228-92361B
Jun. 2021

System Controller
for Shimadzu Ultra High Performance Liquid Chromatograph

SCL-40
CBM-40
CBM-40lite

Instruction Manual

Read this manual thoroughly before you use the product.
Keep this manual for future reference.

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Introduction

Read this Instruction Manual thoroughly before using the product.

Thank you for purchasing this product.
This manual describes accessories, options and usage of this product.
Read this manual thoroughly before using the product and operate the product in accordance with the instructions in this manual.
The following instruction manuals are included with the product in booklet or PDF document. The PDF document is contained in the instruction manual CD-ROM (part number 228-92350-41).

Document Name	Document Number	Description
Instruction Manual (PDF)	228-92360	This book.
Nexera Series System Guide (PDF)	228-92351	This section describes the entire system. Optimization of system performance, analysis procedures, troubleshooting methods, validation, installation, etc. are described.
Nexera Series Quick Guide (Simple leaflet)	228-92852	This leaflet is a quick reference guide for operations.
Nexera Series Safety Guideline (booklet)	228-92326	Precautions for safe use are listed.

Be sure to read "Safety Instructions" before using this product. "Safety Instructions" includes precautions, product warranties, and after-sales service to ensure safe use.
The instructions for use must be kept with this product so that they can be viewed at any time.

IMPORTANT

- If the user or usage location changes, ensure that this manual is always kept together with the product.
- If this manual or a product warning label is lost or damaged, immediately contact your Shimadzu representative to request a replacement.
- To ensure safe operation, read all Safety Instructions before using the product.
- To ensure safe operation, contact your Shimadzu representative if product installation, adjustment, re-installation (after the product is moved), or repair is required.

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Notice

- Information in this manual is subject to change without notice and does not represent a commitment on the part of the vendor.
- Any errors or omissions which may have occurred in this manual despite the utmost care taken in its production will be corrected as soon as possible, although not necessarily immediately after detection.
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  Windows is a registered trademark of Microsoft Corporation in the United States and/or other countries. iPhone and iPad are registered trademarks of Apple Inc. Other company names, product names, service marks and logos that are listed in the instruction manual are trademarks and registered trademarks of each company. TM and ® marks are not specified in the text.

Indications Used in This Manual

The following precautions are included in this manual depending on the magnitude of the hazard or damage:

Indication	Meaning
⚠ WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in serious injury or possibly death.
⚠ CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor to moderate injury or equipment damage.
NOTE	Emphasizes additional information that is provided to ensure the proper use of this product.

The following symbols are used in this manual:

Indication	Meaning
Prohibition	Indicates an action that must not be performed.
Instruction	Indicates an action that must be performed.
Hint	Indicates information provided to improve product performance.
Reference	Indicates the location of related reference information.

Disposal Precautions

This product contains battery.
To dispose of it, ask an industrial waste disposer in compliance with the local laws and regulations.

For California, USA Only

⚠ CAUTION

This product contains battery that contains perchlorate material.
Perchlorate material - special handling may apply.
See www.dtsc.ca.gov/hazardouswaste/perchlorate.

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1 Overview

This instrument is a system controller for a Shimadzu high-performance liquid chromatograph. It can monitor data, control parameters, automate operation of analysis, etc. for liquid chromatograph systems with various equipment configurations.

There are three types of system controllers. A SCL-40 with a touch panel operation screen, a thin type CBM-40 without a touch panel operation screen, and a CBM-40lite built in the solvent delivery pump.

1.1 Features

SCL-40, CBM-40, CBM-40lite have the following features.

■ Network Functions

Correspond with Ethernet Connection.

The instrument has the network function normally. By connecting with Shimadzu high-performance liquid chromatograph data processing software (workstation), it can set up conditions, execute, monitor, and process analysis from the PC.

Equipment Monitoring Function by Smart Device

The operation status of the equipment, analysis progress situation, maintenance information, etc. can be monitored from a smart device such as an iPad via the network even where you are away from the system.

In addition, the SCL-40 has the following features:

■ Ease of Use

Intuitive operation is possible through a graphical user interface that adopted a touch panel.

■ Efficient Operation by Automation

With an enhanced auto purge function, startup/shutdown function, and other automated operations, LC work flow can be improved.

■ Feature Comparison Table (SCL-40, CBM-40, CBM-40lite)

Feature	SCL-40	CBM-40	CBM-40lite
1. Number of controllable modules	8 units (When optical connector expansion option is used: 12 units)	8 units (When optical connector expansion option is used: 12 units)	4 units + PUMP storing CBM-40lite
Number of analog signal inputs from detectors of other companies	2 ch (AD board option required)	1 ch (AD board option required)	— (AD board option can not be installed)
Convenient Confirmation of consumables / system check report	Can be confirmed on the touch panel	— (To check consumables and system check reports, from workstation or web screen.)	
Convenient Analysis preparation work run check	Can be implemented with touch panel	— (Please execute from the workstation.)	
Analysis operation without a workstation	Touch panel (The system controller does not have the function to save analysis data. When saving the analysis data, please use a workstation.)	— (The Web screen is monitor only. Analysis operation from the web screen is not possible)	
Error indication	Indicated on the touch panel	LED indicator	Display error on the built-in pump module.

1.2 Component Parts

This equipment consists of the following parts: Check the contents and quantity when unpacking.

■ SCL-40

No.	Part Name	Part No.	Q'ty	Remark
—	SCL-40 Main Body	—	1	
—	Nexera Series Safety Guideline (Booklet)	228-92326	1	Usage notes about products are stated.
—	Instruction Manual/ Nexera Series System Guide (CD-ROM)	228-92350-41	1	Booklets of this instruction manual or system guide are provided for a fee. Reference "1.3 Optional Parts" P.5
—	Nexera Series Quick Guide (Simple leaflet)	228-92853	1	It is a quick reference of operation.
1	LAN Cable	228-61083-41	1	2 m
2	Tray Guide Bar S	—	2	
3	Tray Guide Bar L	—	2	
4	Label for tube clamp	228-75145	1	
	Tube Clamp	228-75147	10	
5	Waste Liquid Tube Silicone	228-25162-03	1	
6	Drain Adapter	228-42204	1	
7	Drain OUT, STD	228-42205	1	
8	Drain OUT, CTO	228-42206	1	
9	L Type Joint	035-61561-12	1	
10	Straight Joint	228-28163	1	
11	Guide Bar Fixing Screw	—	8	It is used to screw the tray guide bar to the reservoir tray.

■ CBM-40

No.	Part Name	Part No.	Q'ty	Remark
—	CBM-40 Main body	—	1	
—	Nexera Series Safety Guideline (Booklet)	228-92326	1	Usage notes about products are stated.

No.	Part Name	Part No.	Q'ty	Remark
—	Instruction Manual/ Nexera Series System Guide (CD-ROM)	228-92350-41	1	Booklets of this instruction manual or system guide are provided for a fee. Reference "1.3 Optional Parts" P.5
—	Nexera Series Quick Guide (Simple leaflet)	228-92852	1	It is a quick reference of operation.
1	LAN Cable	228-61083-41	1	2 m
2	Waste Liquid Tube Silicone	228-25162-03	1	
3	Drain Adapter	228-42204	1	
4	Drain OUT, STD	228-42205	1	
5	Drain OUT, CTO	228-42206	1	
6	L Type Joint	035-61561-12	1	
7	Straight Joint	228-28163	1	

■ CBM-40lite

No.	Part Name	Part No.	Q'ty	Remark
—	CBM-40lite Main Body	—	1	
1	LAN Cable	228-61083-41	1	2 m
2	Control Cable (For 40 Series)	228-70155-41	1	The cable for incorporating CBM-40lite into a 40 series PUMP.
3	Control Cable (For 30A/20A Series)	—	1	The cable for incorporating CBM-40lite into a 30A/20A series instrument.

⚠ WARNING

Prohibition

Do not install CBM-40lite in the solvent delivery pump by yourself.

It may cause injury or malfunction. Built-in work is performed by our Field Engineer. Please do not attempt it yourself.

1.3 Optional Parts

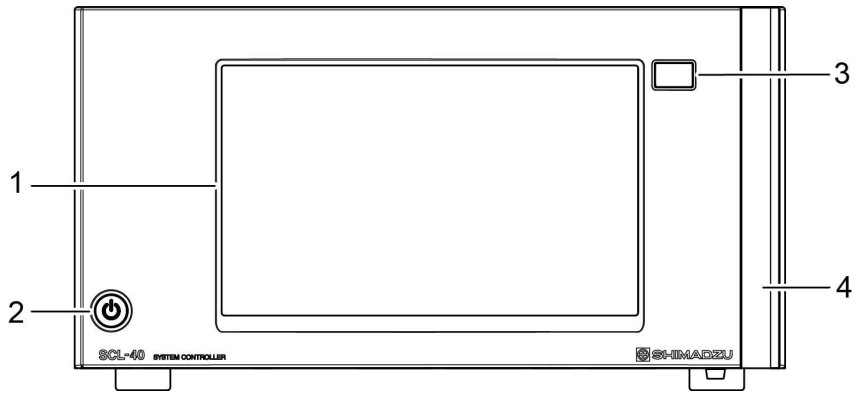
The optional parts that can be added to this instrument are shown below.
For details of optional parts, please contact our sales office/distributor or our designated service representative.

Option Name	Part No.	Features
Optical Cable 0.6 m	228-77025-06	It is an optical cable for communication between the system controller and each module.
Optical Cable 0.8 m	228-77025-08	
Optical Cable 1 m	228-77025-10	
Optical Cable 2 m	070-92025-52	
Optical Cable 3 m	070-92025-53	
Optical Cable 5 m	070-92025-54	
Remote Cable	228-28253-91	It is used for input or output of error / start / stop signals from other equipment. Reference "6.1 External Input/Output Terminal" P.146
Optical Connector Expansion Board	228-70481-41	Optical connectors can be added with this option. It can be mounted on SCL-40 and CBM-40, and expands from standard 8ch to 12ch.
Option AD Board	228-55519-41	It is used to input analog signals from other company's detectors. In case of SCL-40 up to 2 boards, in case of CBM-40 1 AD board can be installed. Reference "6.3 Analog Input " P.151
Touch Pen	228-58619-41	It is a pen for touch panel operation.
Touch Panel Protection Sheet	228-59212-41	It is a protective film for the touch panel.
Instruction Manual (Booklet)	228-92360	It is a booklet form of this manual.
Nexera Series System Guide (Booklet)	228-92351	It is a booklet form of the system guide.
Nexera Series Quick Guide (Simple Leaflet)	228-92853	It is a quick reference of operation

2 Parts Identification and Function

2.1 Front

■ **SCL-40**

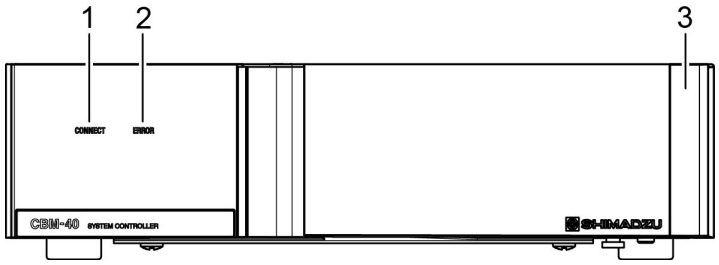


No.	Name	Description
1	Touch Panel Screen	The operation screen is displayed. Press the touch panel to operate.
2	(Power Button)	Turn ON/OFF all the power of all linked units including this instrument at once. This button will not work unless the main power switch on the back of this instrument is turned on. • Off: Main power is OFF • Orange: Main power is ON • White: Power on
3	(Menu Button)	Display/hide the menu screen.
4	Side Cover	Piping such as suction tubes can be passed through it. This cover is removable.

NOTE Touch panel screen becomes difficult to see when looking up from the below it. Please look at the screen from directly in front of the panel to prevent erroneous input.

■ CBM-40

> **NOTE** There is no power button on the CBM-40. Of the connected pumps, turn on/off the system power with the power button of the pump that has the lowest address number.



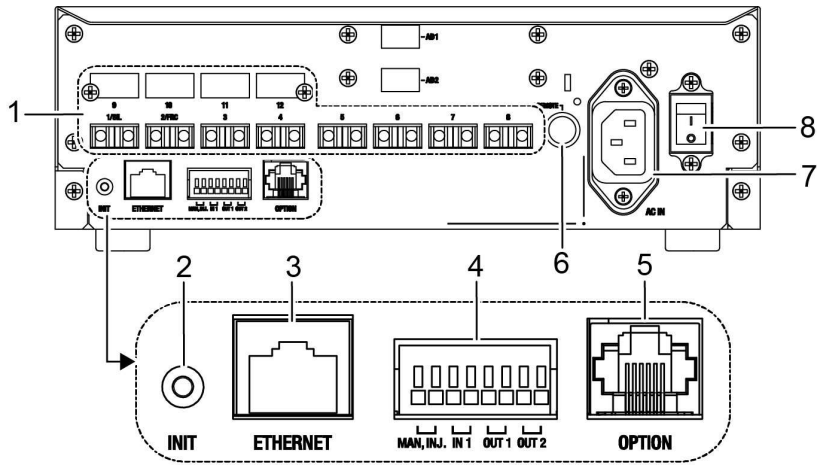
No.	Name	Description
1	[CONNECT] Lamp	It lights up when connected to the workstation.
2	[ERROR] Lamp	It lights up when an error occurs in the system.
3	Side Cover	Piping such as suction tubes can be passed through it. This cover is removable.

■ CBM-40lite

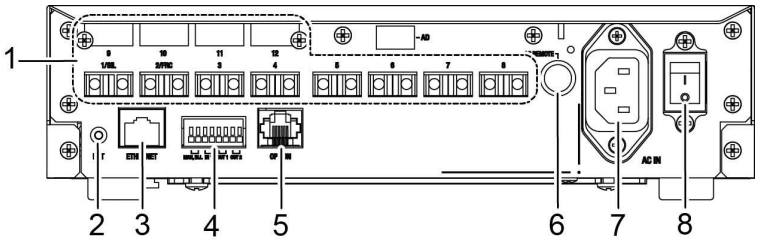
CBM-40lite is used by being incorporated in a solvent delivery pump.
Turn the system power on/off with the power supply button of the pump that contains the built-in CBM-40lite.

2.2 Back

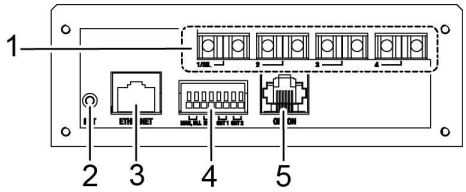
■ SCL-40



■ CBM-40



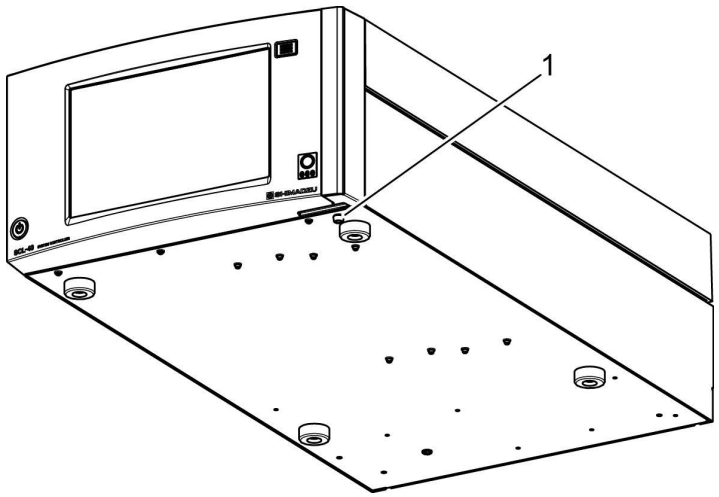
■ CBM-40lite



No.	Name	Description
1	[REMOTE] Connector	It is used for connection with each module. NOTE • Connect the autosampler to Ch.1. • Connect the fraction collector to Ch.2.
2	[INIT] Switch	This is an initialization button to perform a factory reset. NOTE • All settings including method, device log, network setting, etc. are initialized to the factory default setting. • While holding down the [INIT] switch, turn the main power switch to "ON" and initialize it by holding the [INIT] switch for 20 seconds.
3	[ETHERNET] Connector	It is a terminal for connection with a PC.
4	External Input/Output Terminal	It is a terminal for connection with external equipment. Reference "6.1 External Input/Output Terminal" P.146
5	[OPTION] Connector	It is a terminal for connection with option unit.
6	[AC REMOTE] Connector	It is a terminal for connection with a power outlet box for the Japan/North America region. Reference "6.2 Control Output of Power Outlet Box for Japan / North America Region" P.149
7	[AC IN] Connector	It is a terminal for connecting the power cord.
8	Main Power Switch	Switch ON/OFF the main power supply of the equipment. Normally it is always on. NOTE Normally turn on/off the power with power button (main power switch is always on). If the instrument will not be used for a long time, turn the main power switch off.

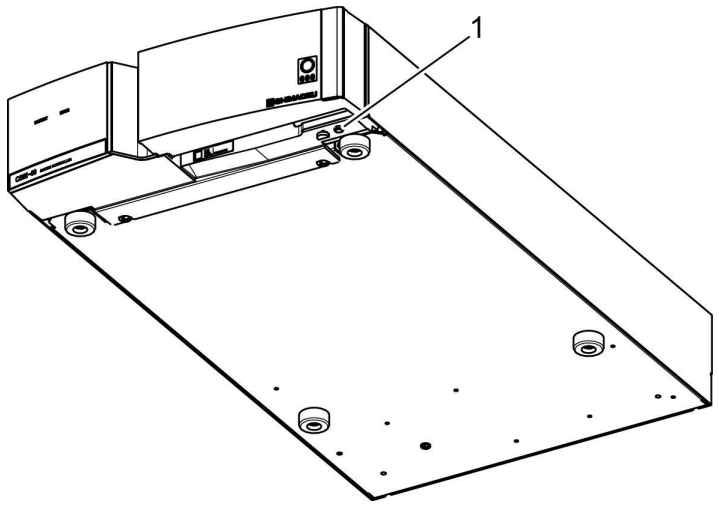
2.3 Bottom

■ SCL-40



No.	Name	Description
1	Drain Port	When leakage occurs in the reservoir tray, the liquid is discharged from this drain port. Please connect the drain adapter according to the system guide.

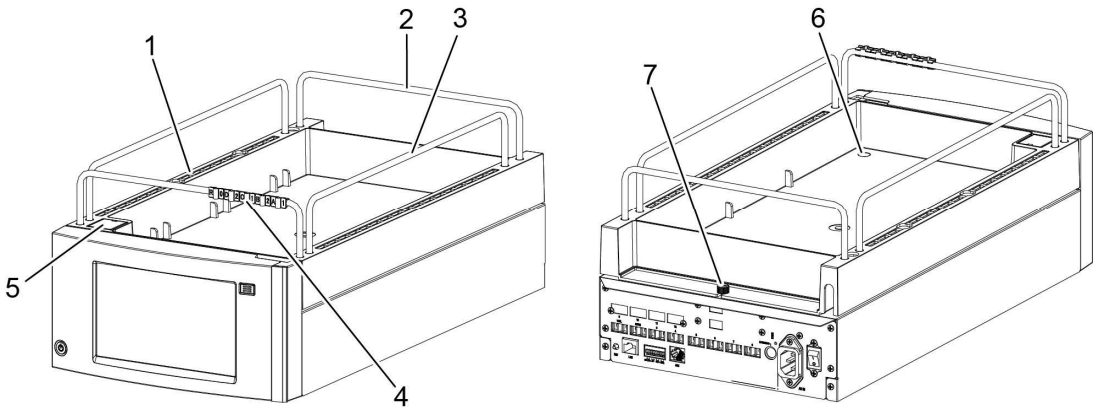
■ CBM-40



No.	Name	Description
1	Drain Port	When a leakage occurs in the unit located on top of CBM-40, the liquid is discharged from this drain port. Please connect the drain adapter according to the system guide.

2.4 Top

■ SCL-40



No.	Name	Description
1	Reservoir Tray	Holds reservoir bottles.
2	Tray Guide Bar S	Prevents the reservoir bottles from falling. (For front and rear)
3	Tray Guide Bar L	Prevents the reservoir bottles from falling. (For left and right)
4	Tube Clamp	Clamp the suction tube to the guide bar.
5	Power Switch Mounting Hole	It is a hole for attaching the power switch of the power outlet unit option (PO-6P).
6	Drain Port	Eject the liquid when the reservoir bottle falls and liquid spills.
7	Knurled Screw	Loosen this screw to remove the reservoir tray from the main unit.

⚠ WARNING

Prohibition

Do not lift the SCL-40 while the bottle is in the reservoir tray.

If lifting the front and back of the SCL-40 with a full bottle in the reservoir tray, the front panel of SCL-40 may not withstand the load and can be damaged. Please remove the bottle and lift it.

Prohibition

Do not lift the reservoir tray holding the guide bar.

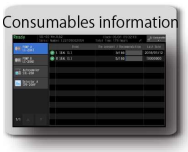
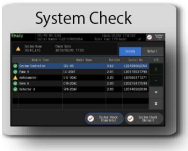
The guide bar may come off the tray and liquid may splash. Always hold the bottom of the tray.

3 Touch Panel Screen (SCL-40)

3.1 Screen Structure

The configuration of the screen is described below. When the menu button is pressed , the [Menu] screen is displayed, and when each button in the menu screen is pressed the corresponding screen is opened.

Menu

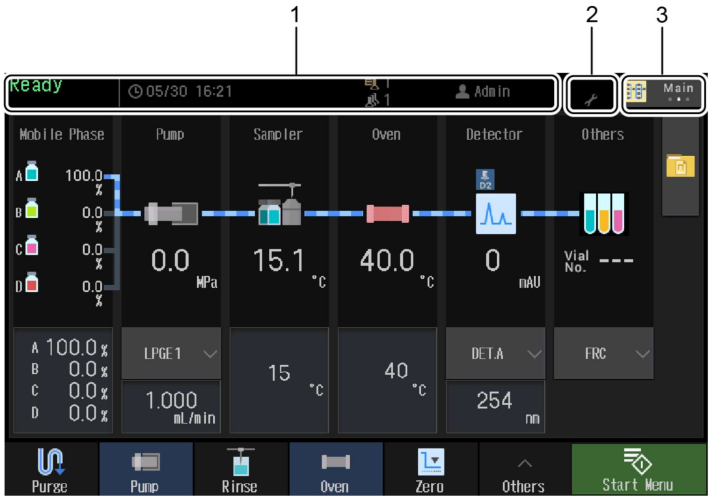
[Analysis]	[Maintenance]	[Configuration]
Monitor P.49	Consumables information  P.62	Screen Settings P.65
Main P.24	System Check  P.63	System Configuration P.67
Sequence P.53		Network Settings P.67
[Shutdown/ Startup]	[User]	
Shut Down P.58	Login P.79	Environmental Setting P.73
Startup P.60		Device Settings P.74

3.2 Common Display and Operation

This chapter will explain general things about items that make up the screen.

3.2.1 Header

It is the area at the top of the screen. The display content changes according to the open screen.



No.	Name		Description
1	Device Status Display Area	For [Analysis] menu	Status, date and time (scheduled end time during analysis), analysis condition icon, and user ID are displayed.
		Other than [Analysis] menu	Status, device name, version number, serial number, time, total usage time are displayed.
2	Device Status Display Icon		The status of the device is indicated by an icon.
3	Screen Changing Button		When pressed, the screen switches in order of monitor screen, main screen, and sequence screen.

■ Device Status Display Area

Status

Typical device status is shown below. For the status not listed in the table below, please refer to the status list.

Reference "8.1 Status List" P.169

Device Status	Description
NotReady	Waiting for stability.
Ready	Stable condition. Analysis can be started.
Run	It is running the analysis.

Device Status	Description
Error	An error has occurred.

Analysis Condition Icon

Icon	Description	Ref.
	(Displayed only during analysis) Displays the plate number.	—
	(Displayed only during analysis) Displays the vial number. **Hint** In the case of sequence analysis "XXX - YY / ZZ" will be displayed. XXX is the vial number, YY is the current number of repetitive injections, and ZZ is the setting value of repetitive injections.	—
	Displays the method file number loaded in the current method. **Hint** • After powering on the instrument, it will not be displayed until the method is opened specifically. If the method icon is not displayed, the last used method is still loaded in the current method. • It is not displayed when connecting to the workstation.	P.31
	Displays the sequence file number selected in the default sequence. **Hint** • During sequencing analysis "XXX - YYY" will be displayed. XXX is the sequence file number, YYY is the sequence line being executed. • It is not displayed when connecting to the workstation	P.53

■ Device Status Display Icon

Icon	Meaning	Ref.
	This message is displayed when shutdown is turned on.	P.58
	This message is displayed when there is a consumable item that exceeds the expiration date.	P.62
	This message is displayed when the workstation is connected to this instrument.	—
	This message is displayed when the key is locked.	P.65

3.2.2 Switching Screens

■ Tab

Switch the information grouped for each tab.

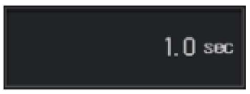
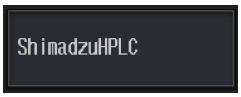
No.	Name	Description
1	Headline	The heading of the tab.
2	Information Area	Display information of the selected tab.

■ Page

If the display does not fit on one page, it is divided into multiple pages and displayed.

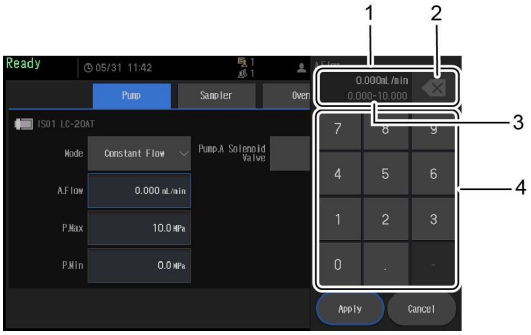
No.	Name	Description
1	Information Area	Display information on the selected page.
2	Page Number	Displays the current page and the total number of pages.
3	Up Key	Display the previous page.
4	Down Key	Display the next page.

3.2.3 Edit Value

Display	Name	Description
	Numeric Value Input Field	Touch to open the numeric keypad screen and edit the value.
	Pull Down Button	Touch to open the pull down selection screen and select the value.
	Radio Button	Touch to toggle the value ON / OFF. The blue state is ON.
	String Entry Field	Touch to open the keyboard screen and edit the character string.

■ Numeric Keypad

Enter the numerical value.



No.	Name	Description
1	Display section	Displays the entered number.
2	Back Space	Delete only one character of the entered number.
3	Input Range	Displays the range of numbers that can be entered.
4	Input Section	Enter a number.

NOTE If the apply button is pressed while the input is incorrect, an error dialog will be displayed. Please input again and press apply again.

■ Pull Down Selection

Select the setting from the candidates.

No.	Name	Description
1	Selection Button	The selected item is displayed in blue. When the selection is confirmed, the dialog closes.
2	Page Operation Button	The arrow keys can be pressed when the selection candidate becomes more than 1 page. Press the arrow to switch pages. Display the current page and total page number at the top of the arrow key.

3

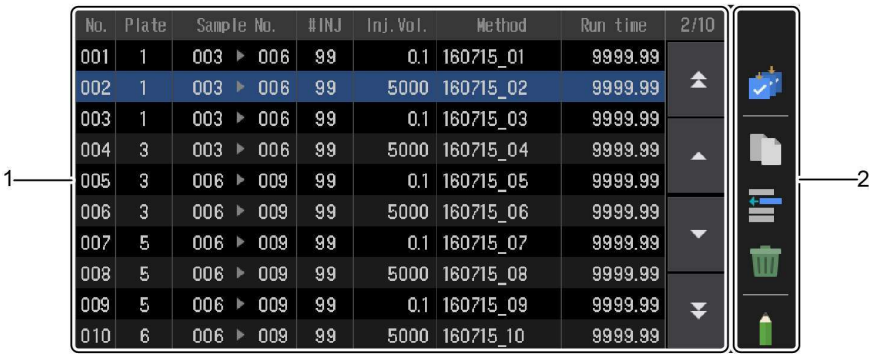
■ Keyboard

Enter letters, numbers and symbols.

No.	Name	Description
1	Display Section	Displays the entered letters, numbers and symbols. NOTE During password input, the display switches to "*" every time one character is input.
2	Back Space	Deletes the character immediately before the cursor.
3	Input Section	Enter letters, numbers and symbols.
4	Arrow	Move the cursor.
5	Symbol/Alphabet Switching	Switch symbol input keyboard and alphabet input keyboard.
6	Toggle Between Uppercase and lowercase letters	Toggle between uppercase and lowercase letters.

3.2.4 List Screen and List Operation

The list screen consists of a list section and a utility section.

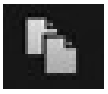


No.	Name	Description
1	List	It is displayed in list format.
2	Utilityz	Edit the list, such as copy, paste, delete.

■ Operation of List Section

No.	Display	Name	Description
		Page Up	Display the previous page.
		Page Down	Display the next page.
		Up	Move to previous line.
		Down	Move to next line.

■ Utility

Display	Meaning	Description
	Multiple line Selection	After pressing this button, use the up and down buttons to select multiple lines.
	Copy	Copy the selected line.

Display	Meaning	Description
	Insert	Insert the copied line.
	Delete	Deletes the selected line.
	Edit	Opens the edit screen of the selected line.

■ Operation Example

Copy the line and insert.

1 **Select the line with Up/Down button, and press the copy button** **.**

2 **Select the line as the insert position with Up/Down button, and press the insert button** **.**

The copied line is inserted before the selected line.

3.2.5 Error Dialog

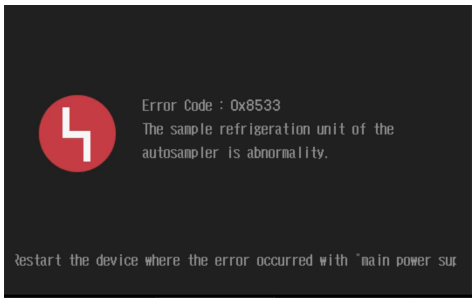
When an error is detected, an alarm sounds and an error dialog is displayed.

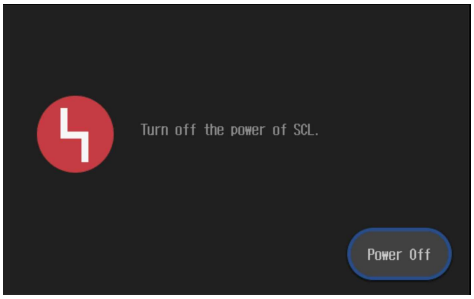
Hint The alarm can be set not to sound when an error occurs in the [Buzzer] setting on the [Screen Setting] menu.

Reference "Screen Setting" P.65

■ Fatal Error

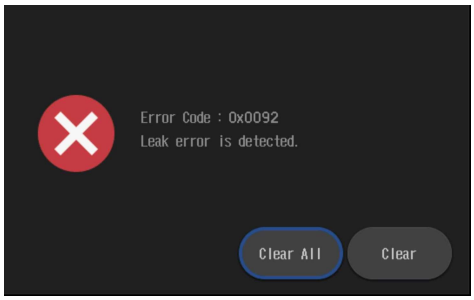
In the case of the fatal error, it is necessary to turn OFF the main power switch of the device in which the fatal error has occurred, and then turn OFF the main power switch of the SCL.





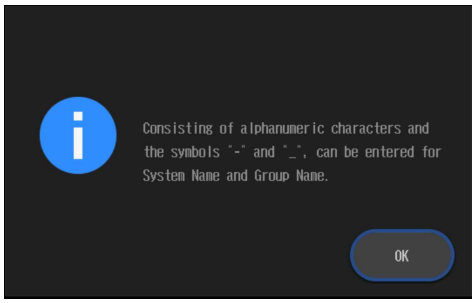
■ Error, Warning

Error and warning can be cleared with the clear button.

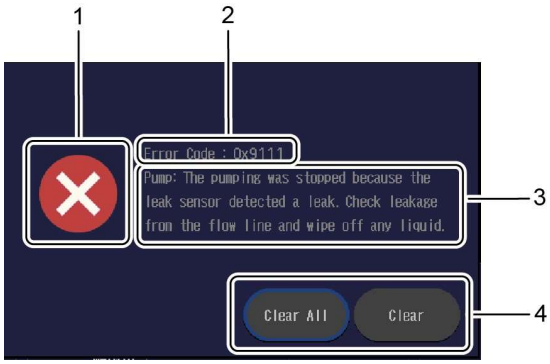


■ Notice Dialog

The notice dialog can be closed with the OK button



■ Error Dialog Parts

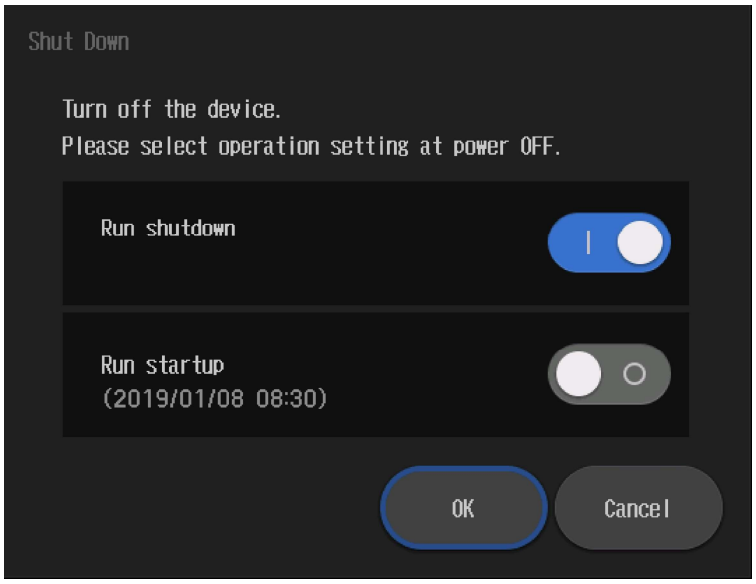


No.	Name	Description
1	(Fatal Error)	Indicates a hardware problem.
	(Error)	Indicates an error in using the instrument.
	(Warning)	Indicates a Warning.
	(Notice)	Indicates attention required.
2	Error Code	Display error code. ▶▶ Reference System Guide "Error List"
3	Error Message	The contents of the error and the corrective action are displayed.

No.	Name	Description
4	Power OFF	Turns off the device.
	ALL Clear	It clears all currently occurring errors and returns to the original screen.
	Clear	Clears the displayed error. If more than one error has occurred, the next error is displayed.

3.2.6 Shutdown/Startup Dialog

When the power button is pressed, the Shutdown/Startup dialog is displayed.



No.	Name	Description
-	Run Shutdown	If it is set to ON, executes the shutdown process set on the [Shutdown] menu and then turns off the system. If it is off, shutdown processing is not performed and the system is immediately powered off as usual. Reference "3.4.1 Shutdown" P.58
-	Run Startup	When set to ON, startup processing is executed at the time set in the [Startup] menu. If it is OFF, startup processing is not performed as usual. Reference "3.4.2 Startup" P.60

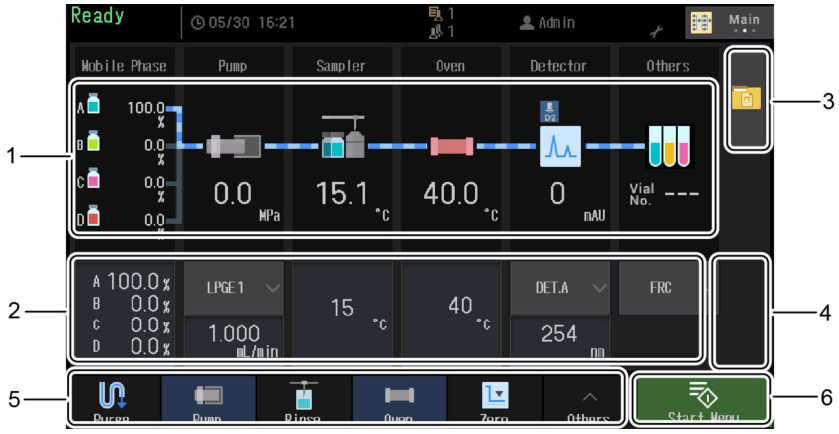
3.3 Analysis Menu

This menu is displayed by pressing (menu button) and selecting the [Analysis] menu.

It consists of [Monitor], [Main] and [Sequence] sections, displays chromatograms, edits methods and sequences, controls each device, executes sequence analysis, etc.

