to 80%
  Installation in the measurement environment outside these ranges may result in incorrect measurement results.
- Install the instrument on a level, vibration-free sturdy platform. Operation of the instrument in an unstable place may cause trouble or malfunction of the instrument resulting in personal injury. **Do not** install the instrument where it may fall or topple over.
- **Do not** install the instrument near places that store chemicals, near equipment that generates corrosive gas or electrical noise, or near areas that may affect the temperature or humidity of the instrument, as this may cause malfunction of or damage to the instrument and consequently lead to personal injury, or may otherwise cause incorrect measurement results.
- Install the instrument in a place to avoid direct sunlight, condensation or wind. These factors may cause incorrect measurement results, as well as deformation of or damage to the instrument.
- Supply the power of frequency and voltage (Voltage: AC 100 to 240 V; Frequency: 50/60 Hz). Failure to do so may cause a fire, damage the unit, or result in personal injury.
- Use the power cord that came with the instrument to avoid electric shock and fire.
- The instrument should desirably be connected to an independent power outlet. In addition, the power input for the instrument is a maximum of 300 VA.
- Always connect the instrument to a receptacle with ground terminal in order to prevent electrical shock. If the receptacle available at the installation site does not have ground terminal, please contact your distributor.
- The main power voltage variation must be within ±10% of the nominal voltage.
- Standard transient overvoltage exists in the main power.
- **Do not** disassemble the instrument unless required for installation. **Do not** modify the instrument. Disassembly and modification of the instrument may result in exposure to pathogenic microbes or cause fire or damage to the instrument and consequently lead to personal injury.
- If you need to disassemble the instrument after use, wear protective gloves to prevent exposure to pathogenic microbes.

1-6-2 Precautions for Moving the Instrument

When moving the instrument, read the following items and always take proper safety precautions.

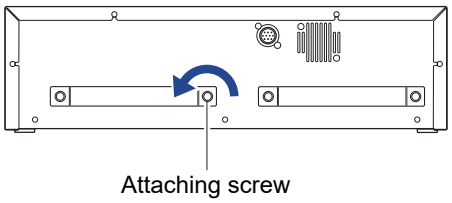
- Be sure that the operation unit is not connected to the instrument.
- Hold the handles with both hands and be careful not to apply any shock or vibration to the instrument while moving it. Failing to do so may damage the instrument.
- To transport the instrument, pack it in the same conditions as when it is delivered.

1-6-3 Fixing the Instrument

Before conducting the work, see “1-5 Measurement Unit Connection and Display” (page 1-11) and “1-6-1 Precautions for Installation” (page 1-12).

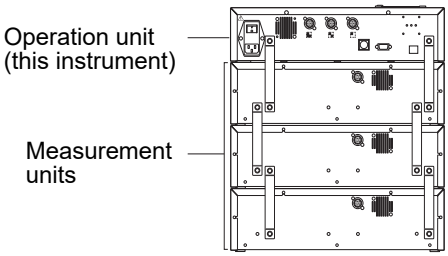
Use the fastening brackets attached to the measurement unit to fasten down the units.

① Use your hands to remove the attaching screws of the fastening brackets attached to the measurement unit.



② Attach the fastening brackets as shown in the figure to fasten down the units (operation unit or measurement units).

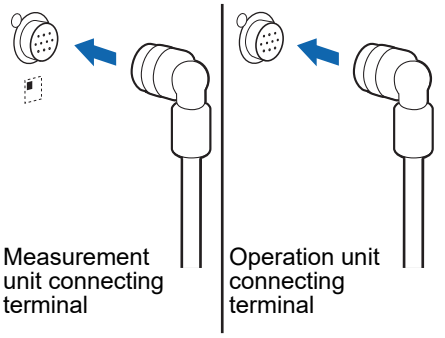
The fastening bracket installation positions depend on the number of measurement units to be connected. Refer to the figure for correct installation.



1-6-4 Connecting the Instrument

① Ensure that the main switch of the instrument is in the OFF position.

② Use the connecting cable to connect the measurement unit connecting terminal on this instrument to the operation unit connecting terminal on the measurement unit.



NOTE: Always connect the measurement unit to the operation unit. A measurement unit is mistakenly connected to another measurement unit will not operate.

REFERENCE: When connecting a measurement unit to the instrument, the connecting cable can be connected to any of the measurement unit connecting terminals .

Chapter 2 Basic Operation

This chapter describes the basic operations of the instrument.

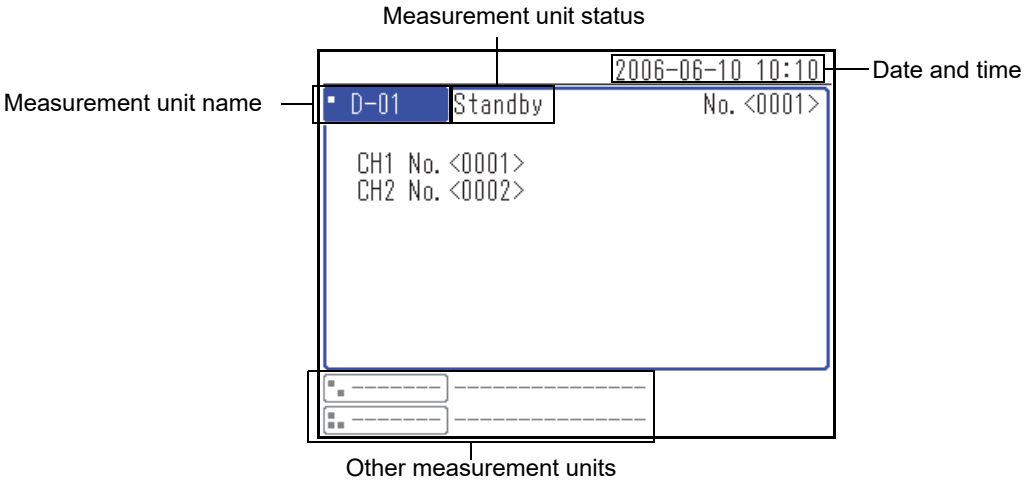
SPOTCHEM D-Concept

2-1 Screens

This section explains the major types of screens displayed by the instrument.

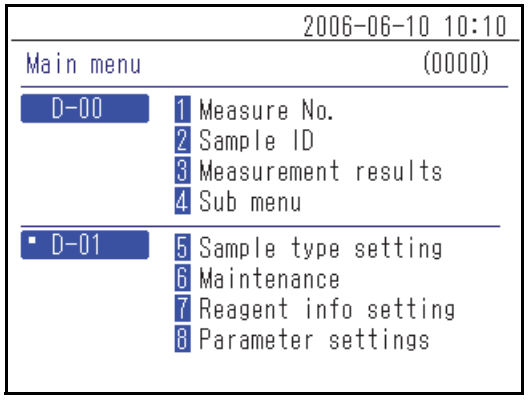
2-1-1 Status Indication Screen

This is the basic screen of the instrument. This screen is displayed after the instrument has been turned on (press the ⏻ button) and startup process is completed. All operations starts from this screen. The system returns to this screen after all non-measurement operations have been completed.



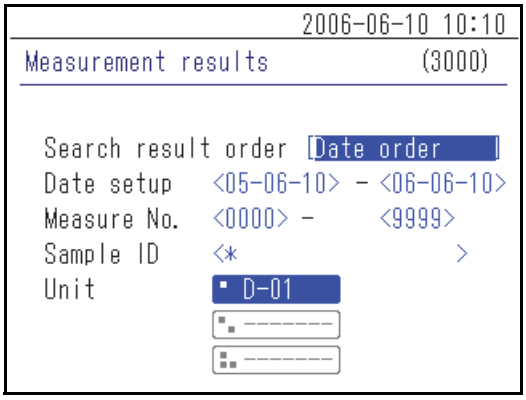
2-1-2 Menu Screen

Press the [0] on the status indication screen to display the Menu screen. This is used to check the settings of the instrument and the measurement units, the measurement results, and other information.



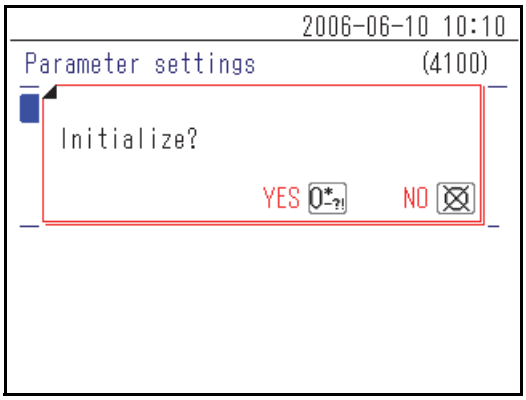
2-1-3 Setting Screen

The setting screen is used to set the parameter selected on the Menu screen.



2-1-4 Message Screen

A message pops up to prompt you to confirm some specific operation or other issues.



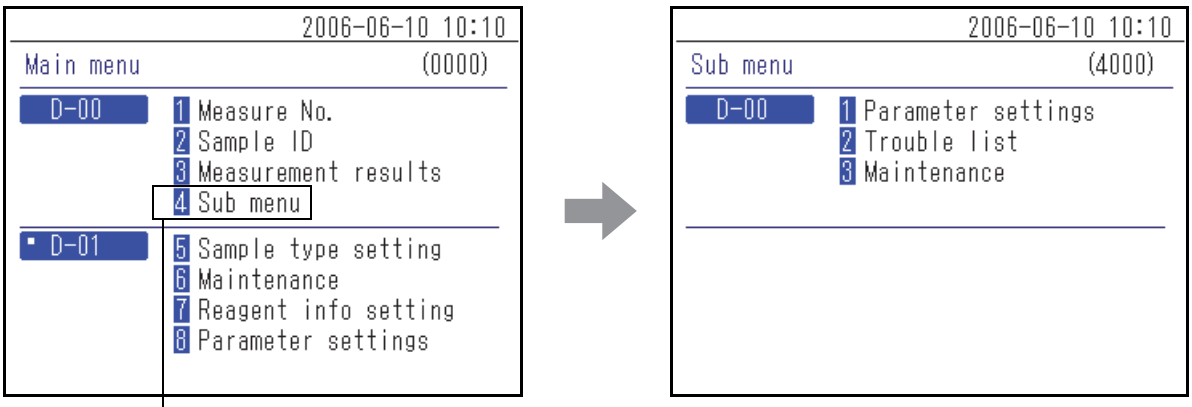
2-2 Menu Screen Operation

All SPOTCHEM D-Concept operations are performed from the instrument's operator panel. The explanation given here uses the [Main menu] screen as an example to explain the basic operation method.

■ Moving menus

● Select menu to display the settings screen

In the [Main menu] screen and [Sub menu] screen, each menu item has a number shown on the left, press the numeric buttons ([1] to [9] buttons) corresponding to the item.

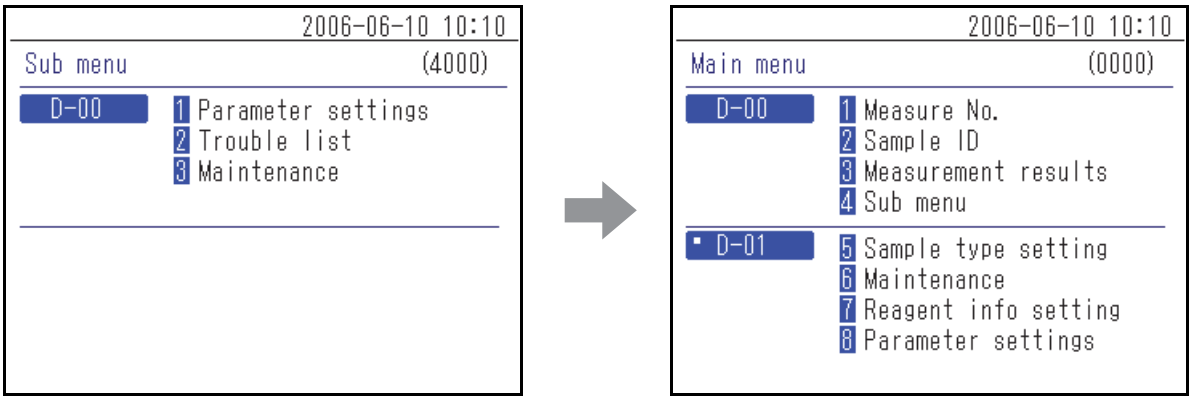


Press the numeric button corresponding to the menu number.

The selected menu or setting screen appears.

● Return to the previous menu screen

Press ⊠ button to return to the previous menu screen.



Press the ⊠ button.

The previous menu screen is displayed.

