User's
Manual

GC1000 MarkII

GCMT Gas Chromatograph Maintenance Terminal Software Package Operation Guide

IM 11B03G03-03E

vigilantplant.™

YOKOGAWA
Yokogawa Electric Corporation

IM 11B03G03-03E
4th Edition

Introduction

Thank you for purchasing the GCMT Gas Chromatograph Maintenance Terminal Software Package.

The GCMT Gas Chromatograph Maintenance Terminal Software Package (hereafter, it is abbreviated as Maintenance Terminal) is used to monitor and maintain the GC1000 Mark II analyzer on a personal computer by linking the computer to the analyzer through a communication line.

This guide describes the basic procedures for operating the Maintenance Terminal.

Package Contents

Confirm that the purchased package contains the following:

- GCMT inatallation disks
- GCMT Gas Chromatograph Maintenance Terminal Software Package Operation Guide (IM 11B03G03-03E)
- “GCMT Capture It” software package manual (IM 11B3G1-02E)

How to User This Guide

This guide first describes how to install the Maintenance Terminal. Start at Chapter 1 after completing installation. The contents of each chapter are as follows:

- Chapter 1 .....an overview of the Maintenance Terminal and its basic operations
- Chapter 2 .....how to operate the LCD emulator
- Chapter 3 to 6 .....how to start the Maintenance Terminal and work with its respective panels
- Appendices .....a functional ovweview of the Maintenance Terminal and list of its messages. Refer to the appendices for details on the menus and messages.

Intended Readers

The description on installation assumes that reders have a basic knowledge of both the hardware and software required for installing the Maintenance Terminal. This is also true for Chapter 1 and subsequent chapters, as well as for the Windows™ operating system.

However, the basic operations of Windows™ are specifically described in Chapter 1 so you can work with it without prior knowledge. For the detailed operation of Windows, refer to the separate appropriate manual.

Priority

Precautions in operating and handling the Maintenance Terminal are also found in the online help window of the Maintenance Terminal and the README.TXT file that is registered during installation, inaddition to this guide. The order of precedence among these information sources is:

(1) README.TXT
(2) Help (online manual)
(3) Operation guide (this document)

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Safety Precautions

- In order to protect the system controlled by the product and the product itself and ensure safe operation, observe the safety precautions described in this user's manual. We assume no liability for safety if users fail to observe these instructions when operating the product.
- Modification of the product is strictly prohibited.

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- Please hand over the user's manuals to your end users so that they can keep the user's manuals on hand for convenient reference.
- Please read the information thoroughly before using the product.
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- Store the CD-ROM (the original medium) in a safe place.
- It is strictly prohibited to perform any reverse-maintenance operation, such as reverse compilation or reverse assembling on the product.
- No part of the product may be transferred, converted or sublet for use by any third party, without prior written consent from YOKOGAWA.

Documentation Conventions

Symbol Marks

Throughout this user's manual, you will find several different types of symbols are used to identify different sections of text. This section describes these icons.

NOTE

Identifies important information required to understand operations or functions.

TIP

Identifies additional information.

SEE ALSO

Identifies a source to be referred to.

HELP !

Indicates text describing the action to be taken when a message or indication is displayed during an operation.

Keyboard Inscriptions

Keyboard operations are indicated in this manual as shown in the following example.

(Inscription example)

[Shift] + [F1]

(Meaning)

Indicates that the operator must press the [F1] key while pressing the [Shift] key.

Menu Inscriptions

Menu operations are indicated in this manual as shown in the following example.

(Inscription example)

Click on [Connect] in the [System] menu.

(Meaning)

Click on the [System] menu, then click on the [Connect] command.

Drawing Conventions

Some drawings may be partially emphasized, simplified, or omitted, for the convenience of description.

Some screen images depicted in the user's manual may have different display positions or character types (e.g., the upper / lower case). Also note that some of the images contained in this user's manual are display examples.

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GCMT
Gas Chromatograph Maintenance Terminal Software Package
Operation Guide

IM 11B03G03-03E 4th Edition

CONTENTS

Installing the Maintenance Terminal

This chapter describes the installation of the Maintenance Terminal (GCMT) in the personal computer system being used. This installation assumes that your PC system is already in the ready state under the following conditions and also that you have some knowledge of how to use the system.

System Configuration

Software conditions

Check that the software meets the following conditions:
Microsoft's Windows 7 Professional 32bit Service Pack 1 or
Windows Vista Business Edition or
Windows XP Professional Service Pack 3

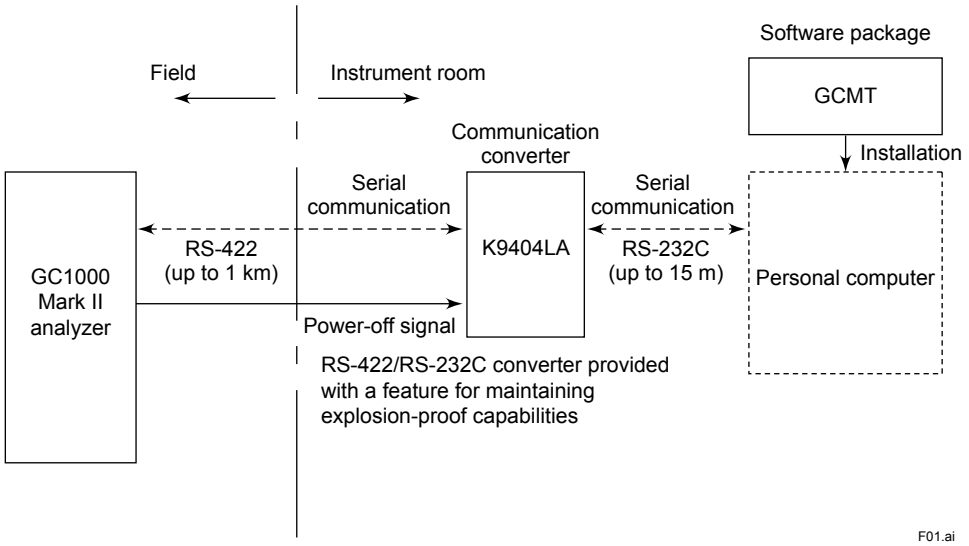
Hardware conditions

Before installing GCMT, check that the hardware meets the following conditions:

- Models supported: IBM PC or computable machine that can run Microsoft Windows and for which Ethernet is available

OS	Windows 7, Windows Vista	Windows XP
CPU	1 GHz or better	Pentium II 350 MHz or better
HDD	15 GB or more for OS 10 GB or more for application	128 MB or more
RAM	At least 1 GB	At least 20 MB
Display	680 x 480 VGA or higher, and be viewable with equal to or more than 256 colors	

- For the hard disk, a data storage capacity should be secured separately according to your PC system format, in addition to the capacity for the program.
- Communication function: Make sure that the standard serial communication port is connected to the analyzer via the communication converter (Model K9404LA provided with a feature for maintaining the explosion-proof capabilities)-see the figure below.



Installation Procedure

NOTE

The user should log on with an administrator account in order to install and use GCMT. Proper operation is not guaranteed when the user logs on with a limited user account.

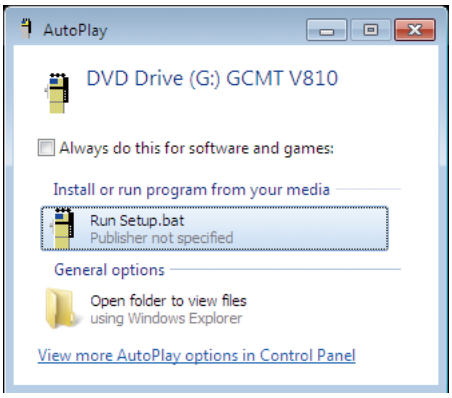
Installing GCMT on Computers Running Windows 7 or Windows Vista

(1) Prepare a personal computer which fills the specification and turn on the power.

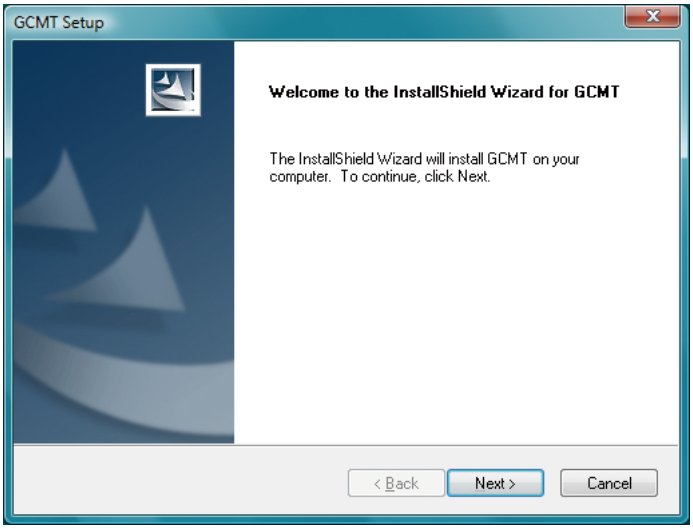
Start Windows.

(2) Insert the installation disk into the CD-ROM drive.

(3) The install program is started automatically.
The following dialog box appears. Click [Run Setup.bat].
If it is not started automatically, run “setup.bat” file in the CD-ROM manually.



(4) The “Welcome to the InstallShield Wizard for GC Maintenance Terminal” dialog appears. Click [Next].



(5) Hereafter, install according to the displayed instruction.

NOTE

Might be necessary to restart the personal computer at the end of installation.

Disabling UAC

User Account Control (UAC) helps prevent unauthorized programs from being installed on the system silently by viruses or malicious software. This feature is normally preferable, but in some cases, it may interfere with system operation and settings, e.g., UAC may block installation of some applications.

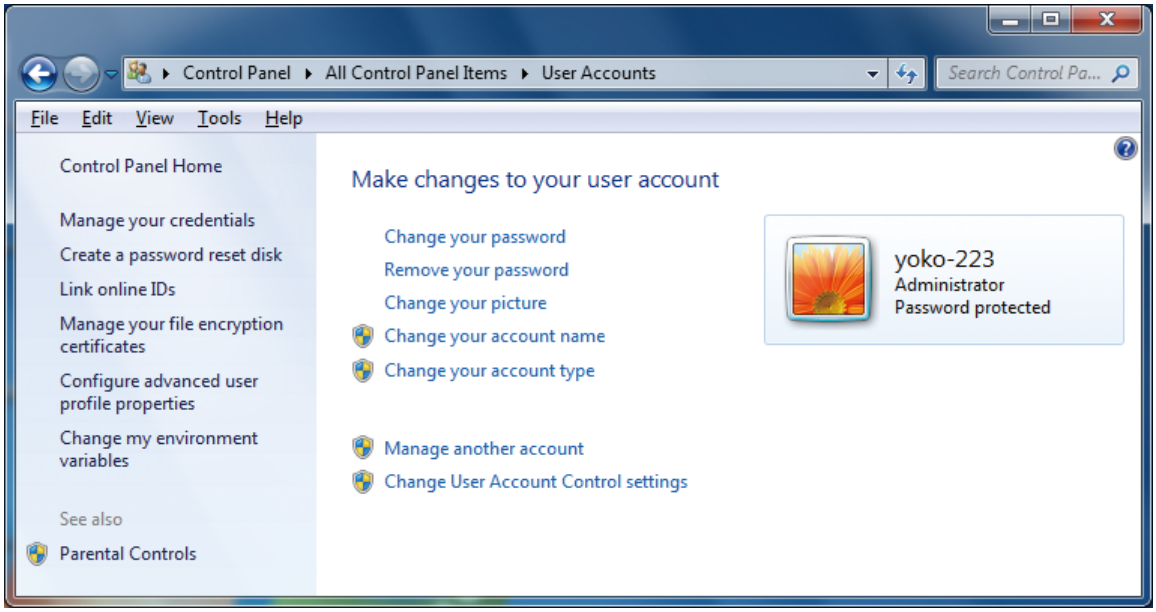
NOTE

UAC can be disabled at the user's discretion. Yokogawa is not responsible for any problems that may result from disabling UAC.

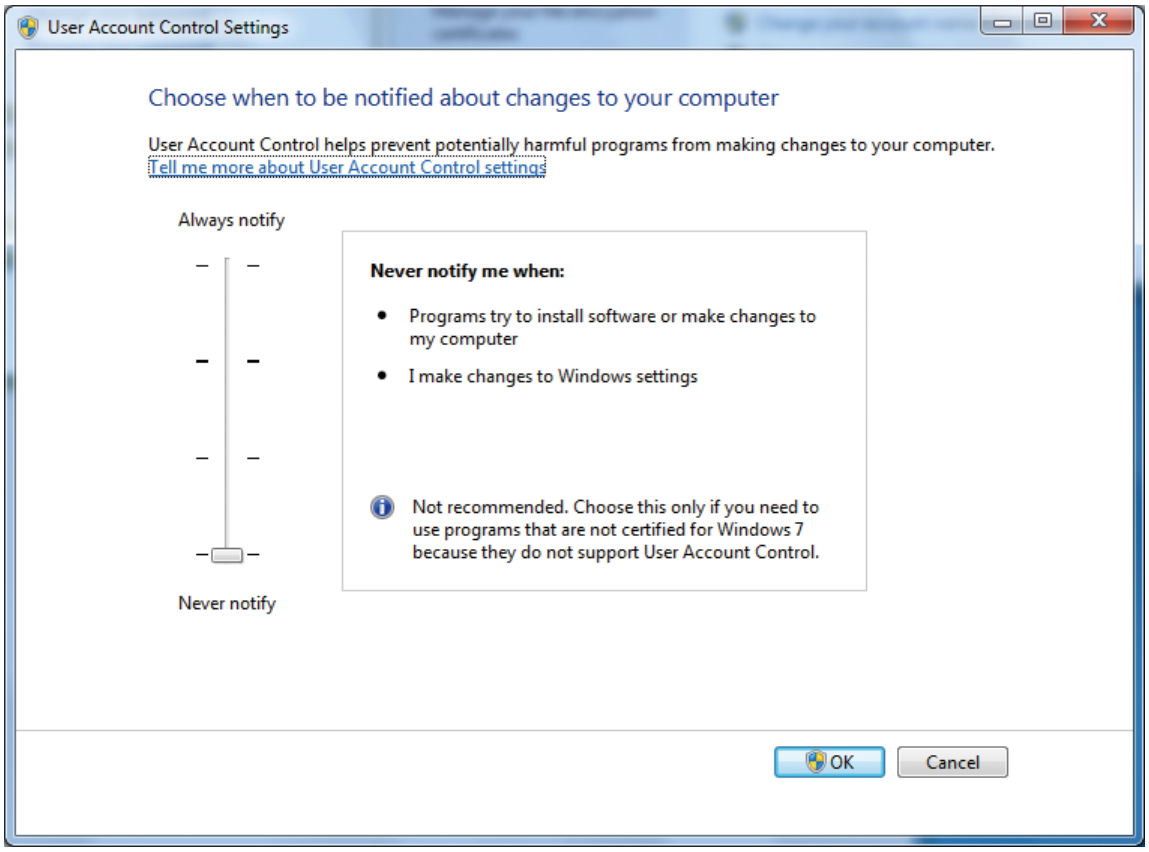
The UAC setting is enabled by default. To disable the setting, you must log on using an administrator account. All the following steps should be done as an administrator account.

for Windows 7

(1) Open the Control Panel and then User Accounts.



(2) Click [Change User Account Control settings].



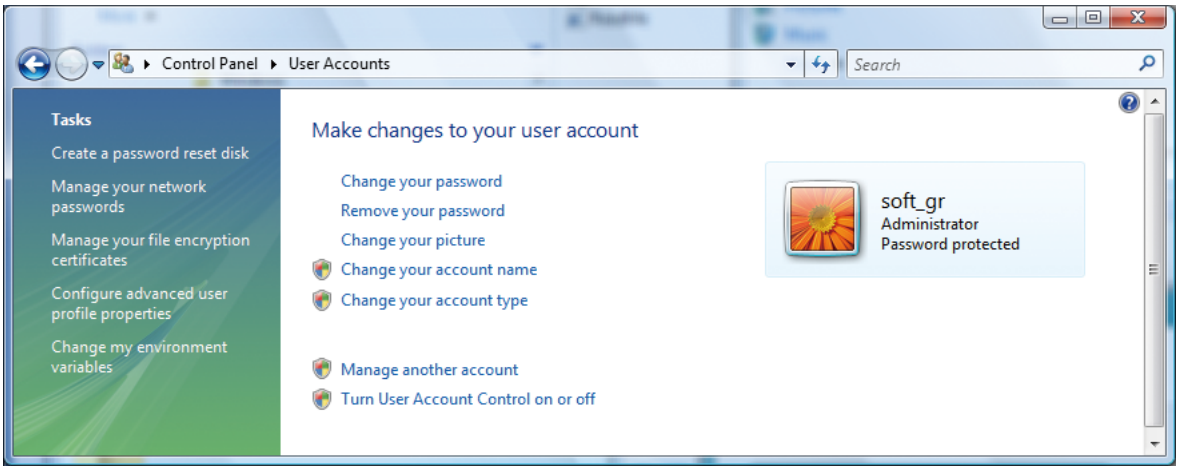
(3) Slide to [Never notify], and then click [OK].

Disabling UAC is now complete.

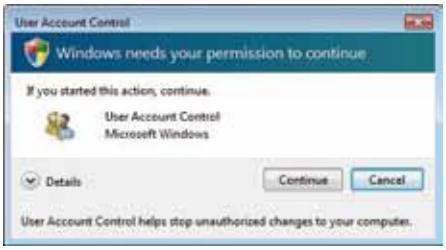
In order to re-enable UAC, slide the above level, and then click [OK].

● for Windows Vista

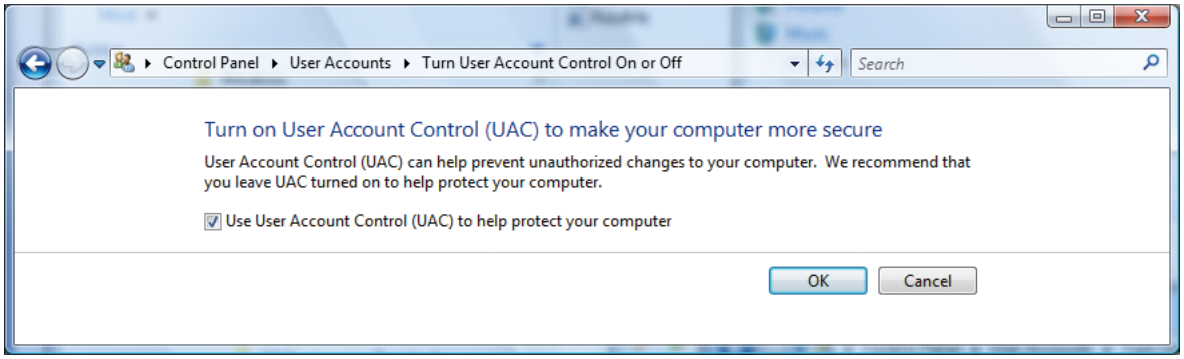
(1) Open the Control Panel and then User Accounts.