3.3.1 Main

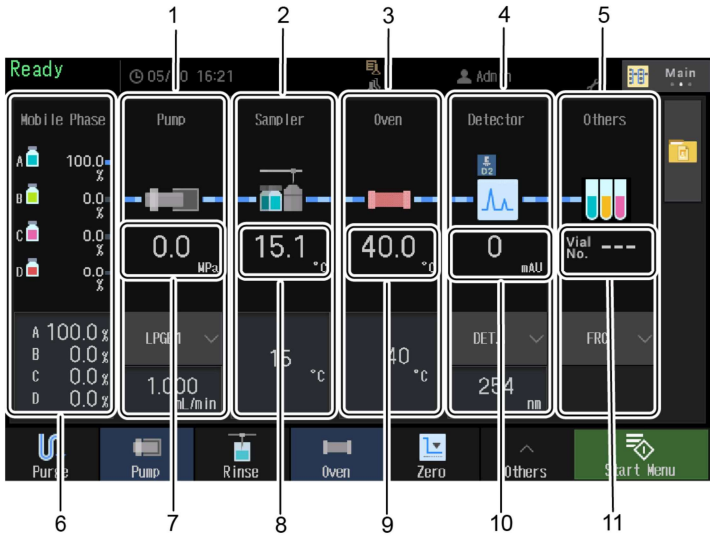
■ Main Screen



No.	Name	Description	Ref.
1	Flow Line Display Area	Display flow line and monitor value. Pressing the icon of each module opens the [Current method editing screen].	P.26
2	Parameter Simplified Setting Area	[Display Module Selection], [Parameter Simple Setting] are displayed.	P.29
3	Method File Folder	Load and save method files.	P.32
4	Extension	The button corresponding to the function selected in [Extended function] of [Screen setting] is displayed.	P.65

No.	Name		Description	Ref.
5	Module Control		It is a button for module control.	—
		Purge	The [Auto purge] screen opens.	P.42
		Pump	Start pump operation of the solvent delivery pump. It is displayed in blue during pump operation.	—
		Rinse	Start washing the autosampler needle.	—
		Oven	The temperature control of the column oven is started. It is displayed in blue while the column oven temperature control operation is in progress.	—
		Zero	Execute the auto zero function of the detector selected in [Display Module Selection]. **Hint** The auto zero function sets the detection value (baseline) at the time of pressing the button as "0". Please do it when the baseline is stable.	—
		Other	• [CRB]: Perform oven operation of the chemical reaction box. • [Purge]: Perform purge operation of the RID detector. • [Act.]: Starts operation of pump, oven, CO2 pump, BPR unit. **Hint** If the system includes the chemical reaction box, turn off the temperature control of the chemical reaction box before executing ACT OFF.	—
6	Start Menu		[Sequence analysis start screen] is displayed. During analysis, the buttons change according to the situation. • [Pause]: Pause analysis. • [Resume]: Restart paused analysis. • [Stop]: Stop analysis. **Hint** If a workstation is connected, no sequence is set, and the system is not in an analyzable state, the button can not be pressed.	P.48

■ Flow Line Display Area

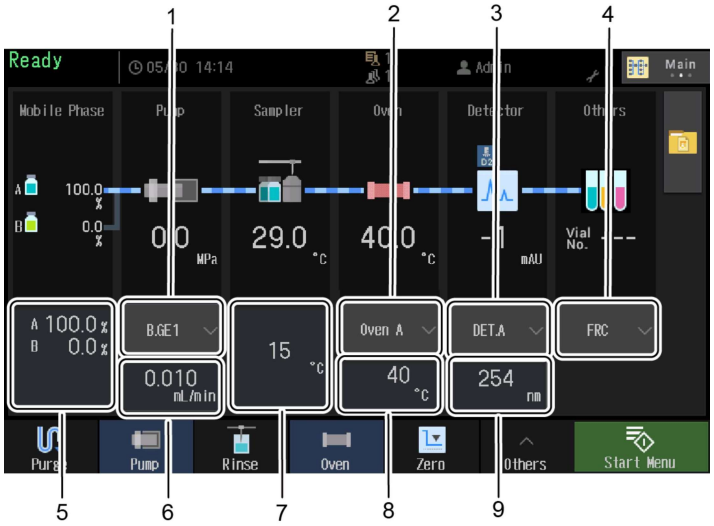


No.	Name	Description
1	Pump	By pressing the icon, [Current Method Editing] screen is displayed, and the device parameters can be edited.
2	Autosampler	
3	Oven	

No.	Name	Description
4	Detector	By pressing the icon, [Current Method Editing] screen is displayed, and the device parameters can be edited.
	Lamp Condition	Displays the lighting status of the detector lamp. Icon flashes at the start of lamp lighting (for some models only). **Hint** Since the RI detector does not have a control parameter to turn the lamp ON / OFF, the lamp status icon is not displayed
		OFF
		Deuterium lamp (D2) is ON
		Tungsten lamp (W) is ON
		Deuterium lamp (D2) and tungsten lamp (W) are ON
		Lamp ON (When the type of lamp is not a D2 lamp or W lamp, like the RF detector)
	Recycle Valve Status	The status of the recycle valve is displayed.
		Drainage side
		Recycle side
5	Other	By pressing the icon, [Current Method Editing] screen is displayed, and the device parameters can be edited. **Hint** • When a fraction collector, sub controller, etc. are connected to the system controller, the [Others] icon will appear. • When a chemical reaction box is connected, the position of the icon may differ from the actual flow line depending on the system configuration.
6	Display of Mobile Phase Bottle	By pressing the icon the [Mobile phase remaining amount] screen is displayed. Reference "3.3.4 Mobile Phase Remaining Amount" P.39

No.	Name	Description
7	Pressure Monitor Value	The current pump pressure value is displayed. The pressure unit of the pump can be changed. **Hint** Change the unit in [Settings]> [Environment setting]> [System controller]> [Pressure unit].
8	Sample Cooler Temperature Monitor Value	Displays the current rack temperature of the autosampler. **Hint** • In case of the model without rack temperature control function, the monitor value is not displayed. • SIL-30ACMP displays three rack temperatures.
9	Column Oven Temperature Monitor Value	Displays the current temperature value of the column oven.
10	Detector Data Monitor Value	The monitor value of the selected detector is displayed.
11	Other	• When a fraction collector is connected: Displays the preparative vial number. • When SFC.A or SFC.B is connected: Display BPR pressure. • When sub controller is connected: Values of valves A, B, C and D are displayed **Hint** If the preparative head is in the home position before analysis etc., the preparative vial number will display [---]. When the analysis starts, the preparative head moves to the preparative vial and the number is displayed.

■ Parameter Simplified Setting Area



No.	Name	Description
1	Flow Line Selection	Select the flow line to display.
2	Oven Selection	Select the oven to display.
3	Detector Selection	Select the detector to display.
4	Other Module Selection	Select another module to display (fraction collector, sub controller, etc.).
5	Mobile Phase Ratio Setting	It is displayed when the pumping mode is the gradient mode. By pressing this area, the [Mobile Phase Ratio Setting Dialog Box] opens and the mobile phase ratio can be set. Reference "Mobile Phase Ratio Setting" P.30
6	Flow Setting Area	Display flow rate. By pressing this area, the numeric keypad opens and the value can be set. Hint In constant pressure mode, set the pressure.
7	Sample Cooler Temperature Setting Area	(Model with sample cooler only) Displays the cooler temperature. By pressing this area, the numeric keypad opens and the value can be set.
8	Column Oven Temperature Setting Area	Column oven temperature is displayed. By pressing this area, the numeric keypad opens and the value can be set.
9	Detector Setting Area	Displays the setting parameters according to the detector. By pressing this area, the numeric keypad opens and the value can be set. (Example: For UV detector, wavelength setting can be input.)

■ Mobile Phase Ratio Setting

No.	Name	Description
1	Concentration Setting Area	Displays the concentration [%]. Pressing B to D opens the numeric keypad and the concentration can be set. The calculated value (= 100 - B concentration - C concentration - D concentration) is displayed in A.
2	Concentration Total Value	Displays the concentration total value. When the sum of A to D concentration exceeds 100%, it is displayed in red.

3.3.2 Method

There are two types of system controller methods.

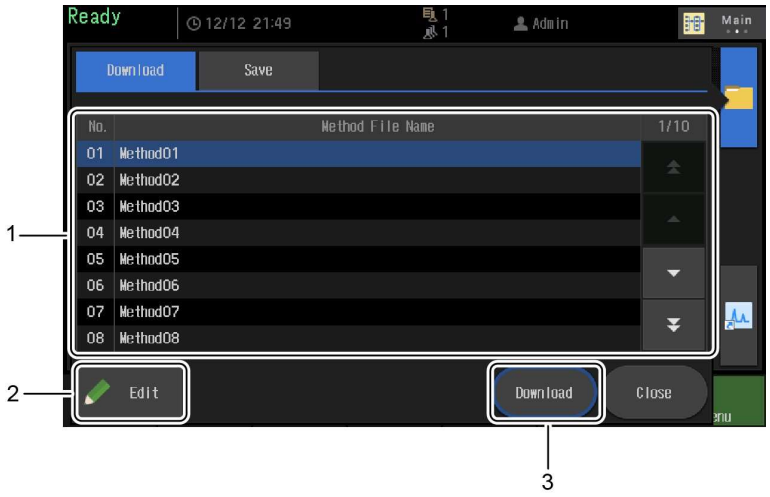
Current Method	This is the currently set method. • Pressing the [Flow line display area] of the [Main screen] opens the [Current method editing screen]. • The parameters of each module can be change temporarily by editing the [Current method]. • The current method overwrites the following method at the start of analysis. When workstation is not connected: Method file specified in sequence When connected to workstation: Method downloaded from workstation **NOTE** • The current method cannot be edited when logged out. • If the workstation is connected and the workstation security policy parameter "prohibit editing parameters on instrument" is set to ON, the current method can not be edited.
Method File (Method stored in method file folder)	These methods are used by the system controller when the workstation is not connected. It loads and uses it in the current method. **Hint** A total of 10 method files from Method 1 to 10 are available.

■ Method File List Screen

The method list is displayed when the folder button of the "Main Screen" is pressed.

[Download] Tab

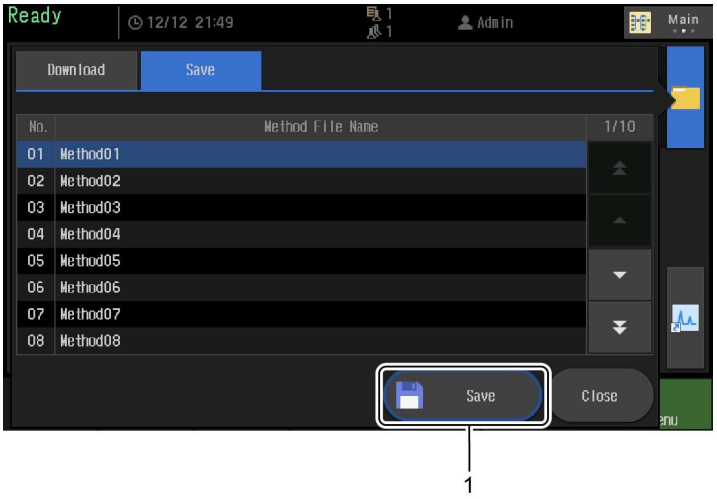
In this tab, the method file can be loaded to "current method" and also edited directly.



No.	Name	Description
1	Method File List	Display a list of method files.
2	Edit	The method file editing screen opens. Reference "Method File Edit Screen" P.34
3	Download	Load the specified method into the current method.

[Save] Tab

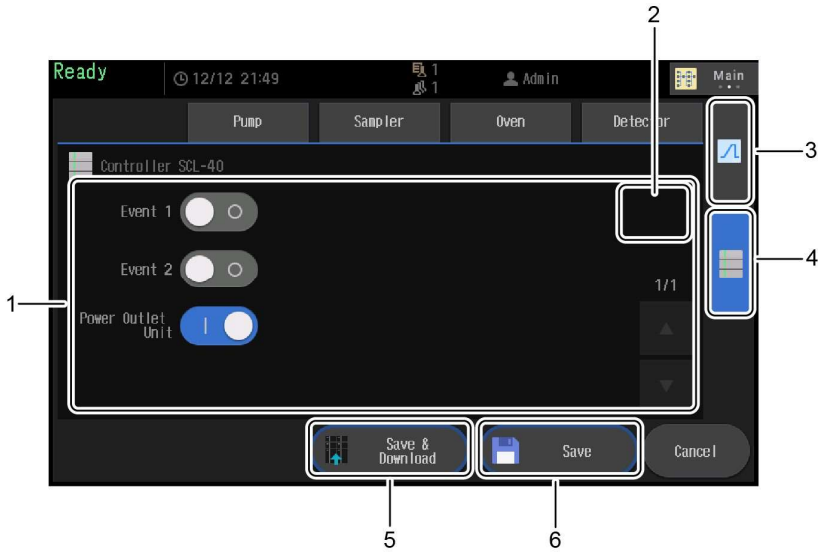
In this tab, the current method can be saved into the specified method file.



No.	Name	Description
1	Save	Writes the current method to the specified method file.

■ Method File Edit Screen

This screen is for editing the method files.



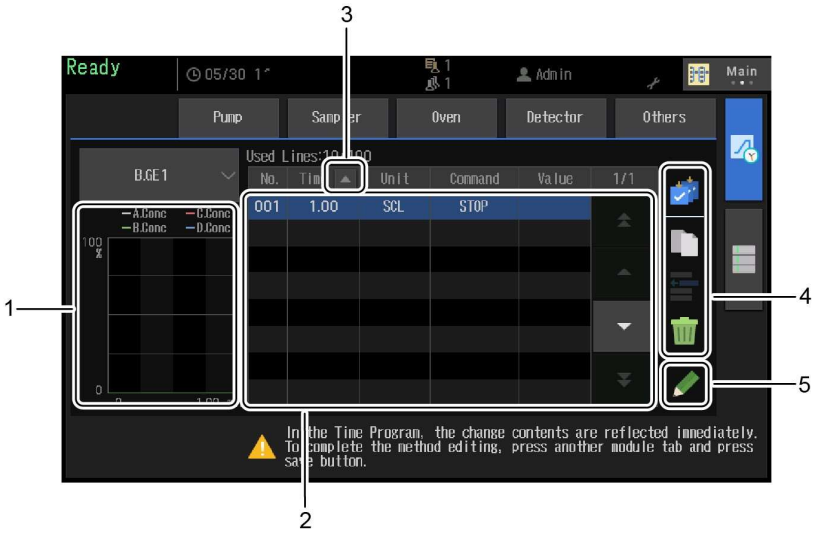
No.	Name	Description
1	Parameter Setting Area	Set the parameters of the module selected in the tab.
2	Advanced Setting Button	For models with a large number of parameters, parameters that are not used frequently are hidden. By pressing this button all parameters can be displayed.
3	Time Program Button	The time program screen is displayed.
4	System Controller Button	Displays the method edit screen of the system controller.
5	Save and Download	Save the edited content in the method file and download the parameters to each connected module. (Save the method file and load it into the current method)
6	Save	The edited contents are saved in the method file, but parameters are not downloaded to each connected module. (It only updates the method file and does not load to the current method)

3.3.3 Time Program

This screen is for editing the time program.

Reference "8.2 Time Program List" P.175

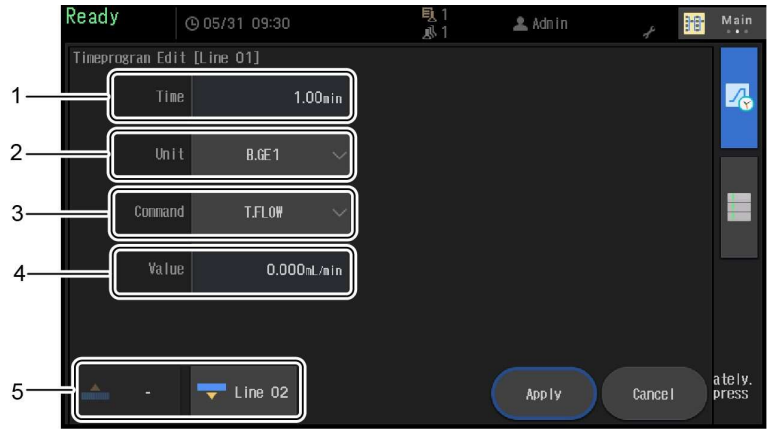
■ Time Program Screen



No.	Name	Description
1	Gradient Curve	Displays the gradient curve created by the time program.
2	Time Program List	Displays the time program. **Hint** • The time program command is valid only when the workstation is displayed as [(WS Only)] • Time programs that can not be executed due to mismatch in method or environmental setting are not displayed.
3	Sort	Sort the lines in chronological order.
4	Utility	Edit time program list.
5	Edit	The time program edit screen of the selected line is displayed.

■ Time Program Edit Screen

Edit the contents of each line of the time program.

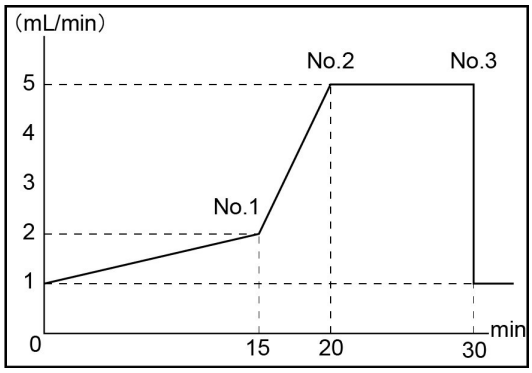


No.	Name	Description
1	Time	Set the time. The setting range is 0.01 to 9999.9 [minutes].
2	Unit	Select a unit.
3	Command	Select the processing instruction (time program command). Reference "8.2 Time Program List" P.175
4	Value	Enter a value according to the command. Hint It is not displayed in commands that do not require a [value] setting.
5	Line Switching Button	Press the arrow to switch lines. If the down arrow is pressed on the last line, the contents of the last line are copied and a new line is added.

■ Time Program Setting Example

Change the Flow Rate

For example, the time program that changes the flow rate as shown in the figure on the right is described. Assume that the method's flow rate is set to 1 mL/min.

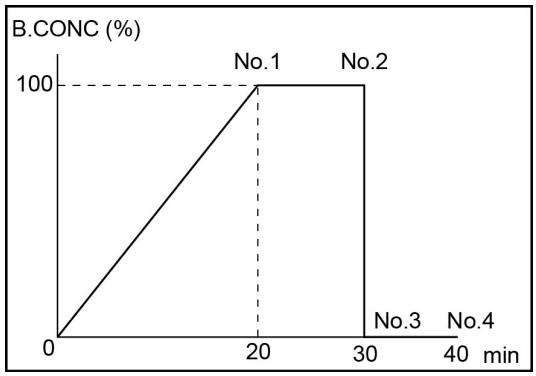


Set the time program as shown in the table below.

No.	Time (Minutes)	Unit	Command	Value
1	15.00	ISO 1 (Pump)	FLOW	2.0000
2	20.00	ISO 1 (Pump)	FLOW	5.0000
3	30.00	SCL	STOP	—

Create the Gradient Program

By setting the B, C, D concentration at each time in the time program, it is possible to change the A to D concentration over time.
Suppose that the pumping mode is B.GE and the initial B concentration of the method is set to 0 %.

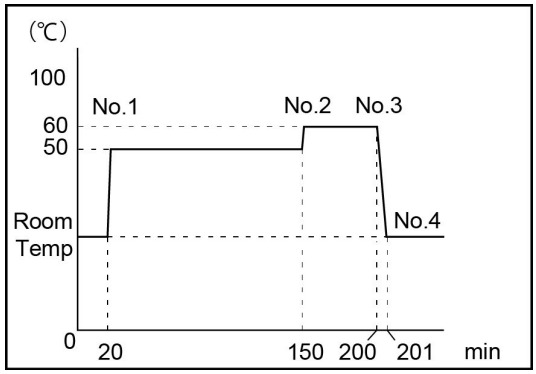


Set the time program as shown in the table below.

No.	Time (Minutes)	Unit	Command	Value
1	20.00	B.GE1 (Pump)	B.CONC	100.0
2	30.00	B.GE1 (Pump)	B.CONC	100.0
3	30.01	B.GE1 (Pump)	B.CONC	0.0
4	40.00	SCL	STOP	—

Change Operating Temperature of Column Oven

For example, the time program that changes the oven operating temperature as shown in the figure on the right is described. Suppose that the method's [Oven temperature control] is set to OFF.



Set the time program as shown in the table below.

Hint When OVEN.T is set to 0, the column oven can be turned off

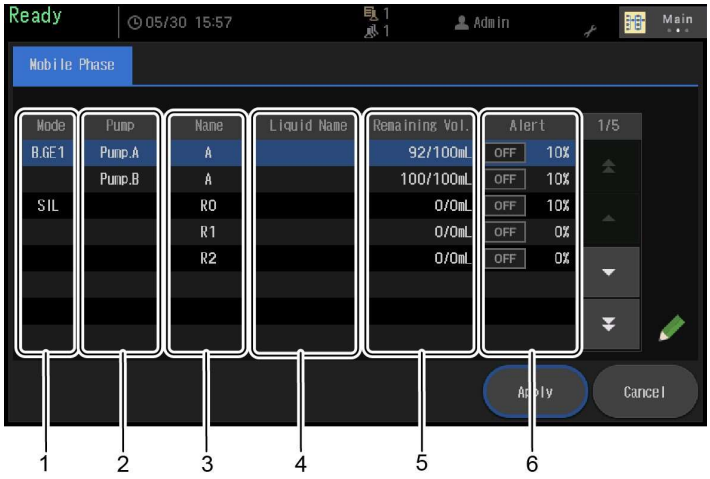
No.	Time (Minutes)	Unit	Command	Value
1	20.00	Oven.A (Column oven)	OVEN.T	50
2	150.00	Oven.A (Column oven)	OVEN.T	60
3	200.00	Oven.A (Column oven)	OVEN.T	0
4	201.00	SCL	STOP	—

3.3.4 Mobile Phase Remaining Amount

■ Mobile Phase Remaining Amount Screen

This screen is displayed, when the [Mobile Phase Bottle] icon on the main screen is pressed.
The remaining amount of mobile phase and rinsing liquid can be checked, and also the initial volume / alert threshold can be set.

Hint When an optional "Mobile Phase Monitor (MPM-40)" is connected, [Mobile Phase Monitor Screen] opens instead of the screen below.



No.	Item	Description
1	Mode	Indicates pump flow mode.
2	Pump	Displays the pump name.
3	Name	Symbol names of mobile phase and rinse liquid are displayed.
4	Liquid Name	Displays the liquid name set on the workstation. **Hint** The liquid name is displayed only when it is set from the workstation.
5	Remaining Vol.	Displays remaining volume/initial volume.
6	Alert	Alert ON/OFF and alert threshold are displayed.
—	Edit Button	The [Mobile phase remaining amount edit screen] of the selected line is displayed.

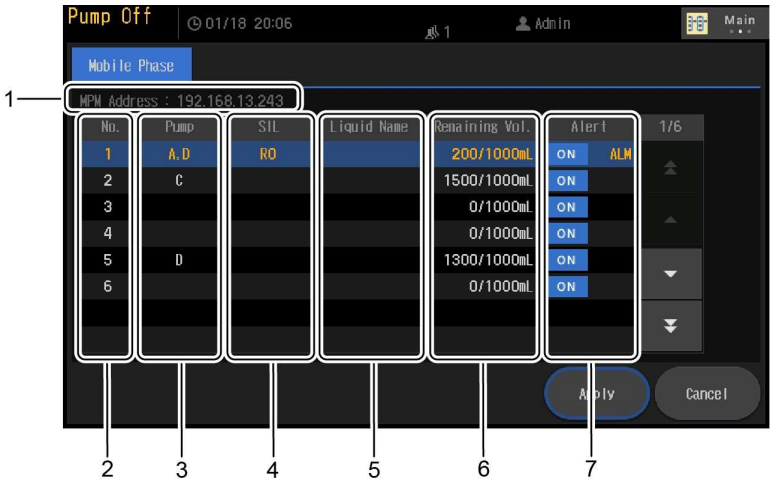
■ Mobile Phase Remaining Amount Edit Screen

Perform various settings for mobile phase and rinsing liquid.

No.	Item	Description
1	Liquid Name	Displays the liquid name set on the workstation. It can not be edited with display only.
2	Remaining Vol.	Displays remaining volume/initial volume. Press the reset button to reset the initial volume.
3	Alert	Set alert ON/OFF. In case of [ON], a warning of insufficient remaining volume is displayed when it becomes lower than the threshold value.
4	Alert Threshold	Set the alert threshold [%].

■ Mobile Phase Monitor Screen

When the optional "Mobile Phase Monitor" is connected, the following screen opens.



No.	Item	Description
1	MPM Address	It is the IP address of the connected the Mobile Phase Monitor.
2	No.	It is the sensor number of the bottle number.

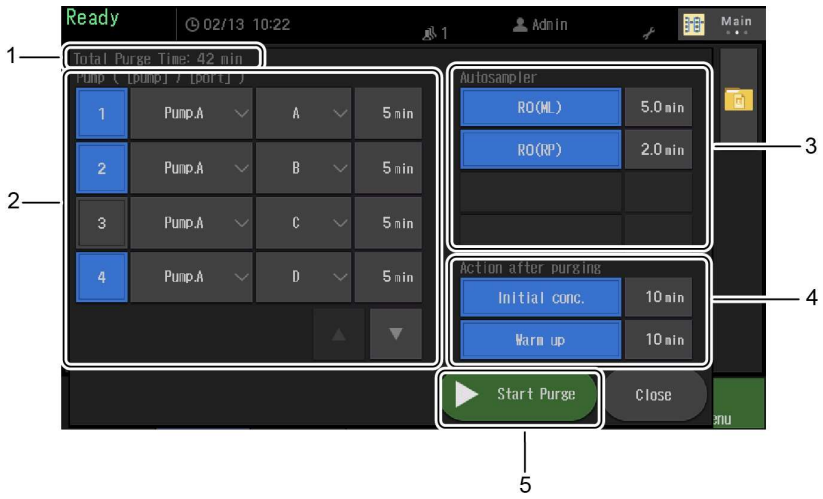
No.	Item	Description
3	Pump	Displays the pump assigned to the bottle.
4	SIL	The autosampler assigned to the bottle is displayed.
5	Liquid Name	Displays the liquid name set by Mobile Phase Monitor. In the case of the mobile phase of the large volume setting, L/ will be displayed at the beginning of the liquid name.
6	Remaining Vol.	It displays the total volume and remaining volume.
7	Alert	It displays the ON / OFF setting whether or not to judge the remaining amount and the judgment result. "ALM" and "ERR" are displayed when the remaining amount is below the threshold value. **Hint** By pressing the [ON] / [OFF] button, the remaining amount judgment can be turn ON / OFF temporarily . For example, it is useful to temporarily turn off the judgment, such as when purge can not be executed because the irrelevant mobile phase bottle is empty. When the analysis is started, the judgment setting will be returned to the original one.

3.3.5 Auto Purge

When the [Purge] button in the [Module control area] of the main screen is pressed, this screen will be displayed.
On this screen, setting the conditions, execute, and checking progress of auto purge are available.

■ Auto Purge Setting Screen

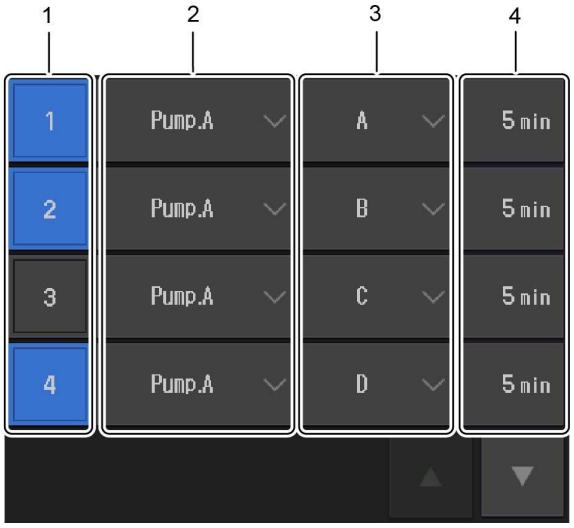
Perform auto purge setting.



No.	Name	Description
1	Total Purge Time	Displays the total time of purge. It's a total of [Pump purge], [Autosampler purge] and [Action after purging].
2	Pump Purge Area	Perform pump purge setting. **Hint** A pump without an auto drain valve needs a direct injection type autosampler for auto purging. With these pumps, pump purge can not be edited and executed unless the autosampler is connected to the system.
3	Autosampler Purge Area	Configure the autosampler purge.
4	Action After Purging	Set the action to be executed after the purge is completed.
5	Purge Start	Auto purge starts.

a) Pump Purge Area

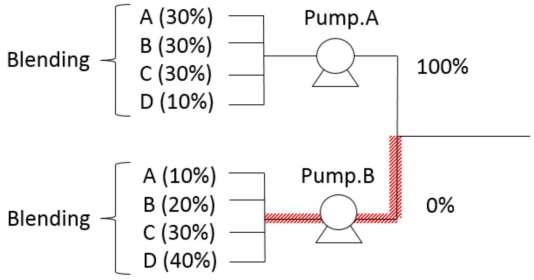
Up to 32 lines of purge items can be set.



No.	Name	Description
1	Purge Item Number	Set whether to purge by pressing this button. Blue means "to execute".
2	Pump	Configure the pump to purge.
2	Port	Configure the mobile phase to purge. Reference For the purge item "Initial condition", refer to "Purge by Initial Condition" P.43.
3	Time	Configure the purge execution time.

Purge by Initial Condition

[Initial condition] is effective when executing auto purge strictly for B.GE and T.GE systems composed of pumps in mobile phase blending mode.
For example, when the current method is set to A concentration of 100% and B concentration of 0% in the "Blending and B.GE system", even if [Initial Concentration flow] of [Action after purging] is performed, the shaded area on Pump.B side is not replaced with the desired blending density.

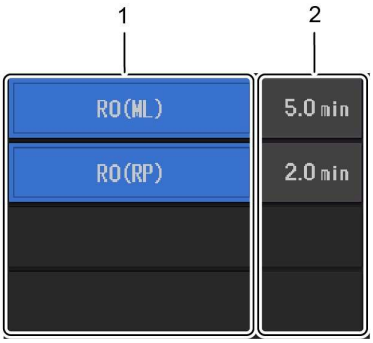


Select [Pump.B] [Initial condition] to make the shaded area of the above the desired blending density. In this case, pump B will deliver a flow rate of 2 mL/min (fixed value)

with blending concentration. In addition, the liquid is drained not to go to the column (drained by autosampler, or drained by auto purge valve of pump).

b) Autosampler Purge Area

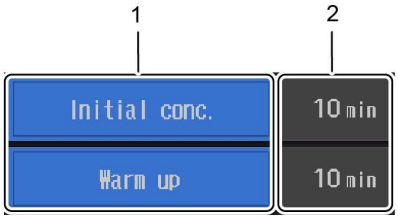
Set the purge of the autosampler.



No.	Name	Description
1	Execution	Select whether to execute purge at once. **Hint** The purge item of the autosampler is automatically configured by the type of autosampler and the method set. Only specific purge items can not be run.
2	Time	Displays the purge execution time. **Hint** When the purge items are in this order of sequence R0(ML) → R1 → R2 → R0(RP), the same purge time is set for R0 (ML) and R0 (RP).

c) Action After Purging

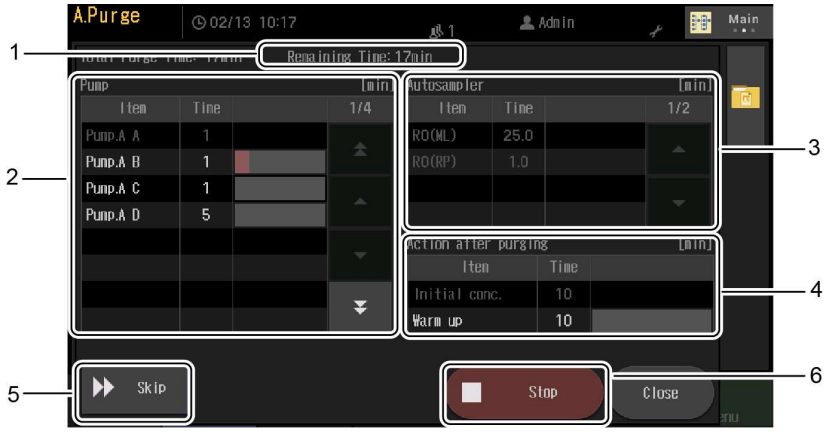
Set actions such as warm-up performed after [Pump Purge] and [Autosampler Purge].



No.	Name	Description
1	Initial conc.	Pumping liquid according to the mobile phase ratio of the current method. However, it is drained so that no liquid goes to the column. (Drained by autosampler or drained by auto drain valve of pump) **Hint** • This item is displayed only when there is the drain destination(autosampler or auto drain valve). • This item is displayed only when the pumping mode is in the gradient mode.
	Warm Up	Pump liquid according to the current method. The liquid is sent to the column.
2	Time	Set the time to execute each item.

■ Auto Purge Progress Check Screen

Pressing the [Purge] button in the module control area during auto purge will display the auto purge progress check screen.



No.	Name	Description
1	Remaining Time	The remaining time of purge is displayed.
2	Pump Purge Area	The progress of pump purge is displayed. For the purge item name displayed in the area, refer to "Pump Purge Item Name" P.46.
3	Autosampler Purge Area	The progress of the autosampler purge is displayed.
4	Action After Purging Area	The progress of [Action after purging] is displayed.
5	Skip	Skip the currently executing purge item and starts the next purge item.
6	Stop	Stop auto purge.

Pump Purge Item Name

Item name consists of "Pump", "Mobile phase name", "Purge mode".

Pump.A	A1	/P
Pump	Mobile Phase	Purge Mode

Name	Description
Pump	Displays the selected pump.
Mobile Phase	Displays the selected mobile phase. **Hint** When a binary pump (e.g. LC-20AB) is connected, it will be displayed as the example below • "(A)" is displayed when purging the primary pump (Conc.A side). • "(B)" is displayed when purging the secondary pump (Conc.B side).

Name	Description
Purge Mode	• Purge with autosampler drain Purge the flow line from the pump to the autosampler. In this case, the purge mode display is blank. • Purge by pump drain [/P] is displayed when the pump has an auto drain valve and purges with only the pump.

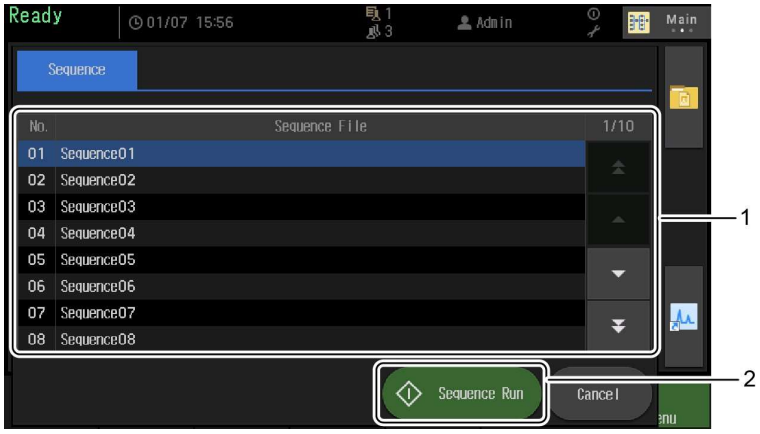
3.3.6 Start Sequence Analysis

■ Start Sequence Analysis

When the [Analysis Menu] button in the module control area of the main screen is pressed, this screen will be displayed.
Select a sequence file and start sequence analysis.

Hint "Edit" of the sequence file can not be done from this screen. Please do editing from the [Sequence] menu.

Reference "3.3.8 Sequence" P.53



No.	Name	Description
1	Sequence File Selection Area	Select the sequence file to be used for analysis.
2	Sequence Analysis Start Button	Start analysis with the selected sequence file.

3.3.7 Monitor

■ Chromatogram Monitor Screen

Graph the chromatogram and monitor values of each module.

No.	Name	Description
1	Chromatogram Monitor	Graph the chromatogram and monitor values of each module. Select the item to be displayed in [Chromatogram monitor setting screen]. **Hint** After powering on the instrument, the horizontal axis (time) of the chromatogram monitor is set to the initial value of 20 minutes. When the analysis starts, it will be set according to the analysis time.
2	Fraction Collector Screen Button	Switch to the fraction collector screen.
3	Device Monitor Screen Button	The [Device monitor screen] is displayed. Reference "Device Monitor Display Screen" P.52
4	Display Movement	Move the display position of the chromatogram up and down (vertical axis direction).
5	Chromatogram Monitor Setting Screen Button	The [Chromatogram monitor setting screen] is displayed. Reference "Chromatogram Monitor Setting" P.50
6	Enlarge / Shrink	Zoom in / out the display range of the chromatogram.
7	Restore	Return the chromatogram to the state set on the [Chromatogram Monitor Settings] screen. Reference "Chromatogram Monitor Setting" P.50

■ Chromatogram Monitor Setting

Set the display of the chromatogram monitor.

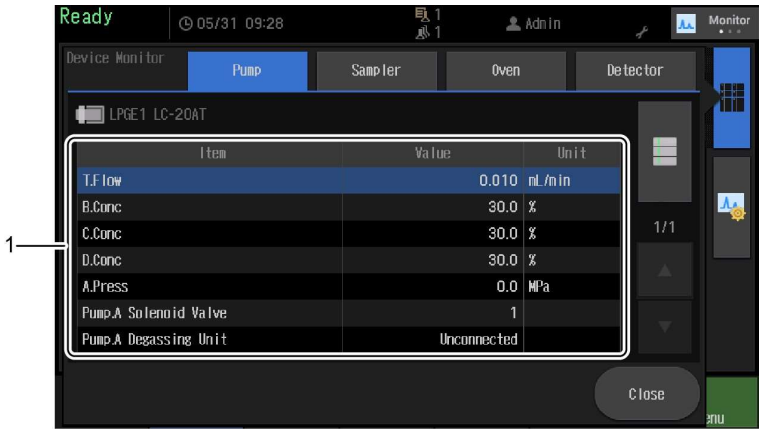
No.	Name	Description
1	Left Vertical Axis Setting (Chromatogram)	Set the unit and the display range on the left vertical axis of the chromatogram monitor. • In case of UV detector and PDA detector Please set mAU for the unit. • In case of fluorescence detector, AD board Please set mV for the unit. • In the case of a differential refractive index detector Please set uRIU as the unit. • In case of electric conductivity detector Set uS/cm for the unit.
2	Right Vertical Axis Setting (Monitor value of each module)	Set the unit and display range on the right vertical axis of the Chromatogram monitor.
3	Display Items	Set the items to be displayed on the Chromatogram monitor.

■ Fraction Collector Screen

No.	Name	Description
1	Current Preparative Vial Number	Displays the preparative vial number that is in standby or collecting. **Hint** When the preparative head is in the home position, for example before analysis execution, the preparative vial number displays [---]. When starting the analysis, the preparative head moves to the preparative vial and the number is displayed.
2	Opening and Closing of Preparative Valve	Open and close the preparative valve of fraction collector. **Hint** It can only be pressed during analysis.

■ Device Monitor Display Screen

The monitor value of each module connected to this instrument is displayed.



No.	Name	Description
1	Monitor Value Display	The monitor value of each module is displayed.