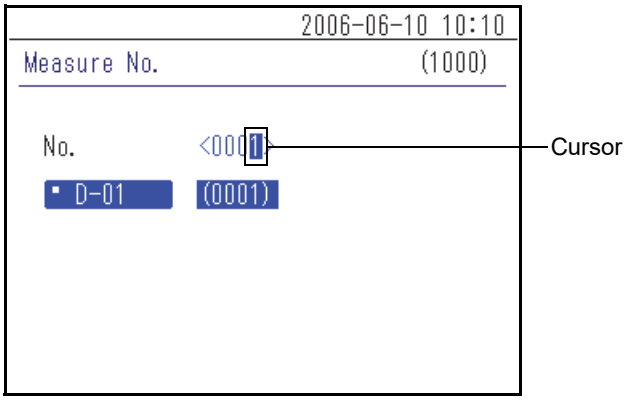
REFERENCE: Press the ⊠ button in the [Main menu] screen to return the display to the status indication screen.

2-3 Setting Screen Operation

2-3-1 Setting Screen Operation

■ Cursor

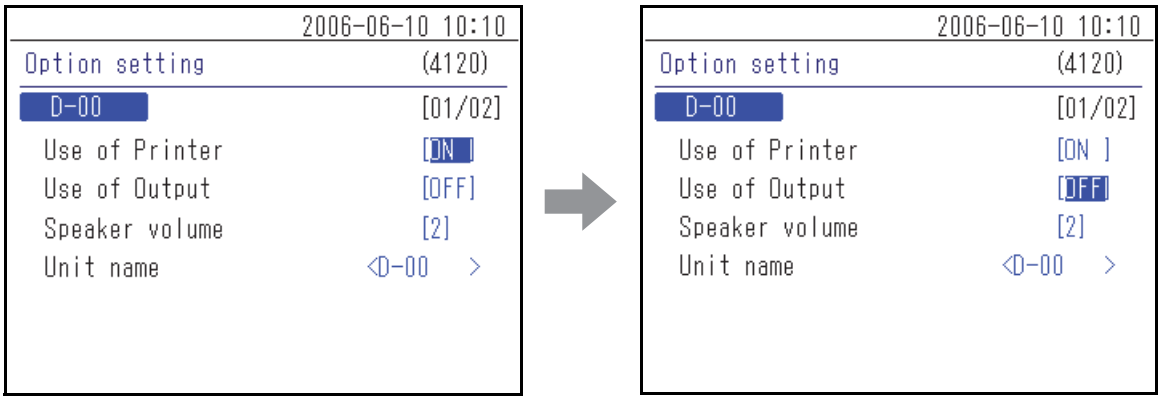
On a setting screen, you may be prompted to select a highlighted item or to enter in the blinking digit or field. There is a cursor on the highlighted item or digit.



■ Setting screen operation

● Select the parameter

When there are multiple parameters in the setting screen, press the ↵ button to move the cursor.



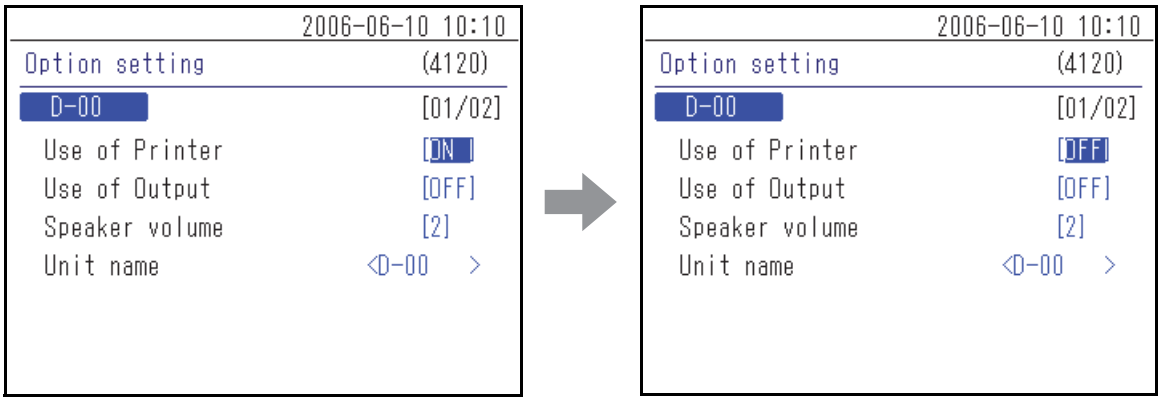
With [Use of Printer] selected, press the ↵ button.

The cursor moves to the next parameter.

REFERENCE:
- When the ⊗ button is pressed, the display returns to the previous screen.
- When the cursor is on the lowermost parameter, press the ↵ button to confirm the settings displayed and return to the previous screen. If there are multiple setting screens, press the ← button to display the next screen.

2-3-2 Changing Set Values

Items enclosed by [ ] can be changed to the names or set values preprogrammed in the instrument. With the cursor positioned at the item, press the [—] button to change the name or value.



Press the [—] button. The set value is changed.

2-3-3 Entering Characters

Use numbers, symbols and alphabetical characters to enter numeric values and character strings in the entry field enclosed by < >. This section explains how to enter characters and symbols.

■ Entering characters

The numeric buttons are also used to enter alphabetical characters and symbols. Repeatedly pressing the numeric buttons will, in the case of [2], change the character in the order “2” → “A” → “B” → “C” → “a” → “b” → “c” → “2”.
The characters that can be entered by the respective buttons are shown below.

[0]	0 → * → - → ? → ! → 0
[1]	1 → + → . → , → / → 1
[2]	2 → A → B → C → a → b → c → 2
[3]	3 → D → E → F → d → e → f → 3
[4]	4 → G → H → I → g → h → i → 4
[5]	5 → J → K → L → j → k → l → 5
[6]	6 → M → N → O → m → n → o → 6
[7]	7 → P → Q → R → S → p → q → r → s → 7
[8]	8 → T → U → V → t → u → v → 8
[9]	9 → W → X → Y → Z → w → x → y → z → 9

■ Moving the cursor

To enter the same character repeatedly, such as “AA”, enter the second character after first moving the cursor.

① Enter the first character.

② Press the [—] button.
The cursor moves to the right.

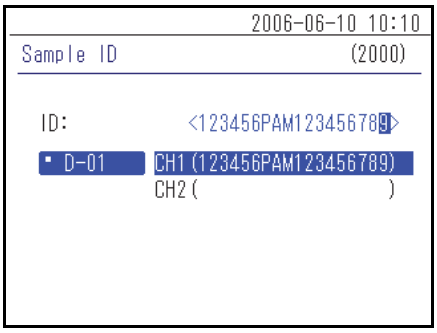
③ Enter the second character.

■ Deleting characters

To delete or modify any incorrect characters, press the ← button to delete them and re-enter correct characters.

① With the cursor on the most recently entered character, press the ← button.

REFERENCE:
- You cannot delete or modify a character in the midst of a character string. To delete or modify such a character, move the cursor leftward deleting every character until reaching that character.
- To delete an entered character string (To delete all the characters between < >), move the cursor to the beginning of the character string and press the [—] button. Press the ↵ button to confirm this.

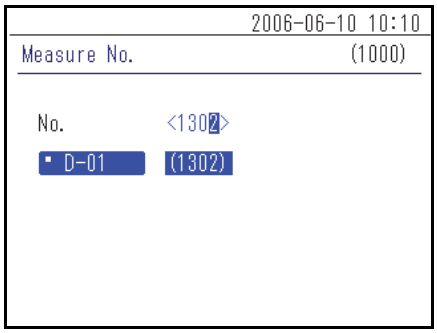


2-3-4 Entering Numbers

This section explains how to enter numbers, such as measurement numbers. In the field to enter only numbers, the cursor blinks at the rightmost digit. Use the numeric buttons ([0] to [9] buttons).

(Ex.) When entering “1302”

① Press the buttons “1” “3” “0” “2” in order.



REFERENCE: To correct entered numbers, press the ← button to delete the number and then enter the new number.

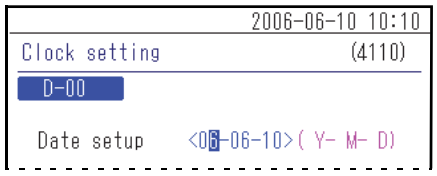
2-3-5 Entering Date

Year	Enter the last 2 digits of the Western year. For years from 2000 to 2009, enter a 0 first to make a 2-digit number such as “01”.
Month	For months from January to September, enter a 0 first to make a 2-digit number such as “01”.
Day	For the days from 1st to 9th, enter a 0 first to make a 2-digit number such as “01”.

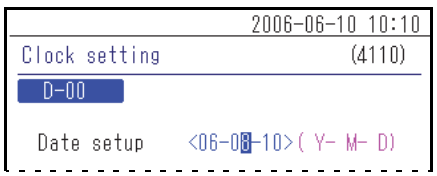
REFERENCE:
- Enter a 2-digit number for the year, month and day of the date.
- To move the cursor between the year, month or day, press the [—] button.

(Ex.) When entering August 23, 2006

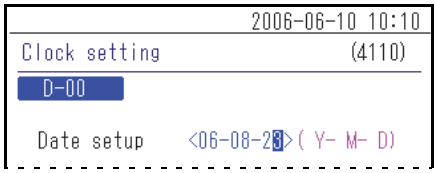
① Enter the year. Enter “0” and “6” and press the [—] button. Move the cursor to the “Month” position.



② Enter the month. Enter “0” and “8” and press the [—] button. Move the cursor to the “Day” position.



③ Enter the day. Enter “2” and “3”.



REFERENCE: To enter two different dates, such as a start date and an end date, press the ↵ button to move the cursor from the first date field to the second field.

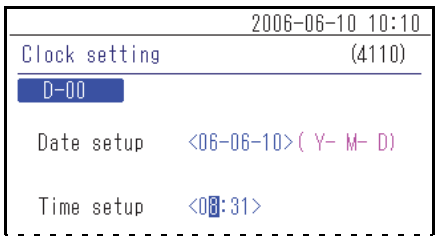
2-3-6 Entering Time

Hour	Enter the value 0 to 23. For hours 0 to 9, enter a 0 first to make a 2-digit number such as “01”.
Minute	For minutes 1 to 9, enter a 0 first to make a 2-digit number such as “01”.

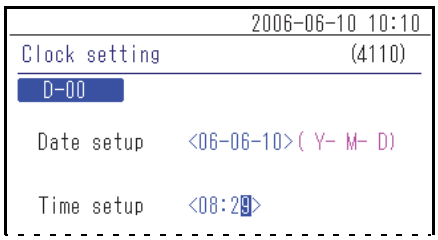
REFERENCE:
- Enter a 2-digit number for the hour and minute of the time.
- To move the cursor between the hour field and the minute field, press the [—] button.

(Ex.) When entering 8:29 am

① Enter the hour. Enter “0” and “8” and press the [—] button. Move the cursor to the “Minute” position.

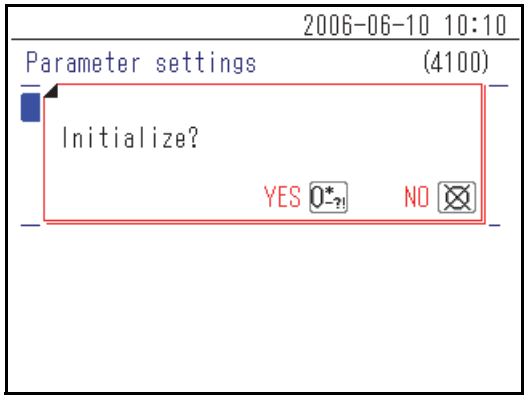


② Enter the minute. Enter “2” and “9”.



2-4 Message Screen Operation

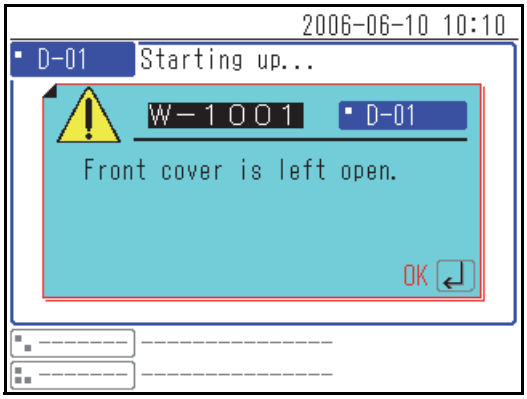
A message prompting confirmation sometimes pops up during measurement or setting operation.



Read the message and press the appropriate button to continue the operation.

2-5 Operation when an Error Occurs

If an error occurs during operation, the following screen will pop up.