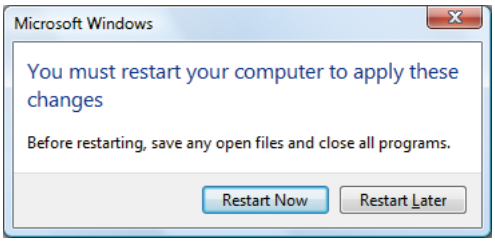
(2) Click [Turn User Account Control on or off]. The following dialog appears. Click [Continue].



(3) The [Turn User Account Control On or Off] dialog appears. Uncheck the [Use User Account Control (UAC) to help protect your computer] check box, and then click [OK].



(4) The following dialog appears. Click [Restart Now] to restart the computer.



Disabling UAC is now complete.

In order to re-enable UAC, just select the above check box and reboot.

Installing GCMT on Computers Running OSs Other Than Windows 7 or Windows Vista

(1) Prepare a personal computer which fills the specification and turn on the power.

Start Windows.

(2) Insert the installation disk into the CD-ROM drive.

(3) The install program is started automatically.

The steps after this are the same as those for installing on computers running Windows 7 OS.

NOTE

Might be necessary to restart the personal computer at the end of installation.

PC Configuration for Power Management

It is recommended that the following items be set and confirmed after installation of GCMT.

NOTE

GCMT may not function properly while the sleep, standby and hibernation settings are enabled. The settings above can be disabled in Windows. The setting procedure is as follows.

for Windows 7

Log on as a user with administrator privileges, click the Start menu, select Control Panel, Hardware and Sound, double-click Power Options to display the Power Options Properties dialog box, and then make sure the following items are set as described below. Note that some of the items described below may not be displayed depending on the configuration of the PC. If an item is not displayed, the function is disabled.

- **Choose what the power button does.**

  When I press the power button: Do nothing

  When I press the sleep button: Do nothing

  When I close the lid: Do nothing
- **Choose what to turn off the display**

  Turn off the display: Never

for Windows Vista

Log on as a user with administrator privileges, click the Start menu, select Control Panel, double-click Power Options to display the Power Options Properties dialog box, and then make sure the following items are set as described below. Note that some of the items described below may not be displayed depending on the configuration of the PC. If an item is not displayed, the function is disabled.

- **System Settings window**

  When I press the power button: Do nothing

  When I press the sleep button: Do nothing

  When I close the lid: Do nothing
- **Edit Plan Settings window**

  Put the computer to sleep: Never

for Windows XP

Log on as a user with administrator privileges, click the Start menu, select Control Panel, double-click Power Options to display the Power Options Properties dialog box, and then make sure the following items are set as described below. Note that some of the items described below may not be displayed depending on the configuration of the PC. If an item is not displayed, the function is disabled.

- **Power Schemes Tab**

  System standby: Disabled

  System hibernates: Disabled
- **Advanced Tab**

  Some PC keyboards have a sleep button. Disable this key with the following setting in the Power buttons area.

When pressing the sleep button on my computer: Do nothing

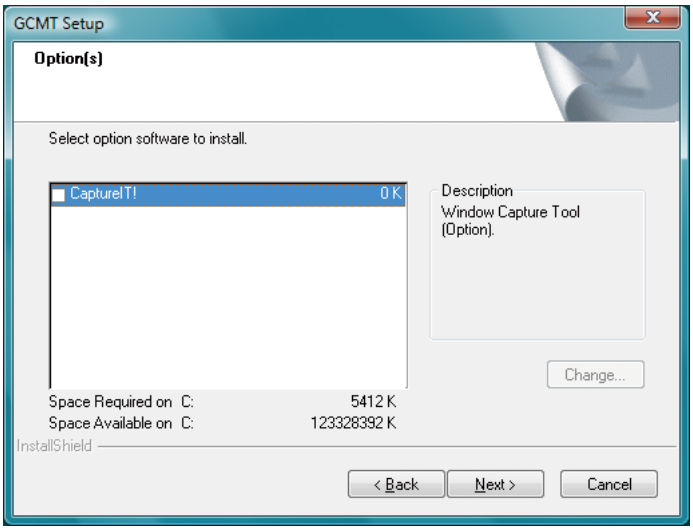
- **Hibernate Tab**

  Enable hibernation: Unselected

CaptureIt! Installation

<Use the CaptureIt!>

You can select whether “CaptureIt!” capturing software at a below dialogue box in the installation of GCMT.



You select whether to install “CaptureIt!” in the check column, and click on the “Next” button.

<Not use the CaptureIt!>

(1) Press the Print Screen key on your keyboard to copy the bitmap on the clipboard. It may be labeled [PrtScn].

When you want to capture an active window, press and hold down the “Alt” key, and press the “Print Screen” key on your keyboard to copy the bitmap on the clipboard.

(2) Open an image editing programme, such as Microsoft Paint.

Start the Paint accessory (Start -> Program -> Accessories -> Paint).

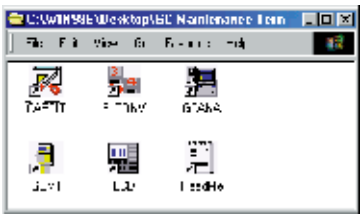
(3) Select [PASTE] from the [Edit] menu.

Changes in the Windows Environment

When the GCMT is installed, the following changes are made to the Windows™ environment.

"GC Maintenance Terminal" Group

When the GCMT is installed, a new "GC Maintenance Term." group is registered. In the group, the six icons, "CAPTIT", "F_CONV", "GCANA", "GCMT", "LCD", and "ReadMe" are registered.



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GCMT.INI File

When the GCMT is installed, a "GCMT.INI" initialization file is created in the directory where Windows™-executable files are located. However, if a GCMT.INI file already exists because of a previous installation of the GCMT, for example, the installer asks whether to overwrite or not. GCMT.INI contains the following major items of information:

```
[GC_COMM ]
ComPort=1                    ..... Type the communication port number (typically "1").

[ALARM_101                   ..... Register the text describing a user-defined alarm.
CODE=101
MESSAGE=#1 REAK CONC. ERR
Abnormal concentration of component #1
.....
```

TIP

About initialization files

- If you are upgrading the version of the Maintenance Terminal already in use or operating the Maintenance Terminal with the default values, you need not make any changes to the initialization file.
- Changes to the file do not take effect until the system is restarted.

Standard Specifications (Communication Converter K9404LA, K9490LD, RS-232C, Communication cable, Figure, Wiring)

This communication converter converts communications from RS-422 to RS-232C for PC or DCS communication and shuts off the communication signals when a power-off signal is received from the analyzer. This maintains explosion-protection on the analyzer side.

Signal terminal, to the GC1000 Mark II

M4 terminals

1 RS-422 SDA, SDB, RDA, RDB

2 D/I 12 V +, -

Signal Terminals on the Communication Equipment

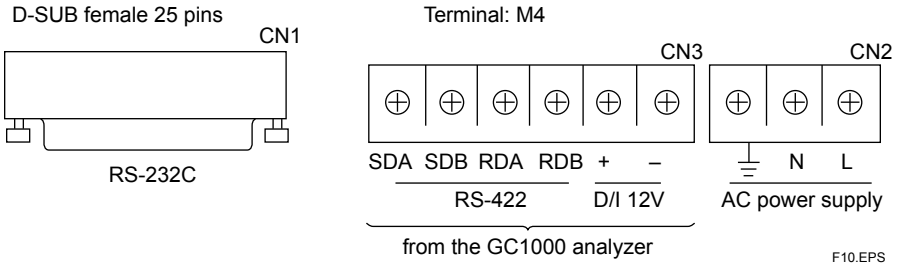
M4 terminals

RS-232C D-Sub25 female terminals

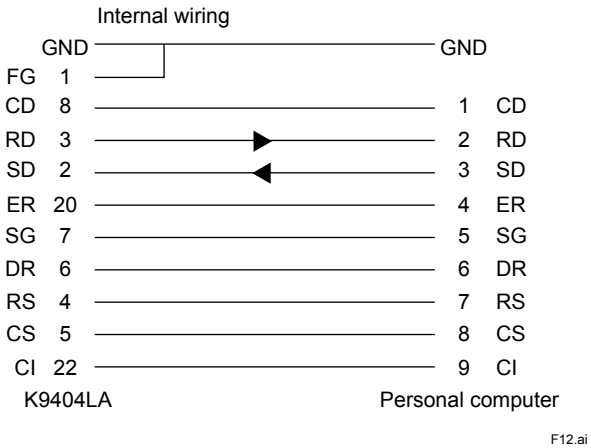
Power supply

100 to 240 V AC ±10%, 50/60 Hz ±5%, 15 W Max., M4 terminals

Terminal Arrangement (common for K9404LA, K9404LD)

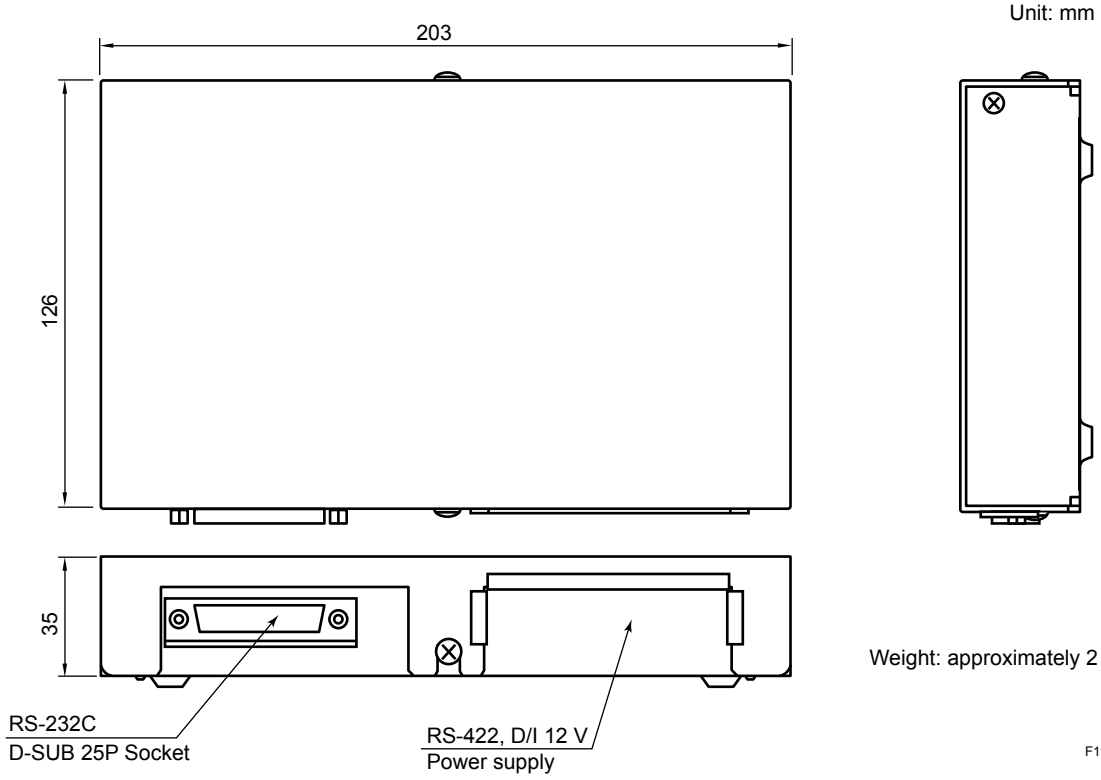


PC Communication Cable (Straight type)



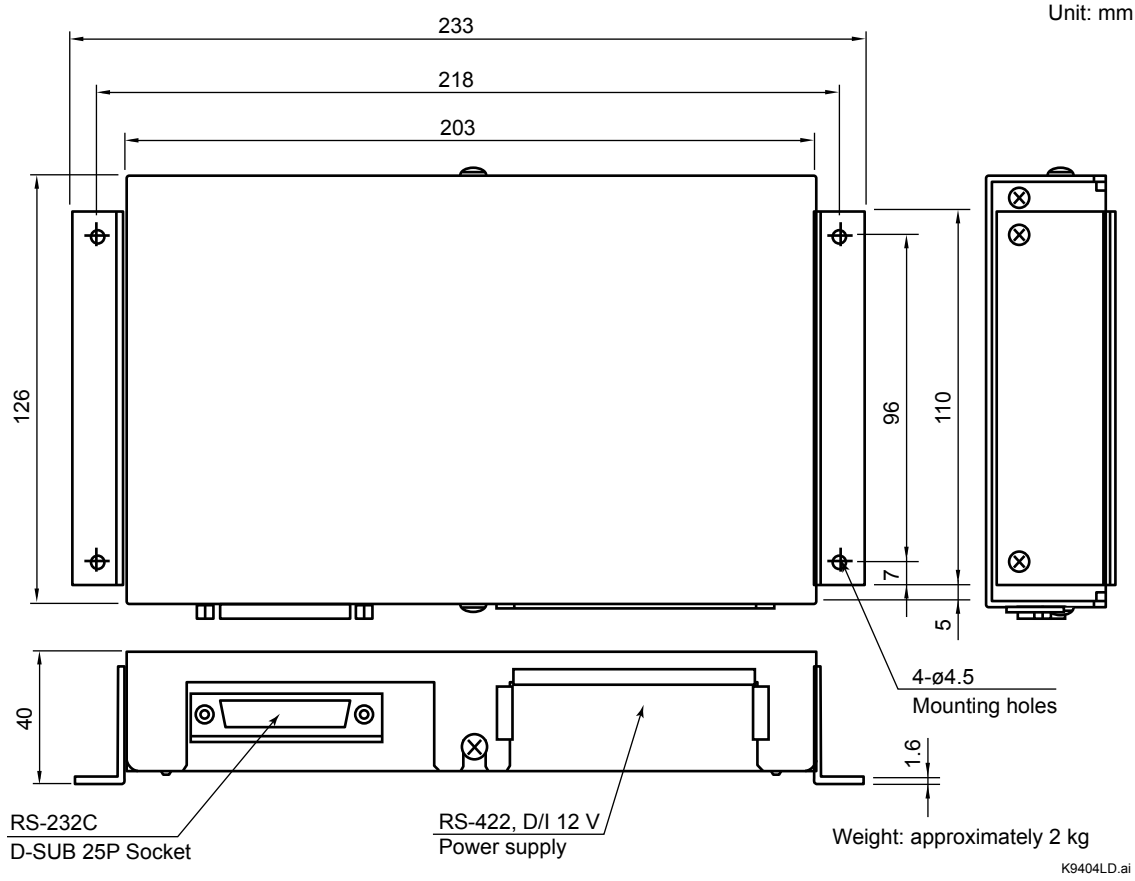
External Dimensions (K9404LA)

Unit: mm

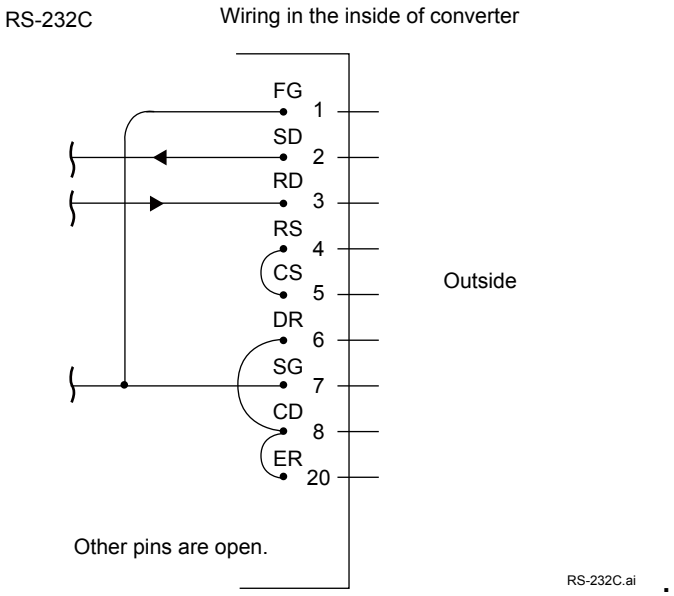


External Dimensions (K9404LD)

Unit: mm



Terminal RS-232C: Wiring in the inside of converter (K9404LA, K9404LD)



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1. Overview of Maintenance Terminal

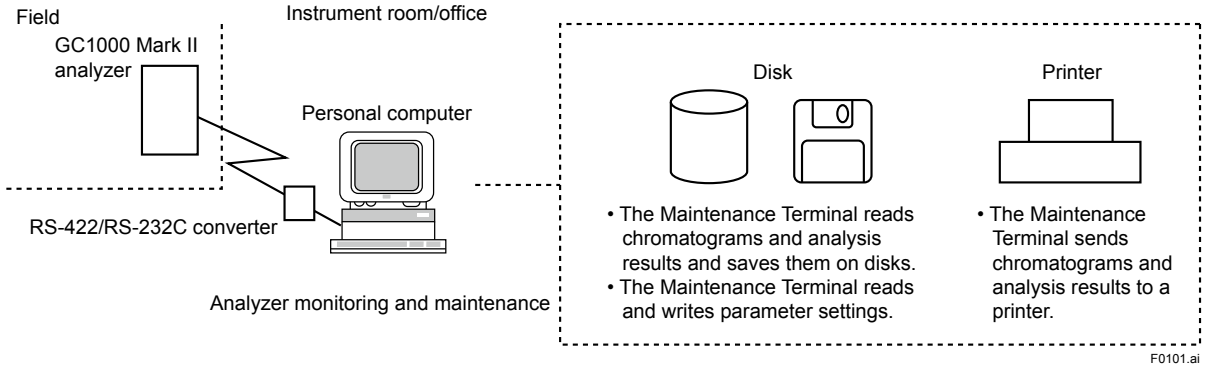
This chapter provides an overview of the Maintenance Terminal and basic information required to operate the package.

1.1 How the Maintenance Terminal Works

In this section, you will learn how the Maintenance Terminal software package works before you start using it.

What Is the Maintenance Terminal?

The Maintenance Terminal (GCMT) is a software package used to monitor and maintain the GC1000 Mark II analyzer (hereinafter referred to as the “analyzer”) on a personal computer by linking the computer to the analyzer through a communication line. The figure below illustrates an overview of the Maintenance Terminal.



Features of the Maintenance Terminal

The Maintenance Terminal features:

Remote Operation of LCD Panel

The LCD screen of the analyzer is duplicated onto the CRT screen of your personal computer. Thus, you can manipulate the LCD screen from a location distant from the field.

Analyzer Operation Window Presenting an Overall View

The current operation mode, valve and detector statuses, and a chromatogram are displayed in one window (Analyzer Operation window). This gives a convenient view of the operating status at a glance. Just click on an object in the window to change the mode, open and close valves, view the detailed chromatogram, etc.