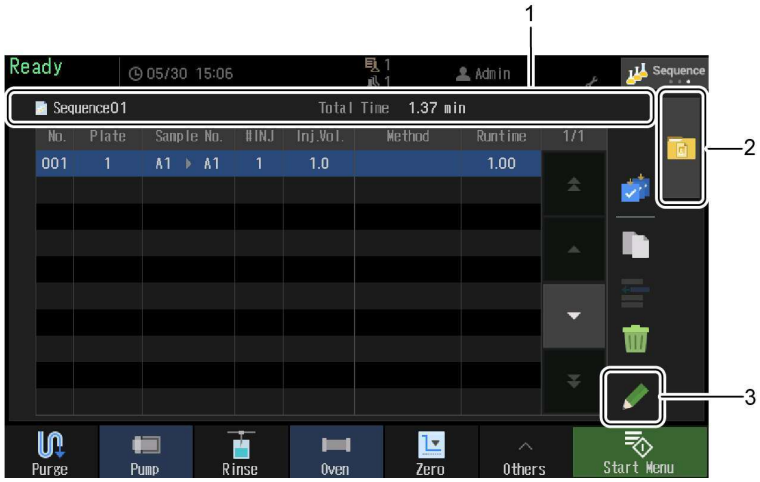
3.3.8 Sequence

Sequence files can be edited and viewed on the [Sequence] menu.
When opening the [Sequence] menu while the sequence is not running, [Default sequence screen] will be displayed.
On the other hand, when opening the [Sequence] menu during when a sequence is running, [Sequence analysis progress screen] is displayed.

Hint Sequence analysis by SCL and editing of sequence file can be done only when the workstation is not connected.

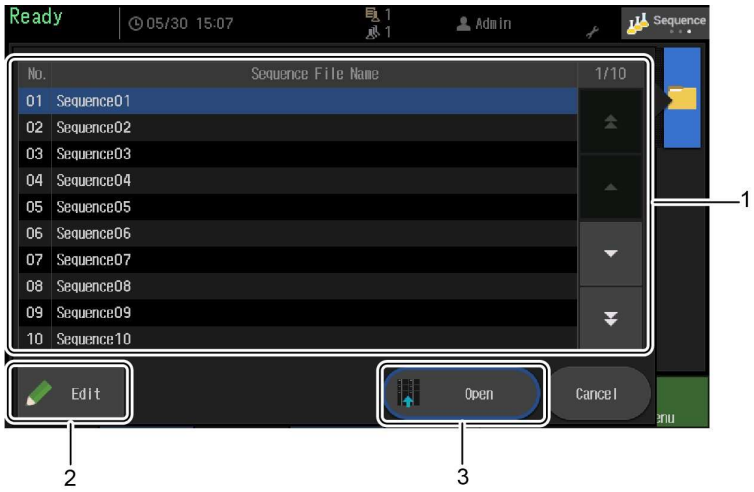
■ Default Sequence Screen

Opening the sequence file that will be used to the [default sequence screen] is convenient for editing.



No.	Name	Description
1	Sequence File Information	The name of the sequence file being displayed and the total execution time are displayed. **Hint** In the case of the sequence with using the baseline stability check, or the system including the plate changer, the actual execution time may be different from this displayed time.
2	Sequence File Folder	Open Sequence File Selection screen.
3	Edit	The sequence line editing screen opens.

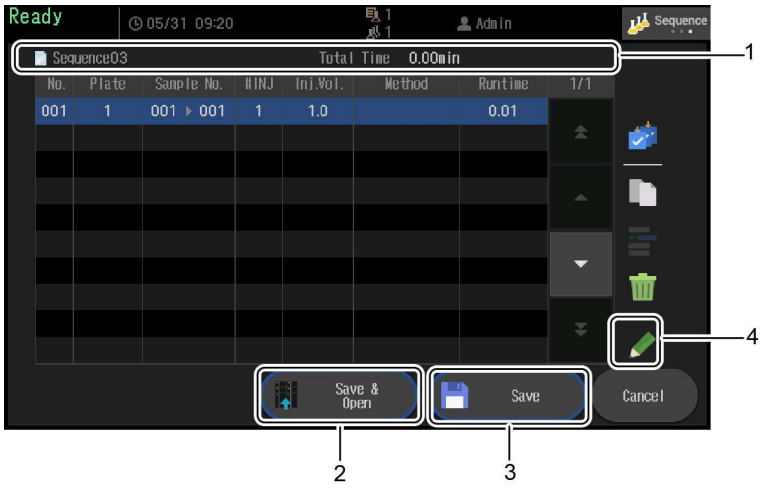
■ Sequence File Selection Screen



No.	Name	Description
1	Sequence File Selection Area	Select the sequence file.
2	Edit	Opens the selected sequence file in the sequence file editing screen.
3	Open	Opens the selected sequence file as the default sequence.

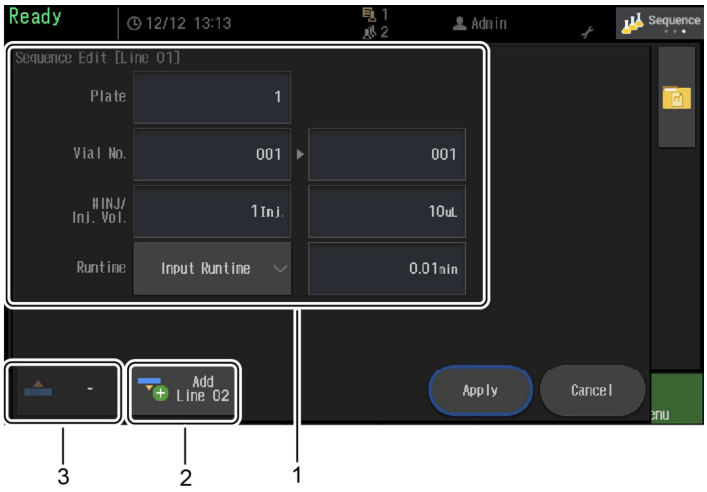
■ Sequence File Edit Screen

The contents of the sequence file can be displayed and edited.



No.	Name	Description
1	Sequence File Information	The name of the sequence file being displayed and the total execution time are displayed. **Hint** In the case of the sequence with using the baseline stability check, or the system including the plate changer, the actual execution time may be different from this displayed time.
2	Save & Open	Save the edit and specify this sequence file as the default sequence.
3	Save	Save the edits.
4	Edit	The sequence line editing screen opens.

■ Sequence Line Edit Screen



No.	Name		Description
1	Plate		Set the plate number of the autosampler.
	Vial No. (From, To)		Set the vial number. **Hint** If "-1" is set in the From field, analysis is performed in non-injection mode. The non-injection mode is a mode used when analyzing without using an autosampler, such as a manual injector. Reference "6.4 When Using a Manual Injector" P.152
	#INJ/ Inj. Vol.		Set the number of injections and injection volume. **Hint** When the autosampler's Dual Injection function is set to "simultaneous injection", the upper limit of the injection volume is limited to the smaller loop capacity of the sample loop connected to Port 1 or Port 2.
	Runtime	Input Runtime	Set the analysis time as a numerical value. **Hint** For the analysis, the method file specified as the current method is used. In the "Input Runtime" mode, the time program does not work even if the time program is set in the current method.
		Use Time Program	Select the method file to be used for analysis by pulldown. **Hint** The analysis end time is the time of the STOP command set in the time program in the method file.
2	To the Next Line		If the next line does not exist, copy the current line and display the next line.

No.	Name	Description
3	To the Previous Line	Display the previous sequence line.

■ Sequence Analysis Progress Screen

Progress screen is displayed during sequence analysis.

No.	Name	Description
—		It shows that it is an executed line.
—		It shows that it is a running line.

3.4 Shutdown/Startup

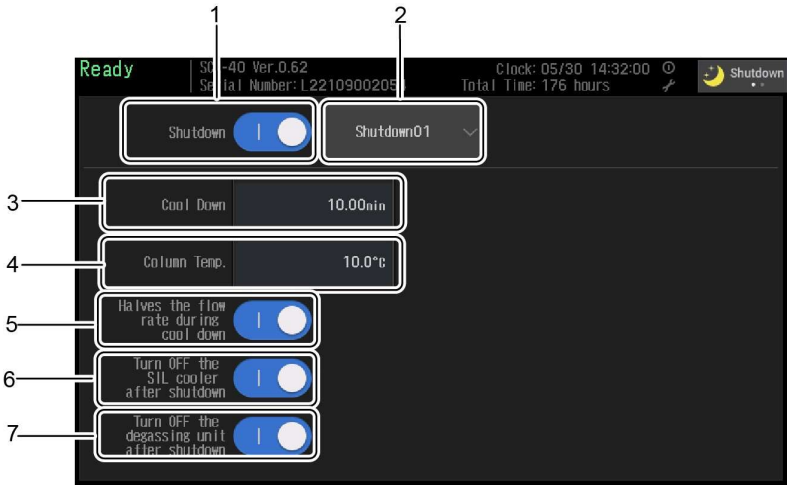
This menu is displayed by pressing (menu button) and selecting the [Shutdown / Startup] menu.

3.4.1 Shutdown

■ Shutdown Setting Screen

Performs shutdown execution and the setting shutdown file to be used.

Hint When shutdown is set to [ON], shutdown processing is executed at the end of sequence analysis or when the power switch is turned OFF.



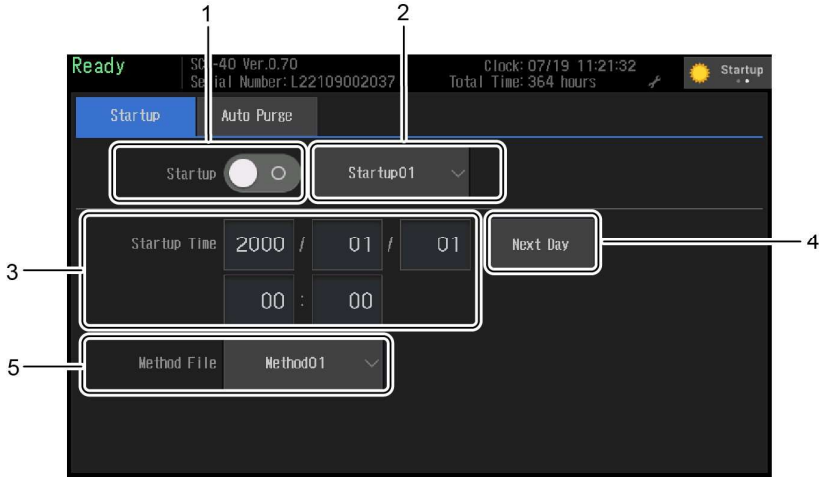
No.	Name	Description
1	Shutdown	Set whether or not shutdown is executed. **Hint** Once shutdown is executed, this item is automatically set to OFF.
2	Shutdown File	Select the shutdown file.
3	Cool Down	Set the cool down time of the column oven.
4	Column Temp.	Set the column temperature reached after the cool down time.
5	Halves the flow rate during cool down	Set the flow rate during cool down to 1/2 of the value set in the method.
6	Turn OFF the SIL cooler after shutdown	After shutting down, turn off the autosampler cooler, turn on the ZHOME mode, and the instrument switch to power OFF. If not set, turn off ZHOME mode and switch to sleep mode.

No.	Name	Description
7	Turn OFF the degassing unit after shutdown	After shutting down, turn off the degassing unit and the pump switch to power OFF.

3.4.2 Startup

■ Startup Setting Screen

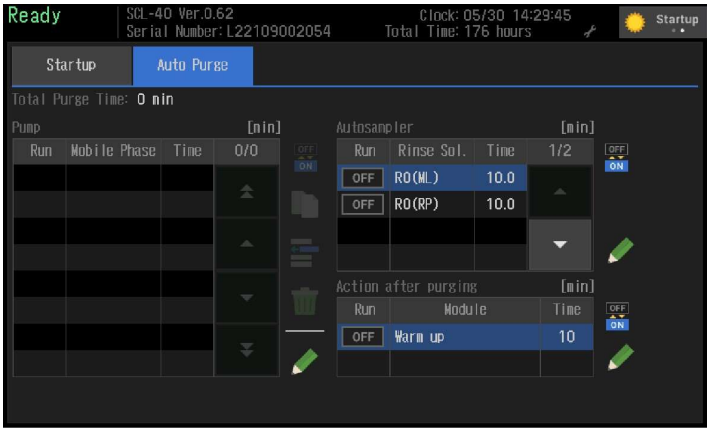
It sets up whether startup function is executed, start time, purge contents, and so on.



No.	Name	Description
1	Startup	Sets whether or not startup is executed.
2	Startup File	Select the startup file.
3	Startup Time	Enter the startup date and time. Startup starts at the specified date and time.
4	Next Day	Automatically enter the next day's date.
5	Method File	Select the method file to be executed at startup.

■ Startup Purge Setting Screen

The auto purge condition to be executed at startup can be set separately from normal auto purge.



Hint The setting contents are the same as the auto purge setting.

Reference "3.3.5 Auto Purge" P.42

3.5 Maintenance

This menu is displayed by pressing (Menu button) and selecting the [Maintenance] menu.

3.5.1 Consumables Information

■ Consumables Information Screen

Displays the consumables information of the connected modules.

No.	Name		Description
1	Module Selection		Select the module to display in the Consumables list. **Hint** If the consumables list includes items exceeding the replacement criteria, an consumables check mark is displayed.
2	Consumables List		Displays the list of consumables for the selected module.
		Judgment	A check mark is displayed.
		Items	Item name and unit are displayed.
		Current / Recommendation	Items that are beyond the replacement criteria will be yellow in the color of the bar.
		Last Date	It is displayed in the format of date (****/**/**) or operating time (T ******).

NOTE The replacement criteria for the device older than the VP series (6 A to 10 A series) is displayed with the default value. The replacement criteria set independently by the workstation is not displayed.

3.5.2 System Check

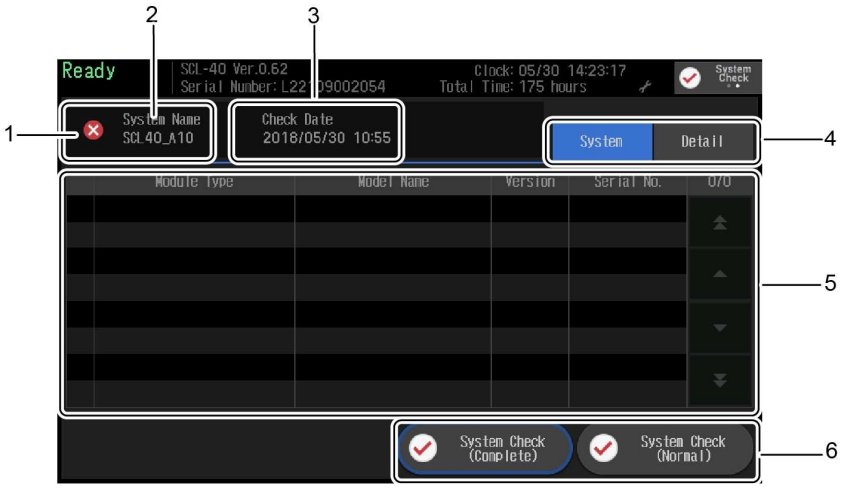
■ System Check Screen

Executes the system check and Displays the system check report.

Hint

- The contents are also updated when system check is done from the workstation.
- Even if the system check is executed by unchecking the "Detailed report" check box in LabSolutions, "Detailed report" is displayed instead of "Simple report" on the following screen of the system controller.

NOTE When executing the system check from the workstation, confirm the system check report of the PDA detector on the screen of the workstation.



No.	Name		Description
1	Overall Result		The result of comprehensive judgment is displayed as an icon.
2	System Name		Displays the name of the system controller.
3	Check Date		Displays the date and time when the system check was executed.
4	Tab	System	A summary of system checks is displayed. **Hint** Select a module on the System tab and press the Details tab to open the detail report for the selected module.
		Detail	Detailed report is displayed for each module.
5	System Check Result		The system check result corresponding to the tab is displayed.

No.	Name	Description
6	System Check (Complete) Button	Perform a complete system check. **Hint** Items that take time to check, such as wavelength check of UV detector, are also carried out.
	System Check (Normal) Button	Perform a normal system check. **Hint** Items that take time to check, such as UV detector wavelength check, will be skipped. Items that were skipped will show the result of the previous execution.

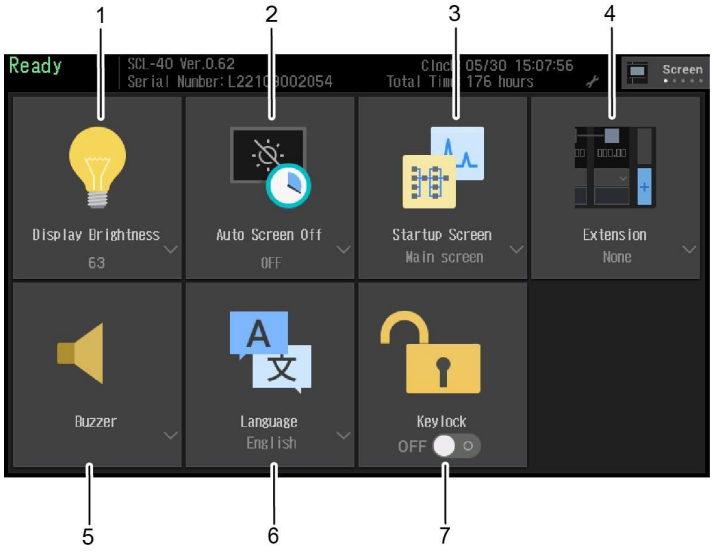
3.6 Configuration

This menu is displayed by pressing (Menu button) and selecting the [Settings] menu.

3.6.1 Screen Setting

■ Screen Setting

Make settings related to the screen.



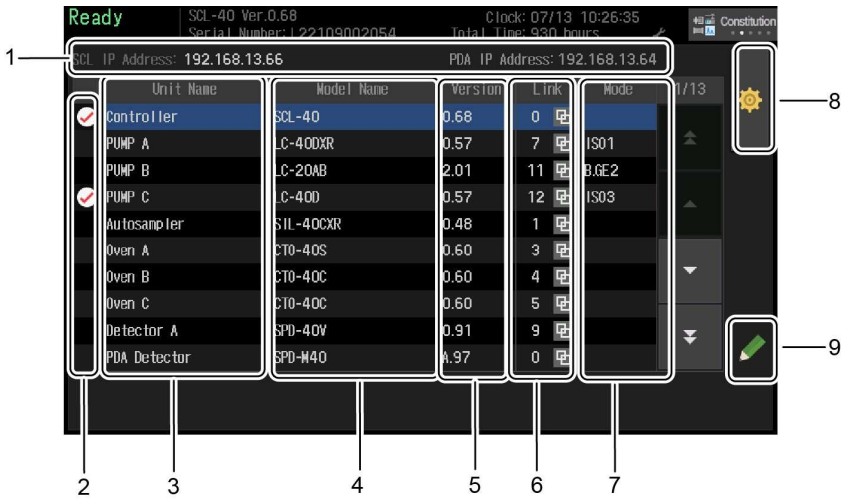
No.	Name		Description
1	Screen Brightness		Sets the screen brightness.
2	Auto Screen Off		It automatically turns off the screen at the specified time. **Hint** After the screen turns off, it will turn ON again when touching the screen.
3	Startup Screen		Select the screen (home screen) to display after turning on the power.
4	Extension		Choose an extension function. Depending on the selected function, buttons are displayed at the lower right of the main screen.
		None	Extended function buttons are not displayed.
		Monitor Shortcut	A shortcut to the chromatogram monitor screen is displayed.

No.	Name		Description
5	Buzzer	Mode	OFF: Both operation sound and alarm sound turn OFF. ON: Both operation sound and alarm sound turn ON. Alarm: The operation sound turns OFF and the alarm sound turns ON.
		Volume	Set the volume.
6	Language		Select a language. (Japanese / English)
7	Keylock		Set key lock. **Hint** When key lock is on, the method and sequence file are locked, and unintentional parameter change can be prevented.

3.6.2 System Configuration

■ System Configuration Screen

Set parameters related to system configuration.



No.	Name	Description
1	IP Address	It displays the IP address of SCL and the IP address of the parent-child relationship PDA detector.
2	Link Check	If the Link Check is ON, a check mark will be displayed. Reference "Link Check Setting Screen" P.69
3	Unit Name	Displays the unit name.
4	Model Name	Displays the model name.
5	Version	Displays the version number.
6	Link	Displays the channel number of the optical link. The link mark is displayed when the device is not in local mode but is linked normally.
7	Mode	The pump displays the pumping mode (ISO, B.GE, etc.). The autosampler and fraction collector display usage mode. Hint The methods of the autosampler and fraction collector has the usage mode setting. If this parameter is set to "Not used", the string of "Not Use" is displayed in this column. Reference "6.5 Precautions When Using SIL-10A Series or FRC-10A" P.153
8	Link Mode Setting Screen Button	The link mode setting screen is displayed.
9	Edit Button	The link check setting screen is displayed.

■ Link Mode Setting Screen

Sets the way of assigning device names to devices connected to multiple units (pump, detector, oven). There are two types of allocation ways: automatic and fixed.

In Case of [Automatic]

Every time each device that makes up the system is turned on / off , assign the device name again from the side with the smaller link address. There is no particular inconvenience in this mode when always turning on the power of all the devices making up the system.

Optical Link Address	Connected Device	Unit Name				Connected Device	Unit Name
1	SIL-40	Autosampler				SIL-40	Autosampler
3	LC-40D	Pump.A	→	Power OFF	→	—	—
4	LC-40D	Pump.B				LC-40	Pump.A
5	CTO-40	Oven.A	→	Power OFF	→	—	—
6	CTO-40	Oven.B				CTO-40	Oven.A
7	SPD-40	DET.A	→	Power OFF	→	—	—
8	SPD-40	DET.B				SPD-40	DET.A

In Case of [Fixed]

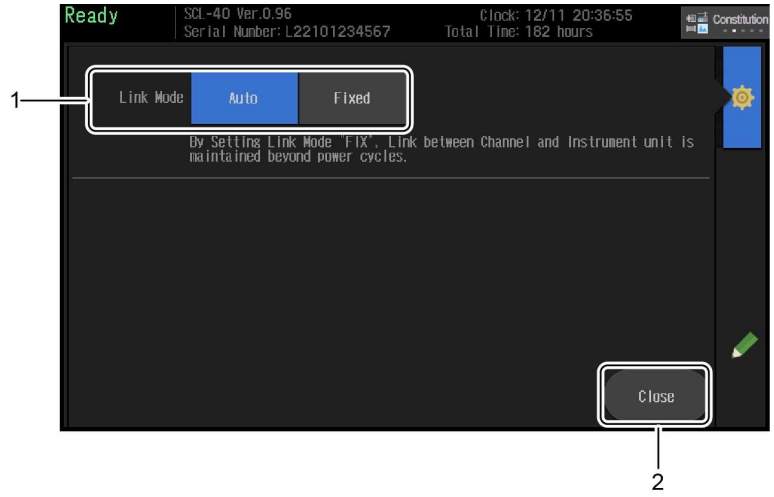
When the setting is changed from [AUTO] to [Fixed], the system configuration is remembered. In the fixed mode, it will not recognize even if a new device is connected.

Hint

- The advantage of fixed mode is that the device name does not change because the device name is not reassigned even if the device is powered on / off. It is no longer necessary to be aware of the power ON / OFF status of the device in the setting file that uses the device name such as the time program.
- The [Fixed] mode is convenient when two detectors are connected to the system, and one analyzes only RID, another analyzes only SPD, etc. using detector power on / off.

Optical Link Address	Connected Device	Unit Name				Connected Device	Unit Name
1	SIL-40	Autosampler				SIL-40	Autosampler
3	LC-40D	Pump.A	→	Power OFF	→	—	—
4	LC-40D	Pump.B				LC-40	Pump.B
5	CTO-40	Oven.A	→	Power OFF	→	—	—
6	CTO-40	Oven.B				CTO-40	Oven.B
7	SPD-40	DET.A	→	Power OFF	→	—	—
8	SPD-40	DET.B				SPD-40	DET.B

The setting screen is shown below.



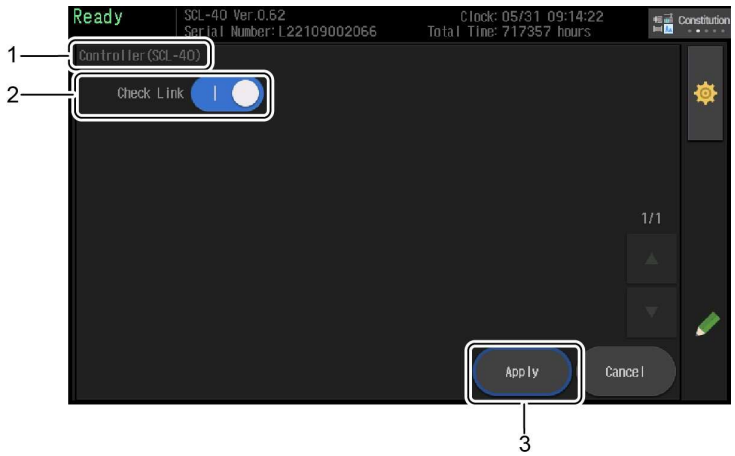
No.	Name	Description	
1	Link Mode	Auto	When the connection status of the device changes, update the device name.
		Fixed	Even if the connection status changes, the device name is maintained.
2	Close	Close the screen.	

■ Link Check Setting Screen

Link check is a function to generate an error when communication with the connected device is cut off.

> **NOTE** When using SIL-10A series (i/P/F) and fraction collector (FRC-10A), be sure to turn on the link check and use it.

Reference "6.5 Precautions When Using SIL-10A Series or FRC-10A" P.153



No.	Name	Description
1	Module Name	Displays the module name.
2	Link Check	Sets whether to execute link check.
3	Apply	Apply the setting.

3.6.3 Network Settings

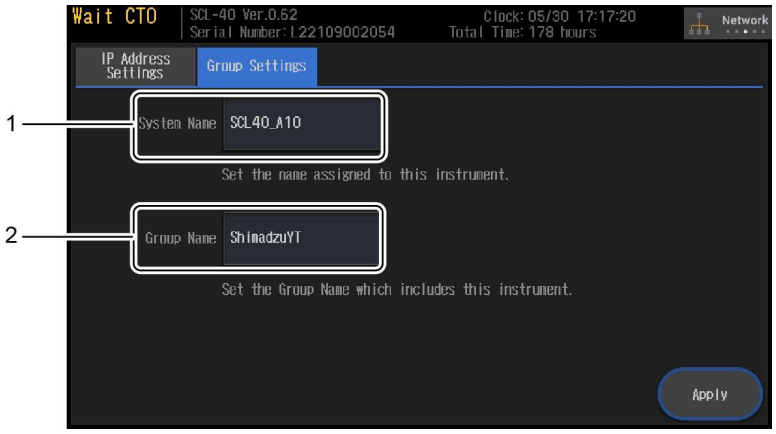
■ Network Setting Screen

Configure the network.
Please contact the network administrator for the setting contents.

No.	Name	Description
1	IP Auto Configuration	To set the IP address automatically, select "Auto". **NOTE** When using the DHCP server for assigning an IP address (when "IP auto Configuration" is set to "Auto"), please set the lease period of the IP address to a no - time - limit. If IP address is changed by DHCP server during analysis, analytical data will be lost.
2	Network Manual Setting Area	To set the network manually, enter [IP address], [Subnet mask], [Default gateway].
3	Apply	It reflects the setting.

■ Group Setting Screen

To build a network of Shimadzu LC systems, enter the system name and group name.



No.	Name	Description
1	System Name	Enter the name within the group of this device.
2	Group Name	Enter the group name to which this system belongs.

Hint For example, if the system name of this device is set to "SCL_01" and the system name of the PDA detector is set to "PDA-01" and the group name is set to "LC_01" for both devices, the relationship is as follows.

Group	Member
LC_01	SCL_01
	PDA_01

3.6.4 Environmental Setting

■ Environment Setting Screen

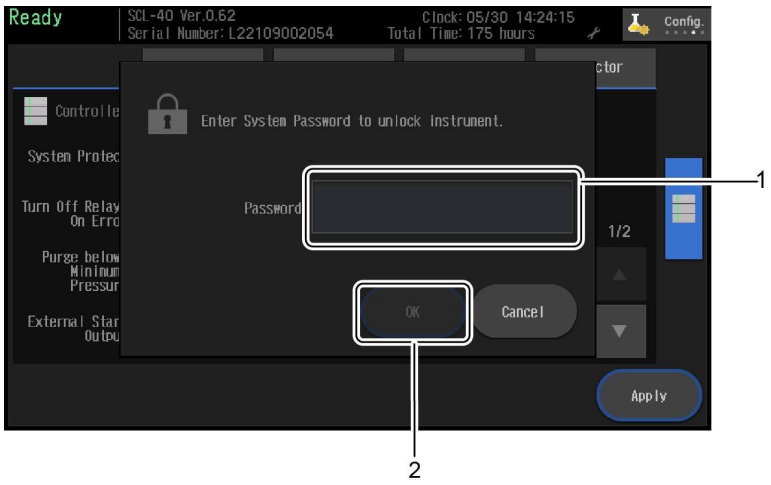
Set environment parameters.

No.	Name	Description
1	Module Name	Displays the module name.
2	Parameter Setting Area	Set the parameters of the module selected in the tab.
3	Apply	The setting contents are reflected in the devices.

3.6.5 Device Setting

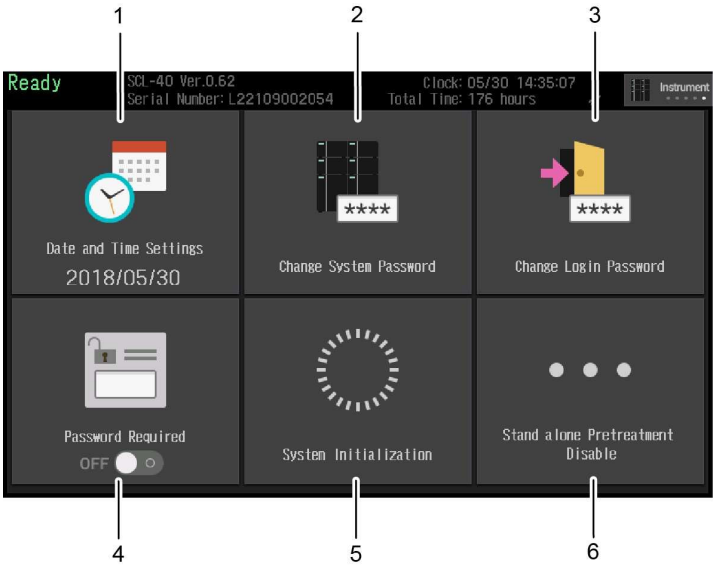
■ System Login

Entering the system password is required to open the device setting screen.



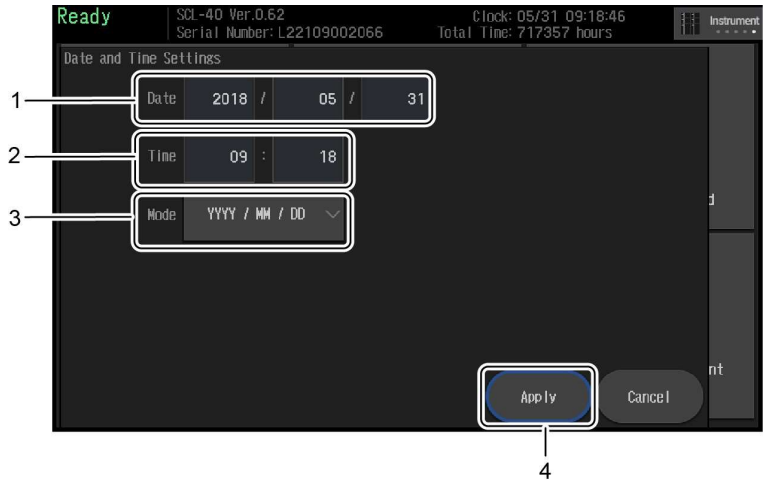
No.	Name	Description
1	Password Input Section	Enter the system password. (Initial value is "Admin")
2	OK	Confirm the entered password.

■ Device Setting Screen



No.	Name	Description
1	Date and Time Settings	The date and time setting screen is displayed.
2	Change System Password	The system password change screen is displayed. (Initial value is "Admin")
3	Change Login Password	The login password change screen is displayed. (Initial value is "Admin")
4	Password Required	If this setting is ON, the system controller will start up in the logoff state. For changing method parameters, log in is needed.
5	System Initialization	Initialize method file, sequence file, environment setting parameters, etc. **Hint** • After initialization, it is necessary to restart the system controller. • Important parameters such as logs, passwords and network settings are not initialized. To initialize these parameters, use the INIT switch. Reference "2.2 Back" P.8
6	Standalone Pretreatment	Enable/disable standalone preprocessing function. **NOTE** Set it to "Enabled" when using the autosampler preprocessing program without using the workstation. In the case of not using these special systems, please set to "Disable". Reference "6.7 Standalone Pretreatment Function" P.159

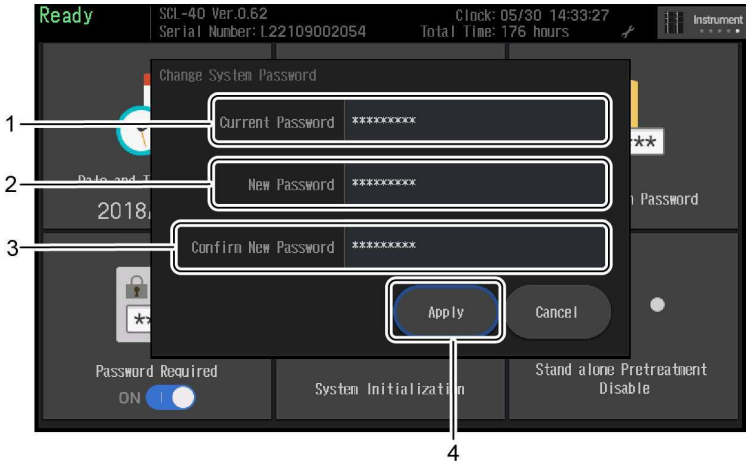
■ [Date and Time Settings] screen



No.	Name	Description
1	Date	Enter the date.
2	Time	Enter the time.
3	Mode	Select the display order of the date. Select from YYYY/MM/DD, MM/DD/YYYY, DD/MM/YYYY.
4	Apply	Apply the setting contents.

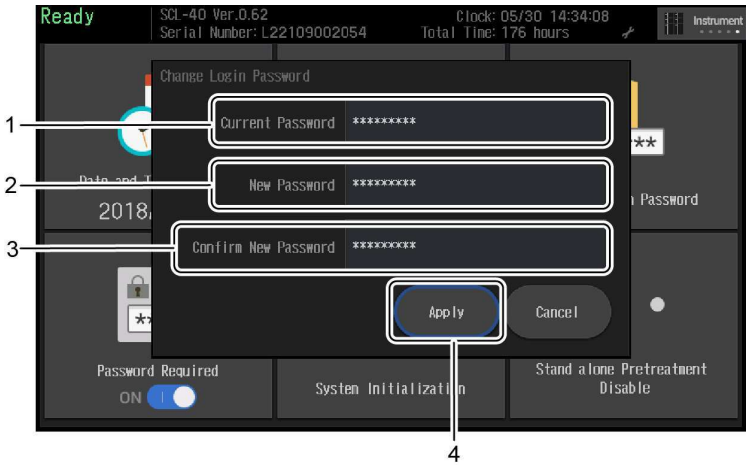
■ [Change System Password] Screen

Hint The system password is necessary to open the device setting screen, to initialize parameters, and so on.



No.	Name	Description
1	Current Password	Enter the current password.
2	New Password	Enter the new password.
3	New Password (Confirmation)	Re-enter the new password for confirmation.
4	Apply	Apply the new password.

■ [Change Login Password] Screen



No.	Name	Description
1	Current Password	Enter the current password.
2	New Password	Enter the new password.
3	New Password (Confirmation)	Re-enter the new password for confirmation.
4	Apply	Apply the new password.

3.7 User

3.7.1 Login Screen

In the logout status, editing the method file, sequence file, start analysis, etc are disabled. Logging in is necessary to perform these operations.

Hint Login / logout status at starting up the device can be changed by [Password Required] screen.

Reference "3.6.5 Device Setting" P.74

No.	Name	Description
1	Device Information	The system name and group name of the device are displayed.
2	Password Input Screen	The user ID is always "Admin". Enter the login password.
3	Login Button	Log in to the device.

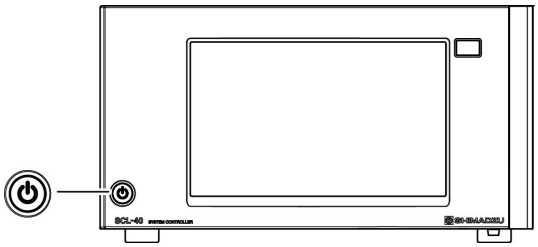
4 Touch Panel Basic Operation (SCL-40)

This chapter explains a series of basic operations from starting the device to analyzing execution and shutting down the system.

4.1 Start Up the device

1 **Make sure that the main power switch is set to the ON (|) position.**

2 **Press (power button).**



Hint When the main power switch is switched from the OFF position (○) to the ON position (|), the device will start up without pressing the (power button).

After starting, the home screen will be displayed.