Read the message and take the correct measures. For details on operation at the error, see “Chapter 6 Troubleshooting” (page 6-1).

Chapter 3 Connecting Existing Models

This chapter describes connecting existing models to this instrument and gives an overview of operation.

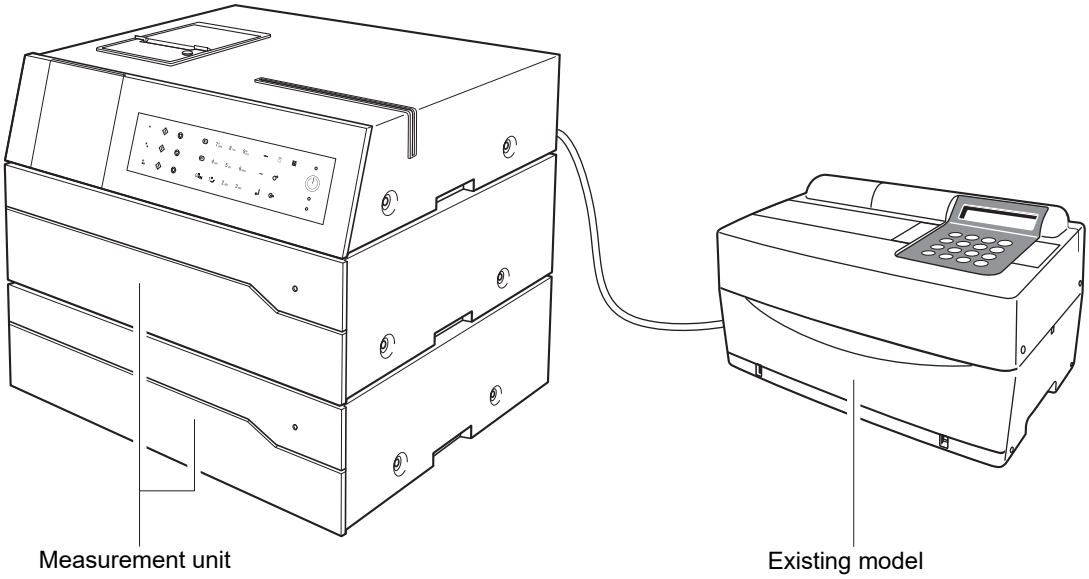
3-1 Existing Models that Can be Connected

This instrument can be connected to up to 3 measurement units or existing models made by ARKRAY. This instrument starts and stops measurement operations by the connected models and displays and prints out their measurement results.

The instrument can be connected to the following existing models:

- SP-4430
- SI-3510 / SI-3511
- SE-1520

For more details about the connection of existing models, see “3-2 Connection” (page 3-3).



REFERENCE:
- If you wish to connect an existing model, please contact your distributor.
- When one or more units are connected, observe the order of starting the devices.

3-2 Connection

3-2-1 Connecting the Instrument

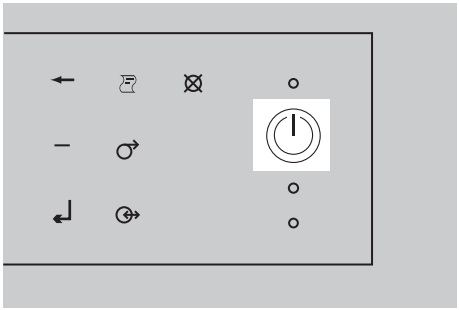
Please have your service person make the connections.

NOTE:
- An existing model connecting adapter (options) is required to connect an existing model.
- A special RS-232C cable is required to connect this adapter to an existing model.

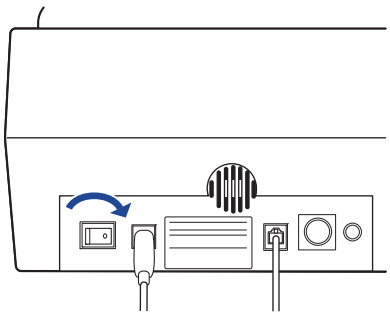
3-2-2 Startup Procedure

NOTE: Use the following procedure to turn on the power when connected to existing models. Starting up in incorrect order may cause trouble.

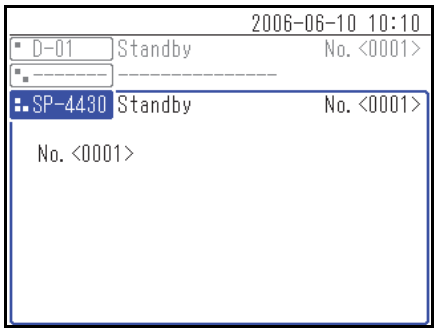
① Turn on the SPOTCHEM D-00.



② After the status indication screen is displayed, turn on the existing model(s).



③ When an existing model starts up, its name appears on the screen.



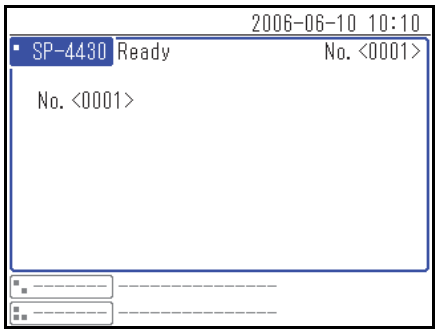
3-3 Operation and Results Check

3-3-1 Measurement Operation

This instrument starts and stops measurement operation of the connected existing model. In this section, explanation is made on the SP-4430 as the sample.

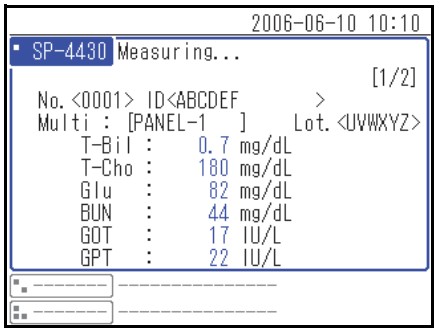
① Check that the existing model is in standby and press the ◇| button.

② Load the reagent, sample, and tip on the existing model and press the ◇| button.



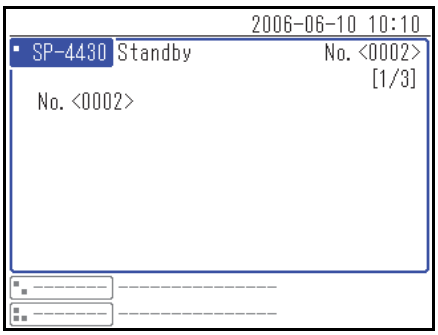
NOTE: Use the reagent, cuvette (sample container) and tip specified for the existing model. For details, see the operating manual for the model.

③ The existing model performs the measurement and the SPOTCHEM D-00 displays the results on the screen.



REFERENCE: For details regarding the measurement results display screen, see “3-3-2 Display of Results” (page 3-5).

④ Press the ▽ button. The existing model returns to the standby mode.

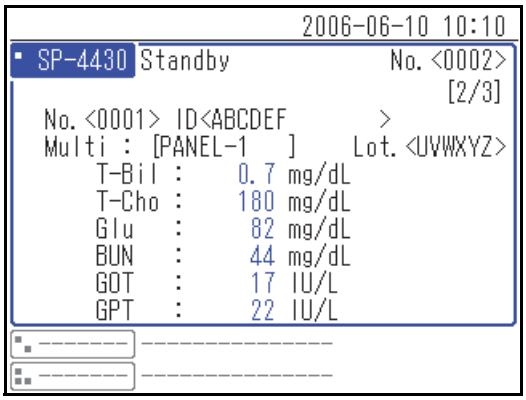


REFERENCE: The buttons corresponding to the operator panel ◇| and ▽ buttons differ depending on the terminals (▪ ▪ ▪) to which the existing model is connected. For details, see “1-5 Measurement Unit Connection and Display” (page 1-11).

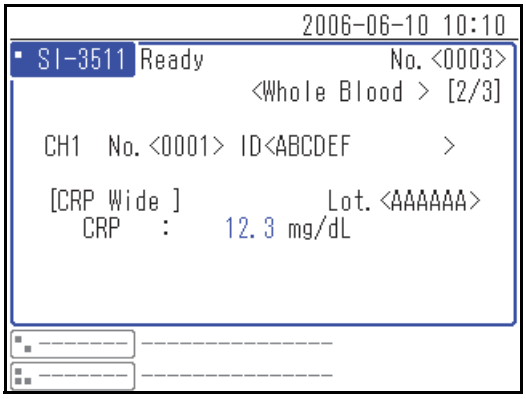
3-3-2 Display of Results

The measurement results of existing models connected to this instrument are displayed as shown below. When there are multiple pages, press the ≡▲ or ≡▼ button to go to another page.

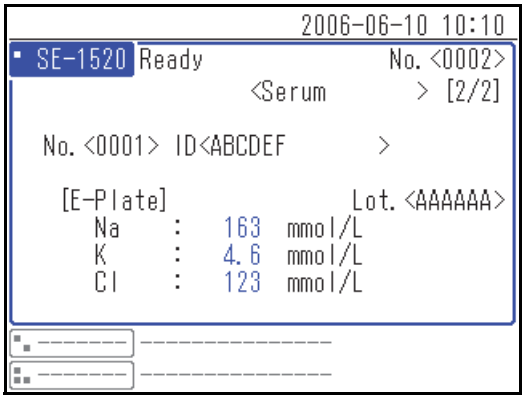
■ SP-4430



■ SI-3510 / SI-3511



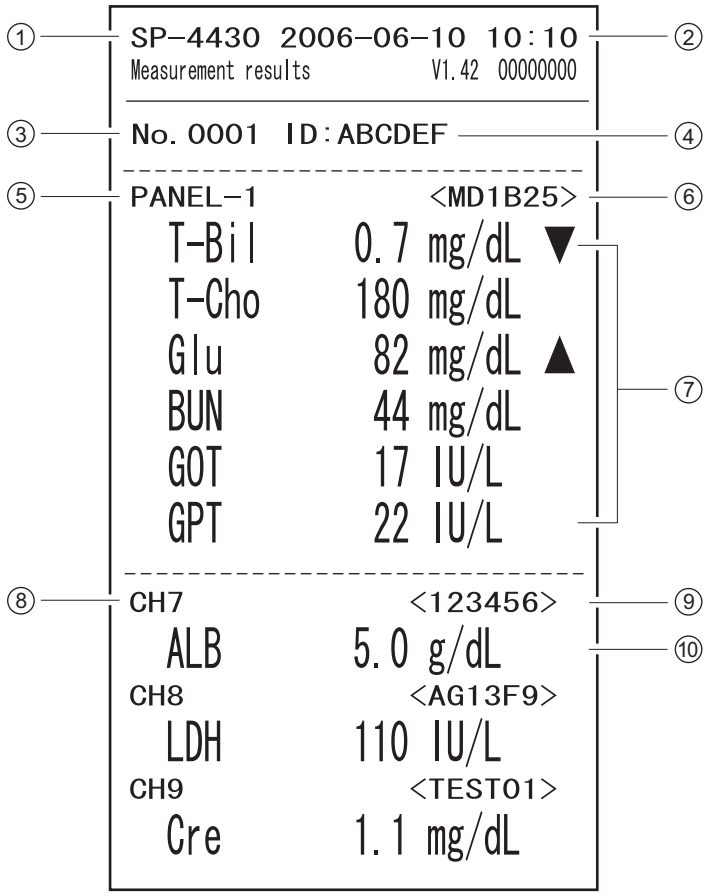
■ SE-1520



3-3-3 Printing of Results

You can print out and check the measurement results. This section explains how to read the printed measurement results.

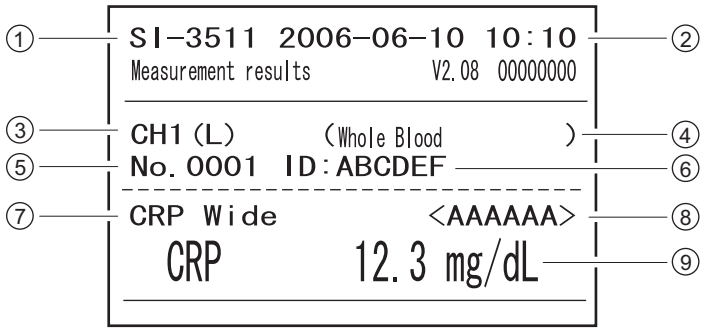
■ SP-4430



No.	Item	Description
①	Unit name	
②	Measurement date and time	
③	Measurement number	
④	Sample ID	Printing is available only when the ID is entered.
⑤	Multiple reagent name	Printed only when this reagent is used.
⑥	Multiple reagent lot number	Printed only when this reagent is used.