Uploading and Downloading Analyzer Parameter Settings

Parameter settings can be uploaded and downloaded, thus allowing the parameters set on the LCD panel to be also set in another analyzer.

Detailed Chromatogram Display and Data Saving

A chromatogram is displayed in two ways: the Analyzer Operation window which shows an overview of the chromatogram and the Chromatogram window which provides a more detailed view of it. The Chromatogram window allows zooming, changing scales, and saving of chromatogram data.

Analysis Data Accumulation and Graph Creation

The results of analyses at the analyzer are gathered on an analysis history sheet. One history sheet can hold the peak names of up to 255 analyses and analysis time data of 250 analyses. The analysis history sheet can be saved, retrieved or graphed. In addition, the sheet can be retrieved as a file format in Microsoft Excel™ for further advanced data processing.

Data Acquisition for Maintenance

Personal computers and Windows™ have been designed with the assumption that they will be used in a general office environment. Therefore, the Maintenance Terminal is aimed for use on a daily basis in maintaining the analyzer. For continuous monitoring over a long period, it is recommended that the process instruments be used for analog output, DCS communication and as an analyzer bus server.

1.2 Maintenance Terminal Group in Program Manager

In this section, you will learn about the types of software composing the Maintenance Terminal group and the windows configuring the Maintenance Terminal.

Software Configuration

The Maintenance Terminal is composed of the following five types of software:

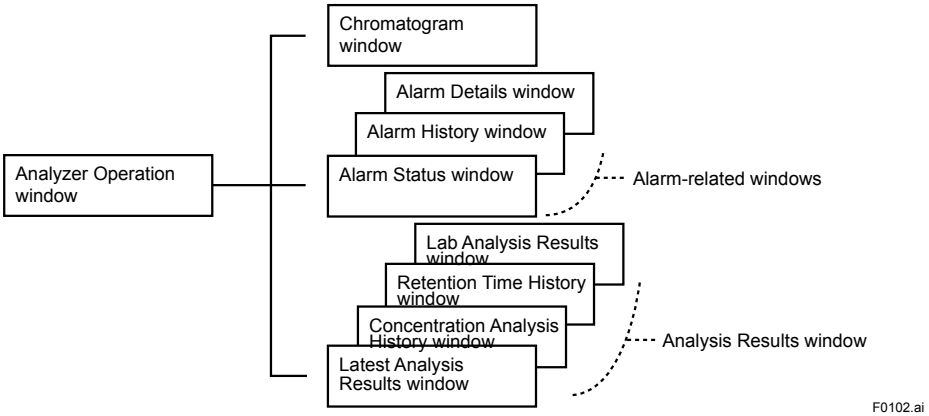
Software	Function
LCD emulator (LCD)	This software functions independent of the Maintenance Terminal. It can emulate (i.e., work in the same way as) the analyzer LCD panel, allowing the operator to control the analyzer panel from a personal computer.
Maintenance Terminal (GCMT)	The main section of the Maintenance Terminal software package. It bases most of its functions on the Analyzer Operation window which allows you to view the analyzer status and operate the analyzer.
Analysis result panel (GCANA)	This panel stores the results of analysis. It is started automatically when the Maintenance Terminal is activated.
CAPTURE IT! (CAPTIT)	This is a tool used to make hard copies. For more details, see the manual for CAPTURE IT!.
GC communication control (GCCOMM)	The software used to carry out communication between the analyzer and GCMT. This software starts up as an icon when LCD and GCMT are started. The program runs in the background and is always invisible to users.

Maintenance Terminal Window Layout

The Maintenance Terminal is composed of the following four windows:

Window	Function
Analyzer Operation	The basic Maintenance Terminal window. This displays the analyzer's latest status and can be used to perform various operations.
Chromatogram	Displays chromatograms in detail.
Alarm	Displays alarm statuses in the analyzer.
Analysis Results	This sheet automatically starts up when the Maintenance Terminal is started. It displays the latest analysis results.

The windows are interrelated as follows:



Notes on Use

Note the following when using the LCD emulator and the Maintenance Terminal:

- **Use this software with the analyzer in the Remote mode.**

  Unless the analyzer is in the Remote mode, you cannot start the LCD emulator. The display function of the Maintenance Terminal can be used even in the Local mode. But if it is operated, a message appears informing the user that operation is not accepted.

- **The LCD emulator and Maintenance Terminal cannot be started at the same time.**

  Therefore, if you want to use the Maintenance Terminal while the LCD emulator is still running, first quit the LCD emulator and then start the Maintenance Terminal.

Notes before turning on the power switch

Please confirm all communication cables have been connected before turning on the power switch.

Please turn on power switch in order of the GC1000 MarkII, the communication converter (K9404LA), and personal computer. Please turn off the power switch by the opposite procedure.

Notes concerning communication cables

Please do not take off or install the communication cables during the power supply turned on.

If it will be done, it may be needed to turn on the main power again because of communication error when the GCMT is used next time.

1.3 Notes Before Use

The Maintenance Terminal is a software package which runs under Windows™. In this section, you will learn basic operations common to the Windows™ software.

Mouse

A mouse is used to work with the Maintenance Terminal.

Basic Mouse Operations

The mouse cursor (↖) in the window moves as you move the mouse. Place the mouse cursor on an item you want to select in a window and click the left mouse button to select it.

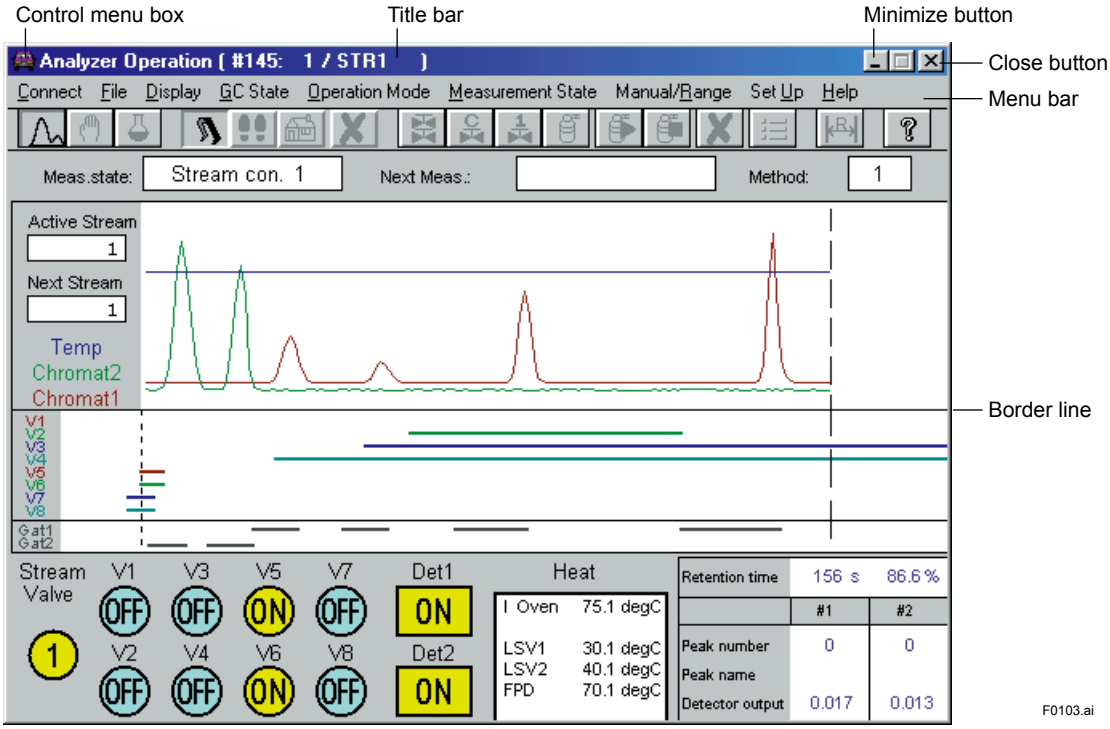
Buttons

There are three ways to press mouse buttons:

Click:	Press the left button and immediately remove your finger. Normally, most clicking operations use the left button, but some may use the right button. "Click" in this manual means to press the left button.
Double click:	Press the left button twice in quick succession.
Drag:	Move the mouse from a starting position to an ending position while pressing down the left button, and then release your finger. This is used, for example, to select a number of items at once.

Window Layout

The figure below illustrates the window layout, using the Analyzer Operation window as an example.



How to Select Menus

Menus

The menu bar and control menu box contain menu items necessary in working with the Maintenance Terminal. A menu is a list of classified functions (commands). From a menu, you select a command to be executed.

- **[Connect] Menu**

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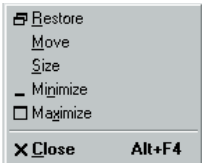
- **Control Menu**



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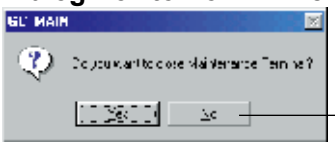
Dialog Box and Buttons

When you select a command from a menu, a dialog box pops up to ask you to specify details about the command. Give the details and then select the appropriate button to execute the command.

Dialog Box to Confirm Termination



F0106.ai

Procedure

Example: To execute the [Disconnect] command in the Analyzer Operation window:

(1) Click on [Connect] on the menu bar.
The [Connect] menu opens.

F0107.ai

- In a menu, selectable commands appear dark.
- The command can also be selected by typing the underlined letter with the [Alt] key held down.

(2) Click on the [Disconnect] command.
A confirmation dialog box pops up.

(3) Click on the [OK] button.
The Disconnect command is executed.

Multi-windows

The windows of the Maintenance Terminal open in an overlapping manner on top of the Analyzer Operation window. Thus, you can manipulate the windows properly to view multiple windows at the same time.

Window Operation

In a Maintenance Terminal window, the following operations are possible:

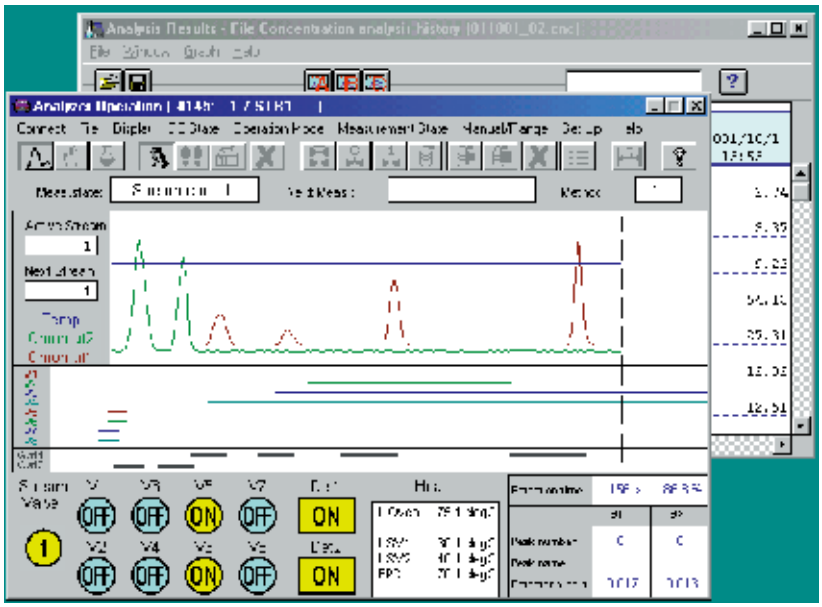
Resizing the window: Drag the window boundary. Only the Analysis Results windows and Alarm windows can be changed in size.

Minimizing a window to an icon: Click on the minimize button ( ). To return to the original size, double-click on the icon.

Making the Window Active

The window that is currently operational is called the “active window.” The title bar of the active window appears dark. When more than one window is open, click anywhere within the window you want to work with. The window you click becomes an active window. You can then work with the active window only.

Example of Multi-windows



F0108.ai

2. LCD Emulator Window

The LCD emulator reproduces the LCD panel of the analyzer in the Windows™ operating system. The screens and buttons on the LCD panel of the analyzer installed in the field are drawn directly on a Windows™ display, and appear and function exactly the same way as they do on the LCD panel. This chapter outlines the LCD Emulator window. For details, see the GC1000 LCD Window Operation Manual, IM 11B03A03-05E.

● Prior to Operation

Before starting the emulator, always make sure that the:

- Maintenance Terminal is installed in your personal computer.
- analyzer and personal computer are linked through a communication line.
- analyzer is in the Remote mode.

2.1 Starting and Exiting the LCD Emulator

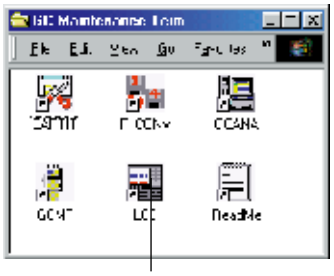
This section describes how to start and exit the LCD emulator.

■ Starting

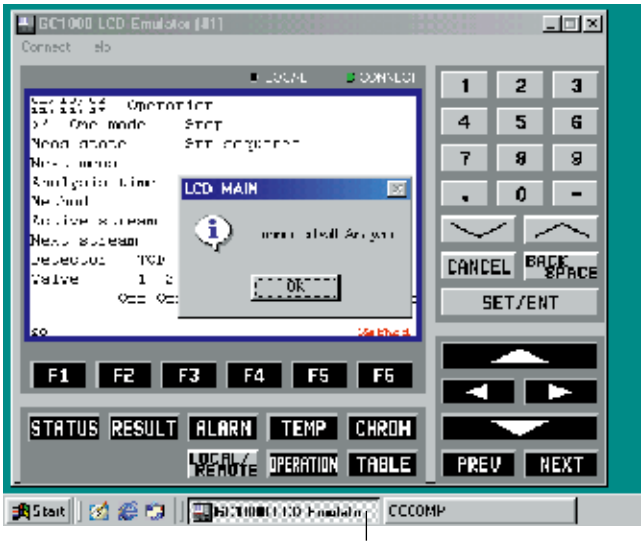
When the Maintenance Terminal is running, you cannot start the LCD emulator. Terminate the Maintenance Terminal before you start the LCD emulator. You also cannot start the LCD emulator unless the analyzer is in the Remote mode. Note that there is only one window from which the LCD emulator can be started.

● Procedure

(1) Turn on the power to the personal computer, start up Windows™, and open the Maintenance Terminal group window of Program Manager.



(2) Double-click on the LCD emulator icon.
This establishes a communication link with the analyzer. If the link ends successfully, the CONNECT lamp of the LCD emulator lights up in green. The dialog box shown below then pops up.



The icon of analyzer communication task. F0202.ai

HELP !

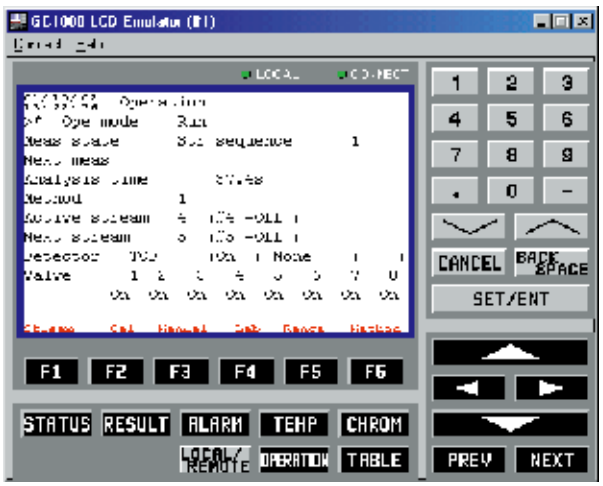
If the window shows the message “Unsuccessful end of connection,” there may be three possible reasons:

(1) The analyzer cannot be connected temporarily via a communication cable due to noise, etc.
Corrective action: Execute the [Connect] command in the [Connect] menu on the menu bar to establish the connection again via the communication cable.

(2) The analyzer is in the Local mode.
Corrective action: Set the analyzer to the Remote mode on the analyzer’s LCD panel and then connect it again via the communication cable.

(3) There is a wrong connection in the wiring to the analyzer.
Corrective action: Check the wiring between the analyzer and your personal computer.

(3) Click on the [OK] button. The LCD Emulator window opens.



F0203.ai

HELP !

When the message “Exit command is received” appears in the LCD emulator window, establish a communication link with the analyzer using the [Connect] command on the [Connect] menu after you have finished panel operation on the analyzer.

Exiting

Procedure

(1) Click on the [Exit] command in the [Connect] menu.
A dialog box pops up asking you to confirm the termination of the LCD emulator.

F0204.ai

(2) Click on the [Yes] button.
Communication with the analyzer is dropped and the LCD emulator terminates.

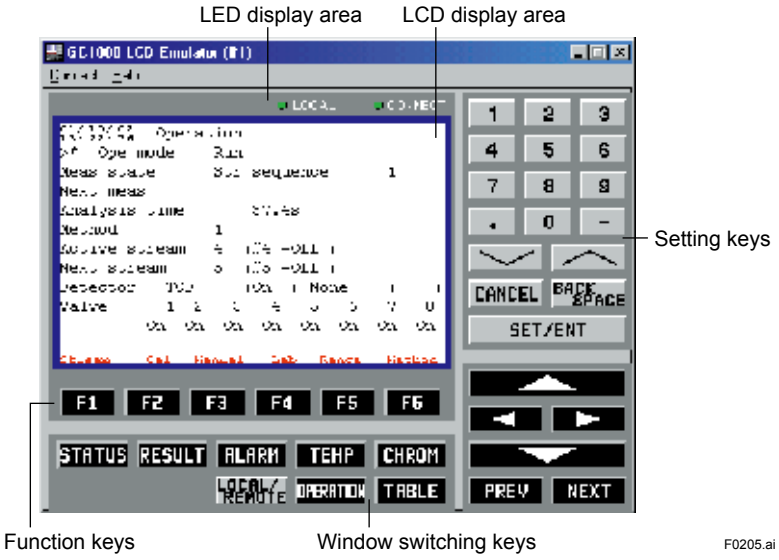
(3) Either run other software or terminate Windows™, and then turn off the power.

2.2 Basic Operations

The LCD Emulator window is exactly the same as the LCD panel both in appearance and function. Buttons in the window can be operated by using the mouse, or by pressing corresponding keys on the keyboard.

Window Layout

The following figure shows the LCD Emulator window layout.



F0205.ai

Window Operation

Mouse Operation

Place the mouse cursor on the key to be operated and click the left mouse button. This allows the same key operations as ones on the LCD panel.