4.2 Login

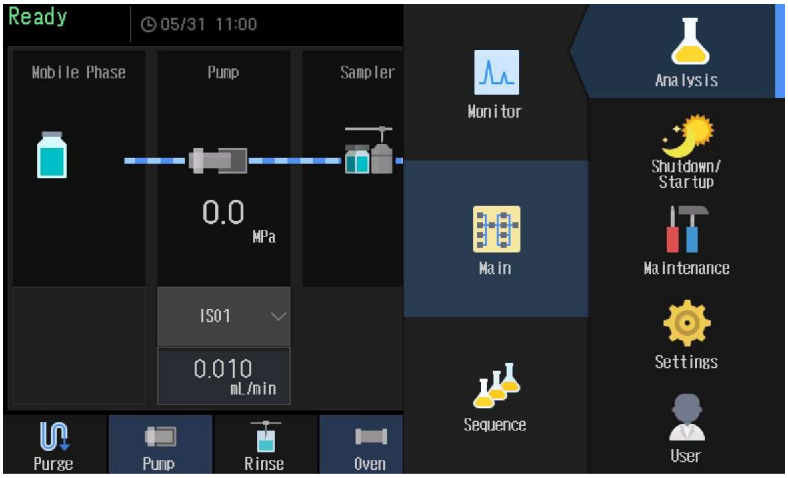
Login is needed to edit method files and sequence analysis.

Hint When [Password Required] is set to OFF, various parameters can be edited without logging in even after startup.

Reference "Device Setting Screen" P.75

1 **Press (Menu).**

The menu screen is displayed.

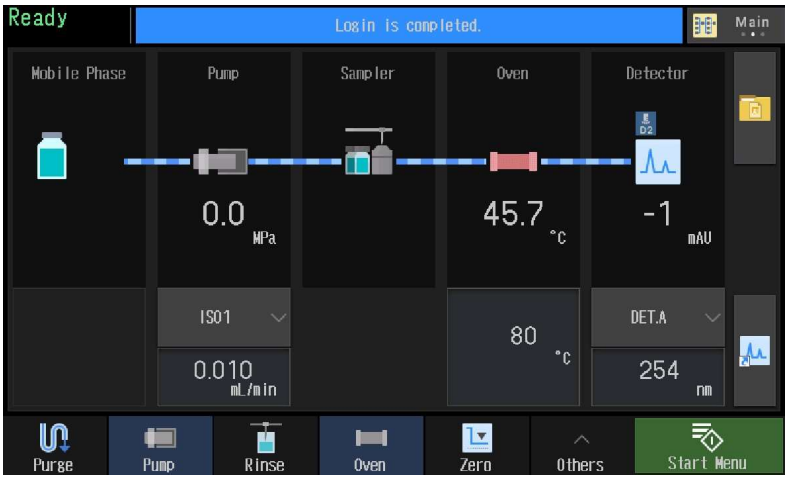


2 **Press [User].**

The login screen will be displayed.

3 **Enter the password and press [Login].**

If the password is correct, login is completed and various parameters can be set.



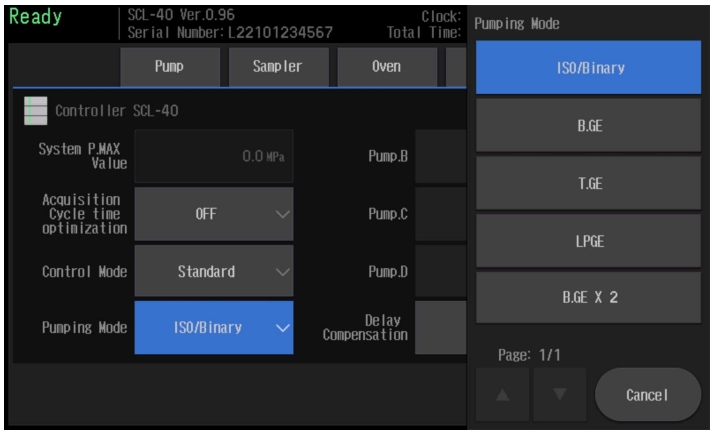
4.3 Check Environment Setting

For example, check the pumping mode

1 **Press [Environmental Settings] from [Configuration] on the menu screen.**

There is a parameter of [Pumping Mode] in the system controller tab. Please confirm that it is in pumping mode corresponding to the system.

Reference "Example of Pumping Mode setting" P.191



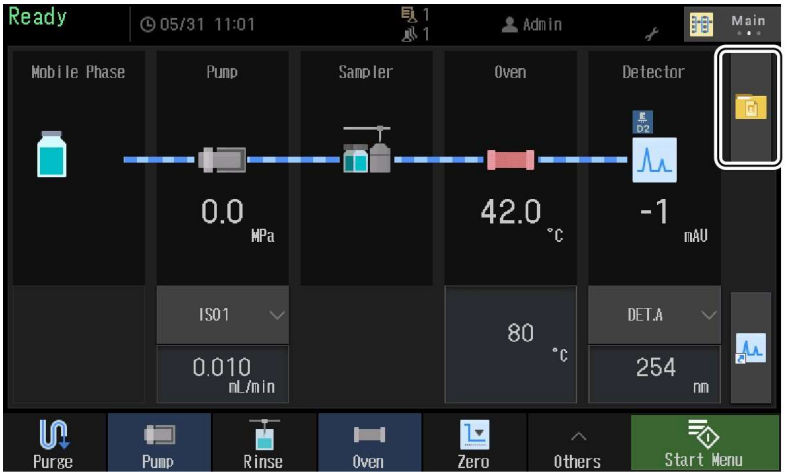
4.4 Set Analytical Conditions

Edit method file and sequence file.
In addition, when shutdown processing is performed after completing the sequence analysis completely, set shutdown reservation.

4.4.1 Edit Method File

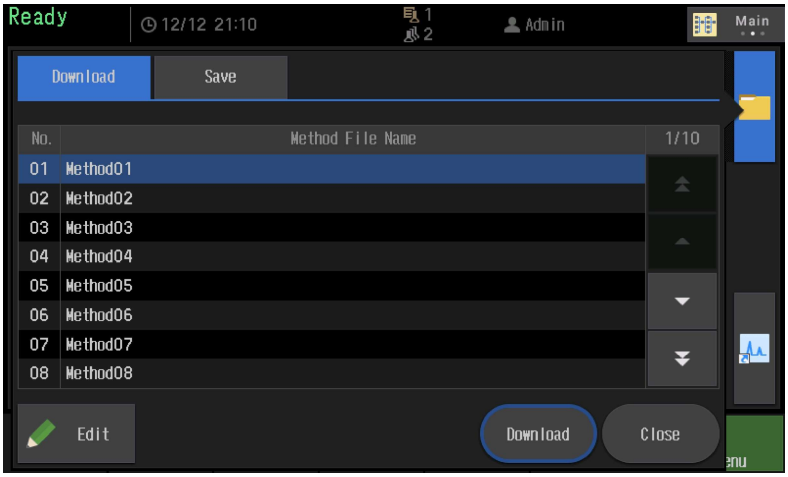
■ Edit Method File

1 **On the main screen, press (method file folder button).**



The method selection screen opens.

2 **Select the method file and press the [Edit] button.**



The [Edit method file] screen opens.

3 **Edit the method file and save it.**

Edit parameters of each device and time program.

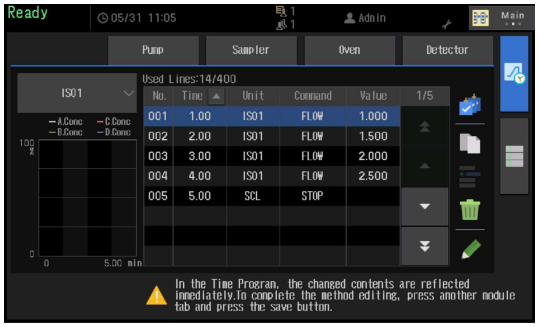
Reference "Method File Edit Screen" P.34

■ Edit Time Program

1 **On the [Edit Method File] screen, press the [Time Program] button.**

The time program editing screen opens.

Reference "3.3.3 Time Program" P.35



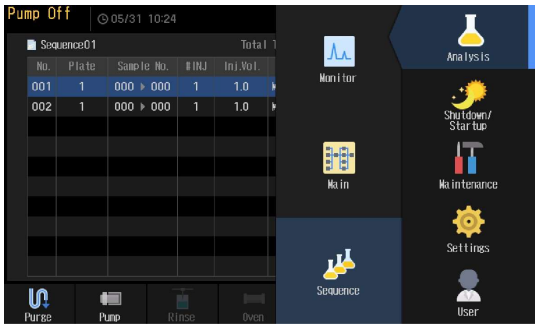
4.4.2 Edit Sequence File

Edit the sequence file to perform sequential analysis.

Reference "3.3.8 Sequence" P.53

1 **Press [Sequence] from [Analysis] on the menu screen.**

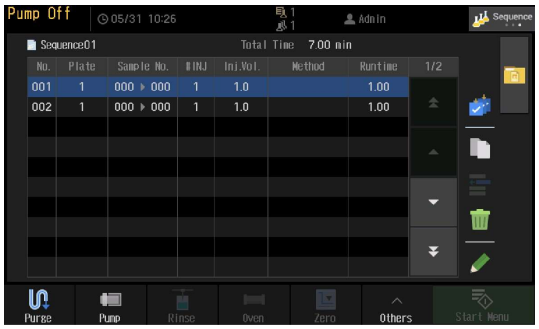
The sequence screen opens.



2 **▲ ▼ (Selection Move) to select a sequence line.**

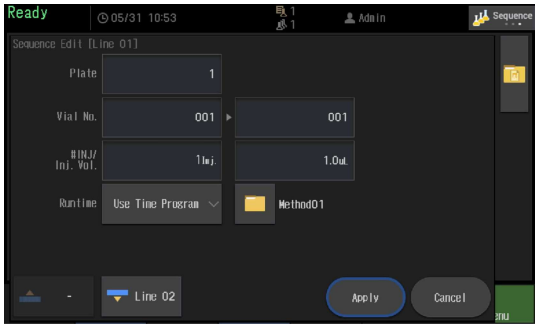
3 **With the sequence line selected, press the (Edit) button.**

The sequence edit screen opens.



4 **Edit the contents and press the [Apply] button.**

The editing content is confirmed.



4.4.3 Set Reservation for shutdown

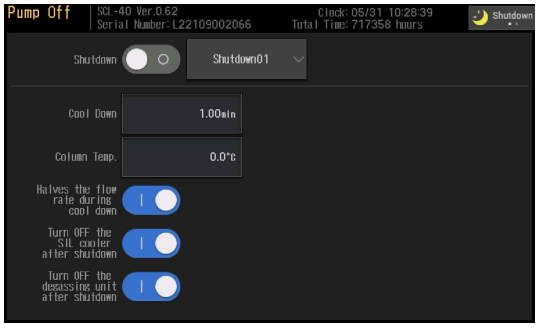
Set this when shutdown processing is performed after completion of sequence analysis.

Reference "Shutdown Setting Screen" P.58

1 **Press [Shutdown] from [Shutdown/Startup] on the menu screen.**

The Shutdown screen appears.

2 **Set [Shutdown] to [ON].**



3 **Edit each setting in the shutdown file.**

4.5 Prepare for analysis

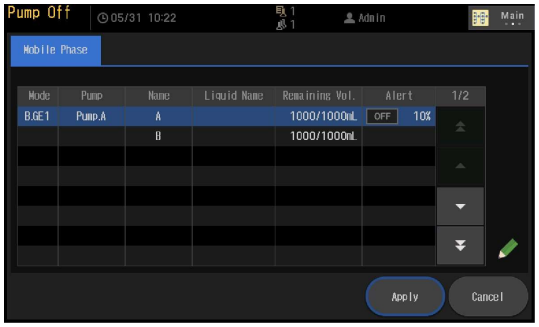
4.5.1 Confirm remaining amount of mobile phase and rinse liquid

Make sure that the mobile phase and rinse liquid are sufficient.

Reference "Mobile Phase Remaining Amount Screen" P.39

1 **Press [Mobile phase] in the flow line display area on the main screen.**

The [Mobile phase / rinse solution remaining amount setting] screen is displayed.



4.5.2 Perform Auto Purge

Execute if liquid replacement is necessary, such as when changing mobile phase or rinsing liquid.

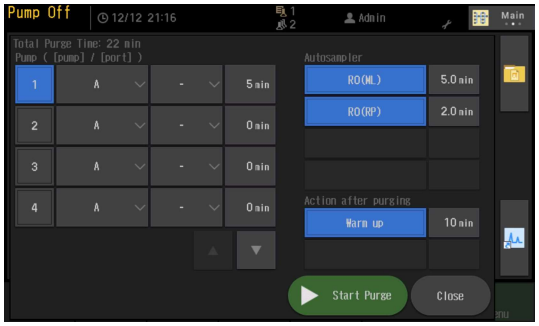
Reference "3.3.5 Auto Purge" P.42

Hint If using the startup function, it automatically starts at the specified date and time, and it is possible to complete the auto purge operation beforehand.

Reference "3.4.2 Startup" P.60

1 **Push the Purge purge button on the main screen.**

The purge edit screen is displayed.



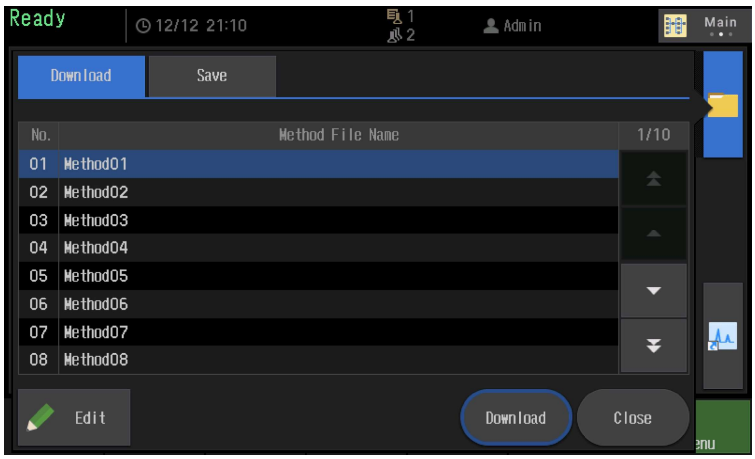
2 **Press the [Purge Start] button to execute the auto purge.**

4.6 Equilibrate the system

In the analytical conditions (method) used in sequence analysis, equilibrate the system such as pumping solution and column temperature control.

4.6.1 Load Method File into current method

1 **Press (method file folder button) on the main screen.**



2 **Select the method file and press the [Download] button.**

The selected method file is loaded into the current method.

4.6.2 Start Equilibration

1 **Turn ON the [pump] and [oven] of the instrument control buttons.**

Hint Pressing the Act button makes it possible to turn on pumps, column ovens, etc. at once, which is convenient.

2 **Make sure the system is in equilibrium.**

On the chromatogram monitor screen, check that the baseline of the chromatogram, pump pressure, column temperature, etc. are stable.

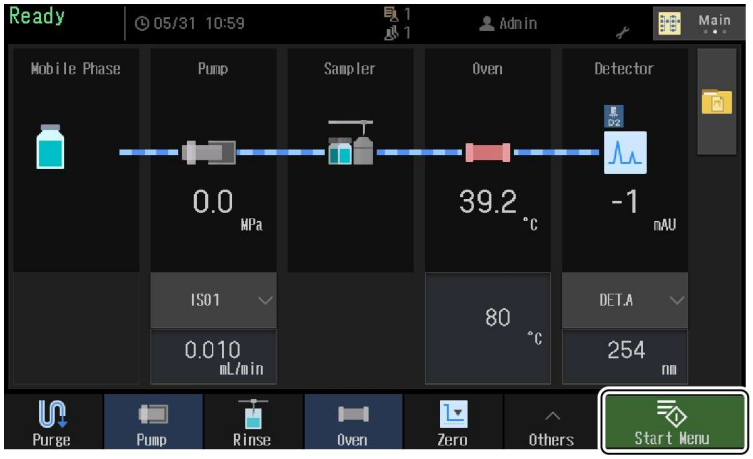
Reference "Chromatogram Monitor Screen" P.49

4.7 Perform Analysis

Perform the analysis according to the sequence file.

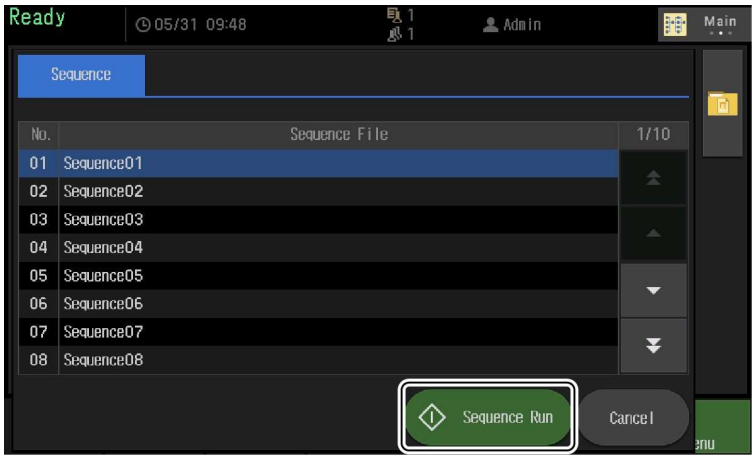
4.7.1 Start Analysis

1 **Press the [Start Menu] button in the device control area.**



2 **Select the sequence file to be used for analysis and press the [Sequence Run] button.**

The analysis is started.



The sequence analysis progress can be checked on the [Sequence Analysis Progress] screen.

Reference "Sequence Analysis Progress Screen" P.57

4.7.2 Lock System During Analysis

To prevent misoperation during analysis, screen operations can be locked.

1 **Press [Screen Setting] from [Settings] on the menu screen.**

2 **Press [Key Lock] on the [Screen Setting] screen.**

3 **Select [OK].**
The screen operation is locked.

Hint To unlock, please press the [key lock] menu again.

4.8 Turn off the power

To turn off the power of the device manually, follow the procedure below.

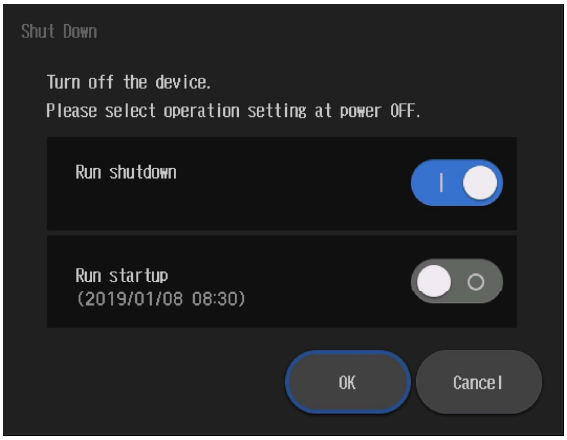
Hint

- For day-to-day power ON / OFF, please execute with the power button, not the main power switch on the back.

1 **Press the Power button (Power button).**

The shutdown/startup dialog is displayed.

Reference "3.2.6 Shutdown/Startup Dialog" P.23



2 **Select whether to perform shutdown processing when turning off the power, then press [OK].**

Processing is performed according to the setting, and the power of the device turns off.

When the power is turned Off, (Power button) lights in orange.

5 Web Screen (CBM-40/lite)

CBM-40 and CBM-40lite can be connected to the Web screen from the Web browser of the PC connected to the network. Web screen provides analysis monitoring, system controller environment settings etc.

NOTE
- The SCL-40 can also use the Web screen function. However, when performing "operation" such as executing a system check from Web screen, it is necessary to log out of the touch panel side.
- On the Web screen, only two ovens are displayed (Oven C, D can not be displayed). In addition, SFC / SFE and chemical reaction box are not displayed.
- Chemical reaction box is not supported. No device information or status is displayed.

5.1 Connect to the Web Screen (Windows)

This section explains the case of Windows.

5.1.1 PC Specification

Describes the specifications of the PC necessary for accessing the Web screen.

NOTE When building a network, please consult with the department to be used, the network management department of the business office, or the person in charge.

Item	Description
CPU	Intel Pentium E5300 (2.6 GHz) or more
Memory	Recommended 2 GB or more
LAN Adapter	100 Base-TX compatible
Display	1024×768 or more
OS	Windows XP / 7 / 8 / 10
Browser	Internet Explorer 6 to 9. Internet Explorer 10 and 11 are compatible view only
Language	English

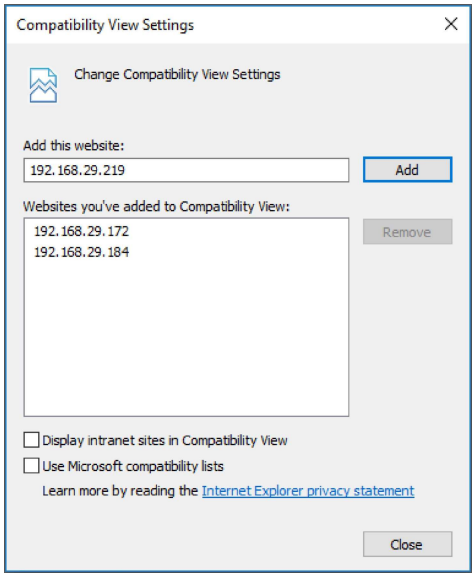
5.1.2 Browser Settings

In order to access the web screen of the system controller, several settings are required in the web browser.
The following shows how to set Internet Explorer 11 as an example.

1 Click [Compatible View Settings] from the [Tools] menu to register the URL of the system controller.

Hint

- For Internet Explorer 10 and 11, compatible view settings must be made.
- For Internet Explorer 6 to 9, compatible view setting is unnecessary, so skip this step.



2 Click [Internet Options] from the [Tools] menu of the browser.

The [Internet Options] screen appears.

3 Add the URL of this device to the zone of the local intranet.

1. On the Security tab, select Local intranet.
2. Click [Sites].
3. Click [Advanced] Settings.
4. In [Add this website to the zone], enter the URL of this device. (http://[IP address of this device])
5. Click [Add] and confirm that the URL of this device is displayed on [Web sites].

4 Set the security level.

1. On the Security tab, click Custom Level.
2. Set the items in [Setting] as follows

Item	Configuration
[ActiveX controls and plug-ins] - [Run ActiveX controls and plug-ins]	Enable

Item	Configuration
[ActiveX controls and plug-ins] - [Script ActiveX controls marked safe for scripting]	Enable
[Script] - [Active Scripting]	Enable
[Download] - [File Download]*1	Enable
[Miscellaneous] - [Access data sources across domains]	Enable

*1 Set it to save method file and sequence file on PC.

NOTE

- If software with pop-up blocking function (security software or browser toolbar) is installed on the PC, the Web screen may not be opened. Please disable popup blocking function for system controller URL. In the case of Internet Explorer, delete the temporary file after disabling the pop-up blocking function.
- When the history data of Internet Explorer increases, the updating of the Web screen slows down and the operation becomes unstable. Click [Settings] in [Browsing History], and set [Disk space to use] to '100' MB.
- If [Use a proxy server for your LAN] is checked on the [LAN settings] on the [Connections] tab, please check [Bypass proxy server for local address], or click [Advanced] settings and add the URL of this device to [Exceptions].
- Avoid continuous operation by opening three or more web screens.
- Do not press shortcut keys such as "F5" (update) or "F11" (full screen display). An error may occur or display on the screen may be lost.

Hint

- When browser script errors occur, the screen update stops. By checking [Browsing] - [Display a notifications about every script error] in Settings on the Advanced tab, cause of the error can be easily identified when an error occurs.
- To print the display contents of the screen such as maintenance information and device configuration, press the "Ctrl" + "P" key.
- When printing the contents of the Web screen, check [Page Setup] - [Print Background and Color Image] in the [File] menu.

5.1.3 Display Web Screen

Enter the following URL in the browser.
http://(IP address of this device)/html/

5.2 Connect to the Web Screen (iPad)

This section explains operation with an iPad.

5.2.1 iPad Specification

Specifications that checked the operation are shown below.

Item	Description
Model	Wi-Fi model
OS	iOS8～11
Browser	Safari
Language	English

5.2.2 Preparation

Add a wireless LAN adapter (Wi-Fi) to the same network as this device, and make the iPad ready for connection.

NOTE
- When building a network, please consult with the department to be used, the network management department of the business office, or the person in charge.

5.2.3 Display Web Screen

Enter the URL of this device in the browser.
http://(IP address of this device)/html/

Hint By registering the Web screen on the home screen, the Web screen can be displayed just by tapping the registered icon. For details, refer to the instruction manual attached to iPad.

5.2.4 Notes on Operating the iPad

Describes notes on displaying web screen from iPad.

■ About Automatic Lock Function

The web application's operation may become unstable when locked due to the automatic lock function of the iPad. In that case, turn off the automatic lock function by the following procedure.

1 **Click the setting icon from the iPad's home screen.**
Select "General" on the setting screen.

2 **Select "Auto lock" in General setting.**
In the automatic lock setting screen, select "OFF".

■ About Continuous Operation

If connecting to the Web screen for a long time from the iPad, the operation of the iPad may become unstable. When using continuously, please note the following points.

NOTE

- Please close all screens of Safari about once a day.
- Avoid continuous operation by opening three or more operation screens. Normally open the "Group Monitor" screen and "Device Monitor" screen one by one and use them.
- If the operation of the iPad becomes unstable, turn off/on the iPad.

■ About Safari's Cache

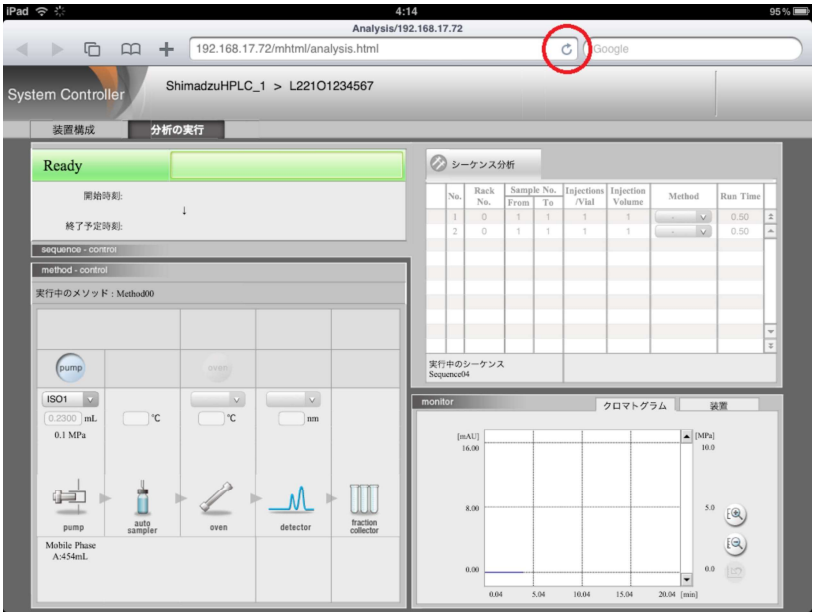
If the operation and display of the web screen are incorrect due to Safari's cache, please delete the cache in the following procedure.

1 **Click the setting icon from the iPad's home screen.**
On the setting screen, select "Safari".

2 **Select "Clear cache" in Safari setting.**
A confirmation dialog will be displayed, so select "delete".

■ Update Screen Button

Please do not press the update button in the address bar. An error may occur or screen design may be lost.



■ Restrict Function of iPad Version

The iPad version Web screen has some functions restricted compared with the IE version. For functions that can not be executed from the iPad, please use the IE version.

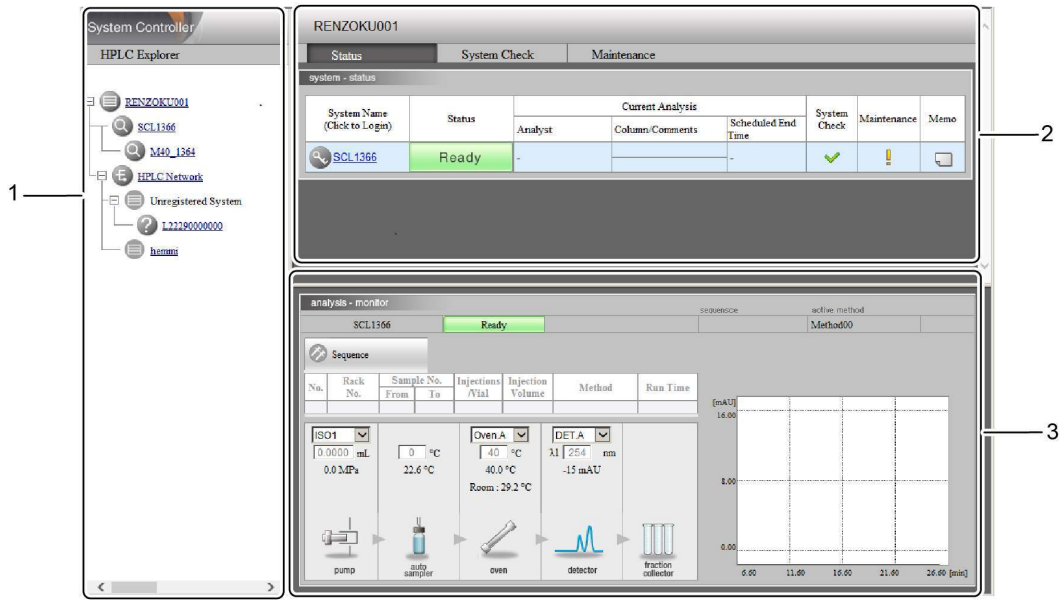
Screen				IE Version	iPad Version
Group Monitor Screen	HPLC Explorer Area			○	○
	Status Summary Area	• Status Tab • System Check Tab • Maintenance Tab		○	○
	Simple Device Monitoring Area			○	○
Equipment Monitor Screen	Header	• Utility • Management		○	×
	Perform Analysis Tab	Sequence Area		○	○
		Method Area	• Adjustment of Fraction Collector • System Controller Configuration	○	×
			Other than those above	○	○
		Chromatogram Monitor Area		○	○
	Device Configuration Tab			○	○
System Check Screen	Display/Execute System Check			○	○
	Save System Check Result			○	×

5.3 Group Monitor Screen

NOTE

- When the network load becomes large, the message "Is the system turned off or the load on the network got bigger and the connection was broken. Do you want to reconnect?" may be displayed. Clicking [OK] will attempt to reconnect to the web screen. Click [Cancel] to close the web screen.
- It is considered to be "logging in" for 5 minutes after the connection with the Web screen is lost, and "logged out" after that.

When the web screen starts up, [Group monitor screen] is displayed. This screen is composed of three areas: [HPLC Explorer] area, [Status summary] area, and [Simplified device monitoring] area.

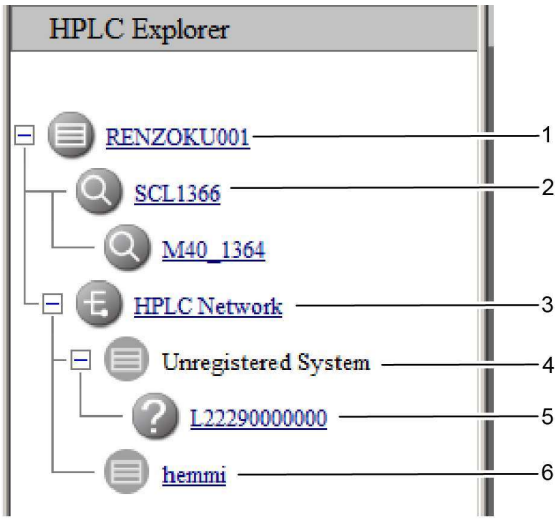


No.	Name		Description	Ref.
1	[HPLC Explorer] Area		Displays the LC systems found within the subnet mask in group units. **Hint** Clicking on the system name will switch the display of the [Simplified Device Monitor] area.	P.101
2	[Status Summary] Area		It consists of three tabs. Click the tab to change the screen.	—
		[Status] Tab	Summarizes the status of the devices in the group and displays it.	P.103
		[System Check] Tab	The system check result of each system is displayed.	P.104
		[Maintenance] Tab	Maintenance items of each system are displayed.	P.104

No.	Name	Description	Ref.
3	[Simplified Device Monitor] Area	The monitor content of the currently selected LC system is displayed.	P.106

5.3.1 HPLC Explorer Area

Display groups and systems in a tree format.
By clicking on ⊞/⊟ in the tree, it is possible to open/close the tree.



No.	Name	Description
1	Selection Group	This is the selected group. **Hint** Clicking on the icon or group name will search for other systems in the group.
2	System	Displays the systems belonging to the selected group. **Hint** Clicking on this icon or system name will display the status of that system in the "Simplified Device Monitor" area.
3	HPLC Network	Other groups are displayed together under this tree. **Hint** By clicking this icon or HPLC network name, it searches the HPLC network for other groups.
4	Unregistered System (Group)	Systems not registered in the group will be displayed together under this tree.
5	Unregistered System	Display the systems not registered in the group. **Hint** Click the icon to display the login screen of the [Group Administration] screen, please register the system into the group.

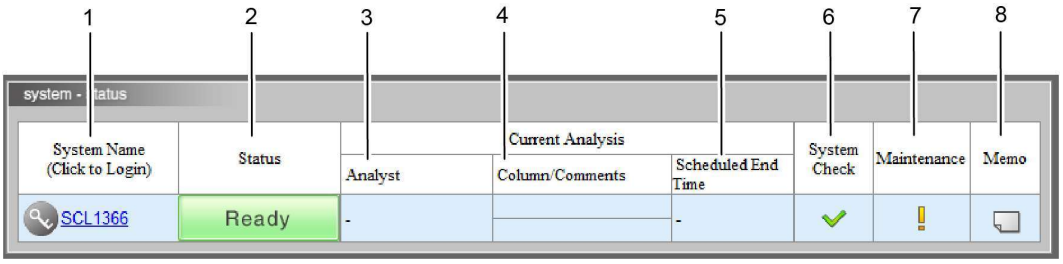
No.	Name	Description
6	Other Group	It is another group. **Hint** Clicking the icon or group name switches the display of the web screen to the contents of the selected group.

5.3.2 Status Summary Area

The status summary area consists of the [Status] tab, [System check] tab, [Maintenance] tab.

■ Status Tab

Summarize the status of each system and display it.

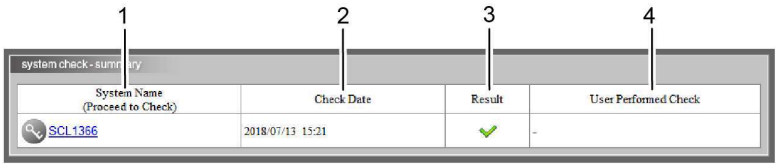


No.	Name	Description
1	System Name (Click to Login)	Displays the system name and login status. **Hint** Click the icon or system name to display the "Device Monitor" screen. Reference "5.4 Device Monitor Screen" P.108
2	Status	Displays the status of the system.
3	Analyst	When sequence analysis is executed, the name of the user who is analyzing is displayed.
4	Column/Comment	Column name and column size are displayed in the upper row and mobile phase name in the lower row. If CMD (column management device) is not connected, the comment of the current analysis method is displayed. **Hint** Displayed only when executing analysis from the workstation and this information is entered in the method.
5	Scheduled End Time	When sequence analysis is being executed, the scheduled end time of the sequence is displayed.
6	System Check	The result of the system check is displayed.
7	Maintenance	Displays maintenance information.
8	Memo	Make a note of the information about the system and keep it.
		It is displayed when notes are empty.
		It is displayed when there is a memo.

5

■ System Check Tab

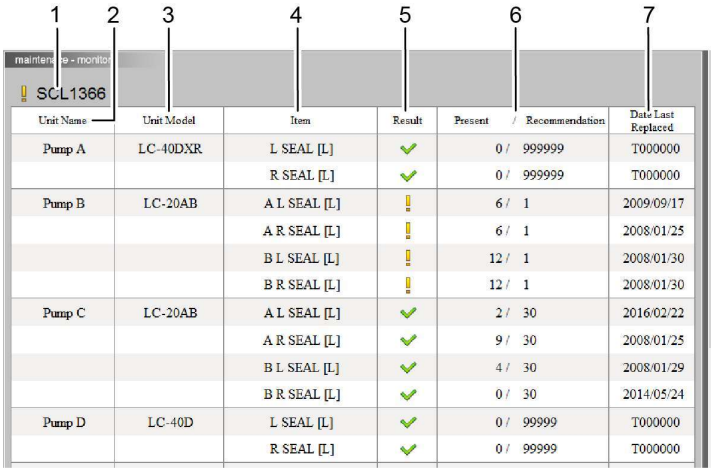
The system check execution result of each system is displayed.



No.	Name	Description
1	System Name (Proceed to Check)	Displays the system name and login status. **Hint** By clicking on the icon or system name, the system check screen will be displayed after displaying the login screen. Reference "5.7 System Check Screen" P.138
2	Check Date	It is the date and time when the system check was last executed.
3	Result	It is the result when the system check was last executed.
4	User Performed Check	The name of the user who last performed the system check.

■ Maintenance Tab

Maintenance information of each system is displayed.

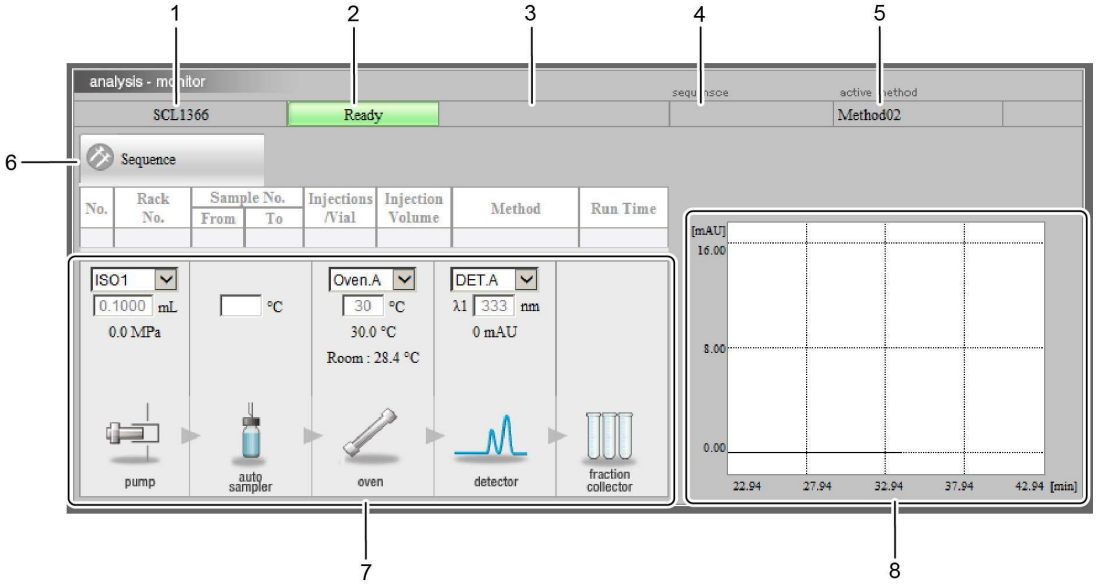


No.	Name	Description
1	System Name	The name of the currently selected system.
2	Unit Name	This is the unit name connected to the system.
3	Unit Model	This is the model name of the connected device.
4	Item	It is a maintenance item.