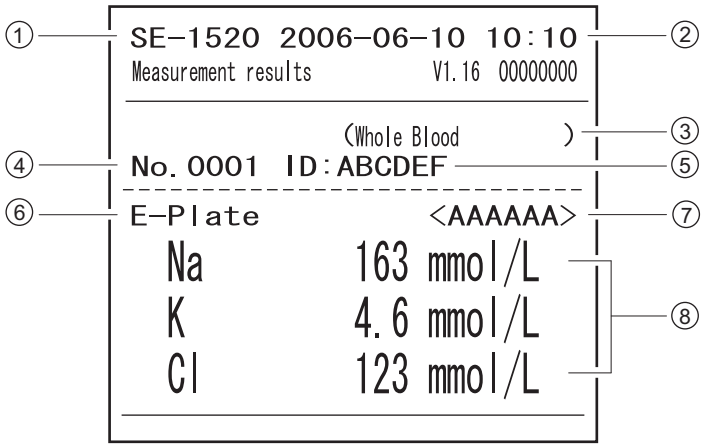
No.	Item	Description
⑦	Multiple reagent item name and measurement result	Printed only when this reagent is used. The following are printed depending on the measurement value. ▲ : The value is higher than the normal range ▼ : The value is lower than the normal range OVER: The value is higher than the measurable range UNDER: The value is lower than the measurable range The upper or lower limit of the measurement range is printed after "OVER" or "UNDER". ???: Application failure ------: Measurement is impossible
⑧	Single CH number	Printed only when this reagent is used.
⑨	Single reagent lot number	Printed only when this reagent is used.
⑩	Single reagent item name and measurement result	Printed only when this reagent is used. The following are printed depending on the measurement value. ▲ : The value is higher than the normal range ▼ : The value is lower than the normal range OVER: The value is higher than the measurable range UNDER: The value is lower than the measurable range The upper or lower limit of the measurement range is printed after "OVER" or "UNDER". ???: Application failure ------: Measurement is impossible

■ SI-3510 / SI-3511



No.	Item	Description
①	Unit name	
②	Measurement date and time	
③	CH number	
④	Sample type	
⑤	Measurement number	
⑥	Sample ID	Printed only when this reagent is used.
⑦	Reagent name	
⑧	Reagent lot number	
⑨	Item name and measurement result	The following are printed depending on the measurement value. ▲ : The value is higher than the normal range ▼ : The value is lower than the normal range OVER: The value is higher than the measurable range UNDER: The value is lower than the measurable range The upper or lower limit of the measurement range is printed after "OVER" or "UNDER". ------: Measurement is impossible

■ SE-1520



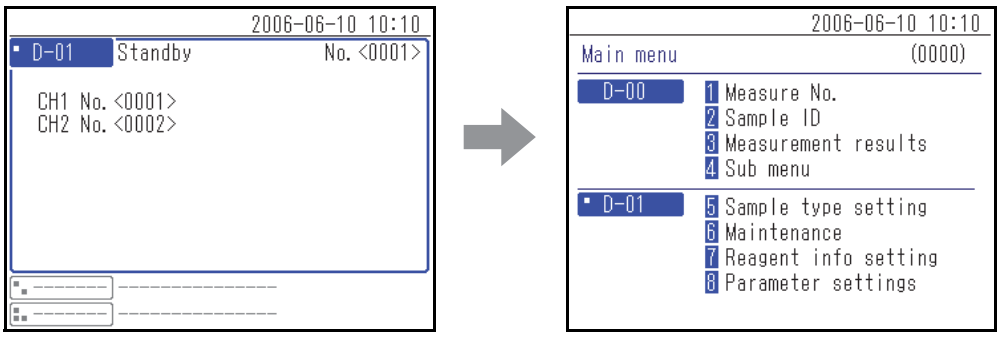
No.	Item	Description
①	Unit name	
②	Measurement date and time	
③	Sample type	
④	Measurement number	
⑤	Sample ID	Printed only when this reagent is used.
⑥	Electrolyte plate reagent name	
⑦	Electrolyte plate lot number	
⑧	Electrolyte plate item name and measurement result	The following are printed depending on the measurement value. ▲ : The value is higher than the normal range ▼ : The value is lower than the normal range OVER: The value is higher than the measurable range UNDER: The value is lower than the measurable range The upper or lower limit of the measurement range is printed after "OVER" or "UNDER". ???: Stability error ***: Liquid junction error ------: Measurement is impossible

Chapter 4 Menu Operations

This chapter describes the items that can be set at the instrument's menu screens and the operation method.

4-1 Menu Screen Overview

On the status indication screen, press [0] to display the [Main menu] screen. Through the menu screen, the instrument's settings and measurement results can be accessed and the operations necessary for maintenance can be performed. This section explains the items that can be set at the instrument's menu screens and the reference pages.



Press [0]. The [Main menu] screen is displayed.

■ Settings available on the menu screen

The items that can be set at the Menu screen are shown below. For details on the setting procedure, see the respective reference pages.

Item		Description	See page
Measurement number		Enter the measurement number, which will be used for the respective measurement units.	4-3
Sample ID		Enter the sample ID, which will be used for the respective measurement units.	4-4
Measurement result		The measurement results can be searched by measurement date, measurement number, or other search criteria and viewed, transferred, printed, or deleted.	4-6
Sub Menu	Adjustments	Sets the instrument built-in clock and other optional items.	4-14
	Trouble list	The trouble list can be searched by date of error or trouble occurrence, unit of occurrence, or other search criteria and viewed, printed, or deleted.	4-19
	Maintenance	Turns on/off the connected measurement unit.	4-26

REFERENCE: Menu number [5] and after are the settings for connected measurement units. For details on the parameter, see the operating manuals of the connected measurement units.

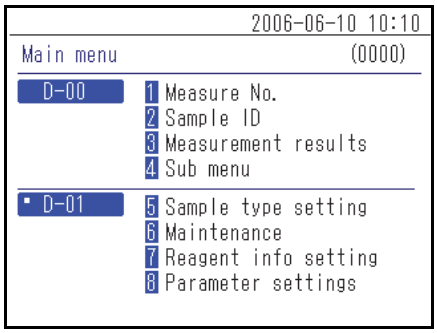
4-2 Entering the Measurement Number

Enter the measurement number that is used for the respective measurement units. The measurement number is input as a 4-digit number.

REFERENCE: For details on entering numeric values, see “2-3-4 Entering Numbers” (page 2-8).

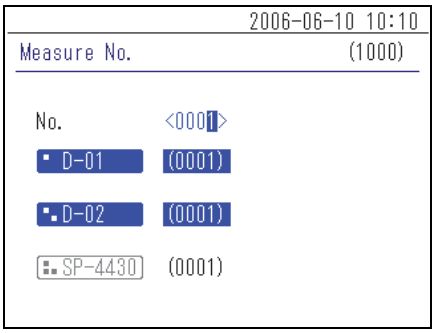
① Press [1] on the [Main menu] screen.

REFERENCE: You can also press [1] on the status indication screen to display the <Measure No.> screen.



② At the <Measure No.> screen, press the ▪ ▪▪ ▪▪ buttons to select the measurement unit to enter the measurement number.

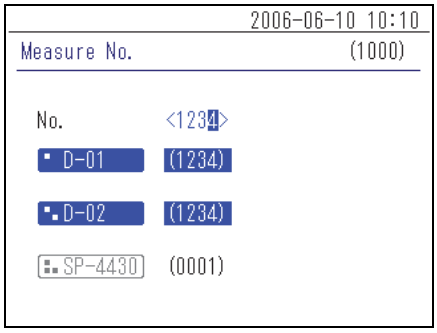
REFERENCE:
- More than one measurement units can be selected.
- Press the ▪ ▪▪ ▪▪ buttons again to cancel the measurement unit selection.



③ Enter the measurement number.

④ Press the ↵ button.

REFERENCE: To cancel the entry, press the ⊠ button.



4-3 Entering the Sample ID

Enter the sample ID that is used for the respective measurement units.

■ Sample ID restrictions

For the sample ID, enter up to 18 alphanumeric characters or symbols.

REFERENCE: For details on entering characters, see “2-3-3 Entering Characters” (page 2-6).

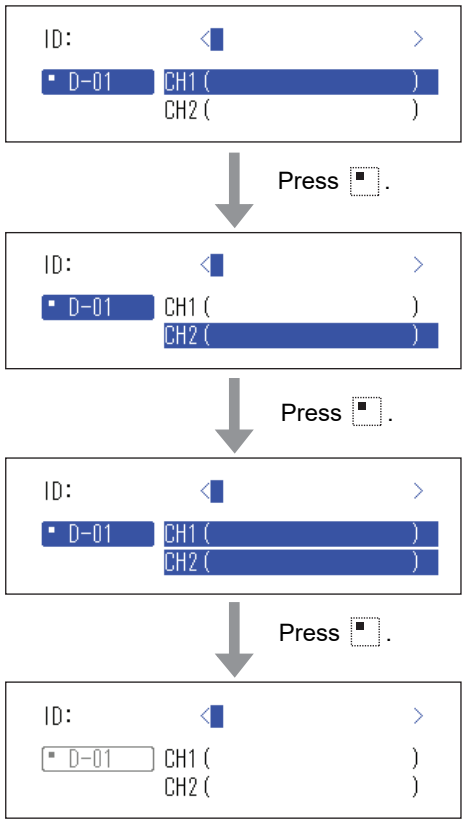
The number of sample IDs that can be entered differs depending on the connected measurement unit.

Ex:

- SPOTCHEM D-01: measures up to 2 samples simultaneously, so accepts entry of 2 sample IDs.
- SPOTCHEM D-02: measures only 1 sample at a time, so accepts entry of 1 sample ID.

■ Entering multiple sample IDs

Depending on the connected measurement unit, the same sample ID can be entered into more than one CH. The following shows an example of SPOTCHEM D-01 connected to ▪.



Enter the CH1 sample ID.

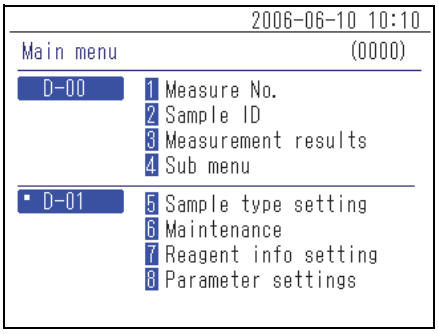
Enter the CH2 sample ID.

Enter the same sample ID in CH1 and CH2.

The sample ID in either CH1 or CH2 cannot be entered.

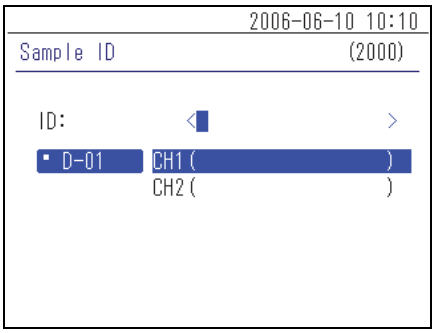
① Press [2] on the [Main menu] screen.

REFERENCE: You can also press [2] on the status indication screen to display the <Sample ID> screen.



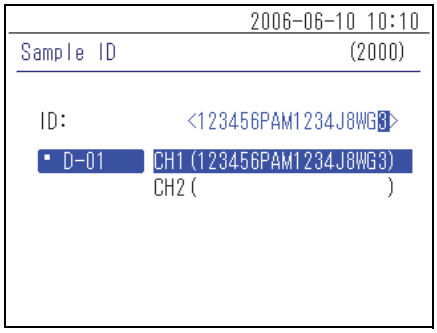
② At the <Sample ID> screen, press the ▪ ▪▪ ▪▪ button(s) to select the measurement unit(s) to enter the Sample ID.

REFERENCE:
- More than one measurement units can be selected.
- Press the ▪ ▪▪ ▪▪ buttons again to cancel the measurement unit selection.



③ Enter the sample ID.

REFERENCE: The handheld barcode reader (option) makes it possible to enter the sample ID by reading the barcode.



④ Press the ↵ button.

REFERENCE: To cancel the entry, press the ⊠ button.

4-4 Measurement Results

The measurement results stored in the instrument memory can be printed or output to an external device when necessary. In addition, the information displayed on the screen can be checked.

4-4-1 Search for Measurement Results

■ Maximum number of measurements to be stored in the memory

Each measurement unit can store up to 100 measurement results.

NOTE:
- When the maximum number of measurements is exceeded, the oldest measurement result is overwritten by a new measurement result. Note that the overwritten measurement results cannot be restored.
- The measurement results of existing models are not stored in the instrument's memory. They are stored in the memory of the existing model.

■ Search criteria and parameters

The measurement results search criteria and parameters are given below.