Keyboard Operation

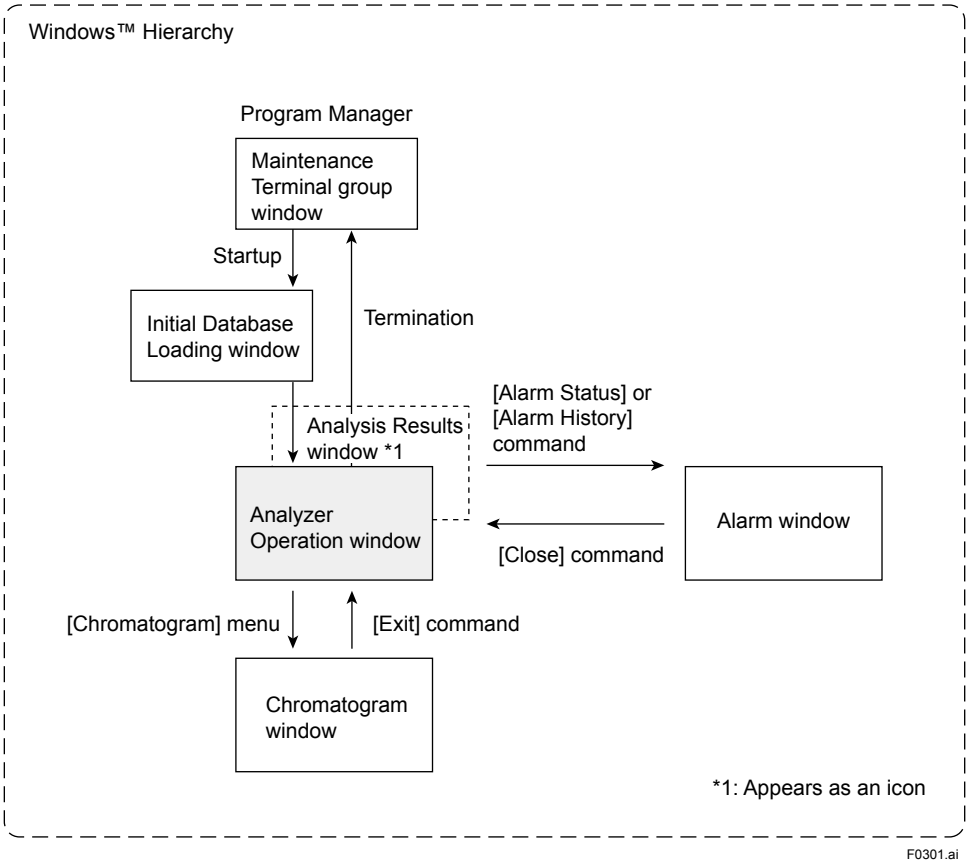
Each window key corresponds to the keys on the keyboard, as shown in the following table. Pressing these keys allows the same key operations as ones on the LCD panel.

Window Keys and Corresponding Keys on Keyboard

Window Keys		Keyboard Equivalents
Function keys	[F1] to [F6]	[F1] to [F6]
Window switching keys	[STATUS] [RESULT] [ALARM] [TEMP] [CHROM] [LOCAL/REMOTE] [OPERATION] [TABLE]	[SHIFT] + [F1] [SHIFT] + [F2] [SHIFT] + [F3] [SHIFT] + [F4] [SHIFT] + [F5] [SHIFT] + [F6] [SHIFT] + [F7] [SHIFT] + [F8]
Setting keys	Alphanumeric keys [^] [v] [CANCEL] [BACK SPACE] [SET/ENT] [^] [<] [>] [v] [PREV] [NEXT]	Alphanumeric keys [Page Down] [Page Up] [ESC] [BACK SPACE] [ENTER] Cursor keys [CTRL] + [P] [CTRL] + [N]

3. Analyzer Operation Window

The Analyzer Operation window opens when the Maintenance Terminal is started. This chapter explains how to open and close this window, how the window is composed, how to change the operation status, and how to upload and download parameter settings.



Prior to Operation

Before starting up the Maintenance Terminal, always make sure that the:

- Maintenance Terminal has been installed properly in your personal computer.
- analyzer has been connected to your personal computer properly via a communication cable.

3.1 Starting and Exiting the Maintenance Terminal

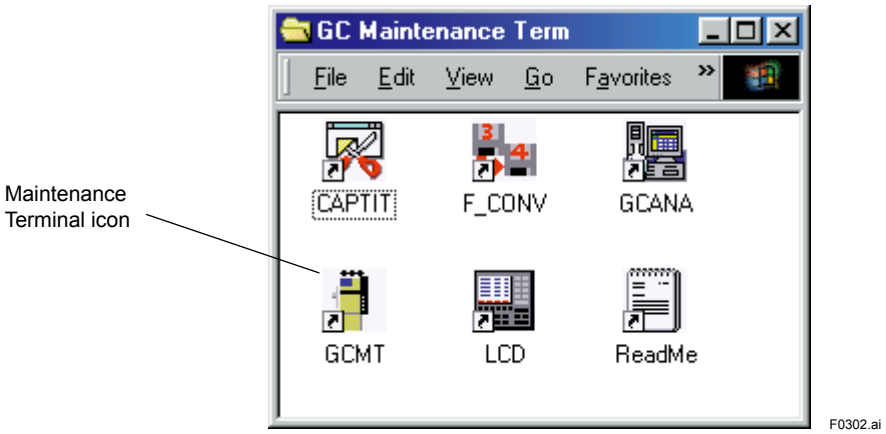
This section describes how to start and exit the Maintenance Terminal.

Starting

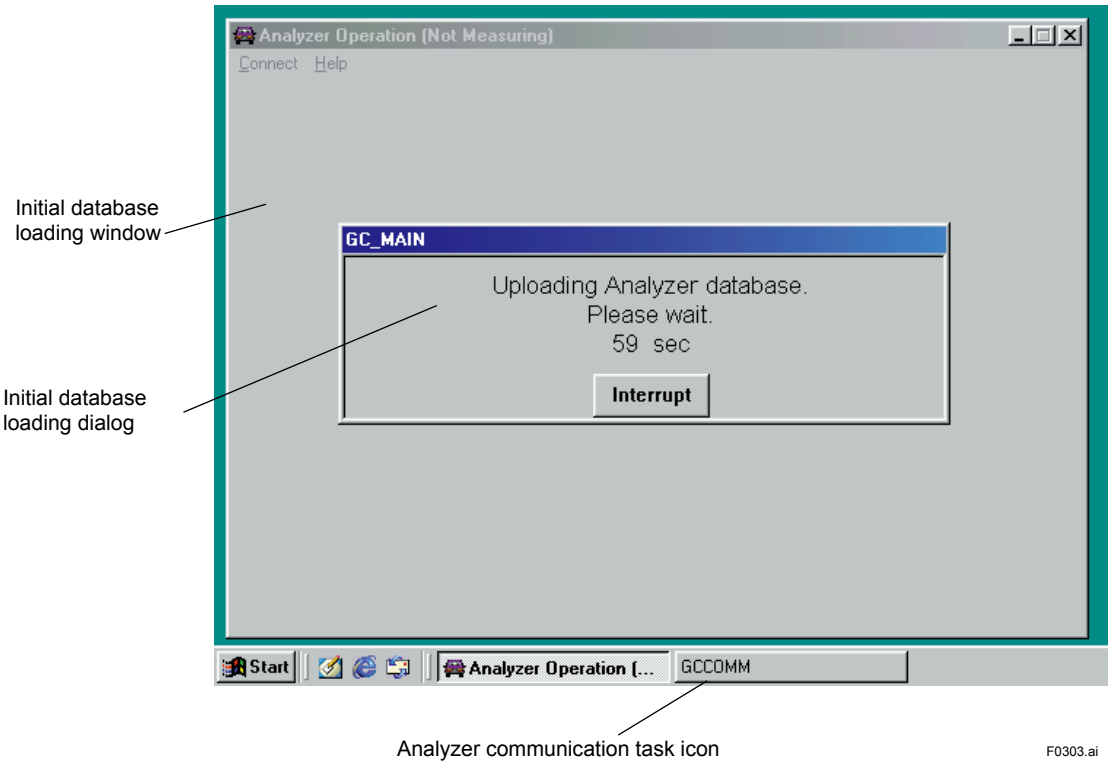
While the LCD emulator is running, you cannot start the Maintenance Terminal. Exit the LCD emulator before you start the Maintenance Terminal. You also cannot start the Maintenance Terminal unless the analyzer is in the Remote mode. Note that there is only one window from which the Maintenance Terminal can be started.

Procedure

(1) Turn on the power to the personal computer, start up Windows™, and open the Maintenance Terminal group window of Program Manager.



(2) Double-click on the Maintenance Terminal icon.
This establishes a communication link with the analyzer and the Initial Database Loading window opens.



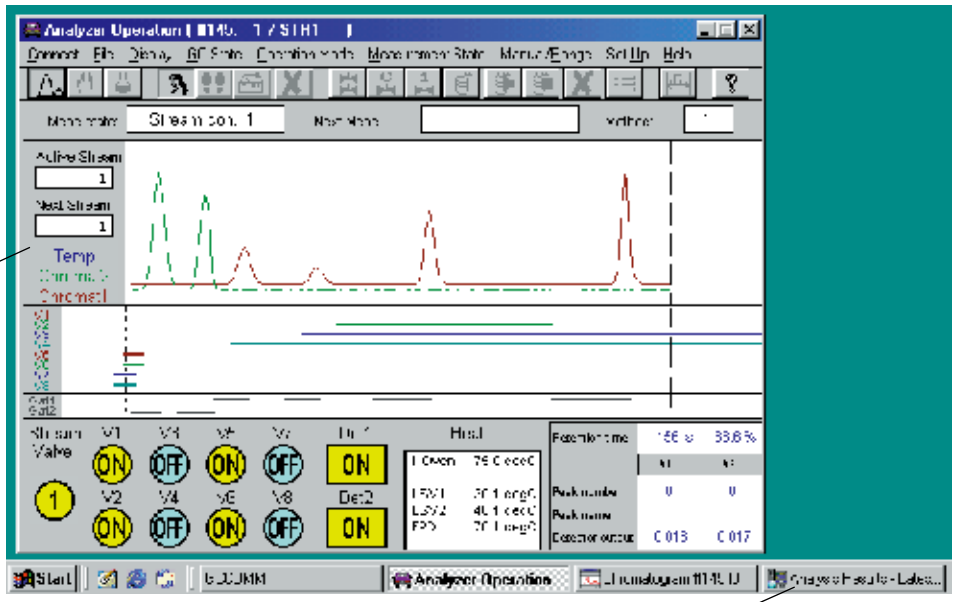
HELP !

If the message “Unsuccessful end of connection” appears, check the communication line, the serial port number, and the communication speed, and then try again to establish the communication

(3) The remaining time is counted down during initial-database loading.

- The initial database is the data other than measured values, and comprises fixed data that do not vary with time, such as the number and types of detectors, names of components to be analyzed, and alarm history data. The Maintenance Terminal functions are not executable until the initial database is loaded.
- It takes about 60 seconds to load the initial database (when the communication speed is 38400 bps). If there is no change in the fixed data, loading ends in about 10 seconds because, in that case, only alarm data are loaded.

  After loading is completed, the Analyzer Operation window opens. The Analysis Results window also comes into operation and appears as an icon.



- The Analyzer Operation window is the parent window in the Maintenance Terminal and must always be open, irrespective of the type of Maintenance Terminal function being used. The window can be minimized to an icon with the [Minimize] button.
- It takes a short while for the Analysis Results window to actually open after its startup.

HELP !

If the message “Communication link with the analyzer has been dropped” appears in the Analyzer Operation window, reestablish a communication link with the analyzer using the [Connect] command in the [Connect] menu after you have finished panel operation on the analyzer.

Selecting a Serial Port for Communication

To select a serial port to be used for the communication, use the [Com. Port] command in the [Connect] menu. From the pop-up menu a usable serial port can be selected. When this command is executed, the current communication is aborted and then the communication is started from the specified port.

Changing the Communication Speed

To change the communication speed between the analyzer and the Maintenance Terminal, use the [Com. Speed] command in the [Connect] menu. If the analyzer connected is the GC Mark II, select either 19200 bps or 38400 bps. If the analyzer connected is previous versions, the communication speed should be 9600 bps. Note that the communication selected here should be the same as the one set in the analyzer. When this command is executed, the current communication is aborted and then the communication is started at the specified speed.

Exiting

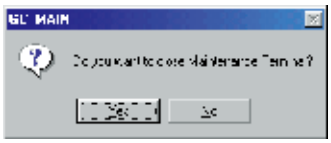
The Analysis Results window must be closed in order to exit the Analyzer Operation window.

Even if the Analysis Results window appears as an icon, it is recommended that you open the window once, save the information or take a relevant action, and then close the window.

Procedure

(1) Close all the windows except the Analyzer Operation window.

(2) Click on the [Exit] command in the [Connect] menu while the Analyzer Operation window is open.
A dialog box pops up asking you to confirm termination of the Maintenance Terminal.



F0305.ai

(3) Click on the [Yes] button.
The communication link with the analyzer is dropped and the Maintenance Terminal terminates.

(4) Quit Windows™ and turn off the power.

TIP

How to Use the [Disconnect] Command

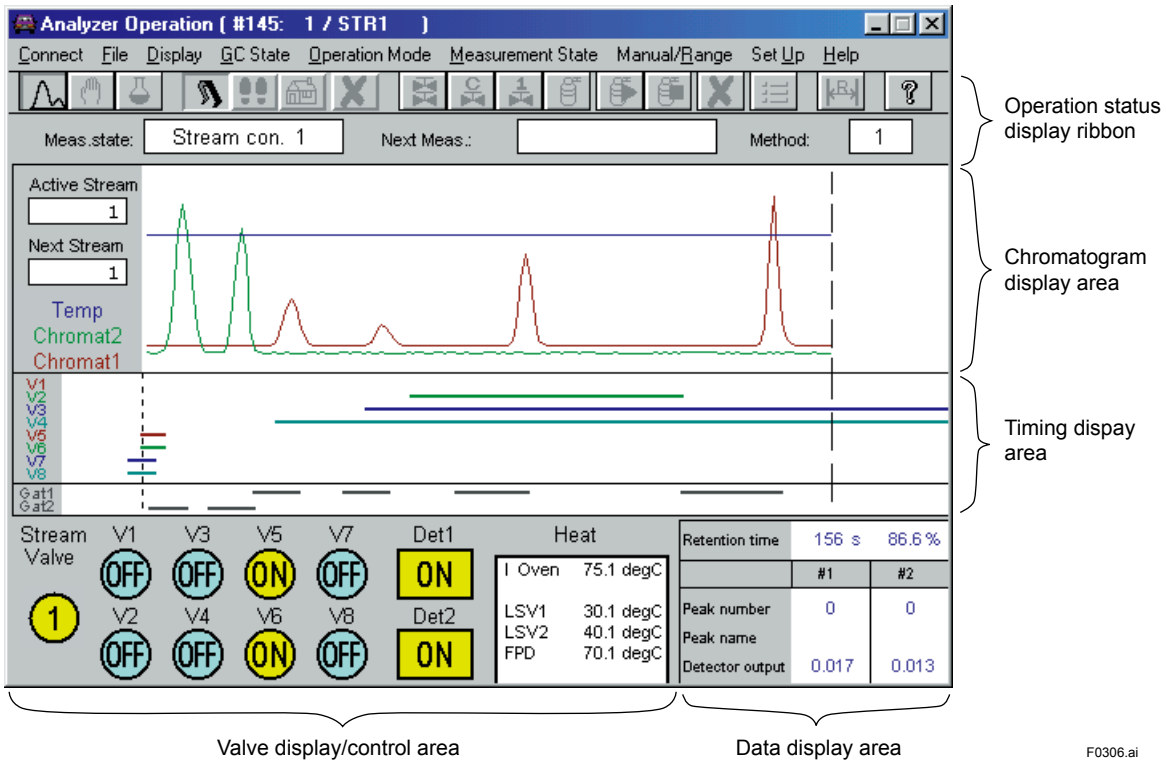
- If you want to drop the communication link with the analyzer without exiting the Maintenance Terminal, use the [Disconnect] command in the [Connect] menu.
- This is useful, for example, when using other software. In that case, however, measured values from the analyzer are not transmitted.

3.2 Layout of Analyzer Operation Window

The Analyzer Operation window is the parent window in the Maintenance Terminal. The window, updated in one-second cycle, indicates the latest operating status and allows you to specify the operation mode and others.

Names of Main Areas

The following figure describes the names of the main areas of the Analyzer Operation window.

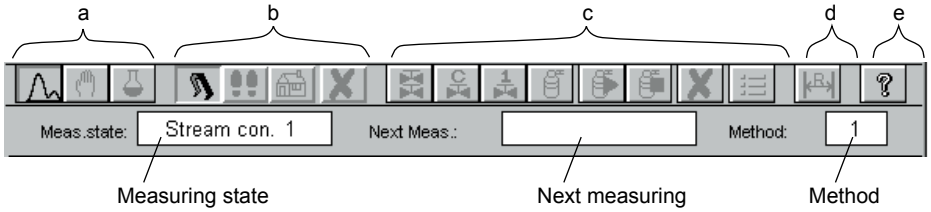


F0306.ai

Operation Status Ribbon

This ribbon is a tool used to monitor and control the current operating status of the analyzer.

Ribbon Layout



a: Status button
- "Process" status
- "Manual" status
- "Lab" status

b: Operation mode button
- "Run" mode
- "Pause" mode
- "Stop" mode
- "Cancel"

c: Measuring status button
- "Stream sequence"
- "Stream (cont)"
- "Stream (1cycle)"
- "Cal(Val)"
- "Cal(Val) start"
- "Cal(Val) end"
- "Cancel"
- "Cal(Val) method"

d: Range change button

e: Help indicate button

F0307.ai

Function of Buttons and Available Information

The following table summarizes the function of each button and the available information.

Button	Function and Available Information
Status (command) button	Indicates the current mode of the analyzer. By clicking on the button of the desired status, the status can be changed.
Operation mode (command) button	Indicates the current operation mode and the status in which a mode change is commanded and reserved. By clicking on the button of the desired operation mode, the mode can be changed. "Cancel" command button is used to cancel the reserved operation mode.
Measuring status button	Only used to command the measureing status by clicking on the button of the desired measuring status. "Cal (Val) start" and "Cal (Val) end" buttons are used to start/end the calibration/validation manually. "Cancel" command button is used to cancel the scheduled measurement. "Cal (Val) mathod" button is used to change the calibration/ validation method.
Range change button	Used to change the range.
Help indicate button	Indicates hepl of GCMT.
Measuring state	Indicates the current measuring state.
Next measuring	Indicates the measuring state scheduled next, if the measuring state has been changed.
Method	Indicates the current method number.

HELP !

To be able to work with the operation status ribbon, the user level must be changed.

See Also

For details on how to change the user level, see Section 3.4.