No.	Name		Description
5	Result		It is the judgment result for the replacement guide value.
			It is displayed when it is within the replacement guide value.
			It is displayed when it exceeds the replacement guide value.
		—	It is displayed when a device without maintenance information is connected.
6	Present/ Recommendation		It is the current value and replacement guide value.
7	Date Last Replaced		It is the date when consumables were last changed.

5.3.3 Simple Device Monitoring Area

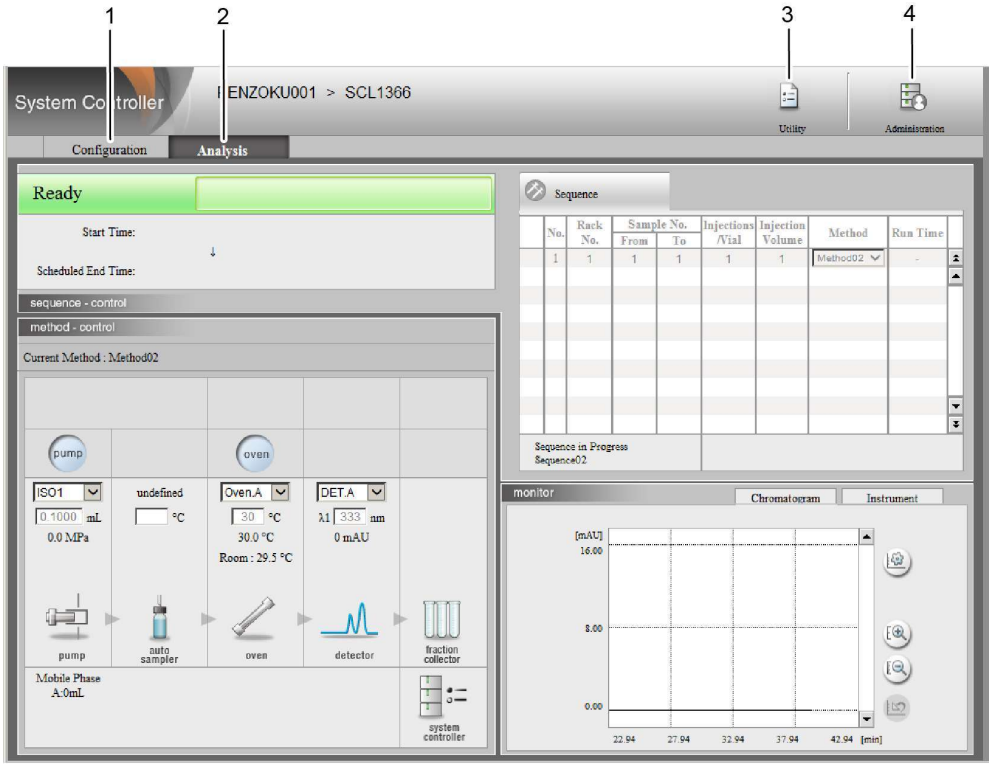
Displays the summary of the currently selected system.
Clicking on the system name in the HPLC Explorer area switches the screen to the selected system.



No.	Name	Description
1	System Name	The name of the currently selected system.
2	Ready	It is the state of the current system. **Hint** If analysis is in progress, analysis time is also displayed.
3	Analyst	Displays the name of the user currently analyzing.
4	Sequence	This is the sequence file name currently being used for analysis.
5	Active Method	This is the method file name currently being used for analysis.
6	Sequence Analysis	Displays the contents of the sequence line currently being executed.
7	Device Monitor	Displays the set values and monitor values of LC device such as pump, autosampler, column oven, detector etc.

No.	Name	Description
8	Chromatogram Display Area	It displays the chromatogram of the detector and the pressure of the pump. **Hint** The chromatogram to be displayed is selected from the detector pull-down menu in the [Device Monitor] area. **NOTE** Chromatogram of PDA detector can not be displayed.

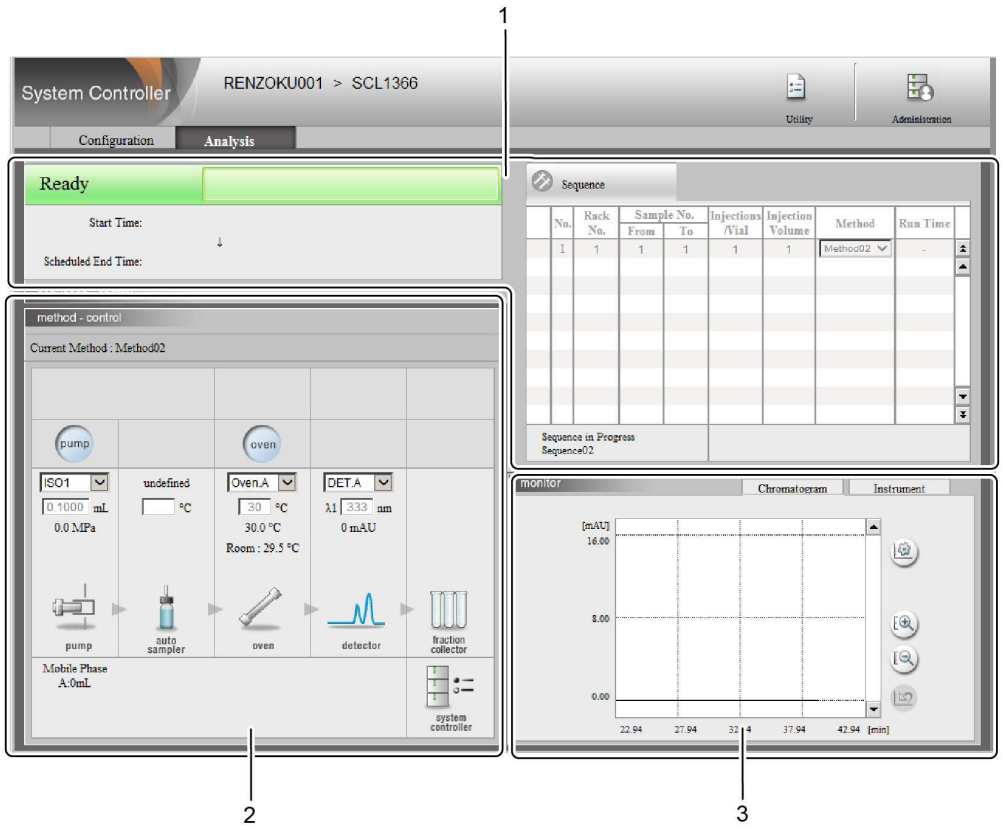
5.4 Device Monitor Screen



No.	Name	Description	Ref.
1	Configuration Tab	Displays the [Device Configuration] screen.	P.120
2	Analysis Tab	Displays the Execute Analysis screen.	P.109
3	Utility Button	Displays the [Utility] screen.	P.131
4	Administrator Button	Displays the [Group Management] screen.	P.122

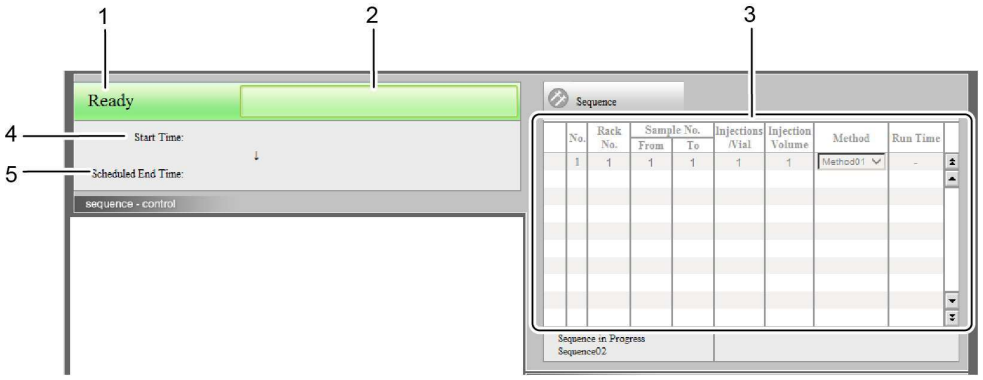
5.4.1 Executing Analysis Status Screen

Displays the execution status of the analysis. It is a screen for monitoring, and parameters such as flow rate can not be set.
However, adjustment of the fraction collector and environment setting of the system controller can be set.



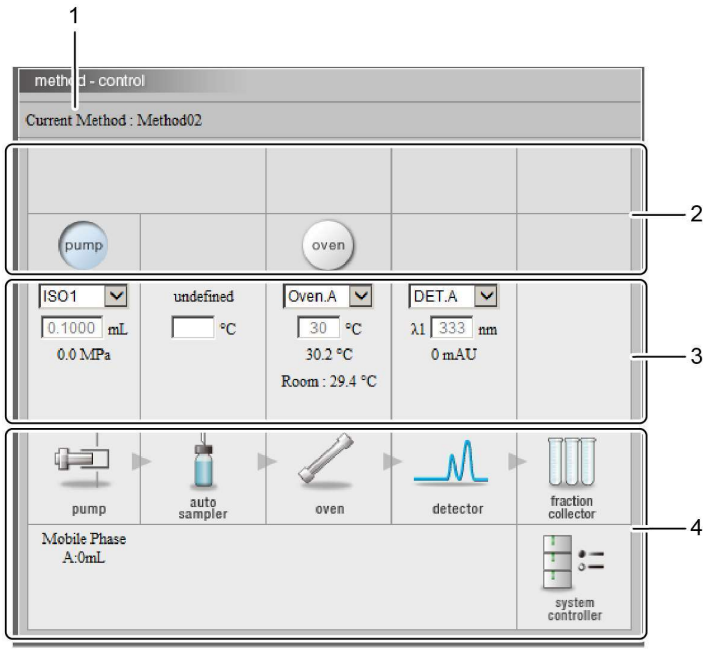
No.	Name	Description	Ref.
1	Sequence Area	Displays the status of the current system. When analyzing, analysis sequence is also displayed.	—
2	Method Area	Displays the current method.	P.110
3	Chromatographic Monitor Area	Displays the chromatogram. Other monitor values of each device are also displayed.	P.118

■ Sequence Area



No.	Name	Description
1	Status	Displays the status of the system. Reference "8.1 Status List" P.169
2	Sequence File Name and Analyst	Displays the sequence file name and the name of the user who is analyzing. It is not displayed if the analysis is still running.
3	Sequence Table	Display the contents of the sequence file.
4	Start Time	It is the time when analysis started.
5	Scheduled End Time	The scheduled end time of the running sequence.

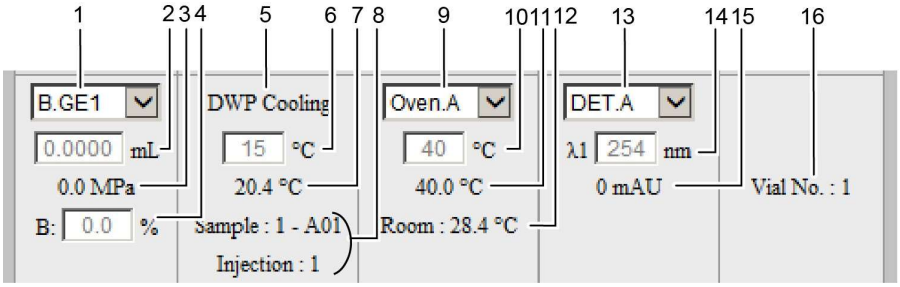
■ Method Area



No.	Name	Description	Ref.
1	Current Method	Displays the filename of the method being executed.	—

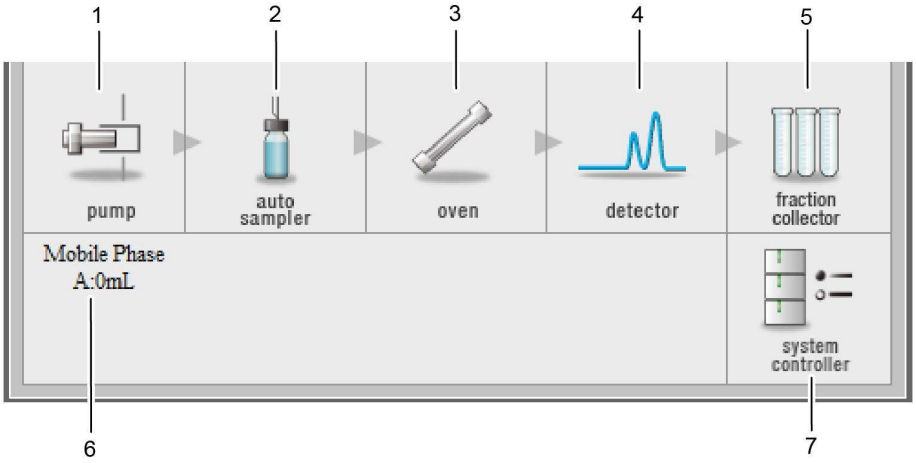
No.	Name		Description	Ref.
2	Direct Control Button Status Display	PUMP	The ON / OFF status of the pump is displayed. NOTE Operation is not possible.	—
		OVEN	The ON / OFF status of the column oven is displayed. NOTE Operation is not possible.	
3	Basic Monitor		Displays the setting parameters of each device.	P.112
4	Component Icons		[fraction collector] and [system controller] icons can be opened on the dedicated screen.	P.113

Basic Monitor



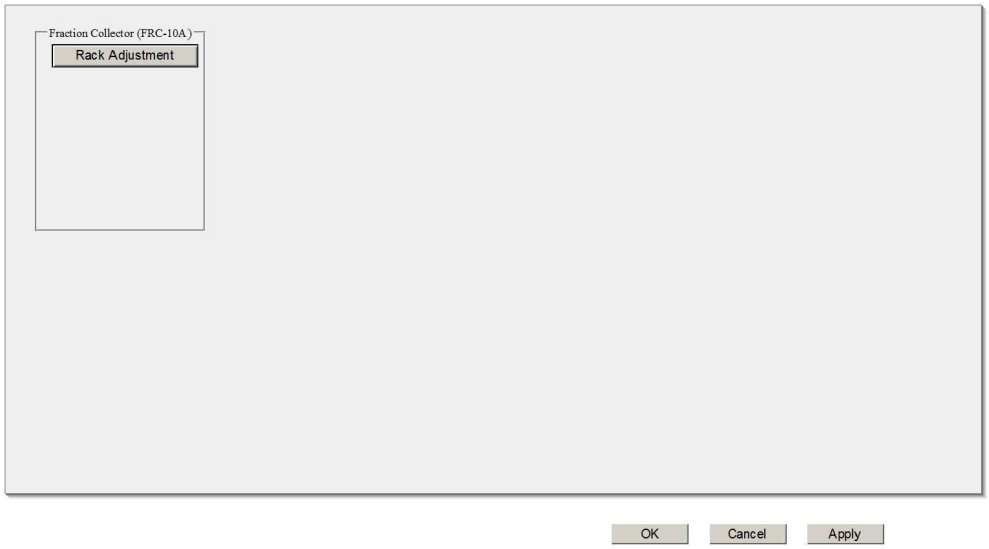
No.	Name	Description
1	Pump	Select the pumping mode to be displayed.
2		Displays the pump flow rate setting value.
3		Displays the current pressure value.
4		At gradient analysis, the concentration of mobile phase is displayed.
5	Autosampler	Displays the type of rack of the autosampler.
6		For the autosampler with the cooler, the set value of the cooler temperature is displayed.
7		For the autosampler with the cooler, the current cooler temperature is displayed.
8		The sample number and the number of injections under analysis are displayed.
9	Column Oven	Select the column oven to display. NOTE On the Web screen, only two ovens are displayed (Oven C, D can not be selected).
10		Displays the oven temperature setting value.
11		Displays the current oven temperature.
12		Display the current room temperature. (It may not be displayed depending on the type of oven.)
13	Detector	Select the detector to display.
14		Display the main setting parameters. (The display content varies depending on the type of detector connected.)
15		The detected value is displayed. (The display content varies depending on the type of detector connected.)
16	Fraction Collector	Displays the vial number currently collecting.

Icon of Each Device



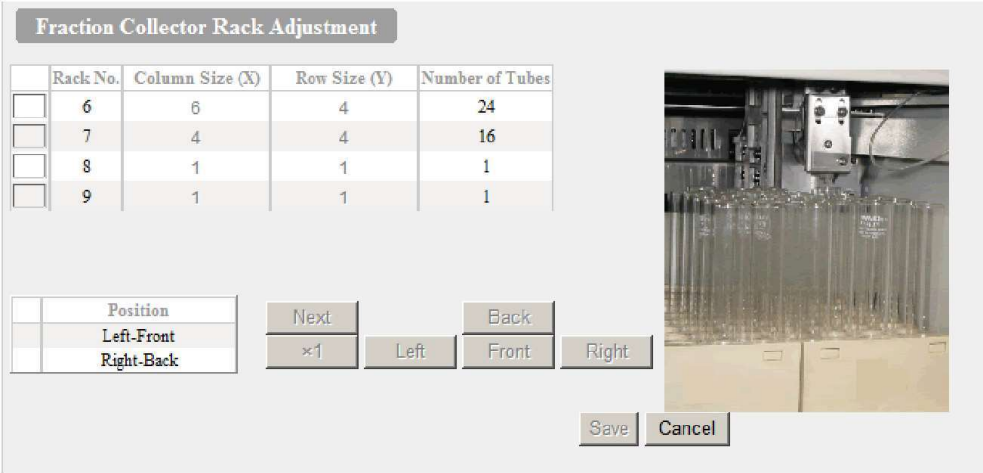
No.	Name	Description
1	Pump Icon	(Only icon display, no function assigned.)
2	Autosampler Icon	
3	Column Oven Icon	
4	Detector Icon	
5	Fraction Collector Icon	After the login screen is displayed, the [Fraction Collector] screen will be displayed. On that screen the user rack can be adjusted. Reference "Fraction Collector Screen" P.114
6	Monitor Display of Mobile Phase	Displays the residual amount of the pump's mobile phase and the autosampler rinsing liquid. **Hint** • The mobile phase remaining amount display can be switched by the pump pull down menu on the simple monitor screen. • It is not displayed when the remaining amount is not set or using pumps or autosampler of 6 A to 10 A series.
7	System Controller Icon	After the login screen is displayed, the [System Controller] screen will be displayed. On that screen the environment parameter of the system controller can be set. Reference "System Controller Screen" P.117

Fraction Collector Screen



No.	Name	Description
-	Rack Adjustment	The user rack adjustment screen opens.
-	OK	Close the screen.
-	Cancel	
-	Apply	

[Fraction Collector User Rack Adjustment] Screen



Name		Description
Rack No.		[User Rack] 6, 7, 8, 9 are displayed.
Column Size（X）		Enter the number of vials in the horizontal direction of the rack.
Row Size（Y）		Enter the number of vials in the longitudinal direction of the rack.
Number of Tubes		When the number of horizontal and longitudinal vials are entered, the total number is automatically displayed.
Positioning Button	Next	Determine the adjustment position of the rack.
	×1 ×10	This button changes the magnification of the position adjustment scale. Switching to standard (2 mm) and 10 times (20 mm) with each click.
	Front Back Left Right	Used to adjust the position of the fraction collector arm. The arm will operate at the scale set with the scale change button.

The procedure for adjusting the user rack position is shown below.

1 **Click the cell at the left end of [Rack No.] to be adjusted.**

The selected line becomes blue.

2 **Enter the number of vials in the X direction (horizontal direction) of the rack into [Column Size (X)].**

This field is grayed out and the editable field switches to [Row Size (Y)].

3 **Enter the number of vials in the Y direction (longitudinal direction) of the rack into [Row Size (Y)].**

This column becomes gray and the total number of vials is automatically calculated and displayed in [Number of Tubes]. Also, [Left-Front] is selected in the [Position] table, and the position adjustment button becomes available.

4 **For the vial at left-front adjust the arm position with the position adjustment button. After adjustment, click [Next].**

The position of the left-front will be decided. [Right-Back] is selected and the picture on the screen switches to right-back one.

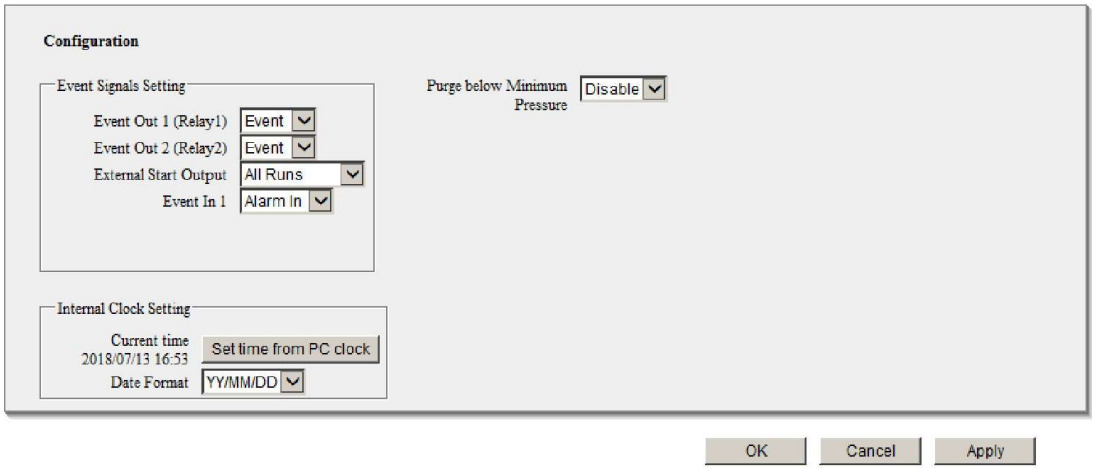
5 **For the vial at right-back adjust the position of the arm with the position adjustment button. After adjustment, click [Save].**

The position of the right-back is determined and the [Fraction Collector Rack Adjustment] screen closes.

Hint To abort the adjustment, click the [Cancel] button. The adjustment is not saved and the [Fraction Collector Rack Adjustment] screen closes.

System Controller Screen

The environment parameters of the system controller can be set on this screen. For details of each parameter, see "8.4.1 System Controller" P.186.



■ Chromatogram Monitor Area

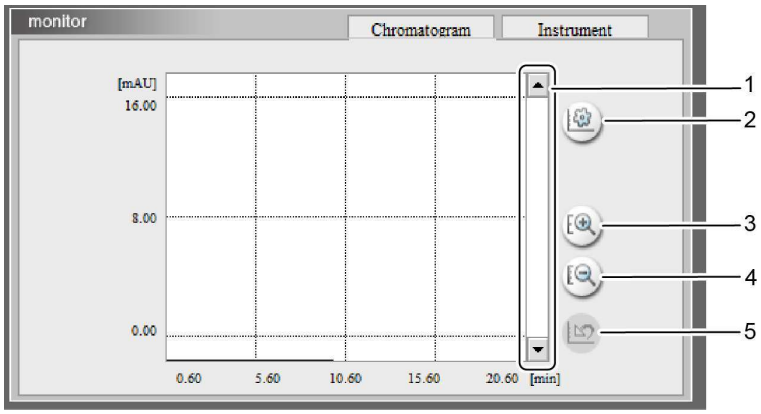
The chromatogram of the detector selected in the pull-down menu of the simple monitor area and the monitor value of each device are displayed.

[Chromatogram] Tab

The chromatogram is displayed.

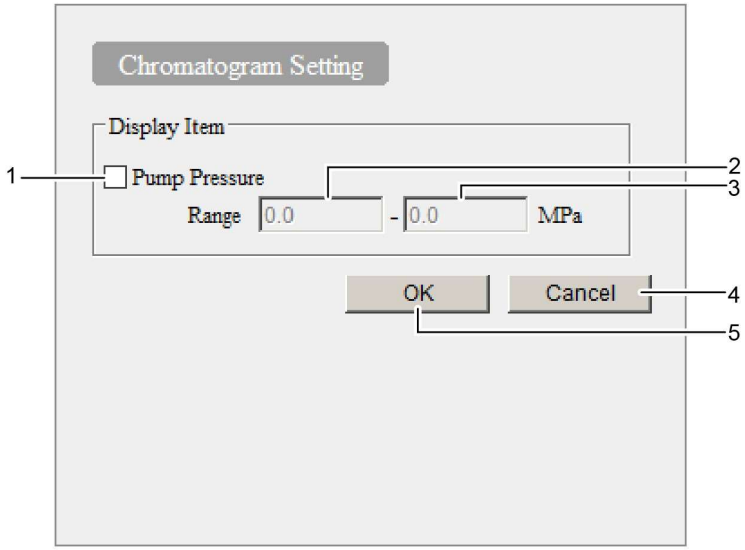
Hint

- When detector setting is dual mode (2 wavelength mode), Ch.1 is drawn in black and Ch.2 is drawn in red. The pressure value is drawn in blue when the pump pressure display is turned on in the [Chromatogram Monitor Display Setting] screen.
- Chromatogram of PDA detector can not be displayed.



No.	Name	Description
1	Scroll Bar	Shift the display of the chromatogram in the up (or down) direction.
2	Chromatogram Monitor Display Setting Button	The [Chromatogram Monitor Display Settings] screen is displayed. Set pump pressure display and upper and lower limit values.
3	Zoom in Button	Expand the vertical axis of the chromatogram.
4	Zoom out Button	Reduce the vertical axis of the chromatogram.
5	Initialize Button	Restore display of shifted and scaled chromatogram.

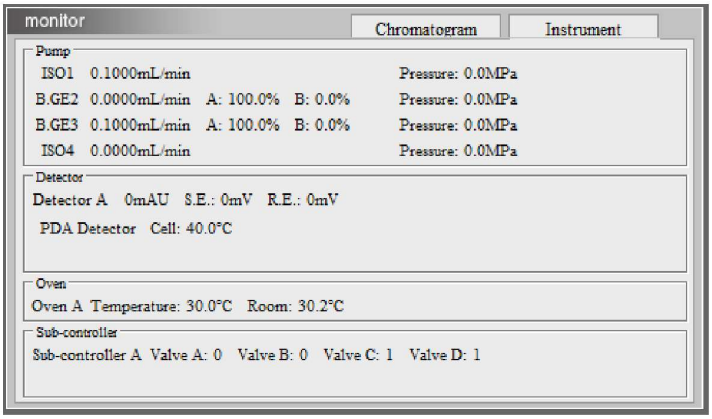
Chromatogram Monitor Display Setting Screen



No.	Name	Description
1	Pump Pressure Display	When displaying the pump pressure on the Chromatogram monitor screen, input a check mark.
2	Display Setting Range (Lower limit)	Set the lower limit of the pump pressure display range.
3	Display Setting Range (Upper limit)	Set the upper limit of the pump pressure display range.
4	Cancel Button	Cancel the setting and close the screen.
5	OK Button	Reflect the settings and close the screen.

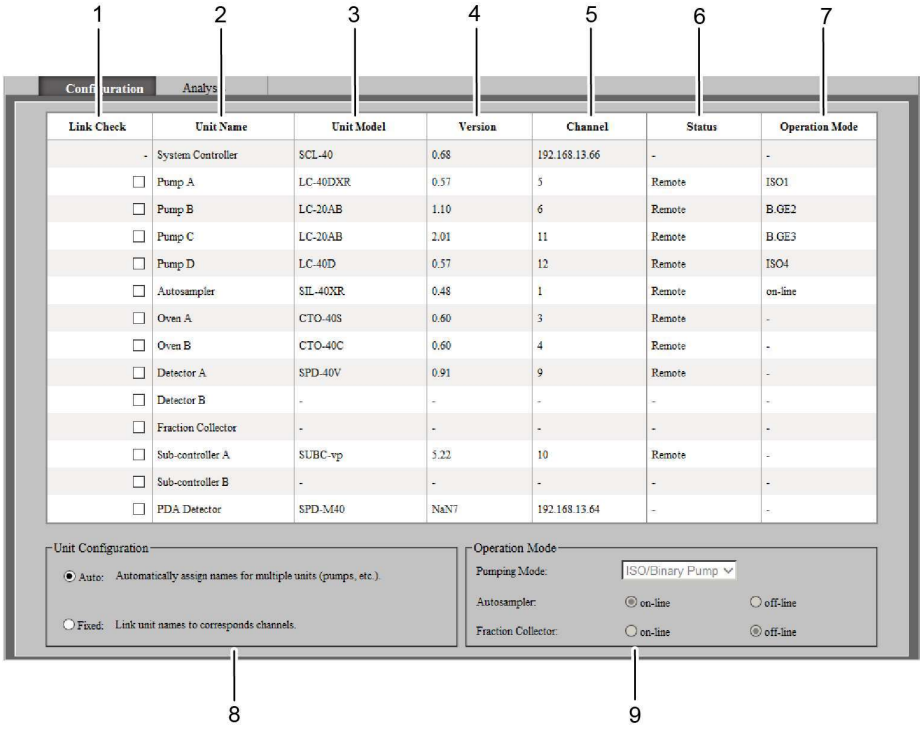
[Instrument] Tab

The monitor value of each device is displayed. The contents displayed depend on the connected device and type.



5.4.2 [Device Configuration] Screen

Displays the device configuration of the system.



No.	Name	Description
1	Link Check	Input a check mark if you want error handling when the system controller and each device are disconnected.
2	Unit Name	This is the device name of the connected device.
3	Unit Model	This is the model name of the connected device.
4	Version	The version number of the connected device.
5	Channel	The channel number of the connected optical link is displayed. In case of PDA detector, the IP address is displayed.
6	Status	Displays the connection status. [Remote]: It is remote state, control from workstation and system controller is valid. [Local]: It is mean that the [LOCAL] setting on the module side is set to "local". Control from the workstation and system controller is invalid.
7	Operation Mode	Displays the operation mode of pump, autosampler, and fraction collector.

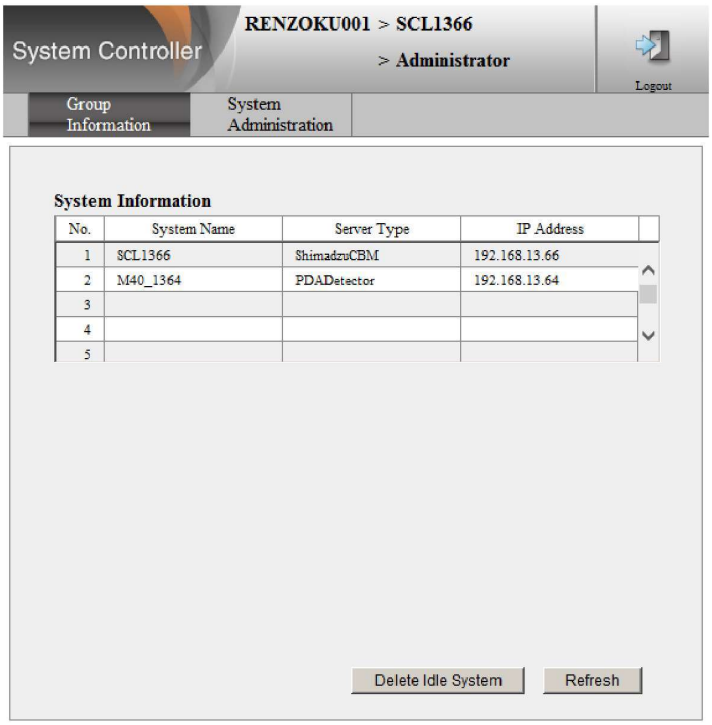
No.	Name	Description
8	Unit Configuration	Configure link mode. **Hint** It can not be set when a workstation is connected. Reference "Link Mode Setting Screen" P.68
9	Operation Mode	The pumping mode, autosampler and fraction collector use mode are displayed.

5.5 Group Management Screen

The group management screen is displayed by clicking (management button) at the top of the device monitor screen.
On this screen, the group settings and network settings such as IP address are available.

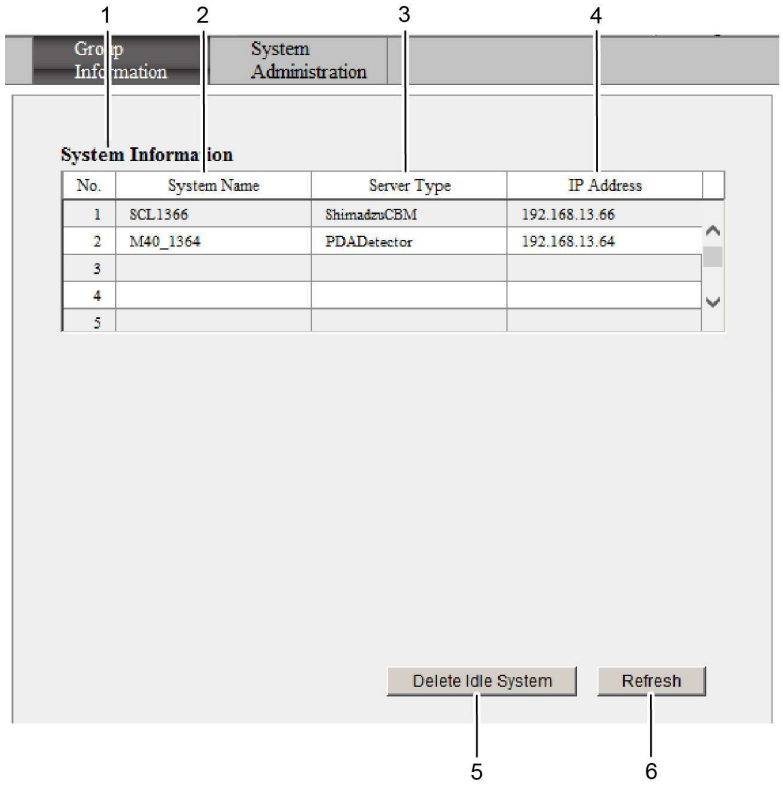
Hint If you want to change the network settings such as IP address when the system controller can not connect to the network, change it with [CBM PARAMETER] on the [CALIBRATION] menu of each module.

Reference "6.6.2 When Setting From Connected Device" P.156



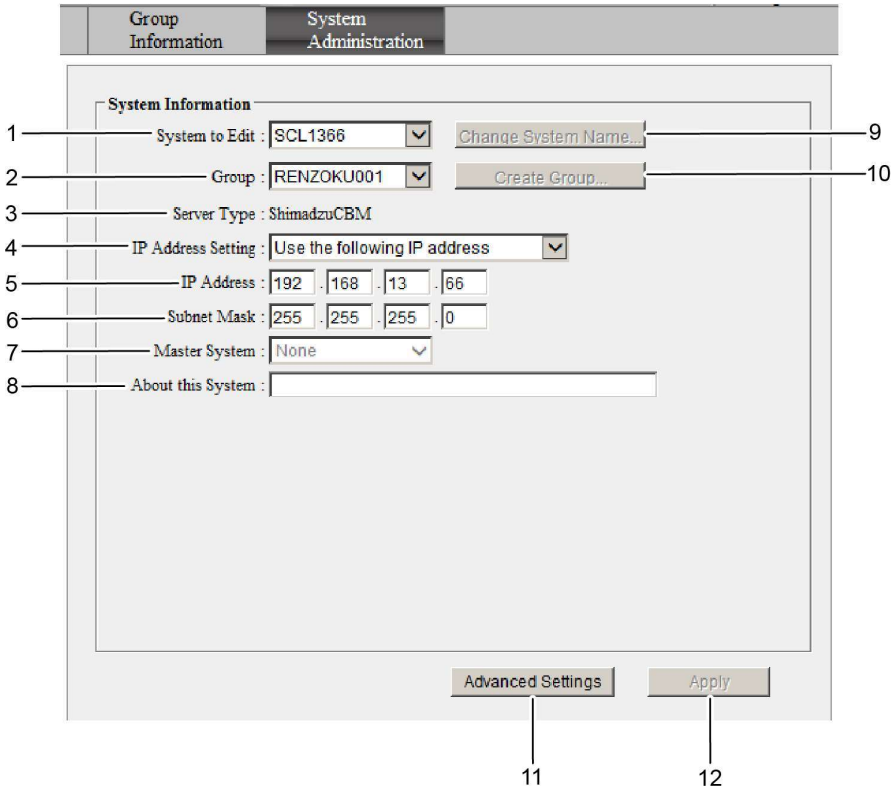
Screen	Description
[Group Information] Tab	Click the tab to display the [Group Information] screen. This is a screen for displaying the device information registered in the group.
[System Administration] Tab	Click the tab to display the [System Administration] screen. This is a screen for setting system information within the group.
	It is a logout button. Click this button to close the group management screen.

■ Group Information Screen



No.	Name	Description
1	System Information	The system that belongs to the group is displayed in the list. **Hint** Systems with power turned "OFF" are displayed in red.
2	System Name	System name (distinguished name) of the system controller or PDA detector.
3	Server Type	This is the server type of the system controller or PDA detector. It is fixed to "ShimadzuCBM" or "PDADetector".
4	IP Address	The network address of the system controller or PDA detector.
5	Delete Idle System	Delete information on the system that is not powered on from the device information table. **Hint** Delete from the table the system that can not be recognized from the network due to device relocation or disposal. Systems that are powered off are also deleted from the table, but will be automatically re-registered when the power of the system is turned on.
6	Refresh	Update the device information table to the latest information.