Item	Description
Measurement results order	Sets the order for the searched measurement results. You can select from the 4 categories of order; [Date], [Measurement number], [Sample ID] and [Unit].
Period of time	Sets the date range. Enter the first date and end date. Make sure that the end date comes after the first date.
Measurement number	Sets the measurement number range.
Sample ID	Enter the sample ID character string that matches the entered contents. Wildcards (*, ?) can be used to set the sample ID conditions.
Unit	Searches for the measurement results of the selected measurement unit.

■ Using wildcards

You can enter wildcard characters for sample ID search.

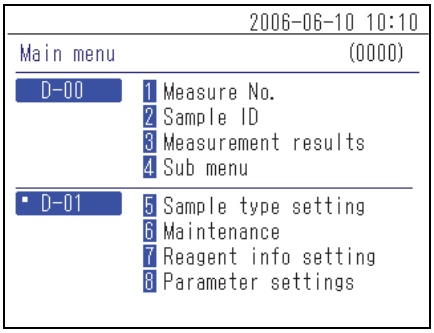
Character Used	Meaning
*	Shows any character string of the 0 or more characters.
?	Shows any 1 character.

These characters can be used to enter the search criteria as in the examples shown below.

Examples of Entry	Meaning
*	Searches all sample IDs.
????M	ID consisting of 5 characters where the last character is M
AB?YZ	ID consisting of 5 characters that begins with “AB” and ends with “YZ”
AB*YZ	ID that begins with “AB” and ends with “YZ”
PQR	ID that includes “PQR”
N???*	ID consisting of 4 or more characters that begins with “N”

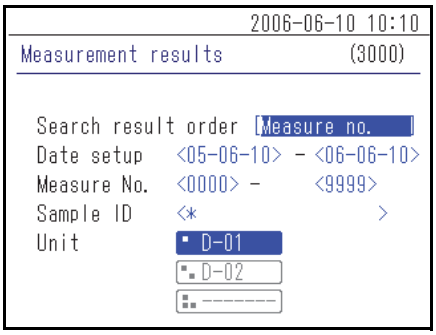
1 Display the <Measurement results> screen

① Press [3] on the [Main menu] screen.

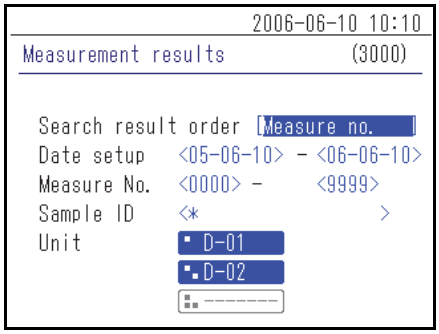


2 Set the search items

① Set the search criteria.

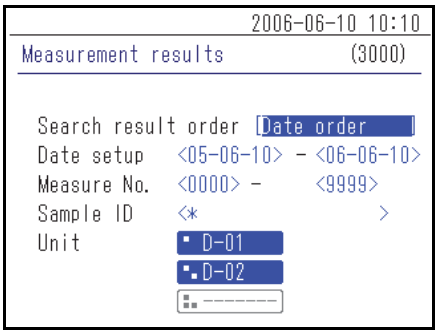


② Press the ▪ ▪ ▪ button(s) of the measurement unit(s) to be searched.

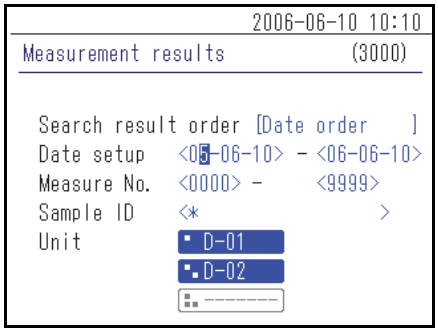


REFERENCE:
- More than one measurement units can be selected.
- Press the ▪ ▪ ▪ buttons again to cancel the selection.

③ Set the search results order. Press the [—] button to select the order and then press the ↵ button.

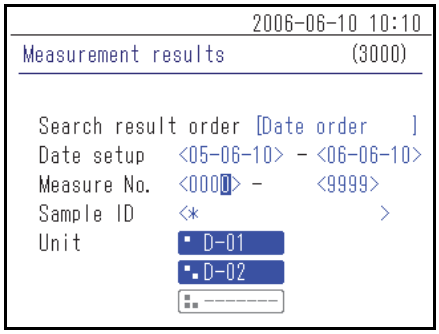


④ Set the period of time. Enter the starting and ending dates, and press the ↵ button.



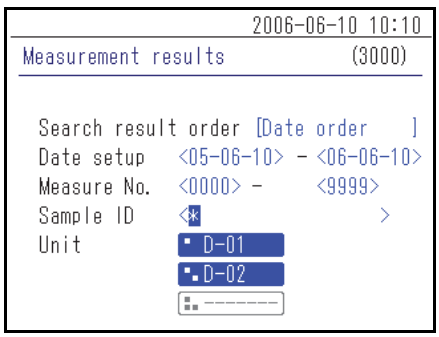
REFERENCE: For details on entering the date, see “2-3-5 Entering Date” (page 2-8).

⑤ Set the measurement number range. Enter the starting and ending numbers, and press the ↵ button.



REFERENCE: For details on entering the numeric values, see “2-3-4 Entering Numbers” (page 2-8).

⑥ Enter the sample ID search criteria using wildcard and other characters, and press the ↵ button.



REFERENCE: For details on entering characters, see “2-3-3 Entering Characters” (page 2-6).

3 Start the search

① After all the conditions have been entered, press the ↵ button.

> **REFERENCE:** For details on checking and printing search result, see "4-4-2 Checking and Printing Measurement Results" (page 4-9).

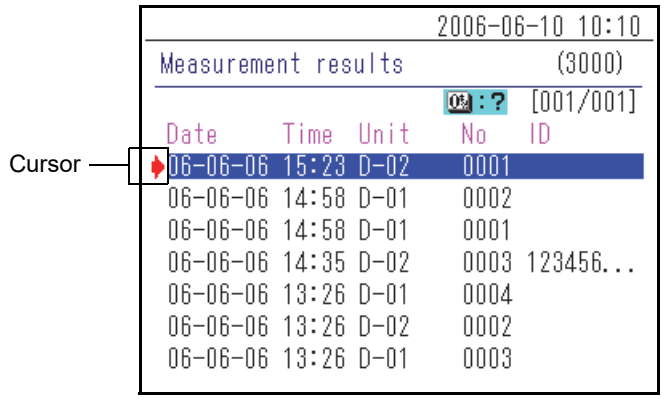
4-4-2 Checking and Printing Measurement Results

You can do the following things when the measurement result list is retrieved based on your search criteria.

- Check the measurement results on the screen
- Print the selected measurement results
- Delete the selected measurement results from memory
- Send the selected measurement results to an external device

■ Reading the search screen and operable buttons

This section explains the screen in which the list of measurement results is displayed and the operable buttons.



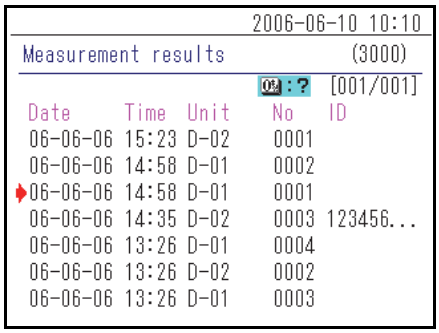
Button	Function
[2]	Moves the cursor downward.
[8]	Moves the cursor upward.
[5]	Selects the record in the cursor position result.
[3]	Selects all the results in the list.
[1]	Unselects all the results in the list.
[9]	Selects the results within the page.
[7]	Unselects the results within the page.
[0]	Displays the guide for available button operations.

Button	Function
←	Press this button to delete the selected measurement results.
	Press this button to print the selected measurement results.
	Press this button to send the selected measurement results to an external device.
	Use these buttons to turn the search result pages.
	Press this button to return to the previous screen.
	Press this button to print the selected measurement results at the cursor position.

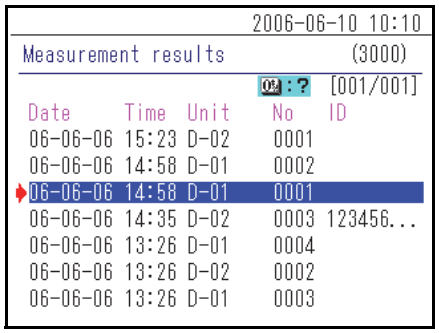
NOTE:
- The measurement results cannot be printed when [Use of Printer] in the <Options setting> screen is set to [OFF].
- The measurement results cannot be sent to another device when [Use of Output] in the <Options setting> screen is set to [OFF].
- For details on the option settings, see “4-5-2 Option Settings” (page 4-15).

● Check the measurement results on the screen

① Press [2] or [8] button on the <Measurement results> list screen to move the cursor to the measurement result you want to view.

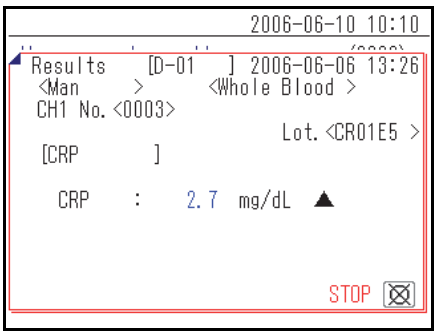


② Press [5] to highlight the selection.



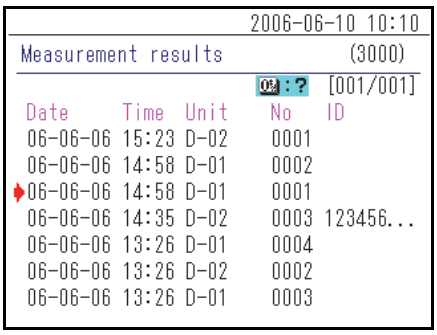
③ Press the ↵ button to check the measurement result details.

④ Press the ⊠ button to return to the <Measurement results> list screen.

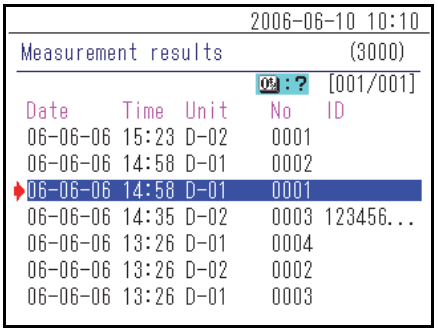


● Print the selected measurement results

① In the <Measurement results> list screen, press [2] or [8] and move the cursor to the measurement results to be printed.



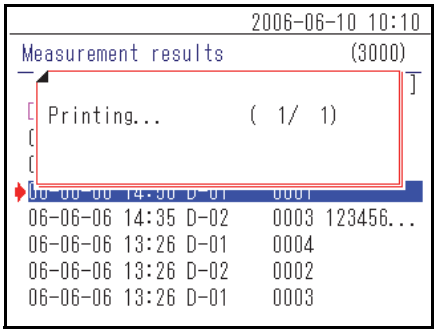
② Press [5] to highlight the selection.



REFERENCE: To select all the measurement results, press [3].

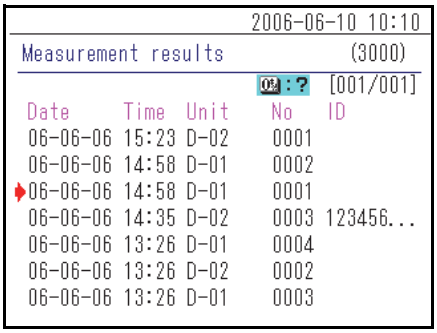
③ Press the 🖹 button.

The selected measurement results are printed.



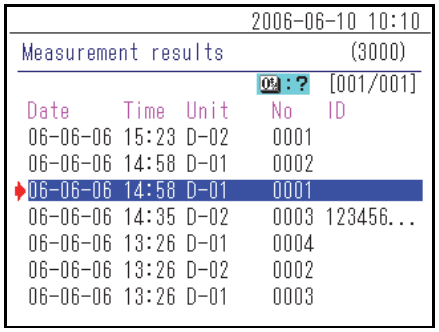
● Delete the selected measurement results from memory

① In the <Measurement results> list screen, press [2] or [8] and move the cursor to the measurement results to be deleted.



② Press [5] to highlight the selection.

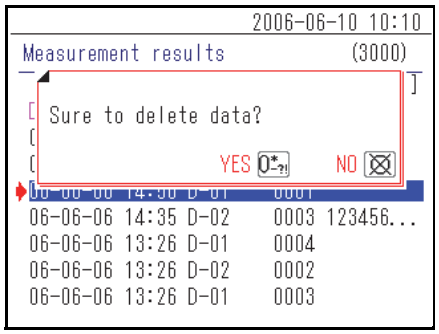
REFERENCE: To select all the measurement results, press [3].