Chromatogram Display Area

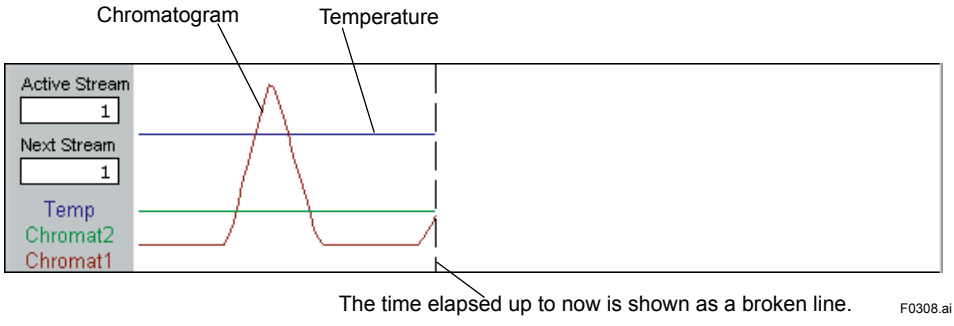
This area displays the latest chromatogram(s) and the temperature pattern of the programmed-temperature oven (the dual oven) or of the isothermal oven (the single oven) by the analysis cycle. If there are two detectors, the area shows two chromatograms.

Double-clicking in this area opens the Chromatogram window.

See Also

For details on the Chromatogram window, see Chapter 4.

Area Layout



Descriptions of the Area

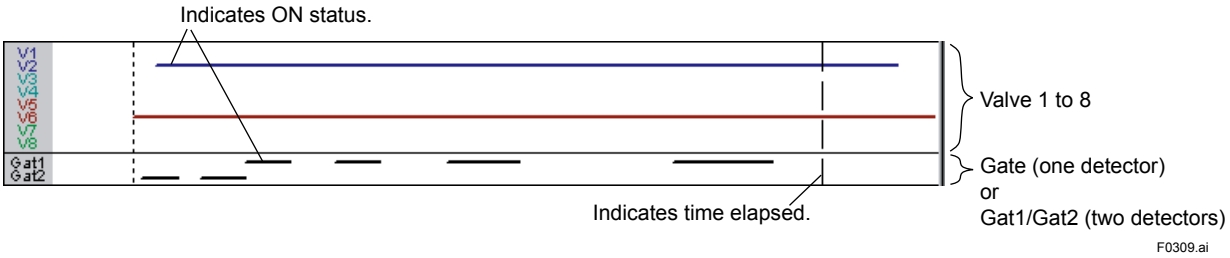
The scales are displayed in the following format:

Item	Format
Horizontal scale	Shows a chromatogram with the analysis period set on a task-by-task basis.
Vertical scale	An automatic scale, which adjusts automatically so that the approximate data deflection up to that moment is 80 percent of full scale. This automatic scaling is set separately for the chromatogram and temperature.
Active Stream	Indicates the number of the stream being currently measured. Indicates "Disp.OK" when sample displacement is ready (available only for manual calibration/validation method).
Next Stream	Indicates the number of stream scheduled next. For preparation status, (P) is added as a suffix.

Timing Display Area

This area displays a chart of the on/off times for each analyzer valve and gate according to the analysis cycle. These times are preset. As for the on/off times for the gate, if two detectors are used, this area shows the times separately for each detector.

Area Layout



Descriptions of the Area

The following table summarizes the descriptions of the display.

Item	Available Information
Horizontal scale	Indicates the times of an analysis cycle set on a stream-by-stream basis.
Valve 1 to 8	Indicates on/off states of valves 1 to 8 in bar graph.
Gate or Gat1/Gat2	Indicates on/off state(s) of gate(s) in bar graph.

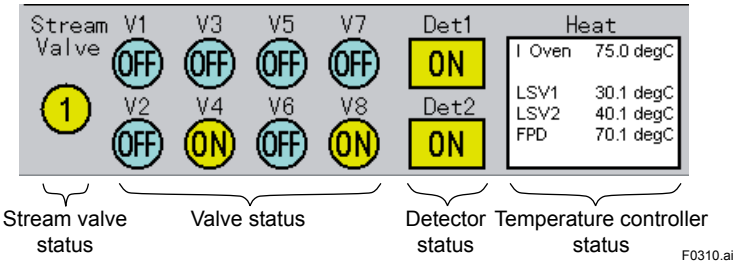
Valve Display/Control Area

The Valve Display/Control area displays the state of the stream switching valve of the analyzer (the currently active valve numbers or OFF), the on/off state of the analyzer valves and detectors, and the state of the temperature controller. In this area, these states can be changed.

TIP

In order to actually operate valves, the system must be at user level C as well as in the Manual mode.

Area Layout



Descriptions of the Area

The following table summarizes the descriptions of the display.

Item	Available Information
Stream Valve	Indicates the state of each stream switching valve. If all of the valves are turned off, the area simply appears gray.
Valves 1 to 8	Indicate the on/off state of the valves 1 to 8 each.
Det 1/Det 2	Indicates the on/off state of the detector. Clicking the right mouse button on this symbol opens the detector signal window.
Heat	Indicates the state of the temperature controller. Clicking the left mouse button on this symbol opens the Temperature Control Unit Operation window.

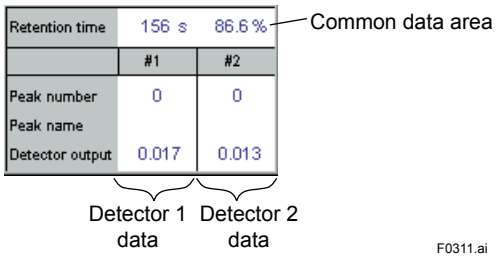
See Also

For information on the detailed display of the detector signal and temperature controller, see Section 3.3.

Data Display Area

This area displays the retention time, peak number, peak name, and detector signal. The data is updated in one-second cycle. If two detectors are used, this area shows data separately for each detector.

Area Layout



Descriptions of the Area

The following table summarizes the descriptions of the display.

Item	Available Information
Retention time	Indicates the time elapsed since the start of analysis. Also indicates the ratio of the elapsed time to the analysis period in a percentage.
Peak number	Indicates the number of the peak being analyzed.
Peak name	Indicates the ID of the peak being analyzed.
Detector output	Indicates the level of the detector signal in millivolts [mV]. The chromatogram in the chromatogram display area represents the pattern of this signal.

3.3 Viewing the States of the Detector and Temperature Controller

To view the states of the detector signal and the temperature controller, click the right mouse button on the detector symbol and click the left mouse button on the Heat symbol, respectively, in the Valve Display/Control area. These displays are updated in threesecond cycle.

See Also

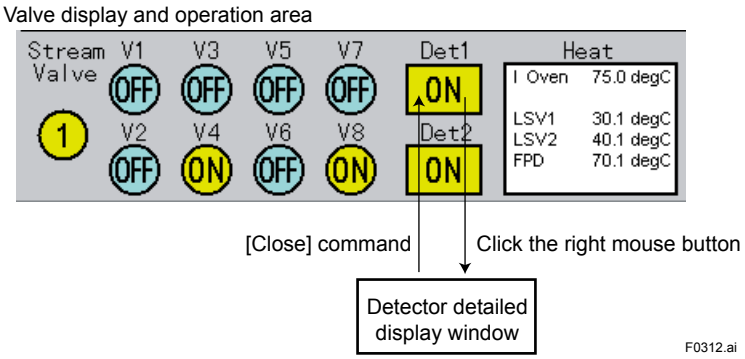
For details on the operations used to make changes in the Valve Display/Control area, see Section 3.6.

Detailed Display of Detector Signals

Procedure

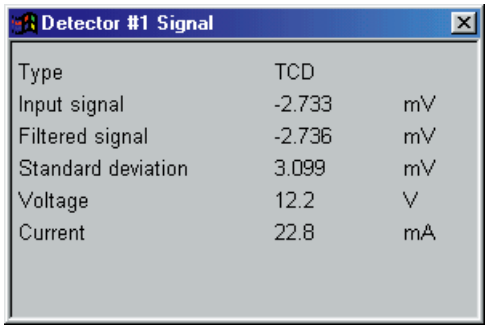
If two detectors are used, you can choose either detector in the Valve Display/Control area.

(1) Place the cursor on the detector symbol in the Valve Display/Control area and click the right mouse button. The Detector Signal window opens.



(2) To close the Detector Signal window, click on the [Close] command in the control menu.

Window Layout (Detector Signal Window)



Descriptions

The following table summarizes the descriptions of the display.

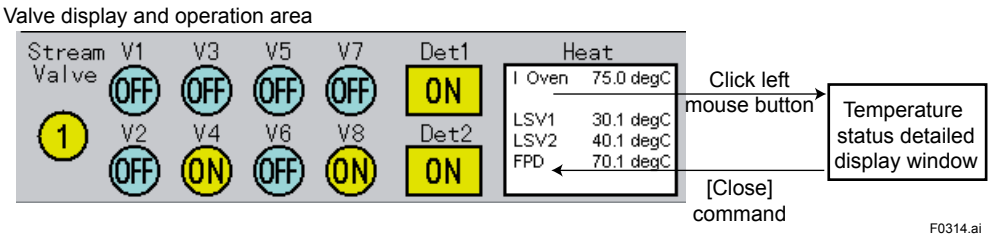
Item	Available Information
Type	Indicates the type of detector. The window shows TCD, FID, FI-CONV (FID with methane converter), FPD or None.
Input signal	Indicates the value obtained by averaging the A-D converted analog signal of the detector sampled every 20 msec by the value set in the sample rate.
Filtered signal	Indicates the value obtained by filtering the input signal by the value set in the filter constant in the detector signal setting.
Standard deviation	Indicates the standard deviation of the output signals of the last 20 analysis.
Voltage	Indicates the bridge current of the TCD (TCD only).
Current	Indicates the bridge current of the TCD (TCD only).

Detailed Display of Temperature Controller

Procedure

(1) Place the cursor on the temperature controller symbol in the Valve Display/Control area and click the left mouse button. The Temperature Control Unit Operation window opens.

Valve display and operation area



F0314.ai

(2) To close the Temperature Control Unit Operation window, click on the [Close] command in the control menu.

Window Layout (Temperature Control Unit Operation Window)

F0315.ai

Descriptions

The following table summarizes the descriptions of the display. The display is different depending on the configuration of the temperature controller used.

Item	Available Information
SV*	Indicates the temperature controller setpoint.
PV	Indicates the value measured by the temperature controller (current temperature).
State/Remark	Indicates the state of or comments on the temperature controller.
Programmed temperature oven *	Indicates the temperature of the inner constant-temperature oven of a dualoven model.
Constant-temperature oven *	Indicates the temperature of the outer constant-temperature oven of a dualoven model or the temperature of a single-oven model.
LSV1/2	Indicates the temperature of the sampling valve.
FID1/2	Indicates the temperature of the detector only when the system uses a dualoven model with a temperature-controlled FID.
FPD	Indicates the temperature of the photomultiplier when the system uses a singleoven model.

*: The upper limit of the temperature setpoint varies depending on the type of explosion protection applied.

3.4 Changing the User Level

There are three user levels in the analyzer. The default is set to user level A which only allows the user to view and confirm the information in the Analyzer Operation window. To set the system at a level allowing analyzer operation, change the user level by entering the password.

Types of User Level

There are three user levels: A, B and C. The following table summarizes the permissible operations at each user level.

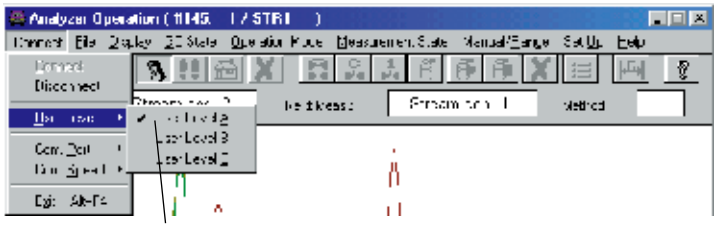
User Level	Access Range		Password Entry During Level Shift
	Analyzer Operation Window	Alarm Window	
A	Permits window viewing only; no operation is allowed on the analyzer.	Inhibits deletion of any of the records on alarm history.	Unnecessary
B	Permits both window viewing and changing the operation mode, measuring state (except cancel command) and range.	Permits deletion of any of the records on alarm history.	Necessary
C	Permits both window viewing and setting concerning all kinds of operation with the analyzer.	Permits deletion of any of the records on alarm history.	Necessary

Changing the User Level

In this example, you will learn how to change to user level C.

Procedure

(1) Click on the [User Level] command in the [Connect] menu. The User Level submenu opens.



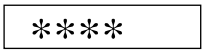
F0316.ai

(2) Click on [User Level C]. The password entry dialog box pops up.

F0317.ai

(3) Enter the password.

Example: The number of “1450” is entered as a password. The password field now looks as shown below:



- The four-digit password is represented by an equal number of asterisks.

(4) Click on the [Execute] button. A confirmation dialog box pops up.

F0318.ai

(5) Click on the [OK] button. The user level is set to C.

3.5 Changing the Status/Operation Mode/ Measurement Status

By using the Operation Status ribbon in the Analyzer Operation window, the status/operation mode/measurement status can be changed.

NOTE

The status/operation mode/measurement status can be changed only at the corresponding required user level, B or C, depending on the parameter to be changed. This change cannot be made unless the analyzer is in the Remote mode.

Types and Change of the Status

Types of the Status

There are three types of the status, as shown below. A currently active status is represented by a depressed button.

Status	Button	Description
Process		Performs an automatic analysis. Allows the selection of the measuring status.
Manual		Performs a manual analysis. Allows the change status of valve/detector/theperature controller only in this status.
Lab		Performs a laboratory analysis.

Changing the Status

To change the status, click on the button of the status you want to select. Depending on the current situation, operable buttons, which are indicated as darkened buttons, are different.

Types and Change of the Operation Mode

Types of the Operation Mode and Indications of the Current Status

There are three types of the operation mode, as shown below.

Mode	Button	Description
Run		Executes analyzer operation.
Pause		Pauses operation.
Stop		Stops operation.

Each state of the button indicates the current status of the operation mode.

Example: Run mode

Status of button	Meaning
	The Run mode is being executed.
	Can be changed to the Run mode.
	The Run mode is reserved.
	Cannot be change to the Run mode.

Changing the Operation Mode

To change the operation mode, click on the button of the operation mode you want to select. Depending on the current situation, operable buttons, which are indicated as darkened buttons, are different.

There is a [Cancel] command button  which is only used to cancel the reserved operation mode.

Types and Change of the Measurement Status

Types of the Measurement Status

There are four types of the measurement status, as shown below.

Measurement	Button	Description
Stream Sequence		Performs stream sequence measurement.
Stream (Continueous)		Performs continuous measurements of the selected stream.
Stream (1 cycle)		Performs a single measurement of the selected stream.
Calibration (Validation)		Performs calibration or validation.

The current state of the measurement status is indicated in the bottom half of the Operation Status ribbon and each button is only used for executing commands.

Changing the Measurement Status

To change the measurement status, click on the button of the measurement status you want to select. Depending on the current situation, operable buttons, which are indicated as darkened buttons, are different.

There is a [Cancel] command button which is only used to cancel the next measurement.

Calibration (Validation) Method

There are three types of the calibration (validation) method, as shown below.

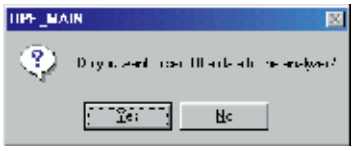
Calibration (Validation) Method	Description
Automatic	Performs calibration (validation) automatically according to the starting time and intervals specified in the analyzer.
Semi-automatic	Performs calibration (validation) by clicking on the Cal (Val) button and specifying the number.
Manual	Performs calibration validation) manually by clicking on the Cal (Val) button, arranging the conditions, and then clicking on the start button and end button .

Take the following procedure to select the calibration (validation) method.

(1) Click on the [Calibration/Validation Method] button . The Calibration/Validation Method dialog pops up.

F0319.ai

(2) Select the radio button of the calibration/validation method you want to specify, and then click on the [Exec.] button. A confirmation dialog box pops up.



F0320.ai

(3) Click on the [Yes] button.

(4) A message appears to inform you that the data has been changed successfully.

F0321.ai

(5) Click on the [OK] button to finish.

3.6 Changing the states of the Valves/ Detectors/Temperature Controller

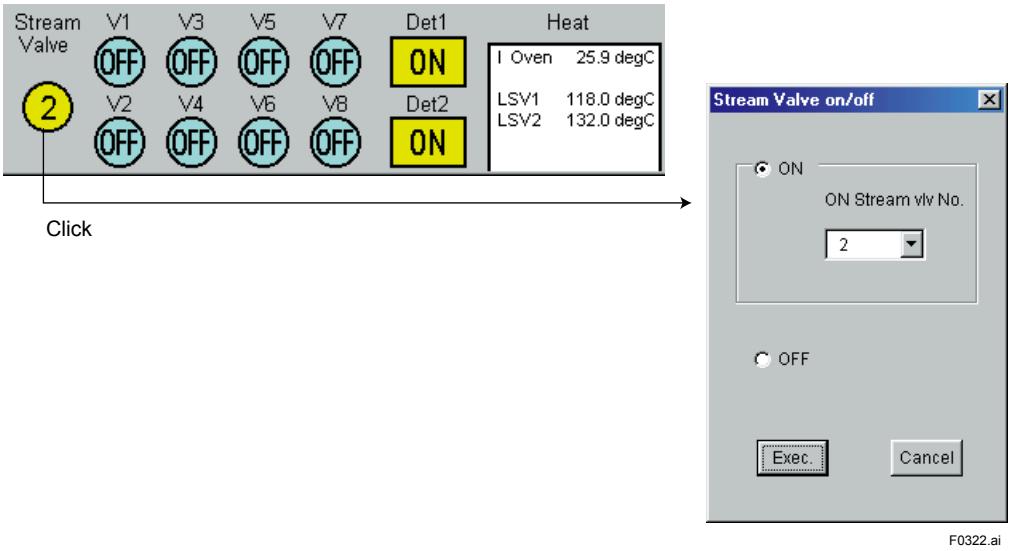
By clicking on the each symbol in the Valve Display/Control area, the state of the valves, detectors, and temperature controller of each part can be turned on or off. This section explains how to change the states.

NOTE

The states of the valves/detectors/temperature controller can be changed only at user level C. In addition, the status must be in Manual. This change cannot be made unless the analyzer is in the Remote mode.

Changing the Stream Switching Valves

(1) Click on the Stream Valve symbol. The Stream Valve on/off dialog box pops up.



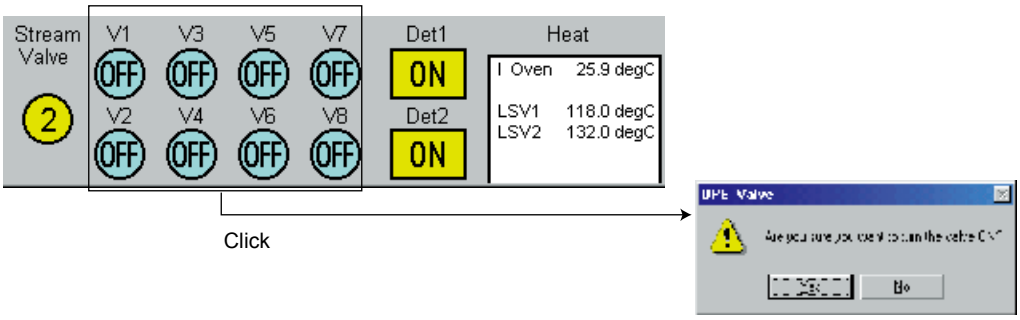
F0322.ai

(2) If you want to turn on the valve, click the [ON] radio button and then select the number of the stream valve you want to switch to. If you want to turn off the valve, click on the [OFF] radio button. Then click the [Exec.] button.