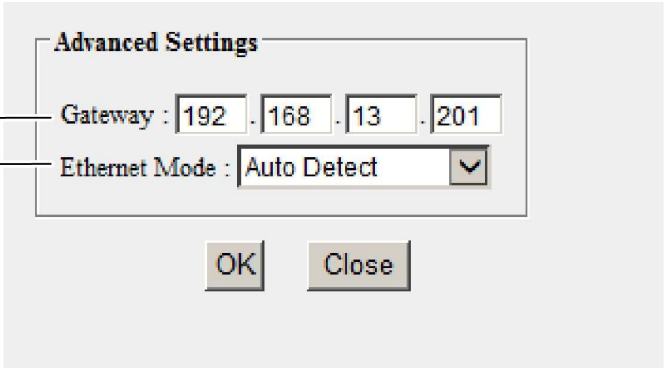
■ System Administration Screen



No.	Name	Description
1	System to Edit	Select the system to edit from the pull-down menu. System information can be changed without logging in to the selected system.
2	Group	It is used to move the system selected in [System to Edit] to another group. Select the destination group by pulldown and press Apply to complete the move. "-" (group not registered) is also included in the pull-down menu.
3	Server Type	It is the server type of the system controller. It is fixed with "ShimadzuCBM".
4	IP Address Setting	When acquiring the IP address from the DHCP server, select "Obtain an IP address automatically".
5	IP Address	Set the IP address of the system controller.
6	Subnet Mask	Set the subnet mask of the network to which the system controller is connected.
7	Master System	(For future expansion and not used) It is fixed with "None".
8	About This System	Enter the usage purpose etc. of this system. Up to 10 characters can be entered with double-byte characters. (30 characters for single-byte characters)

No.	Name	Description
9	Change System Name...	Change the system name. **Hint** • The system name can not be changed when the system belongs to one of the groups. This button is enabled only when "-" (not registered) is displayed in the "Group" field. • In order to activate this button, it is necessary to select [-] (unregistered) once from the pull-down menu in the [Group] field and press Apply to become independent. After that, this button becomes functional when logging in again. Reference "5.5.1 Change the System Name" P.126
10	Create Group...	It is used when creating a new group. **Hint** This button is enabled only when "-" (not registered) is displayed in the "Group" field.
11	Advanced Settings	Displays the [Advanced Settings] screen. Reference Please refer to the section below.
12	Apply	Set the change contents. **NOTE** If "IP Address Setting", "IP Address", "Subnet Mask" and "Default Gateway" are changed, please restart the system controller.

■ Advanced Setting Screen



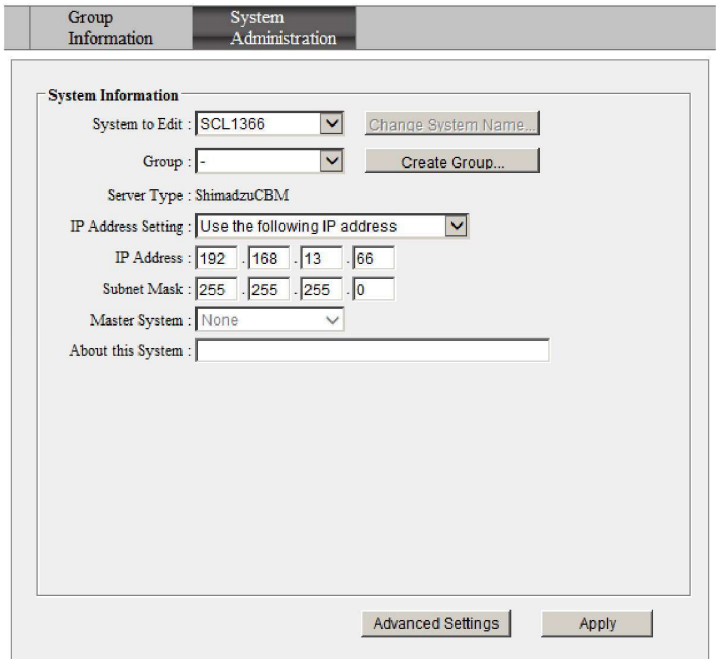
No.	Name	Description
1	Gateway	Enter the default gateway.
2	Ethernet Mode	Select the transmission speed of Ethernet from the pull-down menu.

5.5.1 Change the System Name

To change the system name, do the following.

1 **Select [-] from the pull-down menu in the [Group] field.**

Hint If the [Change system name] button is already enabled, start with step 4.



2 **Click [Apply].**

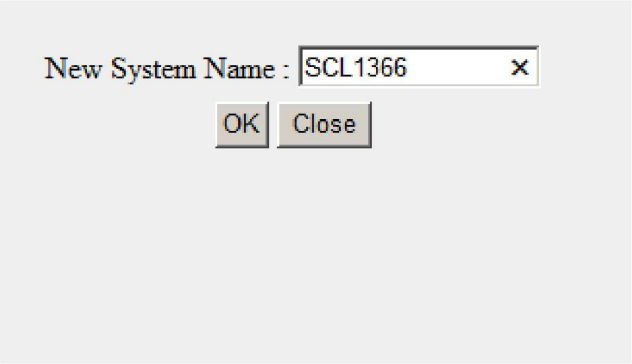
Log out will be done automatically.

3 **Log in again to the "Group management" screen and click the "System Administration" tab.**

The [System Administration] screen appears.

4 **Click [Change System Name].**

The following screen will be displayed.



5 **Enter the new system name.**

Hint Input is up to 15 single-byte characters. Available characters are alphanumeric single byte characters and "-" (half size minus), "_" (half size underscore).

6 **Click [OK].**

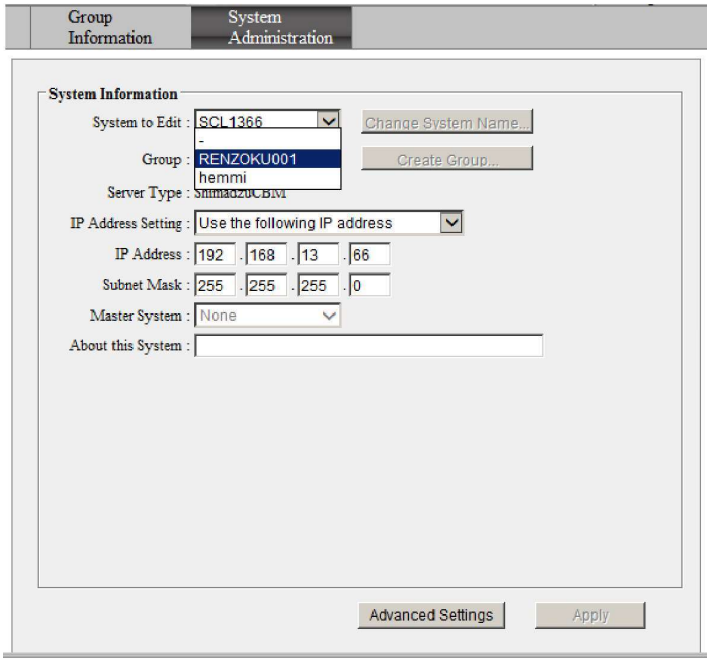
7 **Click [Apply].**

Changes will be reflected and log out will be done automatically.

5.5.2 Move the System to Another Group

To move the system to another group, do the following.

1 **Select the system to move from the pull-down menu in the "System to edit" field.**



2 **Select the destination group from the pull-down menu in the [Group] field.**

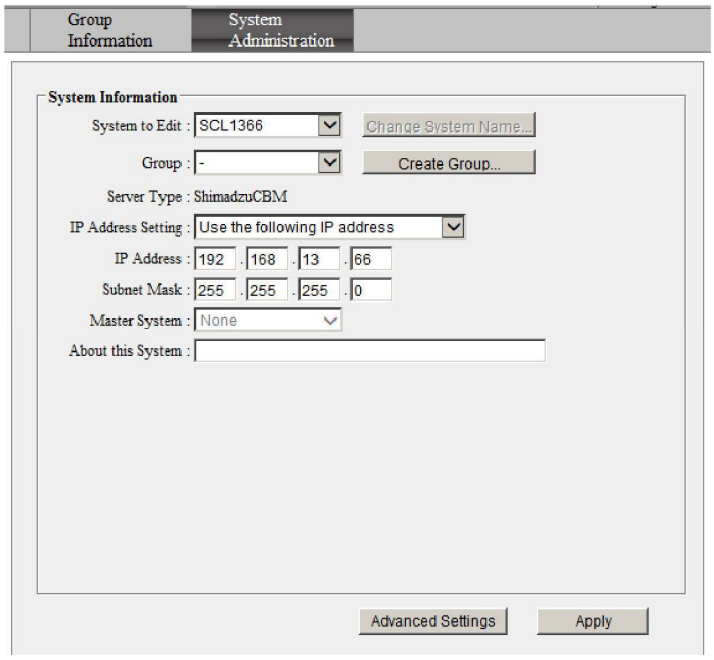
3 **Click [Apply].**

Changes will be reflected and log out will be done automatically.

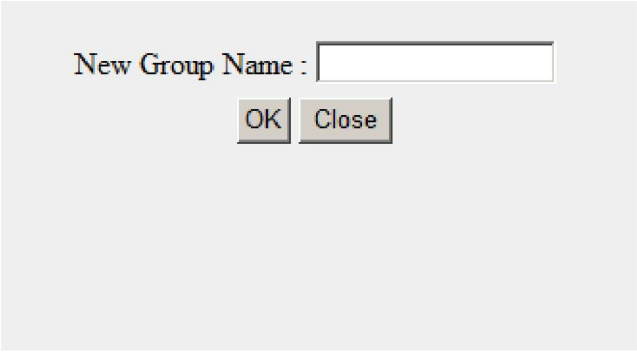
5.5.3 Create a New Group

To create a new group, do the following.

1 **Select [-] from the pull-down menu in the [Group] field.**



2 **Click the [Create Group] button.**
The following screen will be displayed.



3 **Enter a new group name.**

> **NOTE** Input is up to 15 single-byte characters. Available characters are alphanumeric single byte characters and "-" (half size minus), "_" (half size underscore).

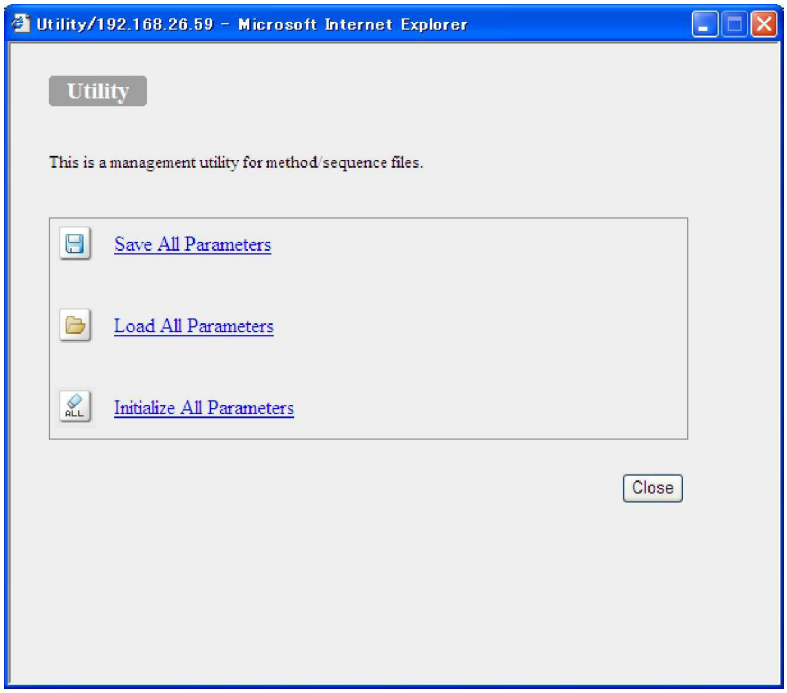
4 **Click [OK].**

5 **Click [Apply].**

Changes will be reflected and log out will be done automatically.

5.6 Utility Screen

The utility screen is displayed by clicking (Utility button) at the top of the device monitor screen.
On this screen, system parameters (environment settings, methods, sequences) can be saved to a PC. And later, these parameters can be read from a PC.

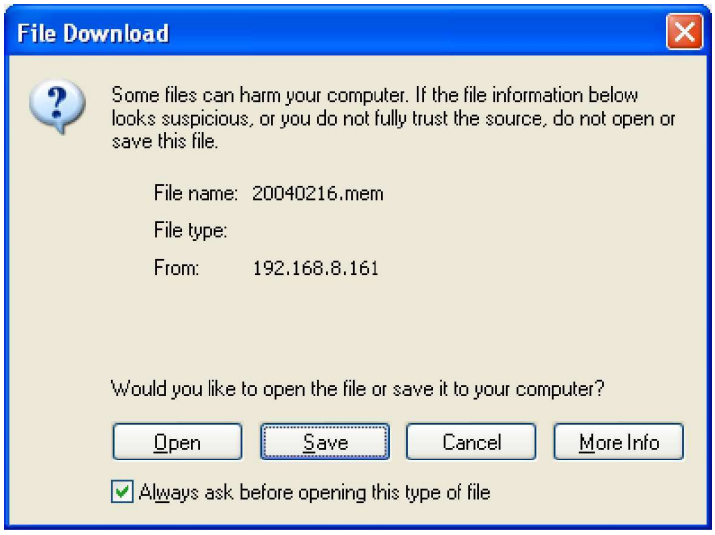


5.6.1 Store System Parameters Collectively on the PC

Store system parameters (environment setting, method, sequence) all at once on the PC.

1 **Click [Save All Parameters].**

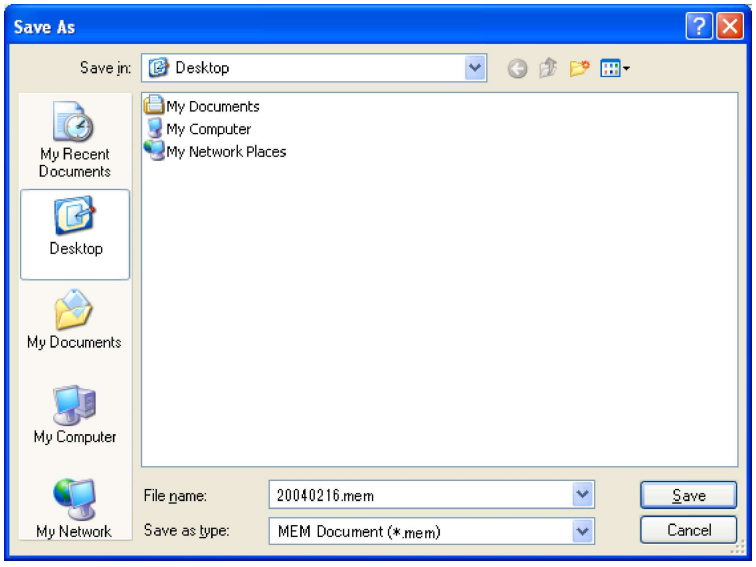
The following screen will be displayed.



NOTE If you click [Open] in the dialog above and associate it with another application, it may not be saved as a file, so please do not click on it. In the unlikely event that the dialog "Please select the application to open the file" appears, click [Cancel] to close it.

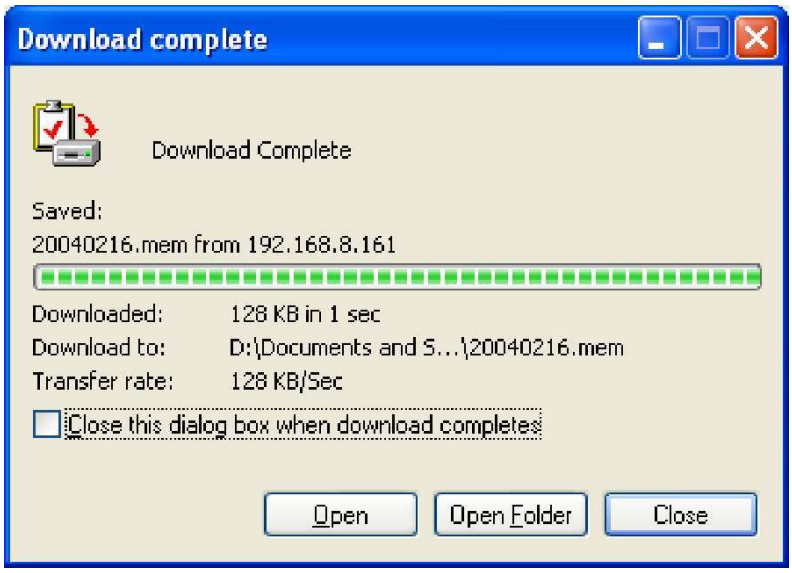
2 **Click [Save].**

The following screen will be displayed.



3 **Select the location to save and enter the file name.**

4 **Click [Save].**
The file is saved in the selected location.



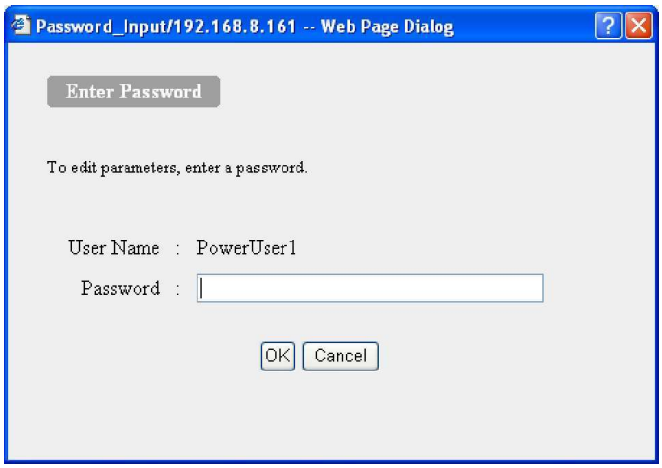
5

5.6.2 Load System Parameters That Were Saved at Once

The system parameters (environment setting, method, sequence) saved can be loaded all at once from the PC.

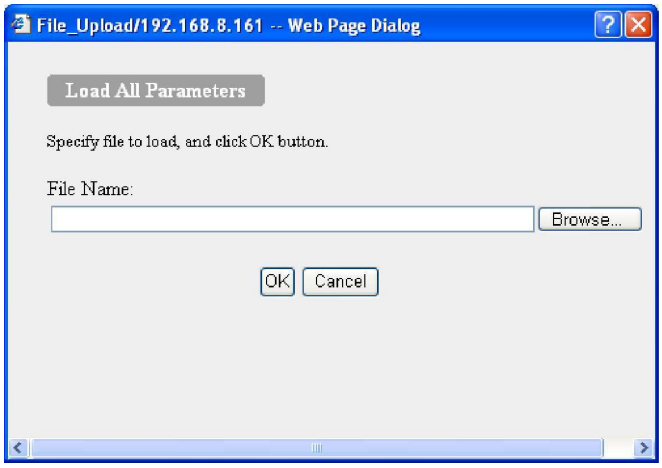
1 **Click [Load All Parameters].**

The password entry screen will be displayed.



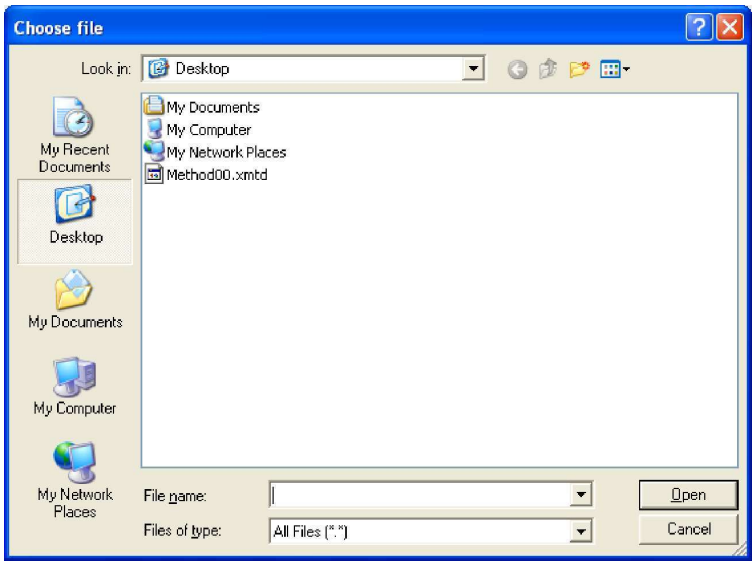
2 **Enter the user's password and click on [OK].**

The [Load All Parameters] screen is displayed.



3 **Click [Browse] in the file name field.**

The following screen will be displayed.



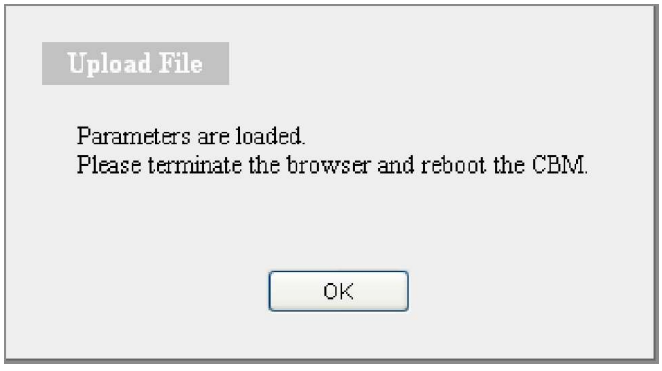
4 **Click on the file to be read and click on [Open].**

Hint • Only files with extension ".mem" can be read.

5 **The selected file name is displayed in the [File Name] field on the [Load All Parameters] screen.**

6 **Click [OK].**

The following screen will be displayed.



7 **Click [OK].**

8 **Click [Close] on the Utility screen.**

The [Utility] screen closes.

9 **Exit the browser and restart the system controller.**

5.6.3 Initialize Device Parameters

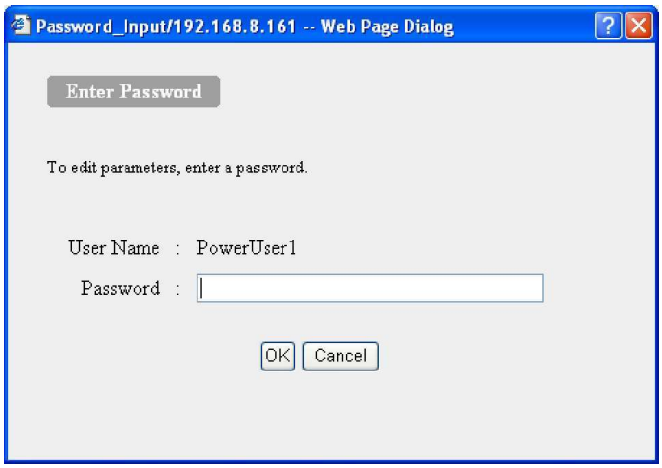
On this screen, the system parameters (environment setting, method, sequence) can be initialized.

Hint The important parameters such as logs, passwords and network settings are not initialized. To initialize these parameters, use the INIT switch.

Reference "2.2 Back" P.8

1 **Click [Initialize All Parameters].**

The password entry screen will be displayed.



2 **Enter the user's password and click on [OK].**

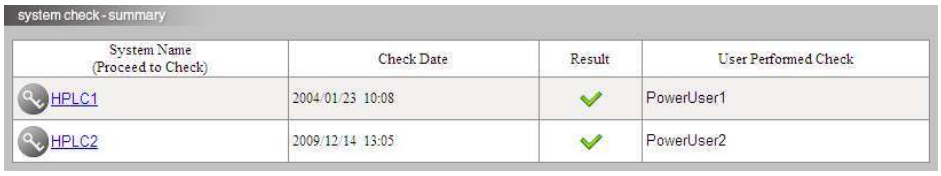
Initialization is performed and the following screen is displayed.

3 **Exit the browser and restart the system controller.**

5.7 System Check Screen

On this screen, the system check of the device connected to the system controller can be executed and the result displayed. Also the system check results of LC systems in the group can be displayed as a list.
The system check screen is activated from the [System check] tab of the [Status summary] area.

1 **Click the [System Check] tab in the [Status Summary] area.**



2 **Click [key icon] or the name of the system to be checked.**

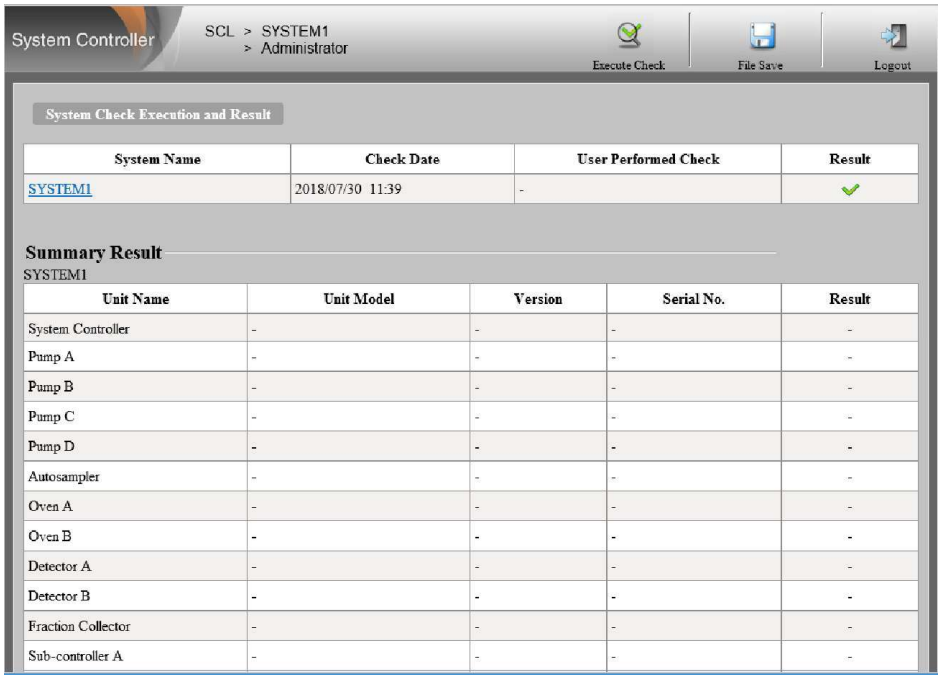
The "Login" screen will be displayed.

3 Enter user ID and password and click on [Login].

The [System Check Execution and Result] screen is displayed. The result of the previous system check execution is displayed.

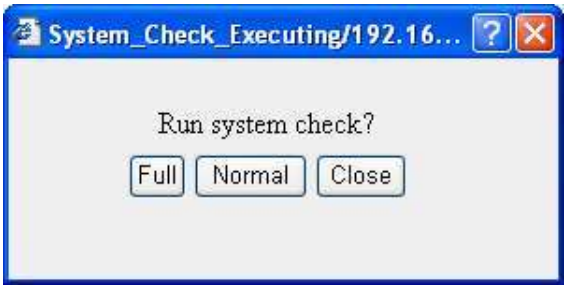
Hint

- [Entire System Results] (upper part of the screen below) is retained even when the power of the system controller is turned off.
- On the other hand, the data is cleared every time the power of the system controller is turned off, for [Summary Result] and [Detailed Results]. Please execute the system check again if you want to browse the data of [Summary Result] and [Detailed Results].



4 **Click** **(Execute Check).**

The following screen will be displayed.

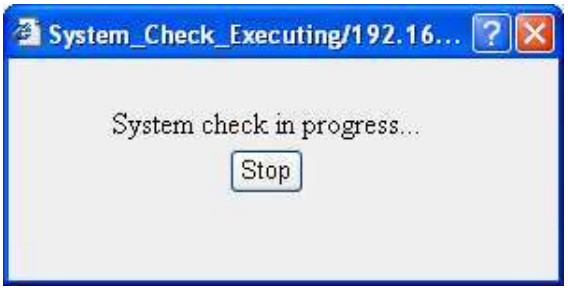


Hint There are two types of system checks, "Full" and "Normal". Clicking "Full" will check [Lamp Energy] and [Wavelength Accuracy] for absorbance detectors and [Wavelength Accuracy] for fluorescence detectors(RF-20A/xs only). By clicking "Normal", these will not be executed and the previous check result for these detectors will be displayed.

NOTE In the system check from the system controller, [wavelength accuracy] check of the PDA detector is not executed. In the system check result, the result obtained from the PDA detector at the previous check is displayed.

5 **Click [Full] or [Normal] according to the check contents.**

The following screen will be displayed and the system check will start.



NOTE Click [Stop] to cancel the system check. Abort processing may take 1 to 2 minutes depending on the device.

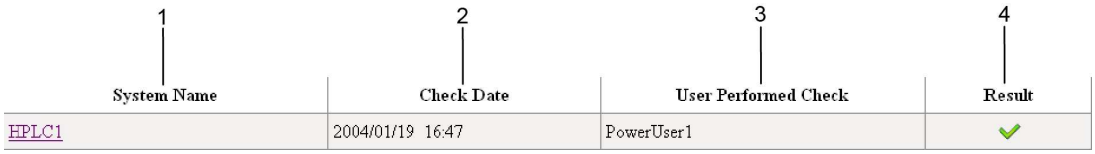
When the system check is completed, the "System check in progress" screen closes and the result of the system check is displayed.

5.7.1 Display Contents of System Check

The results of the system check are divided into three groups, [Entire System Result], [Summary Result], and [Detailed Results].

■ Entire System Result

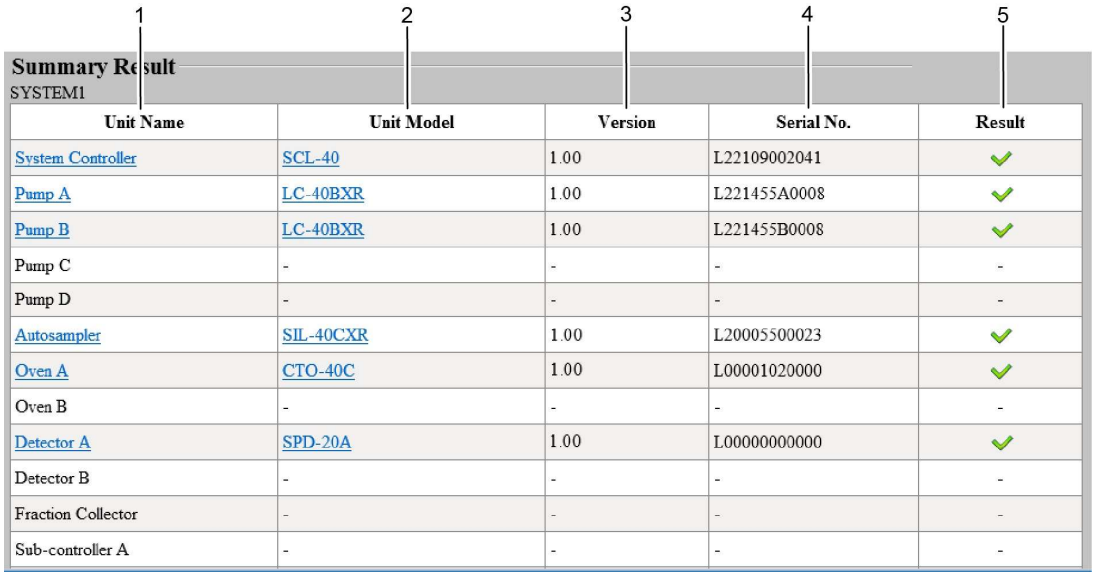
The check result of the whole system is displayed.



No.	Display Item	Description
1	System Name	Displays the system name belonging to the group. Clicking on this name jumps to the table of [Summary Result] and displays the result.
2	Check Date	It is the date when the check was executed.
3	User Performed Check	This is the name of the user who executed the system check.
4	Result	It is the result of the whole system.
		It is displayed when the check result is passed.
		It is displayed when the checked result shows that consumables are beyond the replacement criteria..
		It is displayed when the check result is failed.
		If the system check is not executed, a blank is displayed.

■ Summary Result

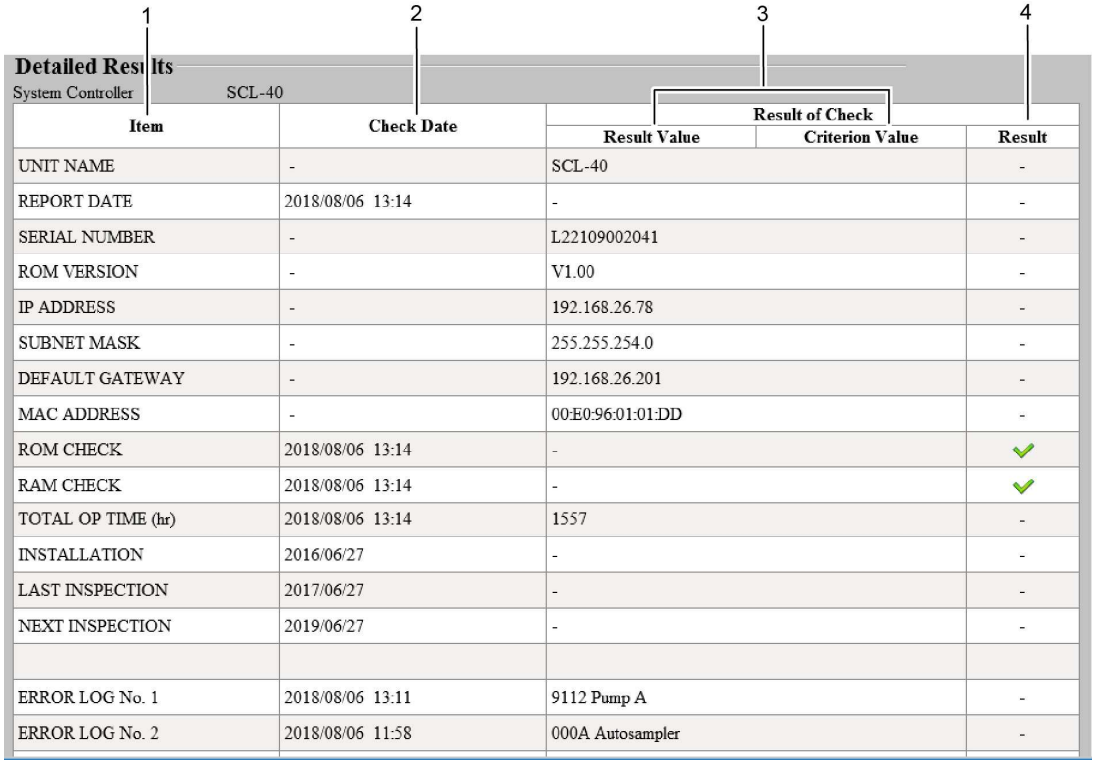
Displays the list of devices connected to the system and the results.



No.	Display Item	Description
1	Unit Name	The name of the device connected to the system. For models with [Detailed results], clicking on the name jumps to [Detailed Results].
2	Unit Model	This is the model name of the connected device.
3	Version	This is the version number of the connected device.
4	Serial No.	It is the serial number of the connected device.
5	Result	It is the result of the system check of the connected device. The meaning of the judgment mark is the same as [Entire System Result] described previously. "-" is displayed when there is no check item.

■ Detailed Results

Displays the result of the system check of each device individually.



Detailed Results

System Controller SCL-40

Item	Check Date	Result of Check		
		Result Value	Criterion Value	Result
UNIT NAME	-	SCL-40		-
REPORT DATE	2018/08/06 13:14	-		-
SERIAL NUMBER	-	L22109002041		-
ROM VERSION	-	V1.00		-
IP ADDRESS	-	192.168.26.78		-
SUBNET MASK	-	255.255.254.0		-
DEFAULT GATEWAY	-	192.168.26.201		-
MAC ADDRESS	-	00:E0:96:01:01:DD		-
ROM CHECK	2018/08/06 13:14	-		✓
RAM CHECK	2018/08/06 13:14	-		✓
TOTAL OP TIME (hr)	2018/08/06 13:14	1557		-
INSTALLATION	2016/06/27	-		-
LAST INSPECTION	2017/06/27	-		-
NEXT INSPECTION	2019/06/27	-		-
ERROR LOG No. 1	2018/08/06 13:11	9112 Pump A		-
ERROR LOG No. 2	2018/08/06 11:58	000A Autosampler		-

No.	Display Item	Description
1	Item	Check items of system check.
2	Check Date	It is the date when the system check was executed.
3	Result Value and Criterion Value	It is the result of the check result. The checked value and the criterion value are displayed.
4	Result	It is the result of checking the device. The meaning of the judgment mark is the same as [Entire System Result] described previously.

NOTE

In the judgment column, if ! or ✕ is displayed:

Please refer to the "Instruction Manual" of each device and replace consumable items or take appropriate action to resolve the cause of failure.

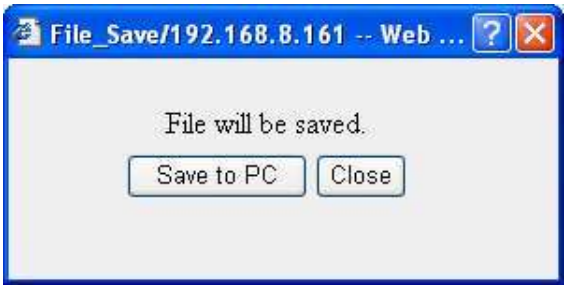
5

5.7.2 Save the Result of the System Check

The result of the system check can be saved as a text file. The saved data can be viewed and edited with an application program such as Excel.

1 **Click on** **on the "System Check" screen.**

The "Save file" screen will be displayed.