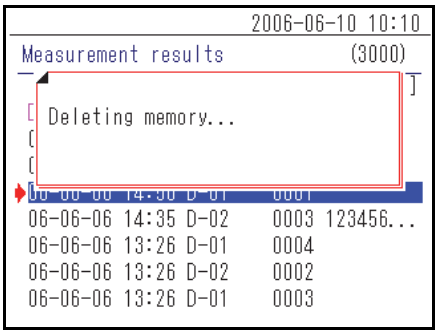
③ Press the ← button.

④ A message appears prompting a confirmation of deleting the selected record(s).

REFERENCE:
- To start deletion, press [0].
- To cancel deletion, press the ⊗ button.

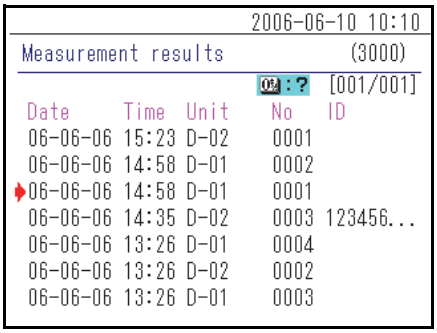


When the deletion is performed, the measurement results are deleted from the memory.



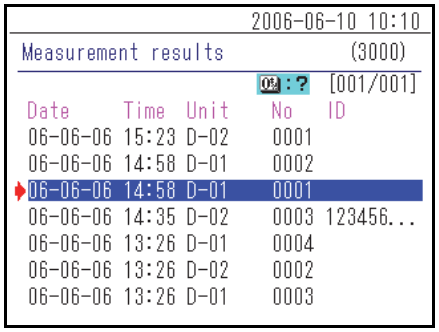
● Transfer the selected measurement results to an external device

① In the <Measurement results> list screen, press [2] or [8] and move the cursor to the measurement results to be transferred.

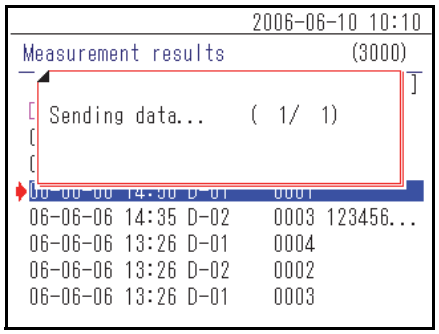


② Press [5] to highlight the selection.

REFERENCE: To select all the measurement results, press [3].



③ Press the ⏎ button.
The measurement results are sent.



4-5 Sub Menus

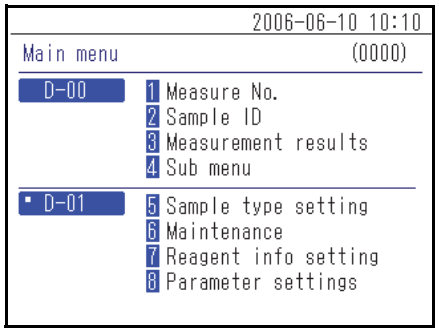
4-5-1 Clock Adjustment

This adjusts the instrument built-in clock. The date and time might be incorrect after instrument installation or non-use for a long period of time. The date and time for screen display and printing depends on the built-in clock, so set the date and time correctly.

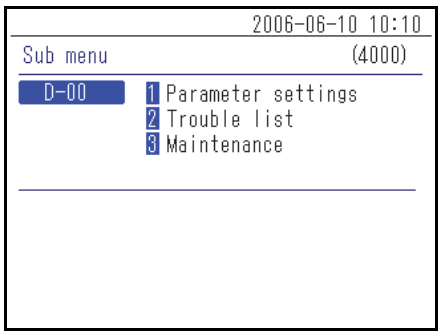
REFERENCE:
- The three available date formats are “Year-Month-Day”, “Day-Month-Year” and “Month-Day-Year”. The default setting is “Year-Month-Day”. The example in this explanation uses “Year-Month-Day”. Even when the date format is different, the order to set is “Year-Month-Day”.
- To change the date format, please contact your distributor.

1 Display the <Clock setting> screen

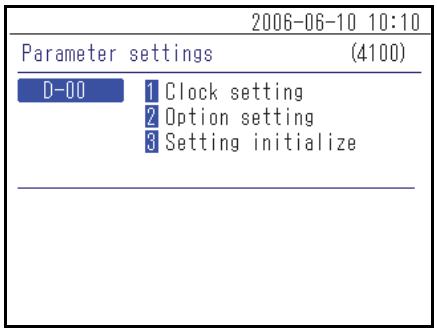
① Press [4] on the [Main menu] screen.



② Press [1] on the [Sub menu] screen.



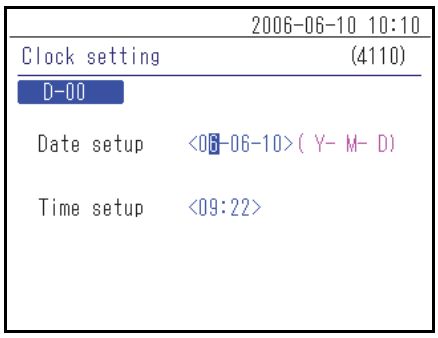
③ Press [1] on the [Parameter settings] screen.



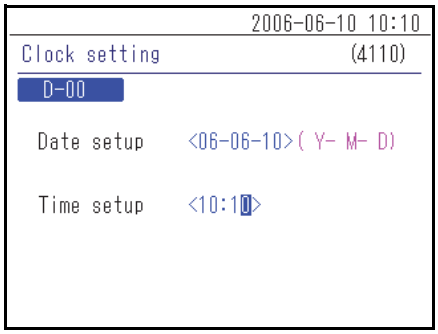
2 Set the date and time

① Enter the [Date] and [Time].

REFERENCE: For details on entering the date and time, see “2-3-5 Entering Date” (page 2-8) and “2-3-6 Entering Time” (page 2-9).



② Press the ↵ button. This returns to the [Parameter settings] screen.



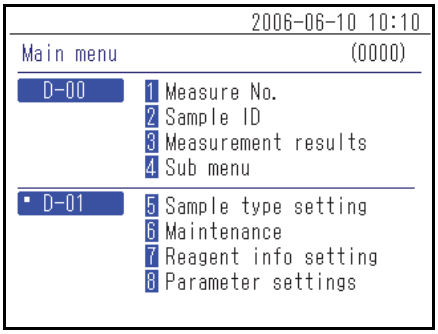
4-5-2 Option Settings

Make option settings of the use of a printer, speaker volume, name of the device displayed on the screen etc. The available settings are shown in the following table.

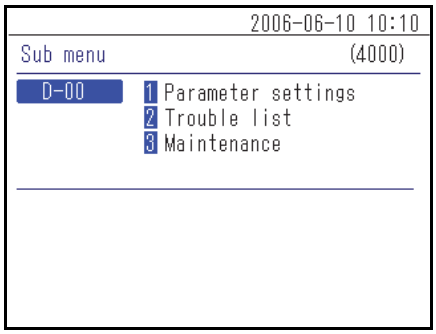
Item	Description
Use of printer	Sets printer use to on or off. ON (default setting): Use a printer. OFF: Do not use a printer.
Use of output	Sets use of the external device connecting terminals (1 and 2) on the back of the instrument to on or off. Set this to ON to allow measurement results data transfer to a connected external device. ON: Use the external device connection terminal. OFF (default setting): Do not use the external device connecting terminal.
Speaker volume	The volume of the instrument’s speaker, which sounds when an error occurs, can be set in 5 levels from [0] (mute) to [4]. The default setting is [2].
Unit name	The name of this unit is entered with up to 7 characters. The entered information is displayed on the screen.
Patient type setting (1) to (5)	The patient type name is entered with up to 8 characters. Up to 5 types can be set.

1 Display the <Option setting> screen

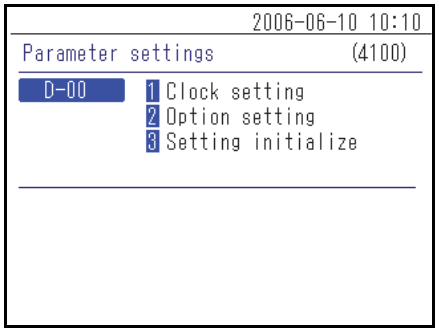
① Press [4] on the [Main menu] screen.



② Press [1] on the [Sub menu] screen.



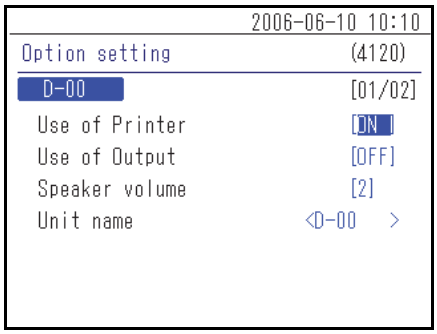
③ Press [2] on the [Parameter settings] screen.



2 Set the option items

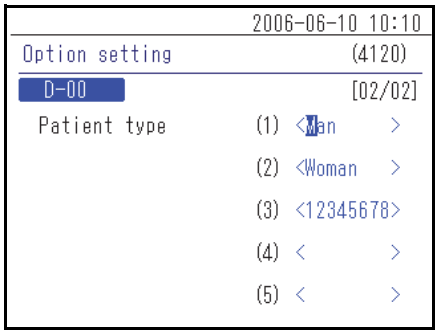
① Set the items.

REFERENCE: Enter the characters for [Unit name] and [Patient type]. For details on entering characters, see “2-3-3 Entering Characters” (page 2-6).



② Press the ↵ button. This returns to the [Parameter settings] screen.

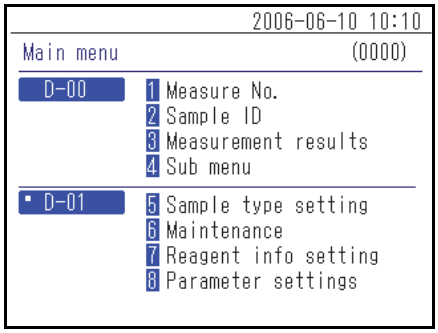
REFERENCE: At the <Option setting> screen, press the button to print the current settings information.



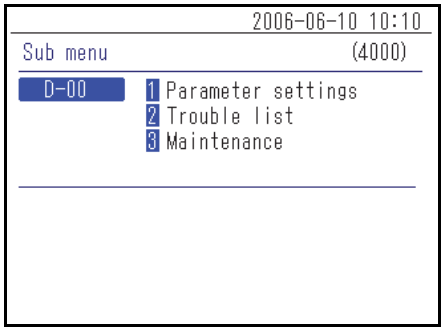
4-5-3 Option Setting Initialization

This returns all of the changed option setting items to their default settings.

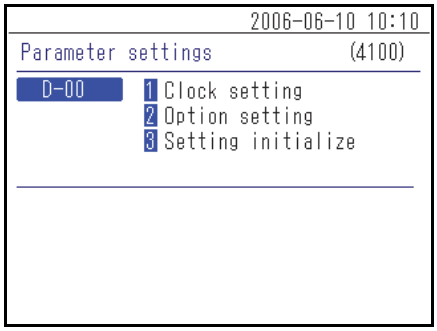
① Press [4] on the [Main menu] screen.



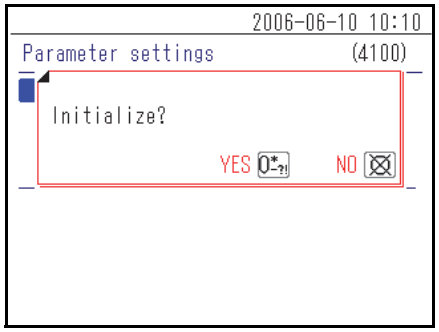
② Press [1] on the [Sub menu] screen.



③ Press [3] on the [Parameter settings] screen.



④ A message appears prompting a confirmation of initializing the information.



REFERENCE:

- To start initialization, press [0].
- To cancel initialization, press the ⊠ button.

4-5-4 Trouble List Search

The past errors and trouble history can be retrieved as a list. This section explains how to retrieve the desirable record(s) from the trouble history.

■ Maximum number of cases to be stored in the memory

Each measurement unit can store up to 50 error/trouble records.

NOTE:
- When the maximum number of records is exceeded, the oldest record is overwritten by a new one. Note that the overwritten record cannot be restored.
- The trouble history of existing models is not stored in this instrument's memory. It is stored in the memory of the existing model.