(3) The state of the stream valve will be changed to the specified one.

Turning On/Off Valves 1 to 8

(1) Click on the symbol of the valve you want to turn on or off among the valves V1 to V8. A confirmation dialog box pops up.

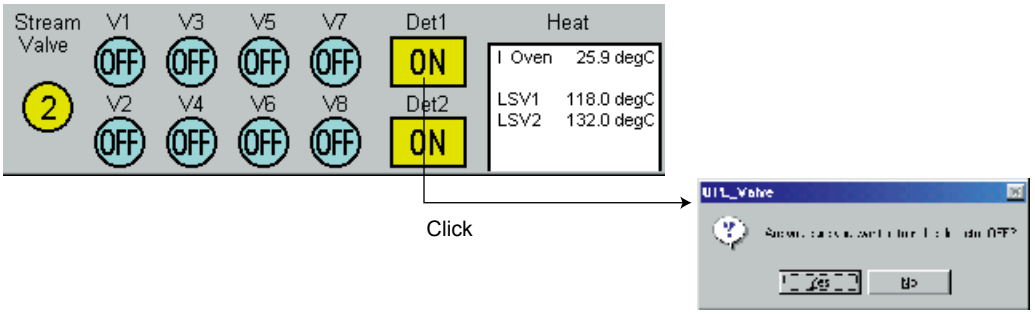


F0323.ai

(2) Click on the [Yes] button. The state of the valve will be changed to ON or OFF.

Turning On/Off Detectors

(1) Click on the symbol of the detector you want to turn on or off. A confirmation dialog box pops up.

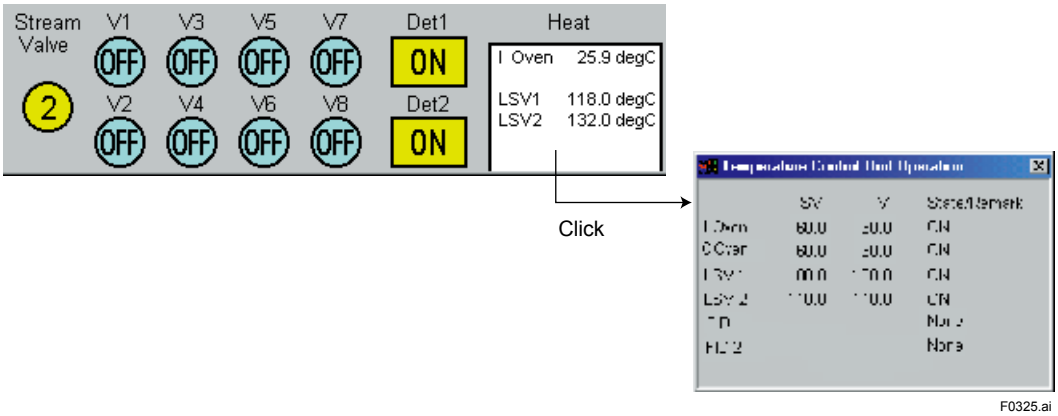


F0324.ai

(2) Click on the [Yes] button. The state of the detector will be changed to ON or OFF.

Turning On/Off the Temperature Controller

(1) Click on the description of the temperature controller. The Temperature Control Unit Operation window opens.



F0325.ai

(2) Click on the state under the State/Remark column of the temperature controller of interest. A confirmation dialog box pops up.

F0326.ai

(3) Click on the [Yes] button. The state marked under the State/Remark column will be changed to ON or OFF.

3.7 Changing the Range

By using the range table set in the analyzer, the ranges of each peak can be changed. This section explains how to change the range.

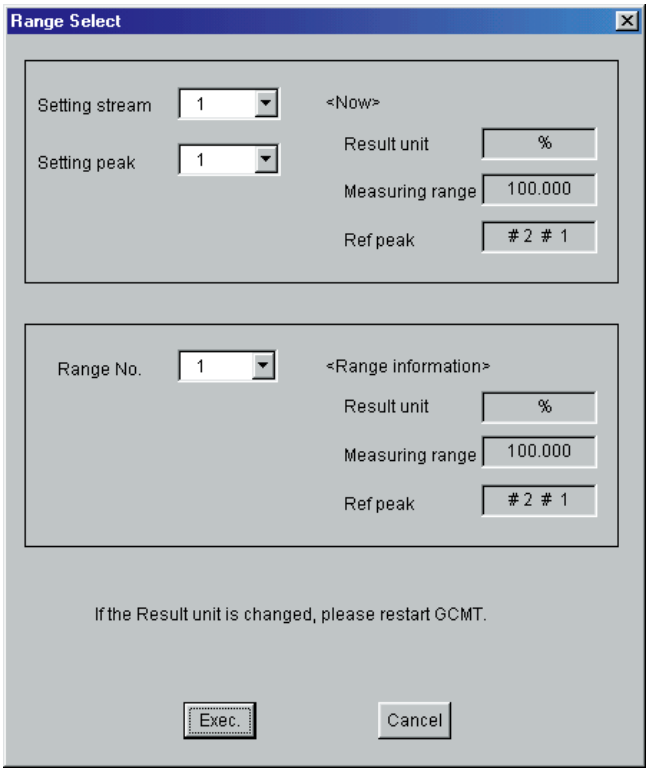
NOTE

The range can be changed only at user levels B or C. This change cannot be made unless the analyzer is in the Remote mode.

Changing the Range

(1) Click on the [Range Select] command button .

(2) The Range Select dialog box pops up.



F0327.ai

Specify the stream number, peak number, and range number you want to change. The information of the current state is displayed.

(3) Click on the [Exec.] button. A confirmation dialog box pops up.

F0328.ai

(4) Click on the [Yes] button.

(5) A message appears to inform you that the data has been changed successfully.

F0329.ai

(6) Click on the [OK] button to finish.

3.8 Changing the Valves and Peak Information

The valve on/off timing set in the analyzer can be changed. The individual information (peak names, gate time, etc.) set for each peak also can be changed. This section explains how to change these settings.

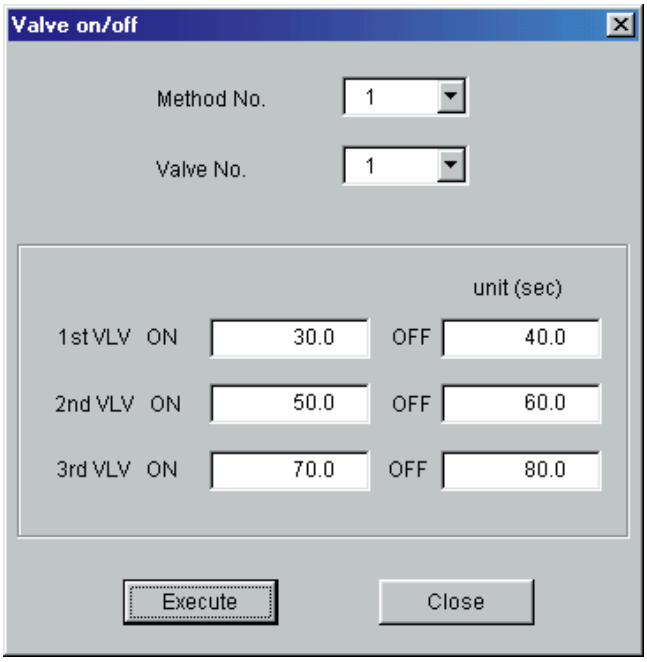
NOTE

The valve and peak information can be changed only at user level C. This change cannot be made unless the analyzer is in the Remote mode.

Changing the Valve On/Off Setting

(1) Click on the [Valve] command in the [Set Up] menu.

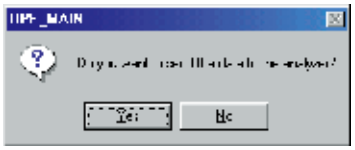
(2) The Valve on/off dialog box pops up.



F0330.ai

Specify the valve number you want to change. The information of the current state is displayed.

(3) Change the on/off times of the valves, and then click on the [Execute] button. A confirmation dialog box pops up.



F0331.ai

(4) Click on the [Yes] button.

(5) A message appears to inform you that the data has been changed successfully.

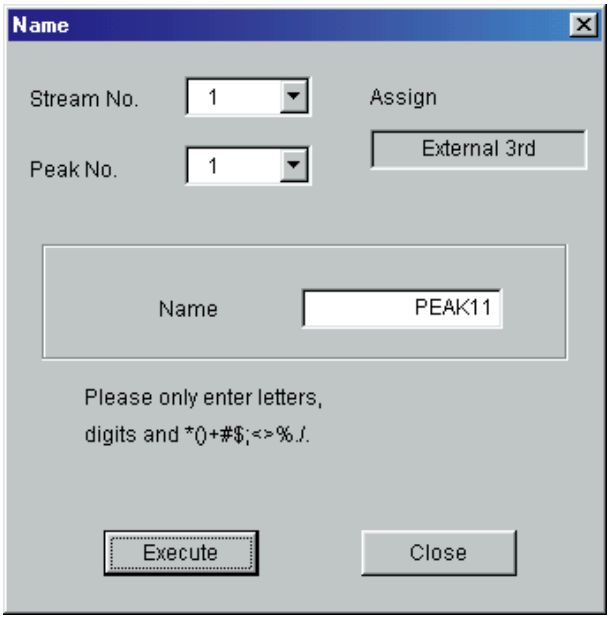
F0332.ai

(6) Click on the [OK] button to finish.

Changing the Peak Individual Setting

(1) Click on the [Peak] command in the [Set Up] menu. Click on the command of the information you want to change, such as [Name] and [Gate Std/On/Off Time] commands.

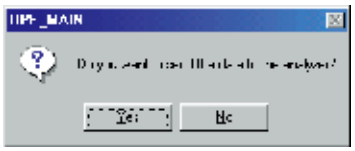
(2) A dialog box (e.g., Name dialog box) pops up.



F0333.ai

Specify the stream number and peak number you want to change. The information of the current state is displayed.

(3) Change the information in the dialog box, and then click on the [Execute] button. A confirmation dialog box pops up.


F0334.ai

(4) Click on the [Yes] button.

(5) A message appears to inform you that the data has been changed successfully.

F0335.ai

(6) Click on the [OK] button to finish.

3.9 Uploading and Downloading the Parameter Settings

When duplicating the settings of the Parameter List Setup window on the LCD panel to another analyzer or when making a backup of the settings to re-configure them, use the operations of uploading/downloading parameters.

NOTE

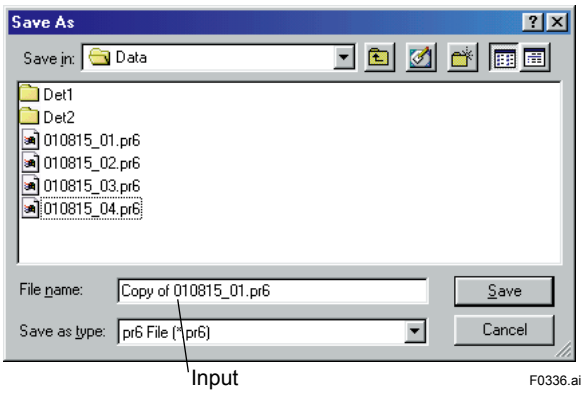
Parameter settings can be uploaded or downloaded only at user level C and in the Stop mode in either Process or Lab status.

Uploading

To upload and save parameter settings from the analyzer to a disk of the Maintenance Terminal, take the following procedure.

Procedure

(1) Click on the [Upload to PC] command in the [File] menu. The Save As dialog box pops up where you can specify the file name for the parameter setting information to be uploaded. The default directory is “Data” right under the installation directory.

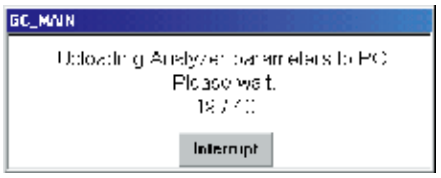


(2) Type the name of the file where you want to save the parameter settings, with an extension of “.pr6” in the “File name” field.

Example: When the file name is “system01”, type

system01.pr6

(3) Click on the [OK] button. A dialog box pops up to show the status of the transmission of the parameter settings from the analyzer.



When all parameter settings have been uploaded and saved in the file, the following dialog box pop up.

- It takes about 40 seconds for data transmission from the analyzer (if the communication speed is 38400 bps).

(4) Click on the [OK] button. The uploading has been completed.

HELP !

To interrupt the uploading of parameter settings;

- Click on the [Interrupt] button in the dialog box showing the transmission status. A confirmation dialog box pops up.
- Click on the [Yes] button.

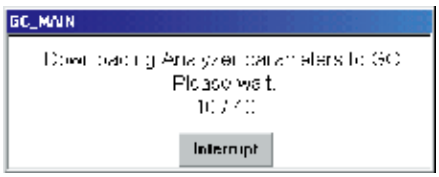
Downloading

To download the parameter settings from a disk of the Maintenance Terminal to the analyzer, take the following procedure.

Procedure

(1) Click on the [Download to GC] command in the [File] menu. The file dialog box pops up where you can specify the name of the file to be downloaded.

(2) Select the file name, and then click on the [OK] button. A dialog box pops up to show the status of the transmission of the parameter settings to the analyzer.



F0339.ai

When all parameter settings have been downloaded from the disk of the Maintenance Terminal to the analyzer, a dialog box pops up to notify you of the completion of the transmission.


F0340.ai

- It takes about 60 seconds for data transmission from the analyzer (if the communication speed is 38400 bps).

(3) Click on the [OK] button. The downloading has been completed.

- To interrupt the downloading of parameter settings, follow the instructions under HELP ! in the uploading procedure.

NOTE

The parameters in the initial database of the Maintenance Terminal may be inconsistent with those of the analyzer after downloading the parameters, resulting in an incorrect display of parameters. In that case, restart the Maintenance Terminal.

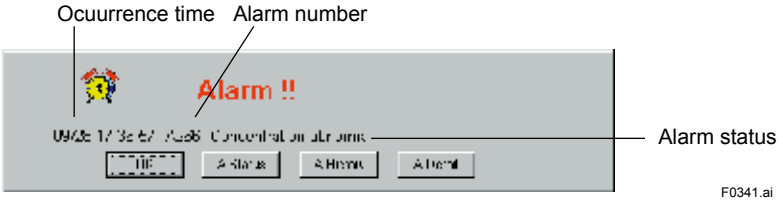
3.10 Actions When Alarms Occur

If an alarm occurs in the analyzer while the Maintenance Terminal is in use, an alarm message box pops up to notify you of the alarm.

The alarm message box may appear behind the analysis result display. When it happens, minimize the display.

Alarm Message Box

If an alarm occurs, the following alarm message box pops up.



F0341.ai

Actions When Alarms Occur

If the alarm message box pops up, click on one of the buttons in the box depending on the details of the alarm. This closes the message box and you will return to the parent window or the relevant alarm window. The following table summarizes the function of each button.

Button	Function
OK	Returns to the parent window. Select this button if you do not need to make any acknowledgment in the alarm window.
A. Status	Switches to the Alarm Status window to show a list of current alarm statuses.
A. History	Switches to the Alarm History window to show a list of previous alarms (up to 100).
A. Detail	Switches to the Alarm Detail Description window to give a detailed description of the alarms that have occurred.

See Also

For details on alarm windows, see Chapter 5, “Alarm Windows.”

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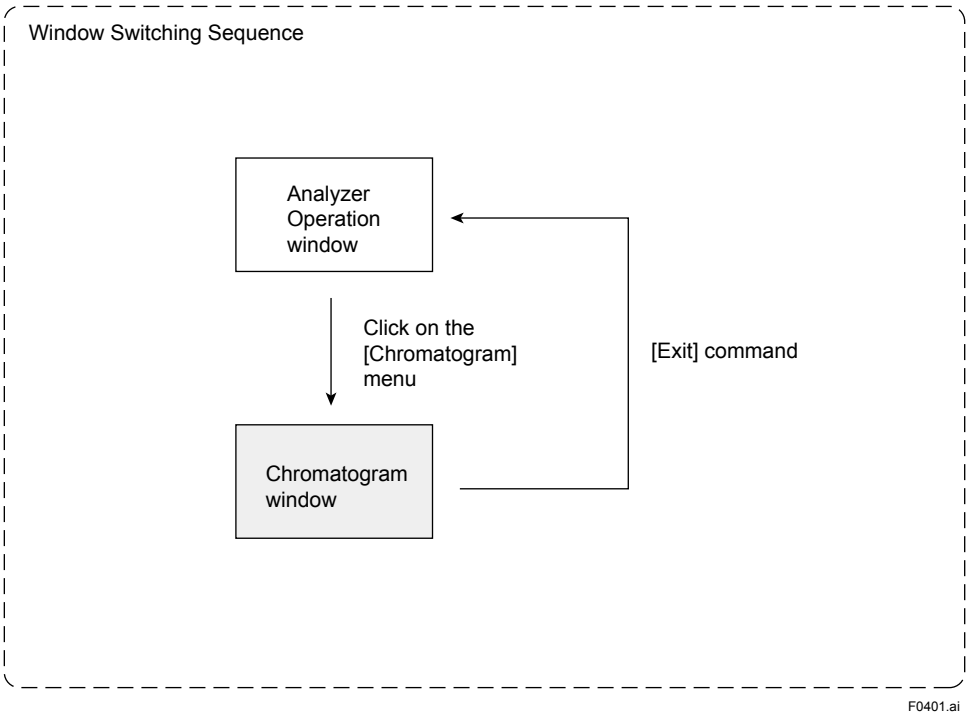
4. Chromatogram Window

The Chromatogram window displays chromatograms from the analyzer in detail. In addition to the most recent chromatogram, previous chromatograms saved in a file can also be retrieved onto the display. This chapter describes how to open and close the Chromatogram window, how the window is composed, how to change the scale and zoom in the window, and how to save and retrieve chromatograms.



4.1 Opening and Closing the Chromatogram Window

This section describes how to open and close the Chromatogram window.