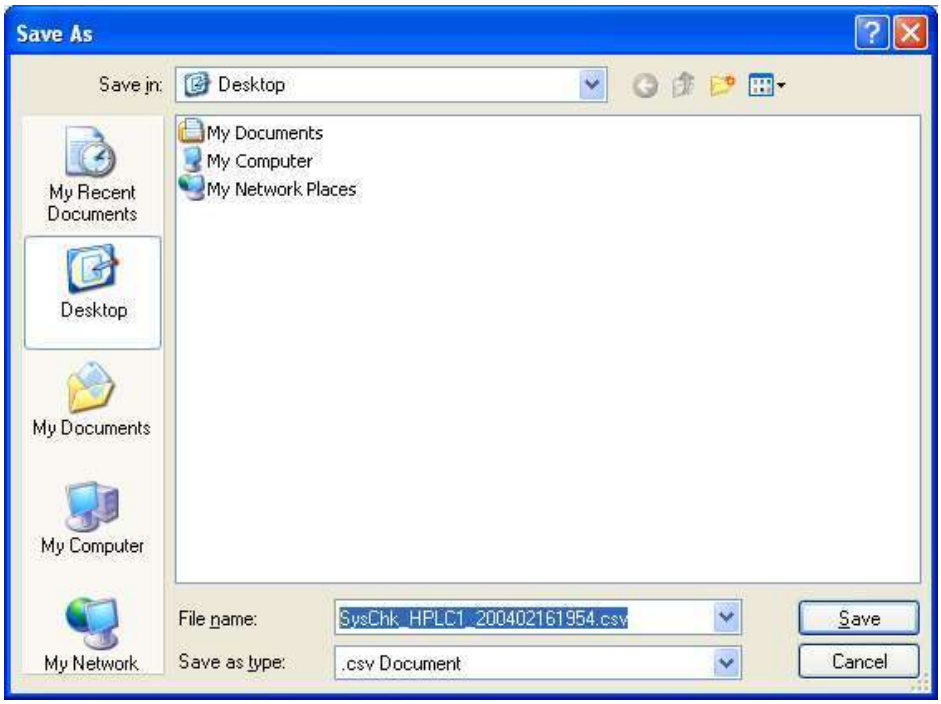
2 **Click [Save to PC].**

The following screen will be displayed.

NOTE If you click [Open] in the dialog above and associate it with another application, it may not be saved as a file, so please do not click on it. In the unlikely event that the dialog "Please select the application to open the file" appears, click [Cancel] to close it.

3 **Click [Save].**

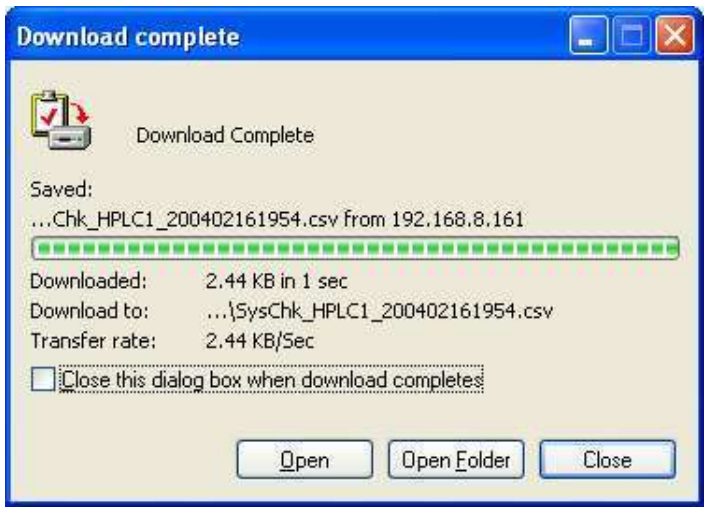
The following screen will be displayed.



4 **Select the location to save and enter the file name.**

5 **Click [Save].**

The file is saved in the selected location and the following screen is displayed.



6 **Click [Close] on the "Download completed" screen.**

The screen closes.

6 Applied Operation

This chapter explains applied operations.

6.1 External Input/Output Terminal

The external input / output terminal is used by connecting to an external device with an optional event cable.

Reference "1.3 Optional Parts" P.5

⚠ CAUTION

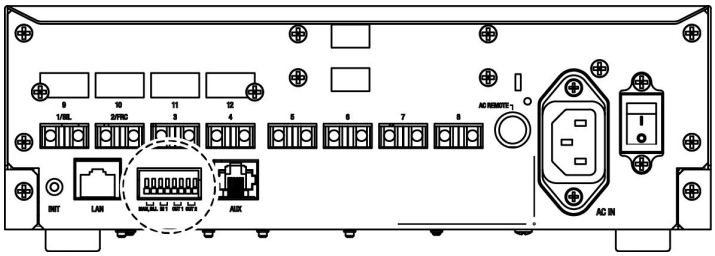
Prohibition

Do not use wiring cables other than instructions allow.
Do not wire other than instructions allow.
Failure to observe the above may cause fire, electric shock, or malfunction.

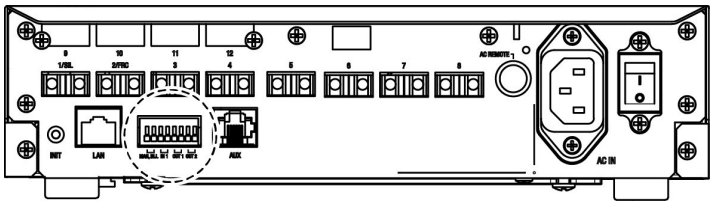
Instruction

Before wiring, turn off the main power switch on the back of the unit and disconnect the power plug from the outlet.
Failure to observe the above may cause fire, electric shock, or malfunction.

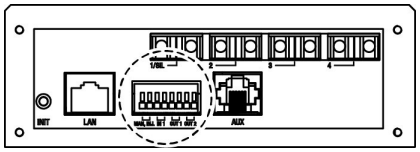
6.1.1 Event Terminal Signals



SCL-40



CBM-40



CBM-40lite

Name		Description
MAN. INJ.	External Start Input Terminal	• Connect with a manual injector, and receive an external start signal. Reference "6.4 When Using a Manual Injector" P.152 • When using the autosampler that is set [Injection Trigger] to "Sync", injection of the autosampler is performed at the time when a short circuit signal is input to this terminal. Reference "8.4.3 Autosampler" P.193
IN1	General Purpose Input Terminal	Receive signals such as "error input" and "stop input" from other devices. Reference "8.4.1 System Controller" P.186
OUT1～2	General Purpose Output Terminal	Send signals such as "Error output" and "Start signal" to other devices. Reference "8.4.1 System Controller" P.186

6.1.2 Connect the Event Cable

1 **Strip about 10 mm of covering from the end of the cable.**

Hint This process is unnecessary for the optional event cable.

2 **In the case of solid core wire, insert it directly into the hole of the terminal.**
In the case of stranded wires, twist the tips and then insert them into the hole.

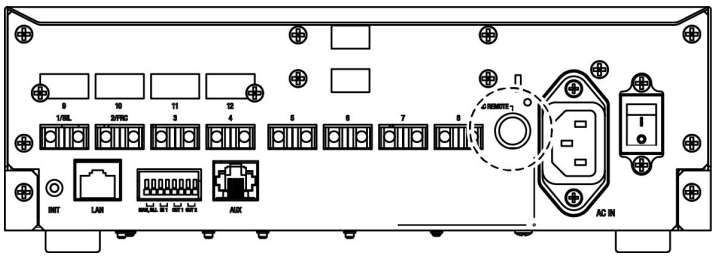
When Inserting the cable, put it in while pressing the button on the terminal with a thin flathead screwdriver or similar tool. When removing the cable, pull out the cable while pressing the button above the terminal.

Hint In addition to the event cable which is an optional item, it is possible to substitute the cable of AWG 28 to 20. To avoid disconnection of cables, a stranded cable is recommended.

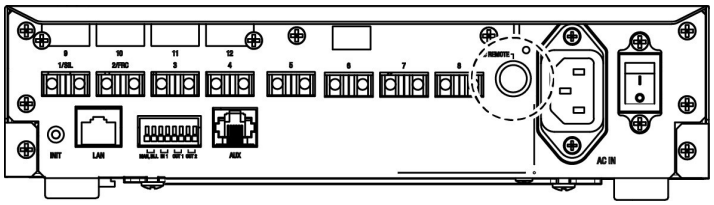
6.2 Control Output of Power Outlet Box for Japan / North America Region

When using the "Power Outlet Box for Japan / North America Region"(228-35327-91), connect the [AC REMOTE] terminal on the back of the SCL-40 or CBM-40 to the outlet box.

Hint The outlet box can not be connected to the CBM-40lite.



SCL-40



CBM-40

"Power Outlet Box for Japan / North America Region"(228-35327-91)

■ Connection Instructions

1 **Insert the control cable that is an accessory of the outlet box to the [REMOTE] terminal of the outlet box.**

2 **Insert the other plug of the control cable into [AC REMOTE] on the back of the system controller.**

■ ON / OFF Control Function

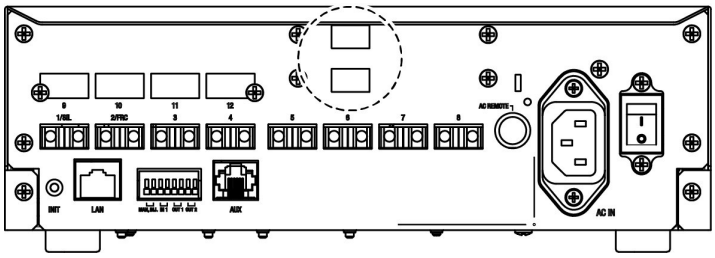
ON / OFF control can be performed for 4 out of 8 outlets. The ON / OFF control that can be performed varies depending on the type of system controller (table below).

Function	SCL-40	CBM-40
Interlocking with the system controller power switch ⏻	○ Turn on / off in conjunction with the power switch.	
ON / OFF by method	○ Turn ON / OFF with the [Power Outlet Unit] parameter of the method in the touch panel screen.	— There is no method setting screen on the web screen. Instead, in CBM-40, turning on the power of the system controller turns on the power supply of the outlet box automatically.
Power OFF at error occurrence	○ Set by the [Turn Off Relays On Error] parameter of the environment setting in the touch panel screen.	○ Set by the system controller's environment setting on the web screen.
[power] command of the Time Program	○ ON / OFF by [power] command is valid.	— There is no time program setting screen on the web screen.
Linking with startup / shutdown	× It does not link.	

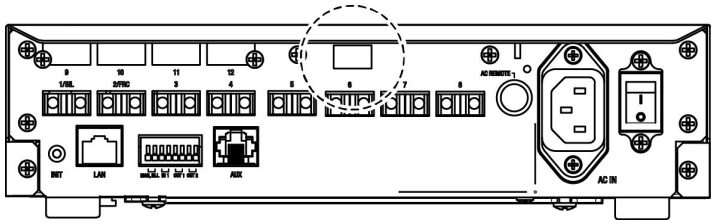
6.3 Analog Input

By installing an optional AD board in the system controller, analog signals output from detectors of other companies can be imported to the system controller.
Up to 2 AD boards to SCL-40 and 1 AD board to CBM-40 can be added.

Item	Specification
Input Range	± 1.0 V or ± 10 V (gain switching) **Hint** The gain setting of the AD board can be changed in the system controller's environment setting.
Sampling Cycle	10 msec



SCL-40



CBM-40

6.4 When Using a Manual Injector

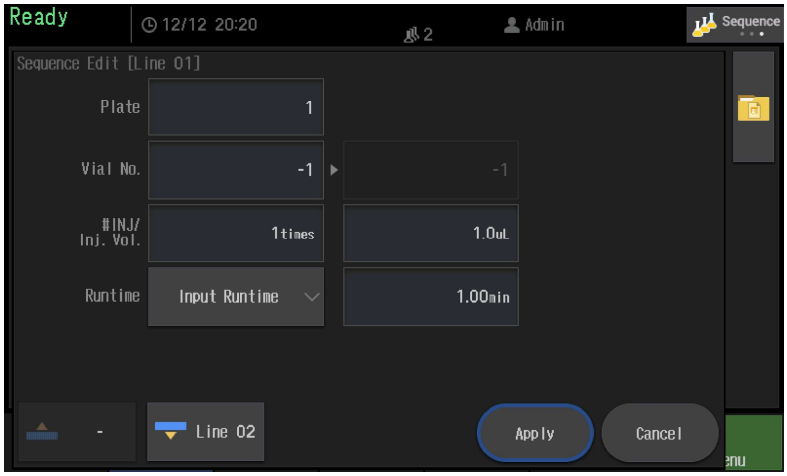
The following describes the case of analyzing by combining SCL-40 and manual injector.

1 **Prepare a manual injector with contact output, and attach it to a column oven.**

Hint As a manual injector with contact output, IDEX Inc. 7752i etc. are available.

2 **Connect the cable for the contact signal from the manual injector to [Man.Inj] on the back of the system controller.**

3 **When creating a sequence, specify "-1" (non-injection mode) in the vial number.**



4 **When sequence analysis is started, "WaitStart" is displayed in the status area (upper left corner of the main screen).**

Hint When using both the autosampler and the manual injector, set the "Use of Autosampler" parameter in the autosampler method to "Not Used". When this parameter is set to "Used", sequence analysis is automatically executed one after another without entering the WaitStart state.

5 **Turn the manual injector to the LOAD position and load the sample with a syringe.**

6 **Analysis starts when the manual injector is turned to the INJ position.**

6.5 Precautions When Using SIL-10A Series or FRC-10A

The following describe notes on using SIL-10A series (SIL-10Ai/P/F) or FRC-10A.

6.5.1 Power Supply

To supply power to the SIL-10A series and FRC-10A, use the power outlet unit PO-2PS (228-65524-58). Power on these devices is controlled with the PO-2PS power switch.

6.5.2 Device Power-on Timing

When using the SIL-10A series or FRC-10A, always start these devices and system controller at the same time. Do not reboot the system controller or SIL and FRC individually.

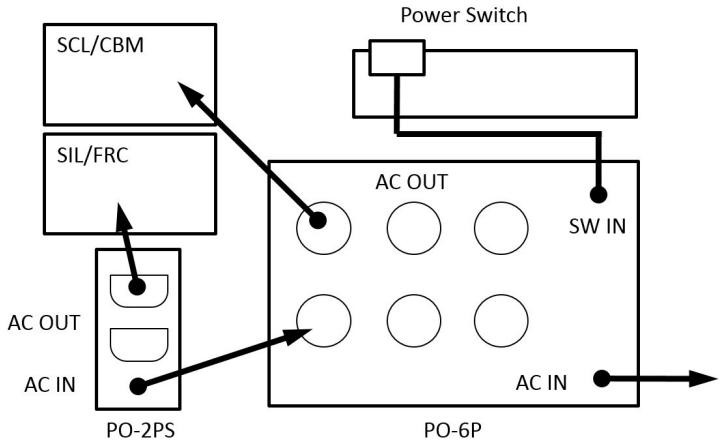
NOTE

- For example, if only the system controller is rebooted, communication via the optical link will not be established and the SIL-10A series and FRC will not be recognized.
- In addition to rebooting, even if the optical link cable of the SIL-10A series or FRC-10A is reinserted similar device recognition defects are caused.
- In a strict sense, recognition failure of SIL-10A and FRC-10A does not occur by turning ON/OFF of the power button ⏻. If the main power switch of the system controller is turned ON / OFF , device recognition failure of SIL-10A and FRC-10A will occur.
- When shutdown / startup is executed with LabSolutions or system controller, turning on / off the power of PO-2PS according to shutdown / startup causes recognition failure of SIL-10A and FRC-10A.

To summarize the above notes, always keep the same state of the "main power switch" of the system controller and the power switch of PO-2PS.(When the main power switch

of the system controller is ON, please also turn on PO-2PS. If the main power switch of the system controller is OFF, please also turn OFF the main power switch of PO-2PS.)

Hint When using the power outlet unit PO-6P (228-65523-41) together, connecting as shown below, by the PO-6P power switch installed in the reservoir tray, simultaneous starting of the system controller and SIL / FRC can be made easily.



If device recognition defect occurs, restart the system controller, SIL-10A series, FRC-10A according to the following procedure.

■ Power-on the Device

1 **Confirm that the main power of the system controller, SIL-10A series, FRC-10A is OFF.**

2 **Turn on the main power switch of the system controller and wait for starting up.**

3 **Turn on the power of SIL-10A series and FRC-10A (PO-2PS).**

6.5.3 Set Link Check

Be sure to turn on the link check for SIL-10A series and FRC-10A so as not to start the analysis in the condition of device recognition defects.

Reference • "Link Check Setting Screen" P.69
• "5.4.2 [Device Configuration] Screen" P.120

If link checking is turned on, even if a device recognition defect occurs, "Link Check Error" will be generated before starting the analysis, and analysis failure is prevented.

Hint If a link check error occurs, turn off the power of the system controller and the SIL-10A series or FRC-10A, then reboot them according to "Power-on the Device" P.154.

6.5.4 When the Devices are not Used Temporarily

If the SIL-10A series or FRC-10A are not used temporarily, turn OFF the setting of [Use of Autosampler] or [Use of Fraction collector] in the method file of SIL or FRC. When this setting is turned OFF, the injection operation by SIL and the fraction collecting operation by FRC are not performed at the time of analysis execution.

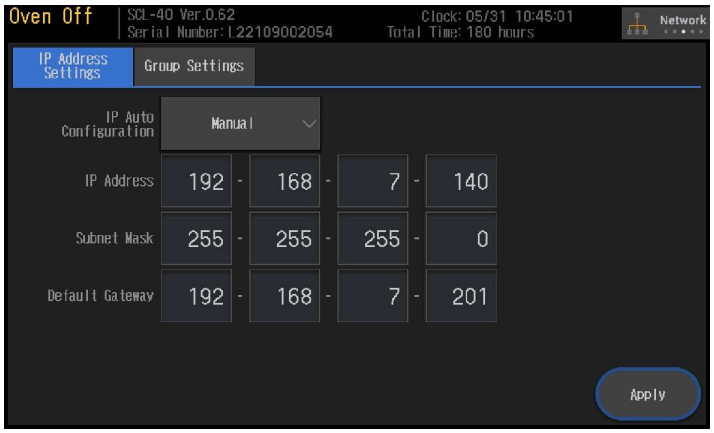
Reference
- "Autosampler" P.184
- "Fraction Collector" P.184

6.6 Network Settings

How to set up the network is summarized.

6.6.1 When Setting From the Touch Panel of SCL-40

For the method of setting from the touch panel, refer to "Network Setting Screen" P.71.



6.6.2 When Setting From Connected Device

The following describes how to set the network settings from [CBM PARAMETER] of each device connected by optical link.

1 **Connect the system controller and the following supported models by use of an optical link cable.**

Series	Supported Models
LC-20A/LC-30A Series	Either pump, autosampler, UV detector, fluorescence detector, differential refractive index detector **Hint** There is no [CBM PARAMETER] screen in the column oven
LC-40 Series	pump

2 **Set the following items on [CBM PARAMETER] screen of the device.**

- IP ADDRESS
- SUBNET MASK
- DEFAULT GATEWAY

3 **Reboot with the main power switch on the back of the system controller.**

6.6.3 When Setting From the Web Screen

The following explains the case of network setting from web screen with CBM-40 etc. This way is available when the IP address of the system controller is known.

Hint If the set values such as IP address are not known at all, it is necessary to return to the factory default state with the INIT button on the back of the system controller. The network setting values after initialization are shown in the table below.

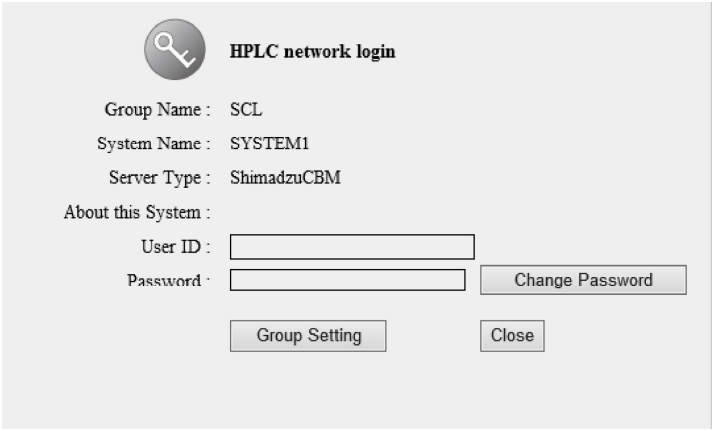
Item	Initial Value
IP Address	192.168.200.99
Sub Net Mask	255.255.255.0
Default Gateway	Default gateway not used
Group Name	ShimadzuHPLC(not registered)
System Name	(Serial No.)
User ID	Admin
Password	Admin

Hint Since the currently set IP address etc may not match the network environment to be installed, it is necessary to perform the setting operation on an independent local network composed only of "PC used for network setting" and "system controller". In this case, set the PC's IP address in the same subnet as the system controller.

1 **Launch a web browser such as Internet Explorer and enter the URL of the system controller.**

2 **On the "Status Summary" screen, click the system name to open the device monitor screen.**

3 **Click (Management button) and log in to the [Group management] screen.**



4 **Set the IP address and subnet mask on the [Device Management] tab and set the default gateway on the [Advanced Setting] screen.**

Reference "System Administration Screen" P.124

5 **On the [Group Information] tab, set the group name and system name.**

Reference "5.5.1 Change the System Name" P.126

6.7 Standalone Pretreatment Function

The following describes "Standalone pretreatment Function" usable with SCL-40.
This function is to let the autosampler execute user pretreatment in the absence of LabSolutions and other workstations.

To explain the overall flow: First, connect to the workstation for the first time. Then edit the user pretreatment file on the workstation and download it to the system controller. The system controller holds the downloaded pretreatment file, and after that, it detaches the workstation and uses it standalone. When performing sequence analysis, designate the saved pretreatment file and execute the analysis.

Hint The autosampler used must support user pretreatment functions (SIL-10A series, SIL-30AC, etc.).

■ Save Pretreatment File

1 Set [Standalone Pretreatment] to [Enable].

Hint This parameter is on the [Menu Button]> [Settings]> [Device Settings] screen.

Reference "3.6.5 Device Setting" P.74

2 Connect to the workstation, edit the pretreatment file and download.

The user pretreatment files (F1 to F19) are saved in the system controller.

Hint Since [Standalone Pretreatment] is set to [Enable], pretreatment files are retained even when the system controller is powered off.

3 Disconnect the workstation.

Hereafter, please keep [Standalone Pretreatment] always [Enable].

■ Analyze Using Pretreatment Files

1 Select the pretreatment file to be used in the [Pretreatment File] parameter in the method of the system controller, and save the method.

Hint

- The [Pretreatment File] parameter is displayed only when [Standalone Pretreatment] is set to [Enable].
- [---] is displayed in the pull-down menu for invalid pretreatment files such as empty files among user pretreatment files [F1] to [F19].

2 Select [Use time program] in the [Runtime] setting column of the [Sequence Analysis Editing] screen and designate the method file saved earlier.

3 **Start sequence analysis.**

The autosampler operates with the selected pretreatment.

■ Initialize Pretreatment File

Set [Standalone Pretreatment] to [Disable], and then execute [Parameter initialization].

Hint When [Standalone pretreatment] is set to [Enable], pretreatment files are not initialized even if [Parameter initialization] is executed.

6.8 GxP Enhancement Function

The GxP Enhancement function is a function to improve the reliability of the analysis result, such as restraining the operation of the device under analysis, recording of device operation affecting the analysis, and waiting for the start of analysis until the device is in the correct state.

> **NOTE** Enabling GxP Enhancement Function will improve the reliability of the analysis results, but since it involves operational restrictions, please use it after fully understanding the content.

When the GxP enhancement function is enabled, the system controller coordinates with the workstation and performs the following operations.

- Suppress device side operations affecting analysis during runs.
- Protect device operations affecting analysis with a password.
- Wait to start analysis until the device is in the correct state.
- When an operation that affects analysis is performed on the device side, it is recorded in the log of the workstation.

Workstation Corresponding to GxP Enhancement Function

Software Name	Supported Version
LabSolutions	Please contact our sales office or distributor
OpenLAB	Please contact our sales office or distributor

6.8.1 Set Up GxP Enhancement Function

The ON/OFF setting of the GxP enhancement function is performed by the field engineer at the time of equipment installation. To enable the GxP function, please contact the field engineer.

6.8.2 Operation Contents When GxP Enhancement Function is Set Up

When the GxP enhancement function is set to "ON", the operation screen of the system controller displays the following state according to the situation of the system

■ Waiting (When not Analyzing)

Analysis Menu

Changing analysis parameters from the touch panel is impossible and analysis can not be started either.

Also, if direct operation such as pump ON/OFF is performed, the log remains when connected to the workstation.

Screen	Function	Operation	Remarks
Monitor	Chromatogram Monitor	Viewable	—
	Equipment Monitor	Viewable	—
Main	Auto Purge	Reading only	Can not edit / execute
	Pump ON/OFF	Executable	When connecting to a workstation, the operation log remains on the workstation.
	Rinse	Executable	
	Oven	Executable	
	Zero	Executable	
	Activate	Executable	
	Edit Method	Reading only	Can not edit
	Start Analysis	×	Can not execute from the touch panel
Sequence	—	×	Analysis is always executed from the workstation.

Shutdown/Startup Menu

Can not edit/execute

Maintenance Menu

The system check report and the status of consumables are viewable on the touch panel.

Screen	Function	Operation	Remarks
Maintenance	Consumables Information	Viewable	—
	System Check Report	Reading only	System check execution is not possible

Setting Menu

Only viewing is available except [Screen setting] and [Network setting].

Screen	Function	Operation	Remarks
Screen Setting	Settings about the screen.	Feasible	—
System Configuration	Confirm System Configuration	Reading only	Can not edit
Network	Setting of IP Address etc.	Feasible	—
Environmental Setting	Setting of Environmental parameters	Reading only	Can not edit
Device Setting	Setting of the system controller	Reading only	Can not edit

User Menu

Login/Logout etc can not be performed.

■ Under Analysis

Analysis Menu

All editing/setting operations including direct operation can not be performed.

Shutdown/Startup, Maintenance, Settings, User Menu

All editing/setting operations will be disabled.

7 Maintenance

⚠ WARNING

Unless instructed to do so, be sure to turn off the main power switch on the back of the device before servicing, and disconnect the power plug from the outlet.

The failure could result in fire, electric shock or malfunction.

⚠ CAUTION

Never remove the main body cover.

If repairing that removes the main body cover is necessary, please contact our sales office or designated Shimadzu representative.

When replacing components, the parts described in "1.2 Component Parts" P.3 should be used.

Use of parts not specified may cause injury or malfunction.

7.1 Periodic Inspection

It is necessary to perform periodic inspections of this instrument to ensure its safe use. It is possible to have these periodic inspections performed by Shimadzu field engineer on a contractual basis.
For information regarding the maintenance inspection contract, contact your Shimadzu representative.

7.2 Maintenance

7.2.1 Clean the Touch Panel

The touch panel contains delicate electronic components. When the screen gets dirty please remove the dirt as follows.

1 **Lightly wipe with a soft cloth.**

NOTE
- Do not use liquids other than neutral detergent or ethanol.
- Please do not wipe with a strong force. It may cause damage.
- Please do not press or rub with a sharp blade or sharp object. It may cause damage.
- If it breaks, liquid crystal may leak. Please do not allow it to enter the eyes and mouth accidentally. Also, if it gets on your body, please rinse immediately with soap etc.

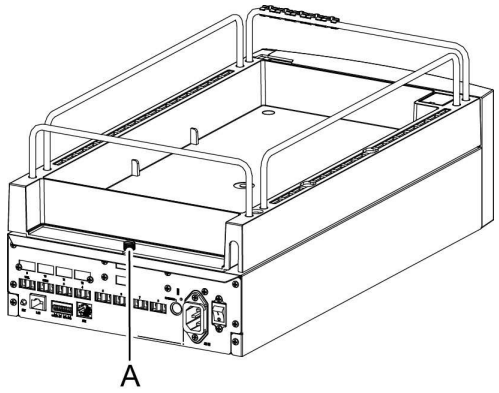
2 **If the dirt is not removed, wipe it with a neutral detergent or a small amount of ethanol.**

7.2.2 Clean the Reservoir Tray

If the reservoir tray is dirty, please remove it and clean it.

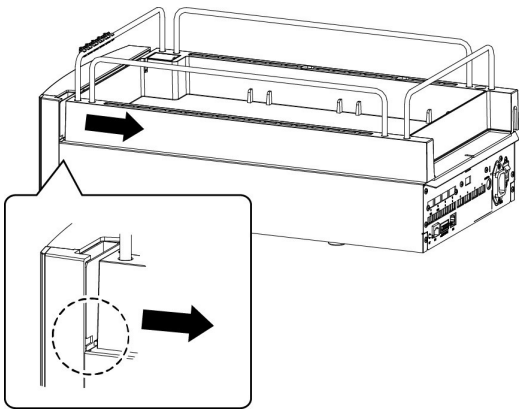
NOTE • Remove all reservoir bottles that are in the reservoir tray before cleaning.

1 **Remove the knurled screw (A) on the back of the reservoir tray.**



2 **Push the reservoir tray backwards slightly, then remove it from the main body.**

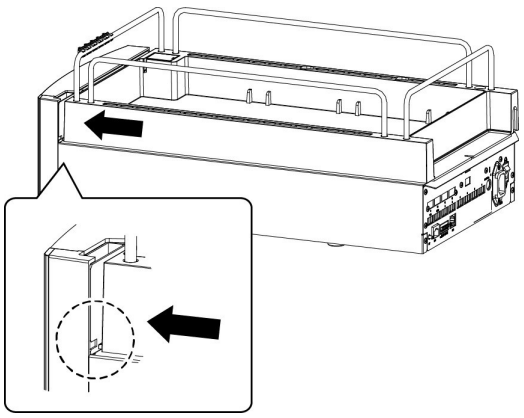
NOTE On the front part of the reservoir tray there are pins for engaging with front panel. Please pull it backward so that the nail is detached.



3 **Clean the inside of the reservoir tray with a cloth moistened with neutral detergent or a small amount of ethanol.**

4 **Replace the reservoir tray and secure with the knurled screw.**

NOTE After inserting the nail on the front of the reservoir tray into the hole of the front panel, fix it with a screw.



7.2.3 Cleaning the Exterior

■ Usual cleaning

If the exterior of the instrument is dirty, clean it with a dry soft cloth or tissue paper. If it is very dirty, clean it as below.

1 **Clean with a cloth soaked in diluted neutral detergent and wrung tightly.**

2 **Wipe off detergent with a cloth soaked in water and wrung tightly and then wipe off water with a dry cloth.**

⚠ CAUTION

Do NOT leave any part wet nor use alcohol or thinner for cleaning.
Doing so may cause rust or discoloration.

8 Technical Information

8.1 Status List

The status displayed on the touch panel screen of SCL-40 is summarized below.

■ Error Related

Display	Description
Fatal Error	Fatal error occurred.
Error	An error occurred.
Warning	Warning occurred.

■ Power Supply and Connection Status

Display	Description
Local Mode	Among the connected modules, some are set to Local mode.
Shutdown Sequencing	It is an operation to turn off the power supply of the entire system. **Hint** The 40 series autosampler etc. perform operations such as Z HOME at the time of the turning power to off. When operation is completed, the power turns off.
Power Down	The entire system power supply is OFF. **Hint** Since the touch panel screen is also OFF, this status is displayed only on the web screen.
Module PowerDown	Among the connected modules, some power supplies are turned off.
Changer NotConnect	(Only when using plate changer) The plate changer is not connected.
Pump Cool Not Connect	(SFC system only) LC-30ADSF and SFC-30A are not connected by cable.
CMD Not Ready	A CMD (column management device) that can not be used is inserted.

■ Initialization Operation

Display	Description
Module Initializing	(40 series only) The device is starting up.
Wait SIL	Autosampler is starting up.

Display	Description
Changer Initializing	The rack changer is starting up.
WAIT RID	(RID-20A or later only) The RI detector is starting up.
PDA Initializing	The PDA detector is starting up.

■ Door Opening

Display	Description
Safety Lock	The door opened during sampling operation with the autosampler.
SIL Panel F Open	(SIL-30ACMP only) The front resin panel is open.
SIL Ctrl Door Open	(SIL-30ACMP only) The door for the control rack is open.
SIL Door Open	The door of SIL is open.
SFE Door Open	The door of SFE is open.
BPR A Cover Open - BPR B Cover Open	(SFC system only) The cover of the BPR unit is open.
CTO Door Open	The door of the column oven is open.
SIL Syringe Cover Open	(Only when using syringe option with SIL) The syringe cover is open.
Changer Door Open	The door of the plate changer is open.
CRB Door Open	The door of the chemical reaction box is open.

■ Purge Related

Display	Description
A.Purge - D.Purge	Pump A-D are purging.
SILPurge	Autosampler is purging.
InitConc Flow	Pumping liquid at initial concentration.
CoolDown	Cool down of shutdown processing is in progress
WarmUp	Warm-up is in progress.
PumpA Wait Purge - PumpD Wait Purge	(LC-40 series only) After powering on the pump, the purge has not been executed yet. **Hint** If the pump is purged, the message disappears.

■ OFF State

Display	Description
Pump Cooler Off	(SFC system only) The pump head cooler of SFC-40 is OFF.
Wait Cooling Pump	(SFC system only) The pump head cooler of SFC-40 is waiting for temperature stabilization.
Pump Off	The pump is not feeding liquid. **Hint** Analysis can not be performed unless the pump is turned on.
Oven Off	The oven is not controlling the temperature. **Hint** If the [Oven Temperature Control] in the method is set to OFF, this status will not be displayed.
CRB Off	The chemical reaction box is not controlling the temperature. **Hint** If the [CRB Temperature Control] in the method is set to OFF, this status will not be displayed.

■ Waiting for Stability

Display	Description
Pump Starting	With the column protection function, the flow rate is gradually increased.
Wait Sample Cooler	(40 series, or when GxP function is ON) It is waiting for temperature stabilization of the sample cooler.
Wait Heating SFE Vessel	(40 series only) It is waiting for temperature stabilization of the SFE vessels.
Wait Heat Flow Cell	(40 series, or when GxP function is ON) It is waiting for temperature stabilization of the flow cell of the UV detector.
Wait Heat Lamp House	(40 series only) It is waiting for temperature stabilization around the lamp of the UV detector.
Wait Heat Optical Unit	(40 series only) It is waiting for temperature stabilization of the optical unit of the UV detector.
Wait BPR A - Wait BPR B	(SFC system only) BPR is waiting for pressure stabilization.
Wait CTO	It is waiting for temperature stabilization of the column oven.

Display	Description
Wait PDA Flow Cell	(40 series only) It is waiting for temperature stabilization of flow cell of PDA detector.
Wait PDA Optical Unit	(40 series only) It is waiting for temperature stabilization of the optical unit of the PDA detector.
Wait CRB	It is waiting for temperature stabilization of the chemical reaction box.

■ Module Operating

Display	Description
Wait Pump	Pump is in validation operation etc.
Pump Purge	The pump is purging.
Needle Flush	The autosampler is in the needle flush state. (The needle is in the drain port)
SILDrain	The needle of the autosampler is in the drain port.
Manual Purge	The autosampler is in the manual purge (manual prime) state.
SIL Z home	The needle of the autosampler is in the Z HOME position.
Plunger Set	The measuring pump of the autosampler is in the position for replacing the plunger.
Detector Auto Check	(40 series only) The UV detector is auto checking.
Det Validate Scanning	(40 series only) The UV detector is under wavelength scanning for validation.
Detector Wave Check	(40 series only) The UV detector is checking the wavelength.
Detector Wave Calib	(40 series only) The UV detector is calibrating the wavelength.
Detector Scan	(40 series only) The UV detector is scanning the wavelength.
Lamp Preheating	(40 series only) The UV detector is performing the preheating operation before the lamp is turned on.

■ Rack Status

Display	Description
SIL Wait Set Plate	(40 series only) The plate designated by the LabSolutions batch is not inserted.

Display	Description
SIL No CtrlRack	(During analysis only) There is no control vial rack of the autosampler.
SIL Plate L Open	(During analysis only) There is no L rack of SIL-30ACMP.
SIL Plate M Open	(During analysis only) There is no M rack of SIL-30ACMP.
SIL Plate R Open	(During analysis only) There is no R rack of SIL-30ACMP.
No Rack	(During analysis only) There is no rack of the autosampler.
SFE No Rack	There is no SFE rack.
Changer StackOpen	The stack of the rack changer is open.

■ Analytical Operation Related

Display	Description
STOP	Analysis halted.
Pause	Analysis paused.

■ Others

Display	Description
Extract	(SFE system only) Extracting.
Run	Under analysis. **Hint** When the Delay Compensation function is OFF, the analysis time is also displayed.
Wait SFE	(SFE system only) Preprocessing and postprocessing in operation. **Hint** Please wait until the operation is completed.
Transmit	(Only when using user pretreatment function of autosampler) Sending pretreatment file to autosampler. **Hint** If the pretreatment file size is small and transmission is completed immediately, it will not be displayed.
Pre Treatment	The autosampler is in pretreatment mode.
Post Treatment	(SIL-30AC or later only) Autosampler is in post-treatment mode.

Display	Description
Detecting Rack	Rack detection in progress.
Changer ChangingRack	The rack changer is exchanging the rack.
BPR A Depress - BPR B Depress	(Preparative SFC system only) After changing pressure control from ON to OFF, depressurizing.
Wait SP	(HIC system only) Waiting for suppressor switching.
Rinse	The autosampler is in rinsing operation mode.
WaitStart	In analysis using manual injector, the system controller is waiting for manual injector to move to INJ. (Waiting for the [Man.Inj] terminal to become shorted) Reference "6.4 When Using a Manual Injector" P.152
Ready	The system is ready. The analysis can be started.

8.2 Time Program List

The time program command of the system controller and the command of each module which requires supplementary explanation are described.

8.2.1 System Controller

<table>
<tr><th>Command</th><th>Description</th></tr>
<tr><td>START</td><td>It outputs a start signal to the workstation or event terminal. When this command is used, the start signal can be output at an arbitrary time.

Hint
• If this command is not used, a start signal is automatically output at the time program start (0.00 min). If this command is not used, set [External Start output] to other than [None] in environment setting of the system controller.
• To output a start signal to the workstation using this command, set [External Start Output] to [None] in environment setting of the system controller.
• To output the start signal to the event terminal, set the event terminal mode setting ([Relay 1] or [Relay 2]) to [Start] in the environment setting of the system controller.

Reference "8.4.1 System Controller" P.186</td></tr>
<tr><td>STOP</td><td>Terminate the time program.