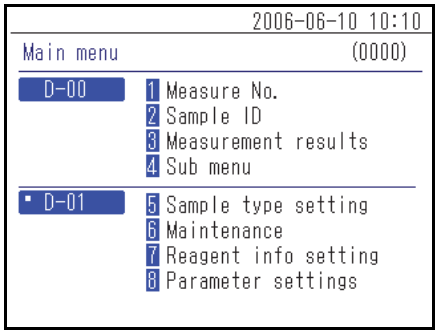
■ Search criteria and parameters

The trouble history search criteria and parameters are given below.

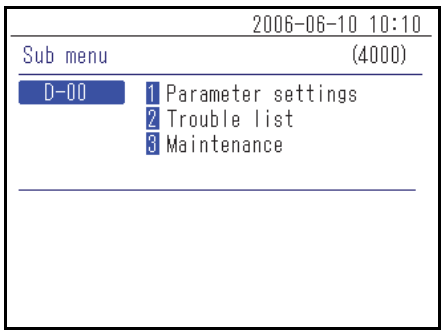
Item	Description
Search results listing order	Sets the listing order of the searched records. You can select from the 4 categories of order: [Date], [Error number], [Level] and [Unit].
Period of time	Sets the date range. Enter the first date and end date. Make sure the end date comes after the beginning date.
D-00 output	Sets whether or not to also search in this instrument's trouble list. ON (default setting): The errors that occurred in this instrument are also searched. OFF: The errors that occurred in this instrument are not searched.
Unit	Searches for the error/trouble records of the selected measurement unit.

1 Display the <Trouble list> screen

① Press [4] on the [Main menu] screen.

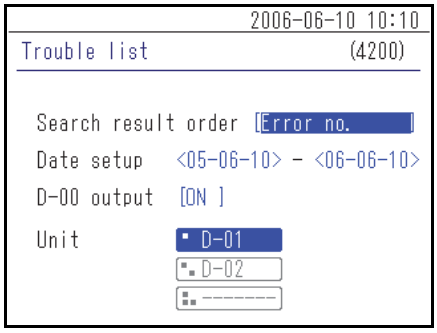


② Press [2] on the [Sub menu] screen.

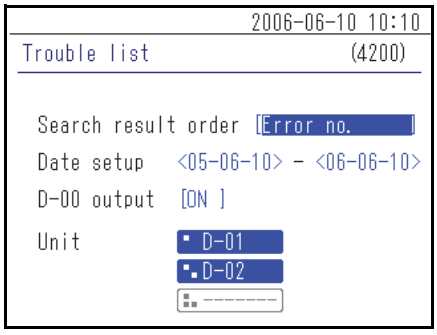


2 Set the search items

① Set the search criteria.

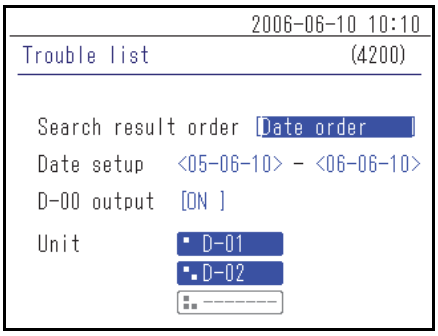


② Press the ▪ ▪ ▪ buttons to select the measurement unit in which search will be performed.

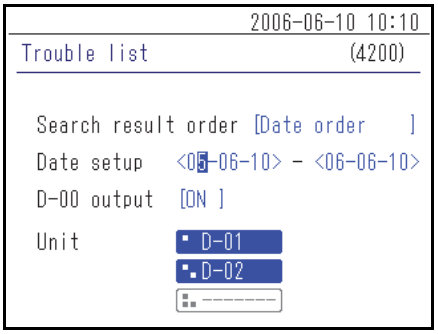


REFERENCE:
- More than one measurement units can be selected.
- Press the ▪ ▪ ▪ buttons again to cancel the selection.

③ Set the search results order. Press the [—] button to select the order and then press the ↵ button.

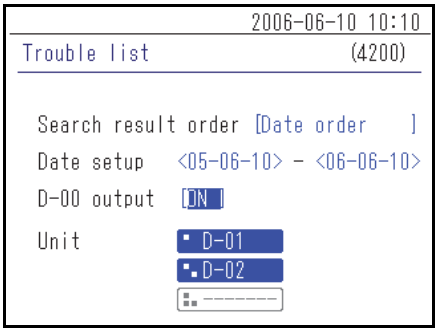


④ Set the period of time. Enter the first and end dates, and press the ↵ button.



REFERENCE: For details on entering the date, see “2-3-5 Entering Date” (page 2-8).

⑤ Set the D-00 output ON/OFF. Select the ON or OFF and press the ↵ button.



3 Start the search

① After you made all the settings, press the ↵ button.

REFERENCE: For details on checking and printing of search result, see “4-5-5 Checking and Printing Trouble List” (page 4-22).

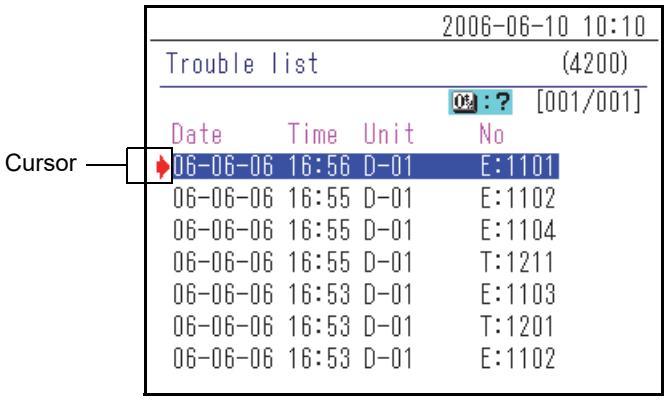
4-5-5 Checking and Printing Trouble List

From trouble list obtained as the result of the search by the criteria, you can do the following things:

- Check the errors and trouble on the screen
- Print the selected error or trouble
- Delete the selected trouble record from memory

■ Trouble list screen and available operations

This section explains the trouble list screen and the operable buttons.



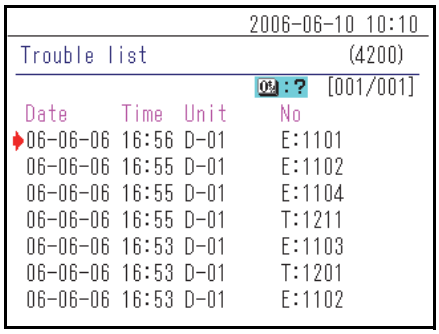
Button	Function
[2]	Moves the cursor downward.
[8]	Moves the cursor upward.
[5]	Selects the record in the cursor position.
[3]	Selects all the records in the list.
[1]	Unselects all the records in the list.
[9]	Selects the records within the page.
[7]	Unselects the records within the page.
[0]	Displays the guide for available button operations.

Button	Function
←	Press this button to delete the selected record(s).
	Press this button to print the selected history information.
	Use these buttons to turn the search result pages.
	Press this button to return to the previous screen.
	Press this button to print the selected history information at the cursor position.

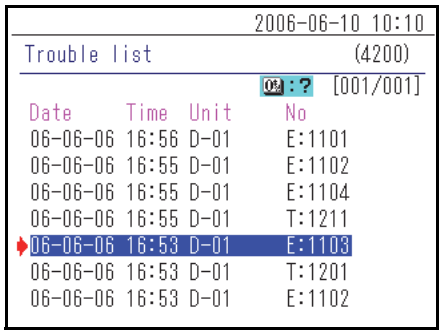
NOTE:
- Records cannot be printed when [Use of Printer] is set to [OFF] in <Options setting>.
- For details on the option settings, see “4-5-2 Option Settings” (page 4-15).

● Check the history details on the screen

① In the <Trouble list> screen, press [2] or [8] to move the cursor to the record to see the details.

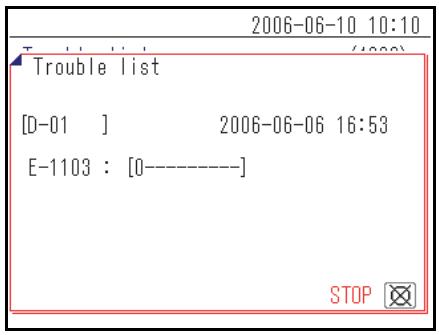


② Press [5] to highlight the selection.



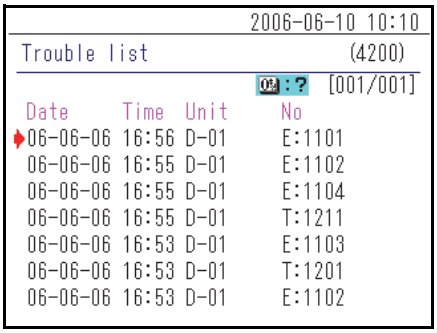
③ Press the ↵ button to check the details on the histories.

④ Press the ⊠ button to return to the <Trouble list> screen.



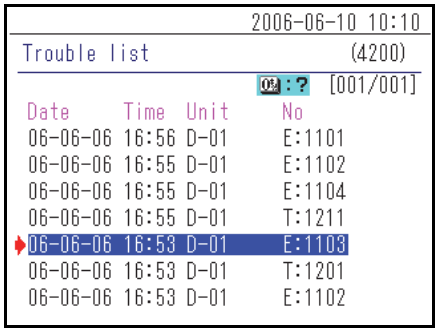
● Print the selected records

① In the <Trouble list> screen, press [2] or [8] to move the cursor to the records to be printed.



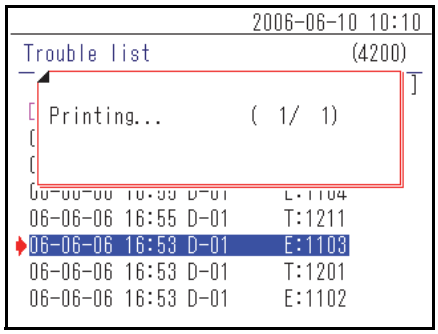
② Press [5] to highlight the selection.

REFERENCE: To select all the records, press [3].



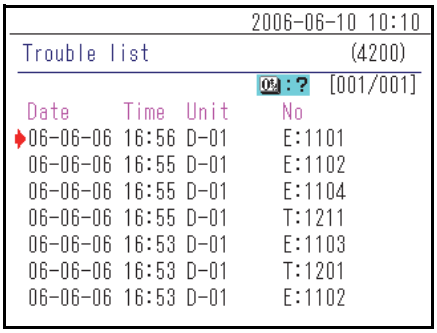
③ Press the button.

The selected records are printed.



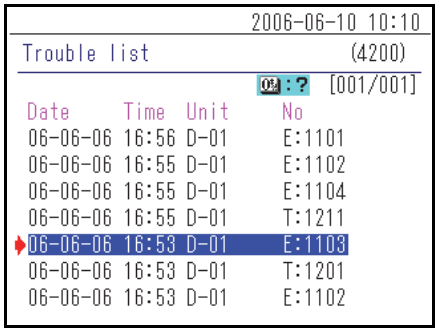
● Delete the selected records from memory

① In the <Trouble list> screen, press [2] or [8] to move the cursor to the records to be deleted.



② Press [5] to highlight the selection.

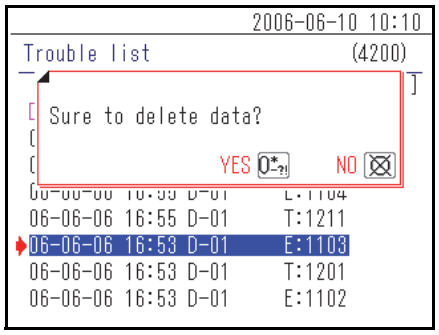
REFERENCE: To select all the records, press [3].



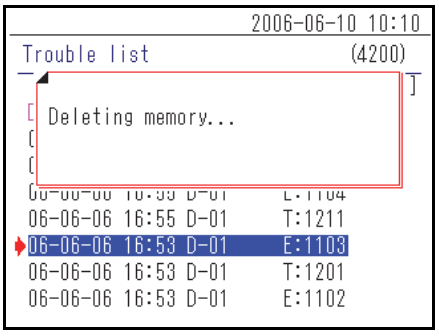
③ Press the ◄— button.

④ A message appears prompting a confirmation of deleting the selected records.

REFERENCE:
- To start deletion, press [0].
- To cancel deletion, press the ⊠ button.



When you confirm deletion, the records are deleted from the memory.