■ Opening the Window

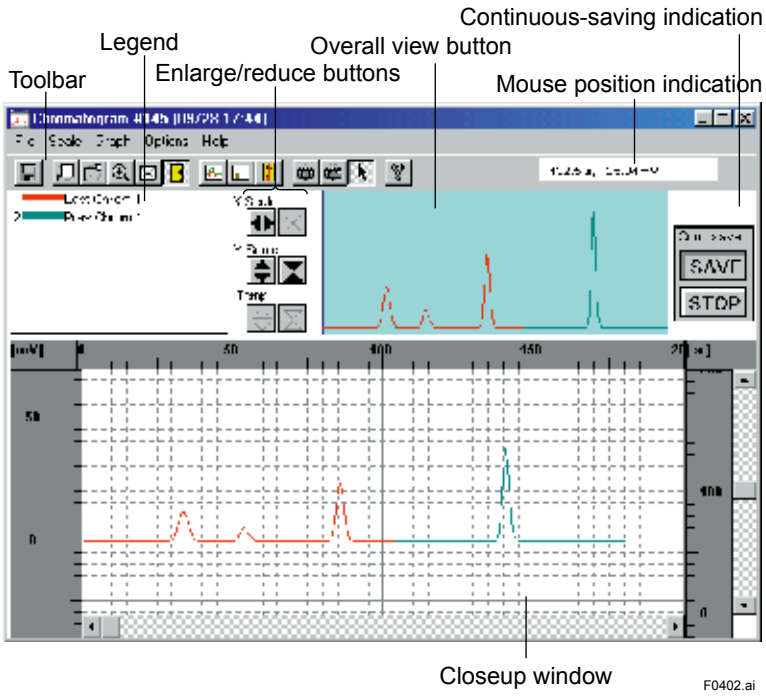
The Chromatogram window can be opened from the Analyzer Operation window in two ways: by using the command in the menu or by double-clicking anywhere in the Chromatogram Display area.

NOTE

Only one Chromatogram window can be opened at a time.

● Procedure

(1) Click on the [Chromatogram] command in the [Display] menu in the Analyzer Operation window or double-click anywhere in the Chromatogram Display area. The Chromatogram window opens.



Size and Location of the Window

The Chromatogram window opens in the same size and location as the one when opened last time.

Sizing the Window

Drag the window border to enlarge or reduce the size of the window. The minimum window size is 600 x 480.

Closing the Window

Procedure

Click on the [Exit] command in the [File] menu while the Chromatogram window is active. The Chromatogram window closes.

4.2 Window Layout

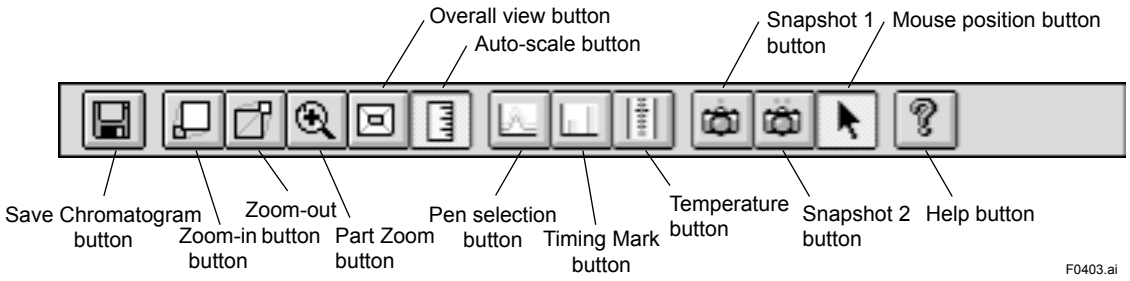
The Chromatogram window displays chromatograms in detail. In addition to the most recent chromatogram, chromatograms previously saved in a file can also be retrieved and displayed in the window.

Toolbar

The most frequently used commands are provided as buttons on the toolbar.

Toolbar Layout

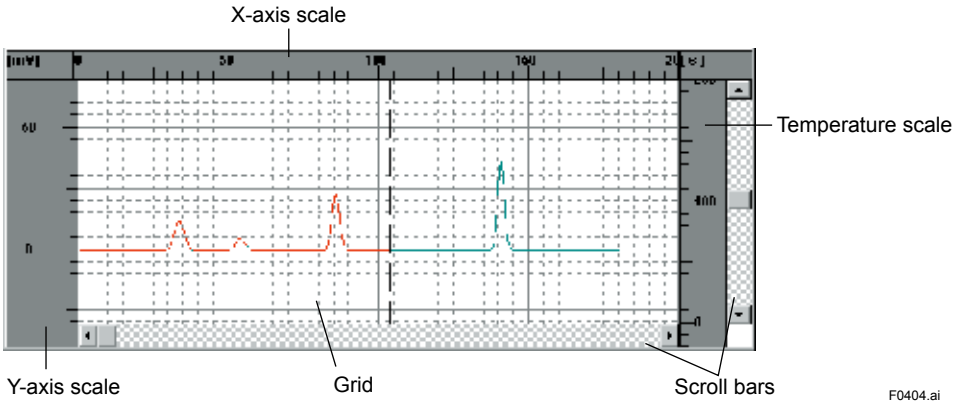
The toolbar contains the following command buttons.



Closeup Window

The Closeup window displays chromatogram(s) and temperature(s).

Window Layout



Display Description

Item	Description
X-axis scale	Scale for elapsed time [seconds]
Y-axis scale	Scale for measured voltage [mV]
Temperature scale	Scale for measured temperature [°C]
Scroll bars	Scroll the chromatogram screen to view unseen parts of the chromatogram.
Grid	Crossed auxiliary lines according with X- and Y-axis scales. Clicking on the [Grid] command in the [Options] menu enables/disables grid indication.

4.3 Viewing Chromatograms and Temperature Data

The Chromatogram window can display up to eight chromatograms and two graphs of temperature data.

■ Viewing Chromatograms

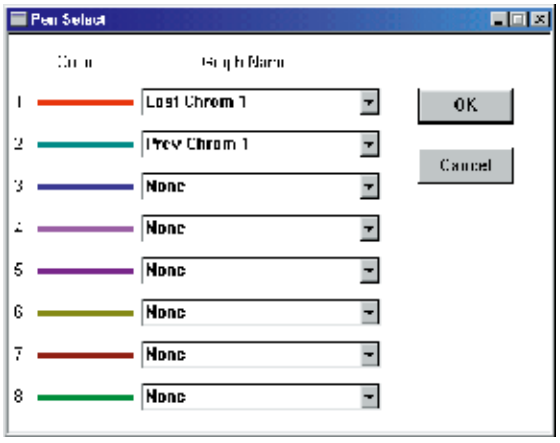
The following table summarizes the types of chromatograms you can view in the Chromatogram window.

Type	Description
Last chromatogram	The chromatogram for the measurement currently in progress. This chromatogram is updated at a specific interval. “Current chromatogram 1” and “current chromatogram 2” refer to the current chromatograms acquired through detector 1 and detector 2, respectively. A sampling rate is 80 ms.
Previous chromatogram	The chromatogram acquired in the measurement carried out immediately before. This chromatogram is updated at a specific interval. “Previous chromatogram 1” and “previous chromatogram 2” refer to the previous chromatograms acquired through detector 1 and detector 2, respectively. A sampling rate is 80 ms.
Filed chromatogram	A chromatogram uploaded from the analyzer to a PC. A sampling rate is the same as the one of the analyzer.
Detail chromatogram	A chromatogram saved in a file. The window can display up to eight filed chromatograms.
Differential chromatogram	A chromatogram showing the differences between two on-screen chromatograms. The window can display up to two chromatograms.

To view two differential chromatograms, select two different chromatograms, such as “differential chromatogram 1” and “differential chromatogram 2.” You cannot select the same chromatogram twice.

● Viewing the Last or Previous Chromatogram

(1) Click on either the [Pen Select] command in the [Graph] menu or the button on the toolbar. The Pen Select dialog box pops up.



F0405.ai

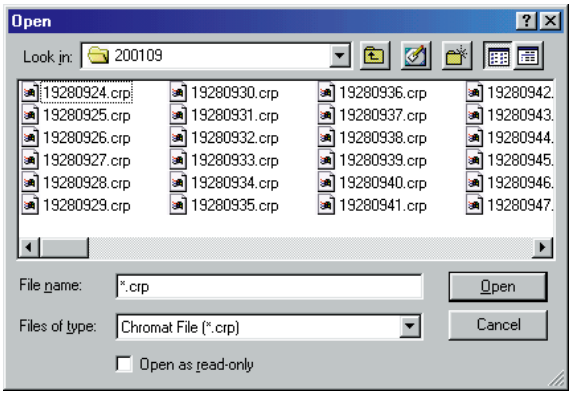
(2) From the list boxes appropriate for the colors being used, select “Last Chrom 1,” “Last Chrom 2,” “Prev Chrom 1” or “Prev Chrom 2.” Then click on the [OK] button. The selected chromatogram(s) appear. The legend now indicates the name(s) of the selected chromatogram(s).

Viewing a Filed Chromatogram

(1) Click on either the [Pen Select] command in the [Graph] menu or the button on the toolbar. The Pen Select dialog box pops up.

(2) From the list boxes appropriate for the colors being used, select “Filed Chrom.” A dialog box pops up, asking you to specify the name of the file that contains the chromatogram to be displayed. Extensions for chromatograms are as follows:

Chromatogram files of the GC1000: .cro
Chromatogram files of the GC1000 Mark II: .crp



F0406.ai

(3) Select the file for the chromatogram to be displayed and click on the [OK] button. This takes you back to the Pen Select dialog box in Step 1.

(4) Click on the [OK] button. The chromatogram of the selected file appears. The legend now indicates the name of the selected file.

Viewing a Detail Chromatogram

(1) Before calling up the Pen Select dialog box, set the operation mode to Stop in either the Process or Lab status.

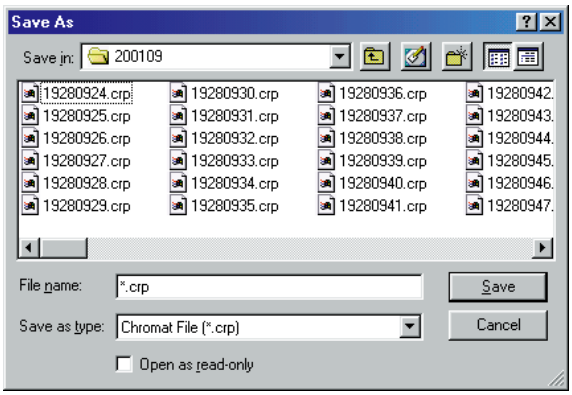
(2) Click on either the [Pen Select] command in the [Graph] menu or the button on the toolbar. The Pen Select dialog box pops up.

(3) From the list boxes, select the detail chromatogram(s). Chromatogram(s) for the last four times that have been saved by detector in the analyzer can be retrieved here.

Detail Chrom 1_1: A chromatogram of analysis performed one cycle before by detector 1
Detail Chrom 1_4: A chromatogram of analysis performed four cycles before by detector 1
Detail Chrom 2_1: A chromatogram of analysis performed one cycle before by detector 2
Detail Chrom 2_4: A chromatogram of analysis performed four cycles before by detector 2

(4) Wait until the detail chromatogram is uploaded from the analyzer. This processing time depends on an analysis cycle, sampling rate, and communication speed.

(5) Upon the completion of uploading, the Save As dialog box pops up. If you want save the detail chromatogram in a file, specify the name of the file, and then click on the [Save] button. Press the [Cancel] button if you do not want to save it.



F0407.ai

(6) In the Pen Select dialog box, press the [OK] button to save the detail chromatogram.
The legend here indicates:

0107171205D1
- 01: Year (last two digits)
- 07: Month (two digits)
- 17: Day
- 12: Hour
- 05: Minute
- D1: Detector No. (D1: Detector 1, D2: Detector 2)

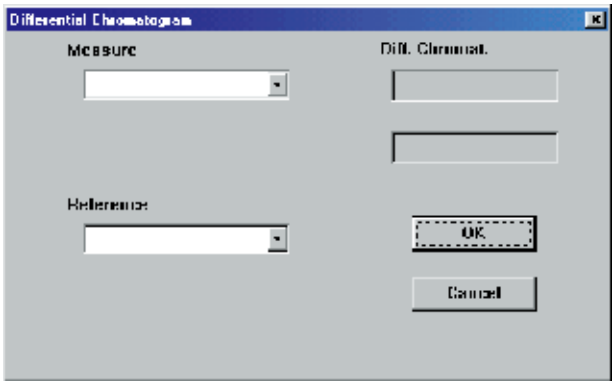
TIP

If the analyzer is turned off, detail chromatograms that have been saved so far will be erased. When you try to obtain a detailed chromatogram immediately after the power is turned on, a message box of “Detail Chromatogram cannot upload.“ appears.

Viewing a Differential Chromatogram

(1) Click on either the [Pen Select] command in the [Graph] menu or the button on the toolbar. The Pen Select dialog box pops up.

(2) From the list boxes appropriate for the colors being used, select “Diff. Chromat. 1” or “Diff. Chromat. 2.” A dialog box pops up, asking you to specify the two graphs from which you will acquire a differential chromatogram.



F0408.ai

(3) From the list boxes of the Measure and Reference fields, select the graphs respectively to be used to acquire the differential chromatogram. Click on the [OK] button.
This takes you back to the Pen Select dialog box. The list boxes now display the names of the selected chromatograms, not the names “Diff. Chromat. 1” and “Diff, Chromat. 2.” The differential chromatogram is derived by the formula “Measure graph” - “Reference graph.”

(4) Click on the [OK] button. The specified differential chromatogram appears. The legend now shows the name of the chromatogram, such as “1-2,” used to acquire the differential chromatogram.

TIP

For a comparison of two graphs with different analysis cycles, the Chromatogram window shows the differential chromatogram corresponding to the shorter analysis cycle. Even if you have specified the current or previous chromatogram to derive a differential chromatogram, the derived chromatogram is not updated at a specified interval. The difference is obtained using the chromatograms selected when you clicked on the [OK] button in step 3.

Deleting an On-screen Chromatogram

(1) Click on either the [Pen Select] command in the [Graph] menu or the button on the toolbar. The Pen Select dialog box pops up.

(2) From the list box(es) appropriate for the color(s) of the chromatogram(s) being deleted, select “None.” Click on the [OK] button. The specified chromatogram(s) are deleted.

Mark Settings

Types of Mark Information

You can edit the Timing Mark dialog box for each chromatogram to show or hide the information listed in the following table.

Label Information	Description
Peak No.	The Chromatogram window shows the peak numbers at each peak of a chromatogram. You can select the [Peak # Disp.] command in the [Options] menu to choose the position of the peak number being indicated, either at the top or the bottom of the chromatogram.
Peak on/off	The Chromatogram window shows the starting and ending points of a peak, as described below: Starting point: a long arrow pointing downward Ending point: a long arrow pointing upward
Gate on/off	The Chromatogram window shows the on and off positions of a gate, as described below: ON: a short arrow pointing downward OFF: a short arrow pointing upward

Each of the marks is the same color as the chromatogram in question.

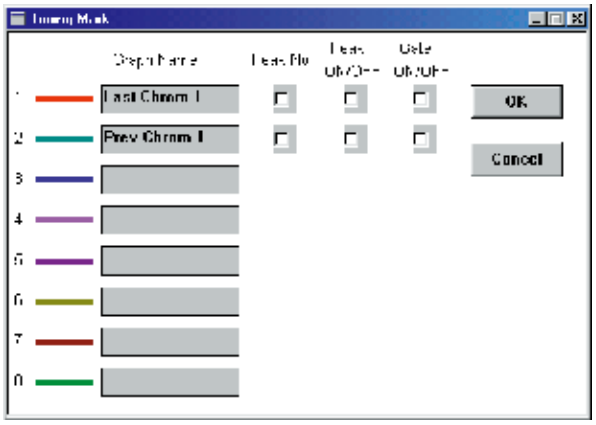
Actual indications of the marks you have specified to display depends on the types of chromatogram. The following table summarizes the rule.

	Peak No.	Peak On/Off	Gate On/Off
Last chromatogram	App.	App.	App.
Previous chromatogram	App.	App.	App.
Filed chromatogram	Cond.	Cond.	Cond.
Detail chromatogram	N/A	App.	App.
Differential chromatogram	N/A	N/A	N/A

App.: displayable; N/A: not displayable; Cond.: depends on the type of chromatogram saved

Procedure

(1) Click on either the [Timing Mark] command in the [Graph] menu or the button on the toolbar. The Timing Mark dialog box pops up.



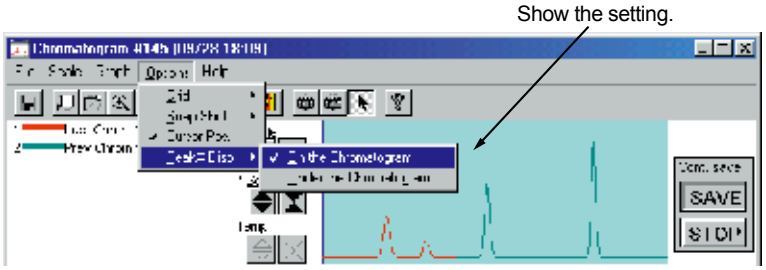
F0409.ai

(2) For each chromatogram, check or leave unchecked the box under each marking, as described below, to show or hide the information.
- Check to show.
- Leave unchecked to hide.

(3) Click on the [OK] button.
The mark(s) you have checked appear.

Setting the Position of a Peak Number

(1) Click on the [Peak# Disp.] command in the [Options] menu. The submenu of the command opens.



F0410.ai

(2) Click on either [On the Chromatogram] or [Under the Chromatogram]. This determines the position of the peak number on the graph.

Viewing the Temperature Data

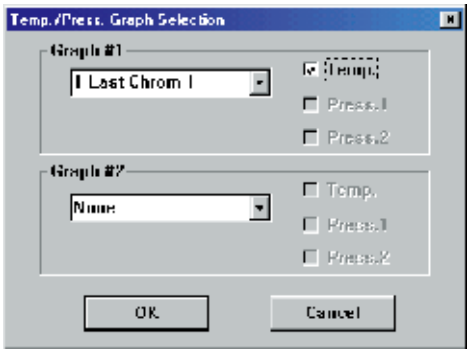
You can view the temperature data appropriate for the specified chromatogram in the Closeup window. The temperature data appear as a broken line in the same color as the chromatogram in question. The Chromatogram window can display up to two graphs of temperature data.

TIP

The chromatograms for which you can view temperature data are limited to the current chromatogram, previous chromatogram, and filed chromatograms which are other chromatograms that have already been saved in a file. If you delete a chromatogram while its temperature data are displayed, the displayed data are also deleted automatically.

Procedure

(1) Click on either the [Temp./Press. Disp.] command in the [Graph] menu or the button on the toolbar. The Temp./Press. Graph Selection dialog box pops up.



F0411.ai

(2) From the list box, select the chromatogram appropriate for the temperature data being shown. The list box lists the on-screen, current chromatogram, previous chromatogram, and filed chromatograms. To disable a display of the temperature data, select “None.”

(3) Check the Temp. box.

(4) Click on the [OK] button. This enables a display of the temperature data appropriate for the chromatogram you specified. If you have selected “None” in step 2 above, a display of the temperature data is disabled.

4.4 Changing the Scale and Scrolling the Display

There are three scales on the chromatogram display: X-axis [sec], Y-axis [mV], and temperature [°C]. These scales can be changed to the desired ones using the commands in the [Scale] menu or Enlarge/Reduce buttons.