Hint
• Be sure to enter this command at the end of the time program.
• If the [STOP] command is not input, the [STOP] command is automatically set.</td></tr>
<tr><td>EVENT</td><td>Switch ON/OFF of event output terminals 1 and 2 (EVENT OUT 1, 2) on the back of the system controller.

Hint
• To turn on both Event 1 and Event 2, set "12"
• In order to enable this function, it is necessary to set the event terminal mode setting ([Relay 1], [Relay 2]) to "EVENT" in the environment setting of the system controller.

<table>
<tr><th>Setting Range</th><th>Initial Value</th><th>Step</th></tr>
<tr><td>0, 1, 2, 12</td><td>0</td><td>1</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Command</th><th>Description</th></tr>
<tr><td>POWER</td><td>Turn on/off the "Power Outlet Box for Japan/North America Region". (It turns ON/OFF the output of the [AC REMOTE] terminal)

NOTE ON is valid at any time, but OFF is ineffective unless it is in ACT state (pump or column oven is ON).

Reference "6.2 Control Output of Power Outlet Box for Japan / North America Region" P.149

<table>
<tr><th>Setting Range</th><th>Initial Value</th><th>Step</th></tr>
<tr><td>0: OFF
1: ON</td><td>1</td><td>1</td></tr>
</table>
</td></tr>
</table>

8.2.2 Supplementary Explanation of Other Modules

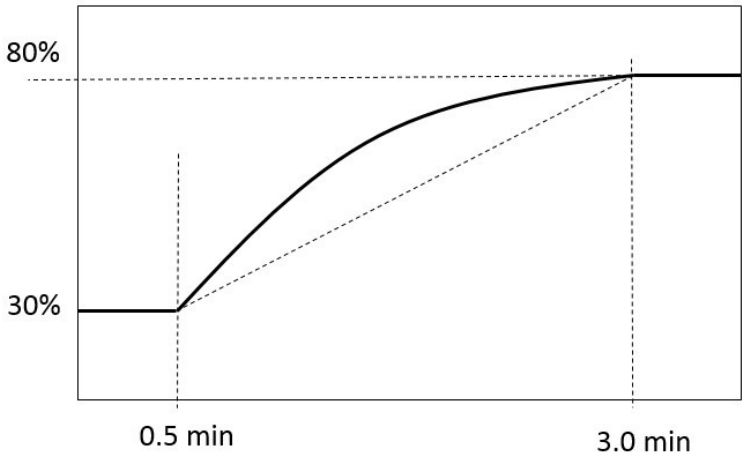
■ Pump

Command	Description
B.CURV C.CURV D.CURV	In the gradient system, set a curve for B to D concentration. NOTE This command is invalid when [Fast LC] mode is set in [Environment setting]> [System controller]> [Control mode]. Setting Range: -10～10 / Initial Value: 0 / Step: 1

B. CURV - D. CURV Command

To change the concentration exponentially with gradient analysis, set the profile (B.CURV to D.CURV) along with the concentration (B.CONC to D. CONC) of each section of the gradient curve.

Hint Curves of [A concentration] can not be set. The A concentration is calculated as "A concentration [%] = 100 - (B concentration) - (C concentration) - (D concentration)".



As an example, the time program for drawing B.CONC of B.GE1 as shown above is shown below. The method setting is B.CONC "30 %", B.CURVE "0".

Line	Time	Unit	Command	Value
1	0.50	B.GE1	B.CONC	30.0
2	0.51	B.GE1	B.CURV	-3
3	3.00	B.GE1	B.CONC	80.0
4	3.50	SCL	STOP	—

Curve Profile Setting Value

The values specified by B.CURV to D.CURV (curve value) are as follows.

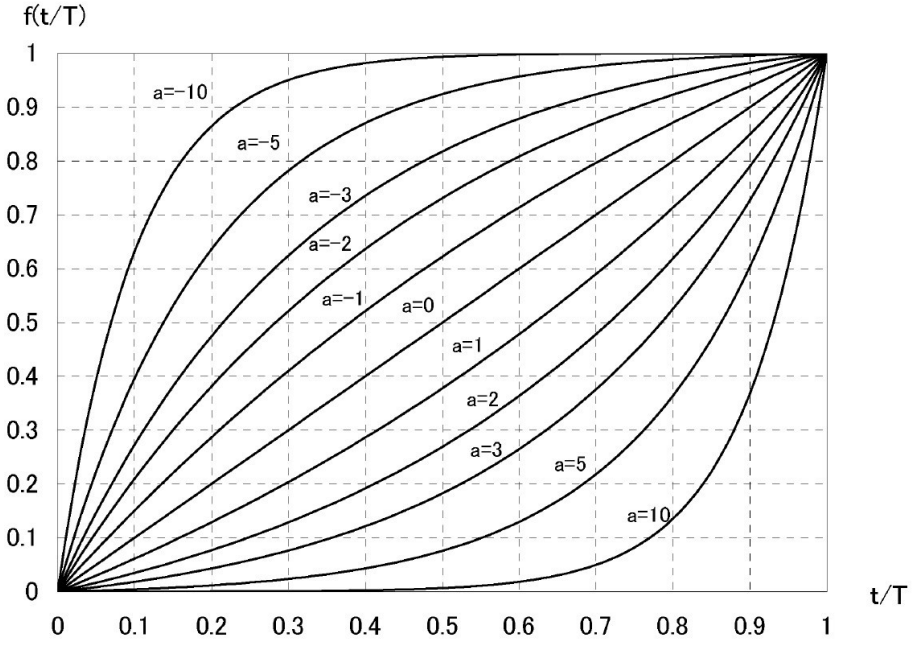
・When the curve value (a) is not 0

$$f\left(\frac{t}{T}\right)=\frac{e^{a\frac{t}{T}}-1}{e^{a}-1}$$

・When the curve value (a) is 0

$$f\left(\frac{t}{T}\right)=\frac{t}{T}$$

The curve value (a) and its bending degree are shown in the graph below.



■ Autosampler

<table>
<tr><th>Command</th><th>Description</th></tr>
<tr><td>RINSE</td><td>Perform cleaning of the needle.

Hint However, if the autosampler performs another operation at the specified time, this command will be ignored.</td></tr>
<tr><td>INJECT</td><td>Inject at the specified time.
Reference "How the INJECT Command Works" P.181</td></tr>
<tr><td>S.PURGE</td><td>(Except SIL-10A series and SFE-30A)
Perform purge.

Hint However, if the autosampler performs another operation at the specified time, this command will be ignored.</td></tr>
<tr><td>S.PRET</td><td>(SIL-10A series and SIL-20A series only)
Start pretreatment for the next analysis at the specified time in the time program.

Hint
• The time required for the sample injection operation varies depending on the conditions such as injection volume, but by starting the pretreatment sufficiently early by the "S. PRET" command, it is possible to inject the sample of the next analysis immediately after the end of the analysis being executed.
• This command is ignored if the pretreatment operation of the next analysis has already started at the time when the "S. PRET" command is set in the time program.</td></tr>
<tr><td>RV1 - RV8</td><td>(SIL-40 series only)
Rotate the optional valve to the specified position.

<table><tr><th>Valve type</th><th>Setting Range</th><th>Initial Value</th><th>Step</th></tr><tr><td>2 position type</td><td>0 - 1</td><td>0</td><td>1</td></tr><tr><td>6 position type</td><td>1 - 6</td><td>1</td><td>1</td></tr></table></td></tr>
<tr><td>VENT.VALVE</td><td>(SFE-30A only)
Switch between extraction flow path and drain flow path.

<table><tr><th>Setting Range</th><th>Initial Value</th><th>Step</th></tr><tr><td>0 : Vent
1 : Extract</td><td>0</td><td>1</td></tr></table></td></tr>
<tr><td>EXTR.VALVE</td><td>(SFE-30A only)
Switch between static extraction flow path and dynamic extraction flow path.

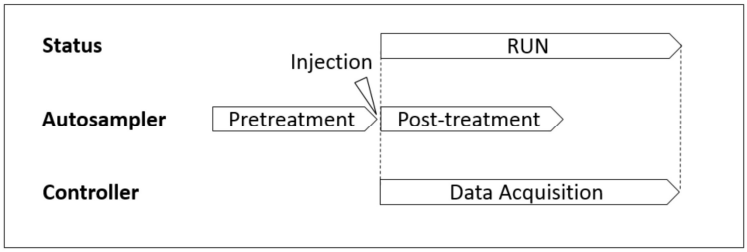
<table><tr><th>Setting Range</th><th>Initial Value</th><th>Step</th></tr><tr><td>0 : Static
1 : Dynamic</td><td>0</td><td>1</td></tr></table></td></tr>
<tr><td>WASH</td><td>(SFE-30A only)
After the home position operation, switch to the cleaning flow path.</td></tr>
</table>

Command	Description
END	(SFE-30A only) Finish extraction.

How the INJECT Command Works

With the [INJECT] command, sample injection can be performed at the specified time without injecting samples at the start of the time program (at the start of Run). The differences between the usual analysis and the analysis using the [INJECT] command are shown below.

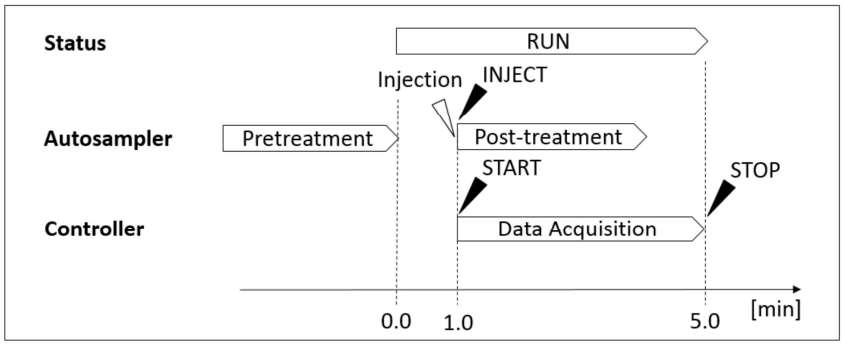
Usual Analysis (When not Using the INJECT Command)



Analysis Using the INJECT Command

When the time program is set as follows

1.00	SIL	INJECT
1.00	SCL	START
5.00	SCL	STOP



Hint When starting the data processing of the workstation at the timing of executing the [INJECT] command, make the following settings.
(1) Set [External Start Output] in the environment settings of the system controller to [None]. (Start signal will not be sent when time program starts)
(2) Set the [START] command simultaneously with the [INJECT] command in the time program.

■ PDA Detector

NOTE It is not possible to set the time program of the PDA detector.

■ Fraction Collector

NOTE Time program of fraction collector is effective from 0.33 min. Commands set before 0.33 min are invalid.

■ Sub-controller

NOTE The "SV" and "DEGAS" commands are not displayed on the second sub-controller (SUBCON.B).

8.3 Method Parameter List

The method parameters of the system controller, and the parameters of each module which require supplementary explanation are described.

8.3.1 System Controller

<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>Event 1
Event 2</td><td>Switch ON/OFF of the relay contact output on the back of the system controller.

Hint To enable this function, set the event output terminals 1 and 2 settings to be used in [Event] mode in [Environment setting].

<table><tr><th>Setting Range</th><th>Initial Value</th></tr><tr><td>ON, OFF</td><td>OFF</td></tr></table></td></tr>
<tr><td>Power Outlet Unit</td><td>Set the power supply of the "Power Outlet Box for Japan/North America Region" to ON/OFF. (Set ON/OFF of [AC REMOTE] terminal output)

Hint ON is valid at any time, but OFF is ineffective unless it is in ACT state (pump or column oven is ON).

Reference "6.2 Control Output of Power Outlet Box for Japan / North America Region" P.149

<table><tr><th>Setting Range</th><th>Initial Value</th></tr><tr><td>ON, OFF</td><td>ON</td></tr></table></td></tr>
<tr><td>Pretreatment File</td><td>Select the pretreatment file of the autosampler to be used in sequence analysis.
It is displayed only when [Standalone Pretreatment] is ON and workstation is not connected.
Reference "6.7 Standalone Pretreatment Function" P.159

<table><tr><th>Setting Range</th><th>Initial Value</th></tr><tr><td>Standard pretreatment, F1 to F19</td><td>Standard pretreatment</td></tr></table></td></tr>
</table>

8.3.2 Supplementary Explanation of Other Modules

■ Pump

Parameter	Description
B.Curve C.Curve D.Curve	Set the curve profile of the gradient curve. Reference "B. CURV - D. CURV Command" P.177

■ Autosampler

Parameter	Description
Use of Autosampler	(Excluding SFE-30A) Set whether or not to use the autosampler for analysis. Reference "6.5.4 When the Devices are not Used Temporarily" P.155

Setting Range	Initial Value
Not Used Used	Used

■ PDA Detector

NOTE When SPD-M20A is connected to the workstation, all method parameters will not be displayed.

■ Fluorescent Detector

Parameter	Description
Wave Mode	(RF-20A/RF-20Axs only) Only the following settings are available from the touch panel of SCL - 40. Setting of three wavelengths or more can be set only from the workstation.

Setting Range	Initial Value
Single Dual	Single

■ Fraction Collector

Hint The user rack adjustment of the fraction collector can be executed only from the web screen.

Reference "[Fraction Collector User Rack Adjustment] Screen" P.115

<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>Use of fraction collector</td><td>Set whether to use fraction collector for analysis.
Reference "6.5.4 When the Devices are not Used Temporarily" P.155
<table>
<tr><th>Setting Range</th><th>Initial Value</th></tr>
<tr><td>Not Used
Used</td><td>Used</td></tr>
</table></td></tr>
</table>

■ Sub-controller

NOTE For the second sub-controller (SUBCON.B), the parameters of [Solenoid valve], [Rinsing Pump] and [Degassing Unit] are not displayed.

8.4 Environment Setting List

Describes the system controller and the environment settings of each module.

8.4.1 System Controller

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>System Protect</td><td>Sets the pumping behavior when "P. Max error" occurs.

Hint System protection is judged by "P.Max of each pump", not [System P.Max].

<table>
<tr><th colspan="2">Setting Range</th><th>Initial Value</th></tr>
<tr><td>ON (valid)</td><td>When P.Max error occurs, pump flow rate is halved and pumping continues. Stop liquid transfer after error is cleared.</td><td rowspan="2">OFF</td></tr>
<tr><td>OFF (invalid)</td><td>When P.Max error occurs, supply of liquid is stopped.</td></tr>
</table></td></tr>
<tr><td>Turn Off Relays On Error</td><td>When an error occurs, a shutdown signal is output from the AC REMOTE connector.

Reference "6.2 Control Output of Power Outlet Box for Japan / North America Region" P.149

<table>
<tr><th>Setting Range</th><th>Initial Value</th></tr>
<tr><td>ON (valid)
OFF (invalid)</td><td>OFF</td></tr>
</table></td></tr>
<tr><td>Purge below Minimum Pressure</td><td>Sets whether to purge when pressure drops.

Hint
• Pump purge is executed among purge items set in the auto purge screen.
• If there is no auto sampler (direct injection) which is the drain destination of the pump purge, setting this parameter is ineffective.
• This function dose not operate when connected to workstation.

<table>
<tr><th colspan="2">Setting Range</th><th>Initial Value</th></tr>
<tr><td>ON (valid)</td><td>Purge at pressure drop and attempt recovery.</td><td rowspan="2">OFF</td></tr>
<tr><td>OFF (invalid)</td><td>Make an error when pressure drops.</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>External Start Output</td><td>Sets the output mode of the start signal.

Hint To use this parameter setting, the setting of [Relay 1] or [Relay 2] must be set to [Start].

<table>
<tr><th colspan="2">Setting Range</th><th>Initial Value</th></tr>
<tr><td>None</td><td>Do not output the start signal.</td><td rowspan="3">All Runs</td></tr>
<tr><td>All Runs</td><td>Always output the start signal at start of analysis.
(It also outputs in non-injection mode "-1")</td></tr>
<tr><td>Inj. Only</td><td>Output the start signal only when injected with autosampler
(It does not output in non-injection mode "-1".)</td></tr>
</table></td></tr>
<tr><td>Relay 1
Relay 2</td><td>Sets the operation mode of the event output terminal.
<table>
<tr><th colspan="2">Setting Range</th><th>Initial Value</th></tr>
<tr><td>Start</td><td>Close the contact at start.</td><td rowspan="5">Event</td></tr>
<tr><td>Stop</td><td>Close the contact at stop.</td></tr>
<tr><td>Error</td><td>Close the contact when an error occurs.</td></tr>
<tr><td>Event</td><td>Follow [Event 1] and [Event 2] of method parameters.</td></tr>
<tr><td>Ready</td><td>Close the contact in case of Ready or Pause.</td></tr>
</table></td></tr>
<tr><td>Event In 1</td><td>Sets the operation mode of the event input terminal.
<table>
<tr><th colspan="2">Setting Range</th><th>Initial Value</th></tr>
<tr><td>Alarm In</td><td>It acts as an error input terminal.</td><td rowspan="3">Alarm In</td></tr>
<tr><td>Ready In</td><td>It acts as a ready input terminal.
(It becomes a paused state every line of sequence analysis. If a short circuit signal is input to this terminal, the paused state will be released and start the next analysis.)</td></tr>
<tr><td>Stop In</td><td>It acts as a stop input terminal.</td></tr>
</table></td></tr>
<tr><td>System P.MAX</td><td>Set the mode of the system P.Max.
<table>
<tr><th colspan="2">Setting Range</th><th>Initial Value</th></tr>
<tr><td>OFF</td><td>Disable system P.Max function.</td><td rowspan="3">AUTO</td></tr>
<tr><td>AUTO</td><td>Automatically set the "System P.Max Value" according to the connected units such as pump, auto sampler.</td></tr>
<tr><td>MANUAL</td><td>Specify the "system P.Max Value".</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>System P.MAX value</td><td>Set the value of system P.Max.

Hint When the system P.Max mode setting is [AUTO], it is displayed only and can not be set.

<table><tr><th>Setting Range</th><th>Initial Value</th><th>Step</th></tr><tr><td>0～1326 (kgf/cm2)</td><td>130 (kgf/cm2)</td><td>1</td></tr></table></td></tr>
<tr><td>Acquisition Cycle time optimization</td><td>Overlap the pretreatment operation of the autosampler during continuous analysis.

Hint When connecting to a workstation, it can not be set with display only. Please set it on the workstation side.

<table><tr><th colspan="2">Setting Range</th><th>Initial Value</th></tr><tr><td>OFF</td><td>Do not use pretreatment overlap.</td><td rowspan="3">OFF</td></tr><tr><td>Auto</td><td>Measure the overlapping time while performing continuous analysis and automatically set the overlap time.</td></tr><tr><td>Specify time</td><td>Specify the overlap time.

Hint The [Specify time] mode can be selected only on the workstation.</td></tr></table></td></tr>
<tr><td>Control Mode</td><td>"Fast LC" can be used when B.GE is composed of the pumps corresponding to "Fast LC mode". In the Fast LC mode, it is possible to change the concentration smoothly even with a high-speed gradient curve.

<table><tr><th colspan="2">Setting Range</th><th>Initial Value</th></tr><tr><td>Standard</td><td>Use standard mode.</td><td rowspan="2">standard</td></tr><tr><td>Fast LC</td><td>Use Fast LC mode.</td></tr></table></td></tr>
</table>

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Pumping Mode</td><td>Set the pumping mode.
Reference "Example of Pumping Mode setting" P.191
<table>
<tr><th colspan="2">Setting Range</th><th>Initial Value</th></tr>
<tr><td rowspan="2">ISO/Binary</td><td>When Pump.A is an isocratic pump, Pump.A constitutes an isocratic system.</td><td rowspan="6">ISO/Binary</td></tr>
<tr><td>When Pump.A is a binary pump, Pump.A constitutes a binary gradient system.</td></tr>
<tr><td>B.GE</td><td>Combine two isocratic pumps (Pump A, B) to configure one binary gradient system.</td></tr>
<tr><td>T.GE</td><td>Combine 3 isocratic pumps (Pump A, B, C) to configure one ternary gradient system.</td></tr>
<tr><td>LPGE</td><td>When Pump.A supports LPGE, Pump.A constitutes one low pressure gradient system.</td></tr>
<tr><td>B.GEx2</td><td>Combine the four isocratic pumps (Pump A to D) to configure two binary gradient systems.</td></tr>
</table></td></tr>
<tr><td>(Pumping Mode)
Pump.B
Pump.C
Pump.D</td><td>Set ISO or LPGE for the remaining pumps that are not set in the above [Pumping Mode].
<table>
<tr><th>Setting Range</th><th>Initial Value</th></tr>
<tr><td>ISO
LPGE</td><td>ISO</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Delay Compensation</td><td>Set the mode of the gradient delay compensation.
<table>
<tr><th colspan="2">Setting Range</th><th>Initial Value</th></tr>
<tr><td>OFF</td><td>Gradient delay compensation is not performed.</td><td rowspan="4">OFF</td></tr>
<tr><td>AUTO</td><td>Correction is performed using the automatically acquired delay capacity value.
Hint After starting the gradient and sending the amount of delay capacity automatically acquired by pump, the autosampler performs the injection.</td></tr>
<tr><td>Before Injection</td><td>Begin the gradient before injection.
Hint After starting the gradient and sending the liquid with the volume set by [Gradient Start Adjust Volume], the autosampler performs injection.</td></tr>
<tr><td>After Injection</td><td>Start the gradient after injection.
Hint • After the autosampler is injected and the pump sends the volume set by [Gradient Start Adjustment Volume], the gradient starts.
• For example, it is used to transfer a method from a system with a large delay capacity to a small system.</td></tr>
</table></td></tr>
<tr><td>Gradient Start Adj. Vol.</td><td>Set the capacity from the mixing point of the mobile phase to the high pressure valve of the autosampler.
Hint It is displayed only when [Before injection] [After injection] is selected for [Delay Compensation].
<table>
<tr><th>Setting Range</th><th>Initial Value</th><th>Step</th></tr>
<tr><td>0～99999 （uL）</td><td>0</td><td>1</td></tr>
</table></td></tr>
<tr><td>Press. Unit</td><td>Set the system pressure unit.
<table>
<tr><th>Setting Range</th><th>Initial Value</th></tr>
<tr><td>kgf/cm2
psi
MPa
bar</td><td>MPa</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>AD1 Input Range
AD2 Input Range</td><td>Sets the input range of the optional AD board.

Hint Displayed only when optional AD board is added.

<table><tr><th>Setting Range</th><th>Initial Value</th></tr><tr><td>±1V
±10V</td><td>±1V</td></tr></table></td></tr>
</table>

■ Example of Pumping Mode setting

An example is shown below.

Pump		ISO/ Binary	B.GE	T.GE	LPGE	B.GE×2
Pump.A	LC-40D (With LPGE valve)	ISO1	B.GE1	It can not be selected (Pump.C is a binary pump)	LPGE1	It can not be selected (Pump.C is a binary pump)
Pump.B	LC-40D	ISO2	B.GE1		ISO2	
Pump.C	LC-20B	B.GE3	B.GE3		B.GE3	
Pump.D	LC-40D (With LPGE valve)	ISO4 or LPGE4*1	ISO4 or LPGE4*1		ISO4 or LPGE4*1	

*1 LPGE.4 can be selected in [Pump.D Pumping Mode]

8.4.2 Pump

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Solenoid Valve Unit A
Solenoid Valve Unit B
Solenoid Valve Unit C
Solenoid Valve Unit D</td><td>Sets whether or not to use optional solenoid valve.

Hint It is not displayed for LC-40 series and LC-30ADSF

<table><tr><th>Setting Range</th><th>Initial Value</th></tr><tr><td>Not Used
Used</td><td>Not Used</td></tr></table></td></tr>
<tr><td>Internal FCV type
External FCV type</td><td>Indicates the type of solenoid valve.

Hint • It is only displayed on 40 series.

<table><tr><th>Display Only</th></tr><tr><td>None
FCV-10AL Type
FCV-11AL Type
FCV-11ALS Type
FCV-200AL Type
FCV-230AL Type</td></tr></table></td></tr>
</table>

8.4.3 Autosampler

Hint There is no environment setting parameter for SFE-30A.

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Plate Changer1
to
Plate Changer3</td><td>Displays whether there is a Plate Changer option or not.
<table><tr><th>Display Only</th></tr><tr><td>Yes, No</td></tr></table></td></tr>
<tr><td>Injection Trigger</td><td>Set whether to perform injection operation using terminal input (MAN. INJ.) when the autosampler is connected.
<table><tr><th colspan="2">Setting Range</th><th>Initial Value</th></tr><tr><td>Run</td><td>MAN.INJ terminal input is ignored (not synchronized).
Hint The autosampler injects the sample as soon as it is ready for injection.</td><td rowspan="2">Run</td></tr><tr><td>Sync.</td><td>Synchronize with MAN.INJ terminal input.
Hint After preparing for injection, the autosampler injects the sample when a short-circuit signal enters the MAN.INJ terminal.</td></tr></table></td></tr>
<tr><td>Dual Injection</td><td>Displays whether there is a dual injection option or not.
<table><tr><th>Display Only</th></tr><tr><td>Yes, No</td></tr></table></td></tr>
<tr><td>Multi Rinse</td><td>Displays whether there is a multi Rinse option or not.
<table><tr><th>Display Only</th></tr><tr><td>Yes, No</td></tr></table></td></tr>
<tr><td>Ext. Rinse Pump Option</td><td>Displays whether there is an ext. rinse pump option or not.
<table><tr><th>Display Only</th></tr><tr><td>Yes, No</td></tr></table></td></tr>
<tr><td>Syringe Volume</td><td>Select the volume[µL] of the installed syringe.
<table><tr><th>Model</th><th>Setting Range</th><th>Initial Value</th></tr><tr><td>SIL-10Ai</td><td>500
2500</td><td>500</td></tr><tr><td>SIL-10AP
SIL-10AF</td><td>500
2500
5000</td><td>500</td></tr></table></td></tr>
</table>

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Injection Type</td><td>Displays the injection type. It can not be set.</td></tr>
<tr><td>Max Injection Volume
Sample Loop Volume</td><td>(SIL-20A or later model only)
The upper limit value of injection volume is displayed. It can not be set.

Hint In the case of direct injection, "Max Injection Volume" is displayed, and in case of loop injection, "Sample Loop Volume" is displayed.</td></tr>
<tr><td>Needle Loop Volume</td><td>(Loop injection mode only for SIL-30A or later)
Display the needle loop volume. It can not be set.</td></tr>
<tr><td>MTP Order</td><td>(SIL-20A or later only)
Display the injection direction of the microplate and deep well plate.

<table><tr><th>Display Only</th></tr><tr><td>A1, A2 mode
A1, B1 mode</td></tr></table></td></tr>
<tr><td>Small Vial Mode</td><td>(SIL-40 series only)
When aspirating a sample from a small capacity vial, sampling volume may be inaccurate due to internal pressure change of sample vial. This function can prevent this phenomenon.

<table><tr><th>Setting Range</th><th>Initial Value</th></tr><tr><td>OFF
ON</td><td>OFF</td></tr></table></td></tr>
<tr><td>Silent Mode</td><td>(Cooler model of SIL-40 series only)
When the silent mode is enabled, the rotation speed of the cooling fan becomes gentle, and the operation sound of the device becomes quieter.

Hint However, the range of temperature control of the sample cooler becomes narrower.

<table><tr><th>Setting Range</th><th>Initial Value</th></tr><tr><td>OFF
ON</td><td>OFF</td></tr></table></td></tr>
<tr><td>Option Valve 1
to
Option Valve 8</td><td>(SIL-40 series only)
Displays the type of optional switching valve.

<table><tr><th>Display Only</th></tr><tr><td>None
2 Position Type
6 Position Type</td></tr></table></td></tr>
</table>

8.4.4 Column Oven

Hint There is no environment setting parameter for CTO-10ASvp.

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Rotary Valve</td><td>Set whether or not to use the optional flow path switching valve.
<table>
<tr><th>Setting Range</th><th>Initial Value</th></tr>
<tr><td>Not Used
Used</td><td>Not Used</td></tr>
</table></td></tr>
<tr><td>Valve (L)
Valve (R)
Valve 1
Valve 2</td><td>Displays the type of optional flow switching valve.
<table>
<tr><th>Display Only</th></tr>
<tr><td>None
2 Position Valve
6 Position Valve</td></tr>
</table></td></tr>
<tr><td>Active Preheater</td><td>(CTO-40 series only)
Displays whether there is an active preheater or not.
<table>
<tr><th>Display Only</th></tr>
<tr><td>Not Installed
Installed</td></tr>
</table></td></tr>
</table>

8.4.5 Detector

■ UV Detector

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Solvent Recycle Valve</td><td>Set whether to use the optional solvent recycle valve.
<table>
<tr><th>Setting Range</th><th>Initial Value</th></tr>
<tr><td>Not Used
Used</td><td>Not Used</td></tr>
</table></td></tr>
</table>

■ PDA Detector

There is no environment setting parameter.

■ Fluorescent Detector

There is no environment setting parameter.

■ Differential Refractive Index Detector

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Solvent Recycle Valve</td><td>(RID-20 only)
Set whether to use the optional solvent recycle valve.
<table>
<tr><th>Setting Range</th><th>Initial Value</th></tr>
<tr><td>Not Used
Used</td><td>Not Used</td></tr>
</table></td></tr>
</table>

■ Electrical Conductivity Detector

There is no environment setting parameter.

8.4.6 Other

■ Fraction Collector

There is no environment setting parameter.

■ Sub-controller

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Solenoid Valve Unit</td><td>Set the solenoid valve unit to be used.
Hint The dip switch on the sub controller side is also required to be set.
<table>
<tr><th>Setting Range</th><th>Initial Value</th></tr>
<tr><td>Not Used
FCV-10AL type
FCV-11AL type
FCV-15AL</td><td>Not Used</td></tr>
</table></td></tr>
<tr><td>Deaeration Unit</td><td>Set whether or not to use deaeration unit.
Hint The dip switch on the sub controller side is also required to be set.
<table>
<tr><th>Setting Range</th><th>Initial Value</th></tr>
<tr><td>Not Used
DGU-10A/10B</td><td>Not Used</td></tr>
</table></td></tr>
</table>

■ Supercritical Controller

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Wait Time</td><td>Set the BPR stabilization wait time.
<table>
<tr><th>Setting Range</th><th>Initial Value</th><th>Step</th></tr>
<tr><td>0～10 (min)</td><td>1</td><td>1</td></tr>
</table></td></tr>
<tr><td>Pressure Ready Range</td><td>Set the pressure width for BPR stabilization wait determination.
<table>
<tr><th>Setting Range</th><th>Initial Value</th><th>Step</th></tr>
<tr><td>5～10 (kgf/cm2)</td><td>5</td><td>1</td></tr>
</table></td></tr>
</table>

■ Chemical reaction box

There is no environment setting parameter.

8.5 Error Type

There are three kinds of errors as follows.

Error Type		Description
Warning		It is a cautionary recommendation.
Error		It is an instrument issue.
	Level 3	Both the column oven and the pump will not turn "OFF".
	Level 2	Both the column oven and the pump turn "OFF".
	Level 1	Both the column oven and the pump turn "OFF". **Hint** However, if the error is "P. Max error" and "System Protect" of the system controller's environment setting is set to "Enable", the pump continues to send the liquid at the half flow rate, during the error dialog display. When the error is cleared, liquid transfer stops.
Fatal Error		It is a hardware issue. Please turn off the main power switch of the equipment and contact our sales office/distributor or our designated service representative.

8.6 Specifications

■ SCL-40

Item	Specification
Number of Loaded Bottles	7 reservoir bottles (1 L)
Operating Environment Temperature	4-35 ℃
Available Humidity Range	20-85 % (No condensation)
External Dimensions	W 260 × H 140 × D 500 mm (Excluding protruding parts)
Mass	6 kg
Power Supply	<table><tr><th>Part No.</th><th>Power Supply Voltage*1 (Display on main unit nameplate)</th><th>Power Consumption</th><th>Frequency</th><th>Rated Breaking Capacity*2</th></tr><tr><td>228-65500-41 228-65500-46 228-65500-58</td><td>AC100-240 V (100-240V∼)</td><td>50 VA</td><td>50/60 Hz</td><td>50 A</td></tr></table> *1 The voltage fluctuation of the power supply should not exceed 10% of the nominal voltage of the power supply. *2 Connect the power supply of this unit to an outlet with a circuit breaker that shuts off with current below this current capacity.
External Connecting Terminal	Ethernet x 1 Optical link connector x 8 (Up to 12 ch by optical connector expansion board) Event In x 1 Event Out x 2 External Start Terminal (Man.Inj) x 1 Option Connector x 1 AC Remote Connector x 1 Expansion slot for AD Board Option x 2
LCD Touch Screen Panel	Pixels: width 800 x height 480 *1, Method: pressure sensitive *1: The prercentage of the effective pixels of the LCD panel is 99.99% or more. Pixel note that 0.01% or less of the pixels may be missing or constantly lit.
Installation Environment (IEC)	Installation category Ⅱ, pollution degree 2, altitude 2000 m or less Install indoors.

■ CBM-40

Item	Specification
Operating Environment Temperature	4-35 ℃

<table>
<tr><th>Item</th><th>Specification</th></tr>
<tr><td>Available Humidity Range</td><td>20-85% (No condensation)</td></tr>
<tr><td>External Dimensions</td><td>W 260 × H 72 × D 500 mm (Excluding protruding parts)</td></tr>
<tr><td>Mass</td><td>5 kg</td></tr>
<tr><td>Power Supply</td><td>
<table>
<tr><th>Part No.</th><th>Power Supply Voltage*1 (Display on main unit nameplate)</th><th>Power Consumption</th><th>Frequency</th><th>Rated Breaking Capacity *2</th></tr>
<tr><td>228-65502-58</td><td>AC100-240 V (100-240V～)</td><td>50 VA</td><td>50/60 Hz</td><td>50 A</td></tr>
</table>
*1 The voltage fluctuation of the power supply should not exceed 10% of the nominal voltage of the power supply.
*2 Please connect the power supply of this unit to an outlet with a circuit breaker that shuts off with current below this current capacity.
</td></tr>
<tr><td>External Connecting Terminal</td><td>Ethernet x 1
Optical link connector x 8
(Up to 12 ch by optical connector expansion board)
Event In x 1
Event Out x 2
External Start Terminal (Man.Inj) x 1
Option Connector x 1
AC Remote Connector x 1
Expansion slot for AD Board Option x 1</td></tr>
<tr><td>Installation Environment (IEC)</td><td>Installation category Ⅱ, pollution degree 2, altitude 2000 m or less
Install indoors.</td></tr>
</table>

■ CBM-40lite

Item	Specification
Operating Environment Temperature	4-35 ℃
Available Humidity Range	20-85 % (No condensation)
External Dimensions	W 141 × H 49 × D 130 mm (Excluding protruding parts)
Power Supply	DC5V, 1A (Supplied from built-in unit)
External Connecting Terminal	Ethernet x 1 Optical link connector x 4 Event In x 1 Event Out x 2 External Start Terminal (Man.Inj) x 1 Option Connector x 1
Installation Environment (IEC)	Installation category Ⅱ, pollution degree 2, altitude 2000 m or less Install indoors.

■ Connectable Device

The controllable devices are shown below.

Unit	Nexera Series				LC-30A Series	LC-20A Series	Other Series	Maximum Number of Connectable Units
	Nexera X3 (130MPa)	Nexera XS (105MPa)	Nexera XR (70MPa)	Nexera Lite				
Pump	LC-40D X3 LC-40B X3	LC-40D XS	LC-40D XR LC-40B XR	LC-40D LC-40PSF	LC-30AD LC-30ADSF	LC-20AD LC-20ADXR LC-20ADsp LC-20ADnano LC-20AT LC-20AB LC-20AP LC-20AR LC-20Ai	LC-10Ai LC-8A LC-6AD/7A	4
Autosampler	SIL-40C X3	SIL-40C XS	SIL-40 XR SIL-40C XR	SIL-40 SIL-40C	SIL-30AC SIL-30ACFV SIL-30ACMP SFE-30A	SIL-20A SIL-20AC SIL-20AXR SIL-20ACXR SIL-20AHT SIL-20ACHT SIL-20AHT UFLC SIL-20ACHT UFLC	SIL-10AP SIL-10Ai SIL-10AF	1
Column Oven	CTO-40C CTO-40S				CTO-30A CTO-30AS	CTO-20A CTO-20AC	CTO-10ASvp	4
Detector	SPD-40 SPD-40V				—	SPD-20A SPD-20AV RF-20A RF-20Axs RID-20A	CDD-10Asp*4 CDD-10Avp RID-10A RF-10AXL RF-10A	2
PDA Detector	SPD-M40				SPD-M30A	SPD-M20A	—	1
Fraction Collector	—				—	—	FRC-10A*3	1
Sub Controller	—				—	—	Sub controller vp*3 Option box vp*3	2
Supercritical Controller	SFC-40P				SFC-30A	—	—	2
Chemical Reaction Box	CRB-40				—	—	—	1

*1 LC-20ADsp and LC-20ADnano operate as LC-20AD.

*2 SIL-20AHT and SIL-20AHT UFLC operate as SIL-20A. SIL-20ACHT and SIL-20ACHT UFLC operate as SIL-20AC.

*3 The dedicated power service outlet (PO-2PS) is required for SIL-10AP, SIL-10Ai, SIL-10AF, FRC-10A, sub controller vp, option box vp.

*4 CDD-10Asp operates as CDD-10Avp.

■ Devices not Displayed

Although connection and control from the workstation are possible, the devices not displayed on the touch panel screen and the web screen are summarized below.

Category	Touch Panel	Web Screen
Pump	LC-40PSF	LC-40PSF LC-30ADSF
Autosampler	—	SFE-30A
Column Oven	—	Display of Oven.C, Oven.D is not supported
Detector	—	—
PDA Detector	—	—
Fraction Collector	—	—
Sub Controller	—	—
Supercritical Controller	SFC-40P	SFC-30A SFC-40P
Chemical Reaction Box	—	CRB-40

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