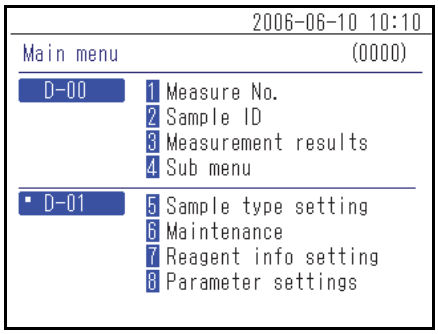
4-5-6 Turning On/Off Measurement Unit

This turns on/off the connected measurement unit.

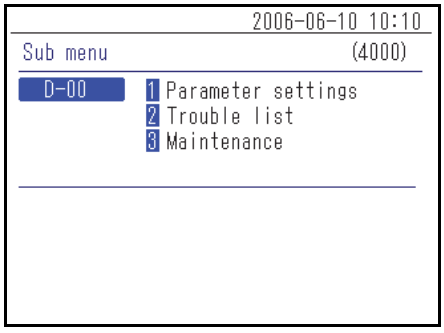
REFERENCE: This instrument cannot turn on/off the connected existing models.

1 Display the [Maintenance] screen

① Press [4] on the [Main menu] screen.

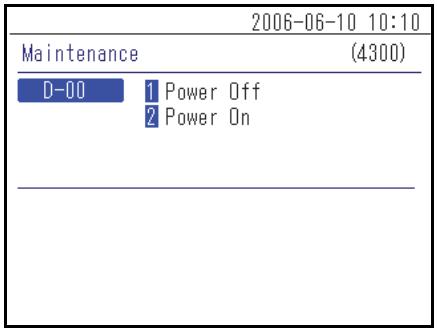


② Press [3] on the [Sub menu] screen.

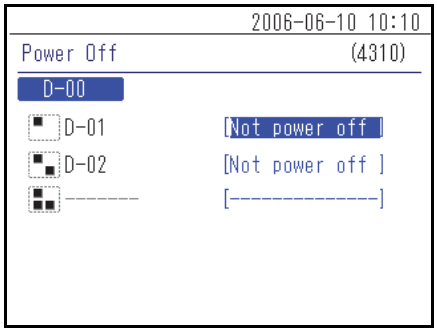


2 Turn the power On/Off

① To turn off the measurement unit, select “1 Power Off,” and to turn the power on, select “2 Power On.”



② Make the measurement unit power setting and press the ↵ button.



Chapter 5 Maintenance

This chapter describes the procedure of maintenance.

5-1 Disinfection

If a sample is attached, clean it by following the instructions below.

For disinfection of the device, lightly wipe the disinfecting area with a cotton swab or gauze moistened with a disinfectant, then wipe the disinfectant with a cotton swab or gauze moistened with water, and then wipe it dry. Use 70% isopropanol as the disinfectant. Contact your distributor if you use another disinfectant. If the sample is not removed from the instrument, the user or other individuals may become infected by pathogenic microbes.

5-2 Setting the Printing Paper

A red line appears on both sides of the printing paper to indicate that it is running out. Replace with a new roll of printing paper soon after these red lines appear.

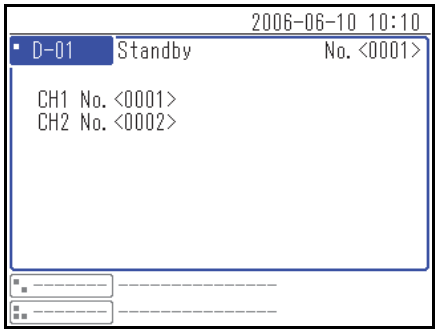
■ Preparation

Printing paper

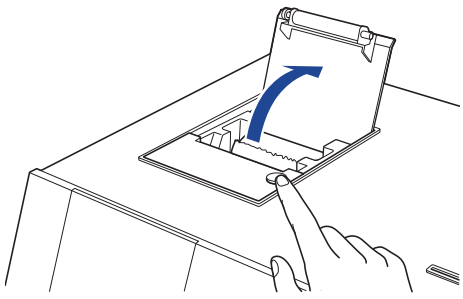
NOTE:
- Do not place the printing paper near a heater or other heat sources. In addition, store it away from chemicals, such as alcohol. Heat or chemicals may blacken the paper and prevent printing.
- Only use the printing paper specified by ARKRAY. Using any other printing paper may cause the instrument to malfunction.

1 Remove the printing paper

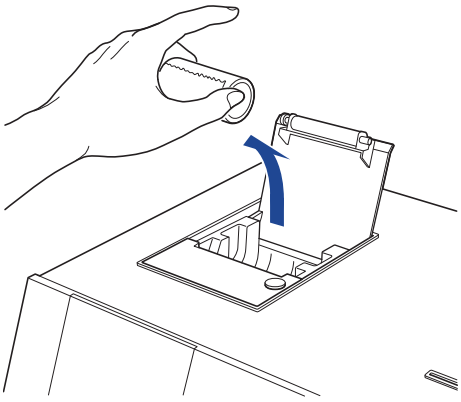
① Make sure the status indication screen is displayed.



② Press the instrument's top button to open the printer cover.

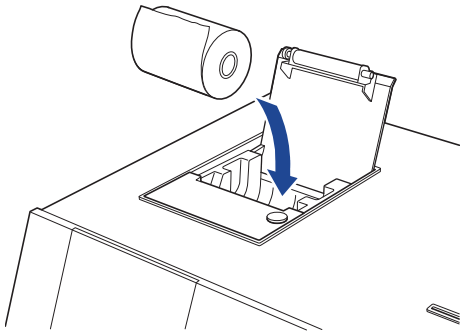


③ Pull out the remaining paper in the direction shown by the arrow.

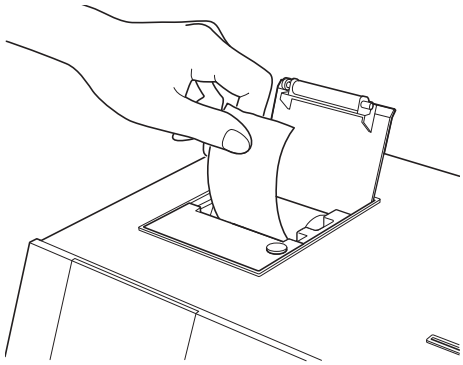


2 Load the new printing paper

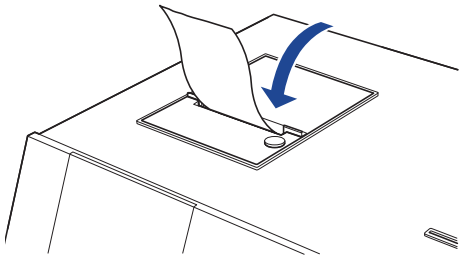
① Hold the new printing paper in the direction shown in the figure and load it into the printer.



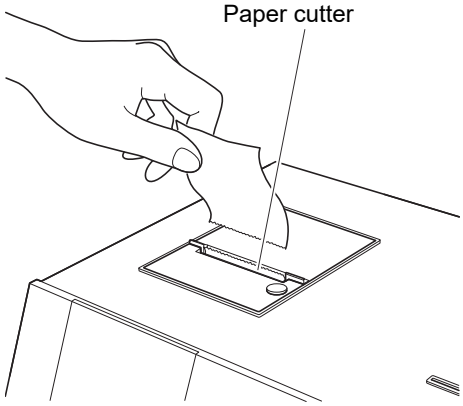
② Pull out the end of the printing paper by several centimeters.



③ Close the printer cover.



④ Tear off the paper that has been pulled out.



NOTE: Be careful not to cut your fingers on the paper cutter.

Chapter 6 Troubleshooting

A message is displayed when trouble occurs with the instrument.
This chapter describes the meaning of these messages and troubleshooting methods.

6-1 Message Types

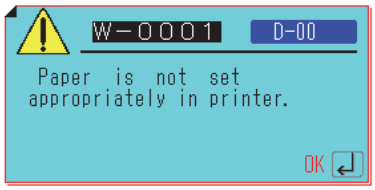
A trouble message appears on the display when the instrument has a problem. There are three levels of such messages based on the severity of the problem.

Message type	Description
Warning	Displayed as “W-00XX”. Follow the displayed message to solve the problem. If the message is repeatedly displayed, turn off the instrument and contact your local distributor.
Error	Displayed as “E-01XX”. See “6-3 Error Messages” (page 6-5) to solve the problem. If the message is repeatedly displayed, turn off the instrument and contact your local distributor.
Trouble	Displayed as “T-0XXX”. A major error has occurred in the instrument. See the message for details. Turn off the instrument and contact your local distributor.

NOTE: Please inform your local distributor of the correct type and number of the message.

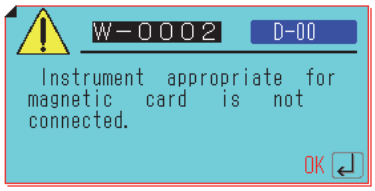
6-2 Warning Messages

W-0001



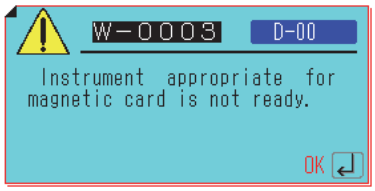
Cause	Possible solution
The printing paper has run out.	① Check the printer inside and load the new printing paper. For details, see “5-2 Setting the Printing Paper” (page 5-3). ② If the paper runs out during printing, a message appears asking if you want to reprint. Select “Yes” to print.
The printer cover is not completely closed.	Ensure that the printer cover is closed completely.

W-0002



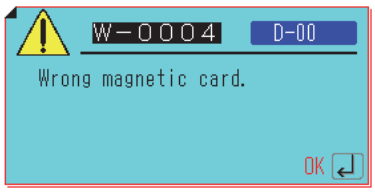
Cause	Possible solution
The instrument that supports the swiped magnetic card is not connected.	① Check the swiped magnetic card. ② Check if the instrument to measure the reagent that came with the magnetic card is correctly connected.

W-0003



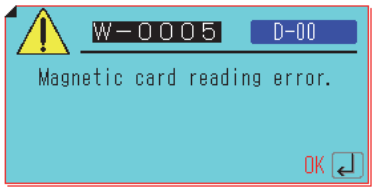
Cause	Possible solution
The instrument that supports the swiped magnetic card is in the startup status or measurement operation.	Check the status of the instrument to measure the reagent that came with the magnetic card and if it is on standby, swipe the magnetic card again.

W-0004



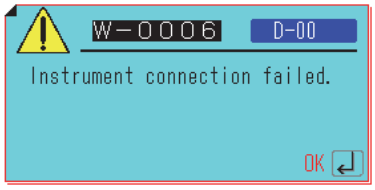
Cause	Possible solution
A different type of magnetic card was swiped.	Check the magnetic card and enter the correct magnetic card.

W-0005



Cause	Possible solution
The magnetic card has some problem.	Check if the magnetic card is damaged or dirty.

W-0006



Cause	Possible solution
A problem occurred in the instrument connection.	Correctly reconnect the connecting cable of the measurement unit. For details, see “1-6-4 Connecting the Instrument” (page 1-13).

6-3 Error Messages

E-0101/E-0102/E-0103	
Cause	**Possible solution**
The instrument program version has been upgraded.	Press the ↵ button to cancel the error.

E-0104	
Cause	**Possible solution**
The connecting cable between the instrument and the measurement unit is disconnected.	① Press the ↵ button to cancel the error. ② Correctly connect the connecting cable for the displayed measurement unit. For details, see “1-6-4 Connecting the Instrument” (page 1-13).

E-0105	
Cause	**Possible solution**
A magnetic card that does not match the instrument specifications was swiped.	① Press the ↵ button to cancel the error. ② Check the magnetic card information and swipe the correct magnetic card.

E-0106	
Cause	**Possible solution**
No external device is connected.	① Press the ↵ button to cancel the error. ② Check if the external device is connected correctly.
A communication cable had a problem.	① Press the ↵ button to cancel the error. ② Check if the communication cable is connected correctly.

E-0107	
Cause	**Possible solution**
An error has occurred with the date or time setting.	① Press the ↵ button to cancel the error. ② Set the date and time. For details, see “4-5-1 Clock Adjustment” (page 4-14).

E-0108	
Cause	**Possible solution**
The existing model is not turned on.	① Press the ↵ button to cancel the error. ② Turn off and on the existing model to check the status.
The cable is not connecting this instrument and the existing model correctly.	① Press the ↵ button to cancel the error. ② Check the cable connecting the existing model and reconnect it correctly. For details, see “3-2 Connection” (page 3-3).

6-4 Trouble Messages

T-0201 to T-0999	
Cause	**Possible solution**
An internal malfunction occurred.	① Press the ↵ button to cancel the error. ② Turn off the power and contact your local distributor.

Chapter 7 Index

7-1 Index

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