Disabling and Enabling the Auto-scale Function

In the Chromatogram window scales are automatically set to display an overall view of the chromatogram. This function is called “auto-scale”.

TIP

Changing the scale automatically disables the auto-scale function.

This section explains how to enable/disable the auto-scale function.

Procedure

(1) To disable the auto-scale, click on either the [Auto Scale] command in the [Scale] menu or the Auto-scale button on the toolbar. This enables the auto-scale, causing the check mark (✓) next to the [Auto Scale] command to disappear and the Autoscale button to appear not-depressed.

(2) To enable the auto-scale, click again on either the [Auto Scale] command in the [Scale] menu or the Auto-scale button on the toolbar. This enables the auto-scale function again, causing the check mark (✓) next to the [Auto Scale] command to appear and the Auto-scale button to appear depressed.

Changing the Scale

Enlarge/Reduce Buttons

Each clicking on the Enlarge/Reduce buttons changes the scale as shown in the following table.

 buttons: reduces the scale

 buttons: enlarges the scale

Scale	Available Scale Increments
X-axis scale (sec)	0.2→0.5→1→2→5→10→20→50→100→200→500→1000→ 2000→5000→10000→20000→50000
Y-axis scale (mV)	0.1→0.2→0.5→1→2→5→10→20→50→100→200→500→1000
Temperature (°C)	10→50→100→200

The scales are common to both chromatograms and graphs of temperature data.

Scrolling the Display

Scrolling the display to view the chromatogram not shown on the display, typically when the entire chromatogram cannot fit in the display because of, for example, scale enlargement.

The display can be scrolled using either of the following two methods.

Method 1

Click on the  ,  ,  ,  or button at either end of the scroll bars. The chromatogram scrolls in the direction of the arrow by one increment of the scale with each click.

Method 2

Drag the button on the scroll bar. The chromatogram scrolls to the new position of the button.

4.5 Zooming and Temporarily Saving Chromatograms

In the Closeup window, a specific area of the chromatogram can be zoomed in (or enlarged) for detailed view, and the enlarged part can be temporarily saved so that it can be viewed later, even after the window has been updated. This section explains how to zoom in/out using the buttons on the toolbar. Zooming can also be achieved by using the commands in the [Scale] menu.

Zooming In

Procedure

Click on the [Zoom-in] button ( ) on the toolbar. Both the X- and Y-axis scales expand by one scale increment with the reference point at the center of the Closeup window. Zooming-in can also be achieved by using the [Zoom In] command in the [Scale] menu.

Zooming Out

Procedure

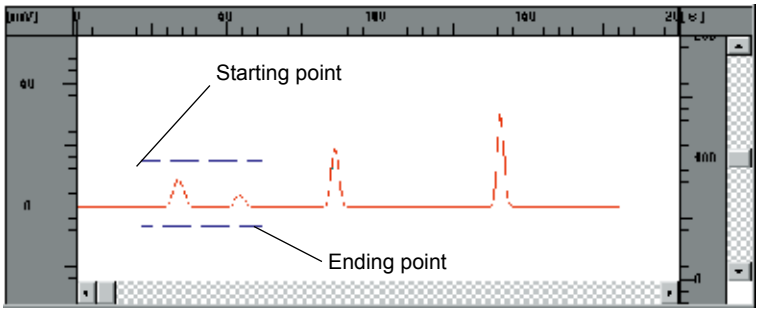
Click on the [Zoom-out] button ( ) on the toolbar. Both the X- and Y-axis scales reduce in size by one scale increment with the reference point at the center of the Closeup window. Zooming-out can also be achieved by using the [Zoom Out] command in the [Scale] menu.

Partial Zooming In

Procedure

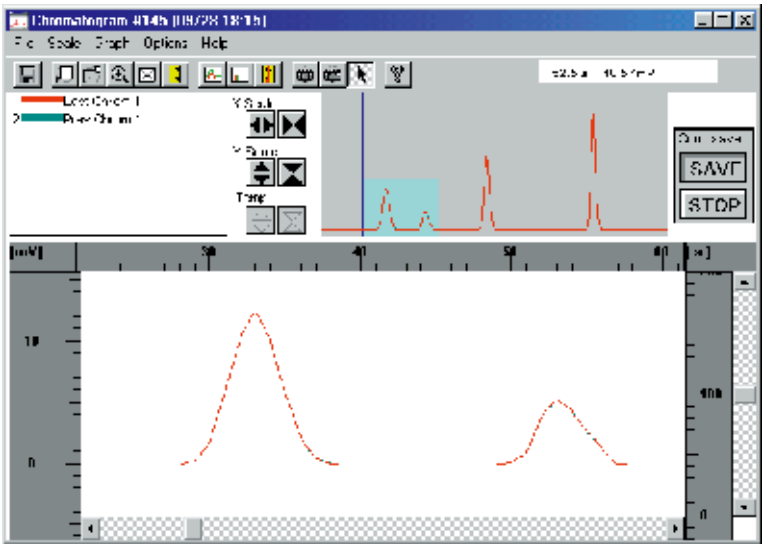
(1) Click on the [Part Zoom] button ( ) on the toolbar.

(2) On the overall view area or Closeup window, drag the mouse diagonally from the starting to the ending point of the area you want to zoom in.



F0412.ai

The specified area is enlarged to fully fit in the Closeup window.



F0413.ai

Selecting the [Part Zoom] button automatically disables the auto-scale. Partial zooming-in can also be achieved by using the [Part Zoom] command in the [Scale] menu. The range of the partially enlarged area specified in the above procedure may differ from the actual displayed range shown in the Closeup window due to a programmatic reason.

Temporary Saving (Snapshot)

This subsection explains how to temporarily save the partially enlarged chromatogram obtained in the previous subsection.

Procedure

(1) Click on the [Snapshot 1] button ( ) on the toolbar. The red lamp on the [Snapshot 1] button turns on and the on-screen chromatogram is temporarily saved in memory.

(2) To view the temporarily saved chromatogram after changing the display back to the previously opened one, click on the [Snapshot 1] button with red light. The chromatogram saved as Snapshot 1 appears.

(3) To delete the temporarily saved chromatogram, click on the [Options] menu, point to [Snap Shot], and then click on the [Clear] command. The saved chromatogram is deleted and the red lamp on the [Snapshot 1] button turns off.

- Two different chromatograms can be saved temporarily as Snapshot 1 and Snapshot 2.
- The [Snap Shot] command in the [Options] menu can also be used for temporary saving.
- The images of Snapshot 1 and Snapshot 2 are automatically erased upon the start of each new analysis cycle.

Full Display

Procedure

Click on the [Full Display] button ( ) on the toolbar. The position and scale of the chromatogram are recalculated and the chromatogram returns to its original size.

- The [Full Disp] command in the [Scale] menu can also be used for viewing the full display.

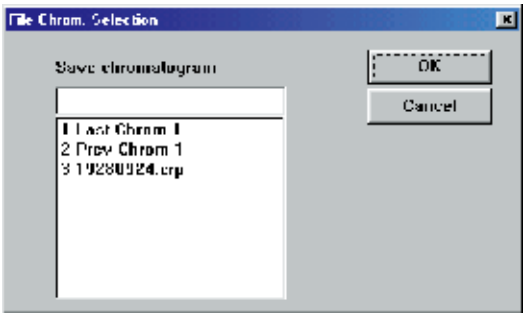
4.6 Saving Chromatograms

In the Chromatogram window, the chromatogram derived from the measurement in progress can be viewed and also chromatograms saved in a file can be retrieved and viewed.

Saving

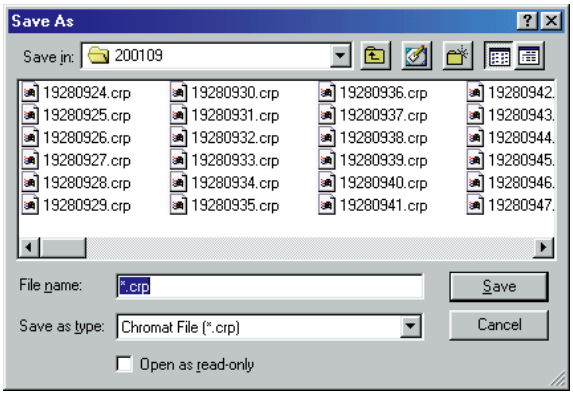
Saving Chromatograms

A currently displayed chromatogram can be saved in the hard disk of a personal computer.
Click on the [Save Chromatogram] button ( ) on the toolbar. The File Chromatogram Selection dialog box pops up.



F0414.ai

From the chromatograms shown in the list, select the one you want to save, and then click on the [OK] button.



F0415.ai

In the File Name field, type the file name, followed by an extension of ".crp". Then click on the [OK] button. The chromatogram is saved to that file.

Continuous Saving of Chromatograms

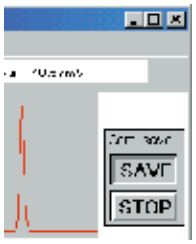
The current chromatogram can be saved by analysis cycle in the hard disk of a personal computer.

Starting Continuous Saving

There are two methods to start continuous saving:

(1) First, make sure that no check mark appears next to the [Continuous Saving] command in the [File] menu. And then click on the [Continuous Saving] command.

(2) Click on the [SAVE] button in the Continuous-saving indication.



F0416.ai

Stopping Continuous Saving

There are two methods to stop continuous saving:

(1) Click on the [Continuous Saving] command with a check mark.

(2) Click on the [STOP] button in the Continuous-saving indication.

In both cases, a message box of “Stop continuous saving?” appears. Click on the [Yes] button to stop continuous saving. Note that the current chromatogram displayed when the stop command is executed, is not saved.

Filing of Continuously Saved Chromatograms

File names for continuously saved chromatograms are automatically created as follows.

Assuming that the starting time of an analysis is 15:12, June 16, 1999. The file name is:

96161512.crp

9: Year (last digit)
6: Month (hexadecimal notation: Oct=A, Nov=B, Dec=C)
16: Day
15: Hour
12: Minute
.crp: An extension for chromatogram files

Directories in which the files of continuously saved chromatograms are to be saved are determined by the detector number and the starting month of analysis in the “DATA” directory right under the install directory.

Assuming that the install directory is “C:\GC1000”, the detector number is 1, and the starting time of an analysis is 15:12, June 16, 1999. The file is saved under:

C:\GC1000\DATA\Det1\199906\

NOTE

- Continuous saving of chromatograms is valid only when the system is in the Run mode under either the Process or Lab status.
- If the operation mode is changed during continuous saving, the continuous saving is aborted at that moment.
- Continuous saving is immediately aborted when the remaining free space of the hard disk falls down to 1 MB or below.

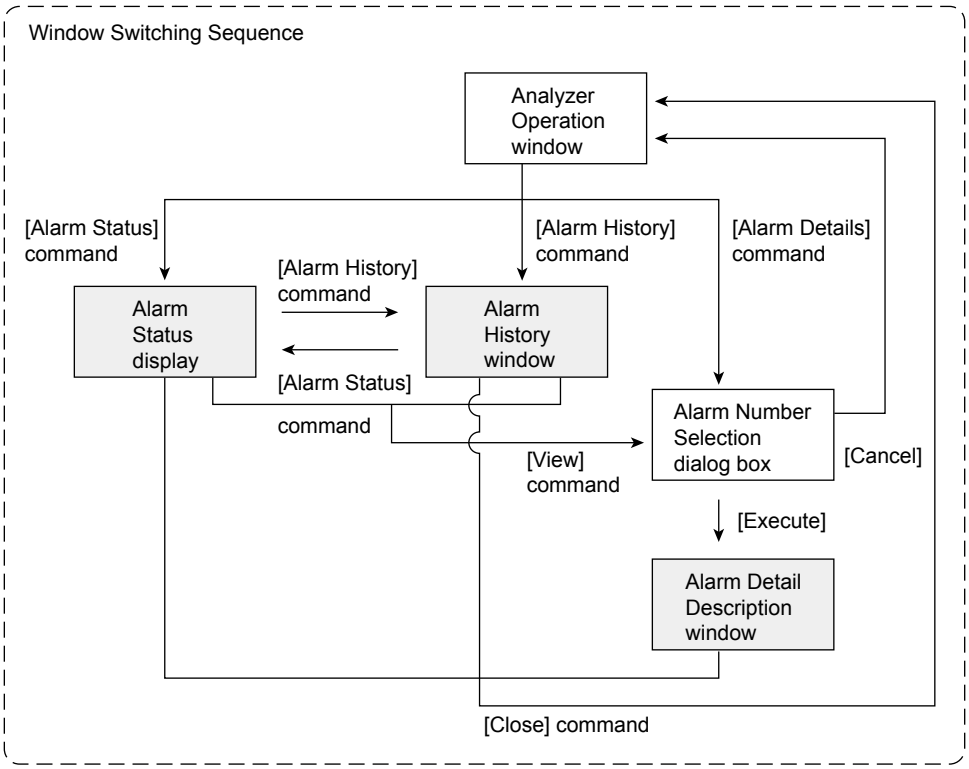
TIP

How to print chromatograms

- Use the CAPTURE IT! tool to make hard copies of chromatograms.
- See the Capture It Operation Manual, IM 11B3G1-02E, to learn more about the tool.

5. Alarm Windows

Alarm windows show information on alarms which have occurred in the analyzer. There are three types of alarm windows depending on the information presented: Alarm Status, Alarm History, and Alarm Detail Description. This chapter describes the types and layouts of alarm windows, how to open and close the windows, how to delete records on alarm history, and how to create descriptions for user defined alarms.



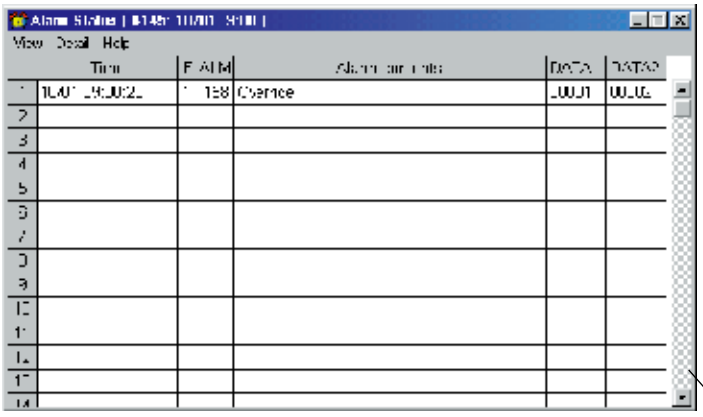
5.1 Types and Layouts of Alarm Windows

There are three types of alarm windows: Alarm Status, Alarm History, and Alarm Detail Description.

Alarm Status Window

The Alarm Status window displays all the current alarms in chronological order. To view the contents not shown on the initial screen, use the scroll bar.

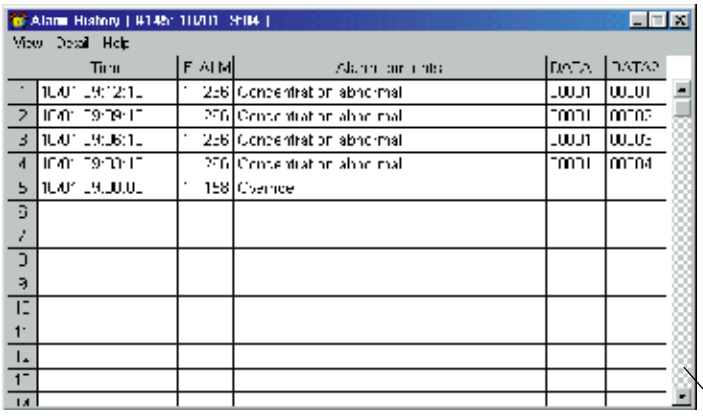
Window Layout



Alarm History Window

The Alarm History window displays 100 most recent alarms which have occurred to date. To view the contents not shown on the initial screen, use the scroll bar.

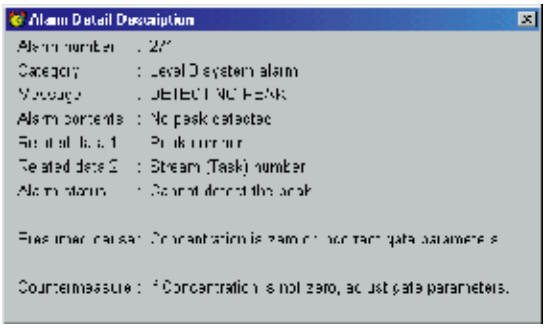
Window Layout



Alarm Detail Description Window

The Alarm Detail Description window provides detailed information on the alarm specified by the alarm number.

Window Layout



F0504.ai

Description of Items

The following table summarizes the details on the items in the window.

Item	Description
Alarm number	The alarm number specified when this window is opened.
Category	Shows the alarm level (1-3) and type of alarm.
Message	The same message as the one displayed on the LCD panel of the analyzer
Alarm contents	Shows the meaning or purpose of the alarm.
Related data 1/2	Shows the meaning of related data and its scale if the alarm has a reference.
Alarm status	Shows the alarm criteria and limit values.
Presumed cause	Shows the likely cause of the alarm.
Countermeasure	Suggests a fundamental countermeasure or a temporary corrective action according to the likely cause.

5.2 Opening and Closing Alarm Windows

The alarm windows (Alarm Status, Alarm History, and Alarm Detail Description) can be opened from any of the following windows or box.

- Analyzer Operation window
- Alarm message box

In addition, you can switch between the Alarm Status and Alarm History windows or open the Alarm Detail Description window from either of these two windows.

See Also

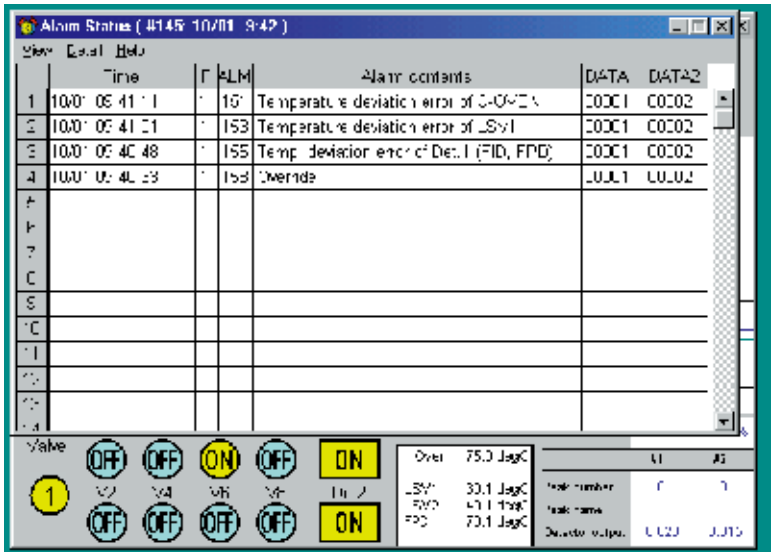
See Section 3.8 for details on the alarm message box.

Note that you can exit any alarm window by using the general operation for closing a window.

Opening Alarm Windows from the Analyzer Operation Window

Opening the Alarm Status Window

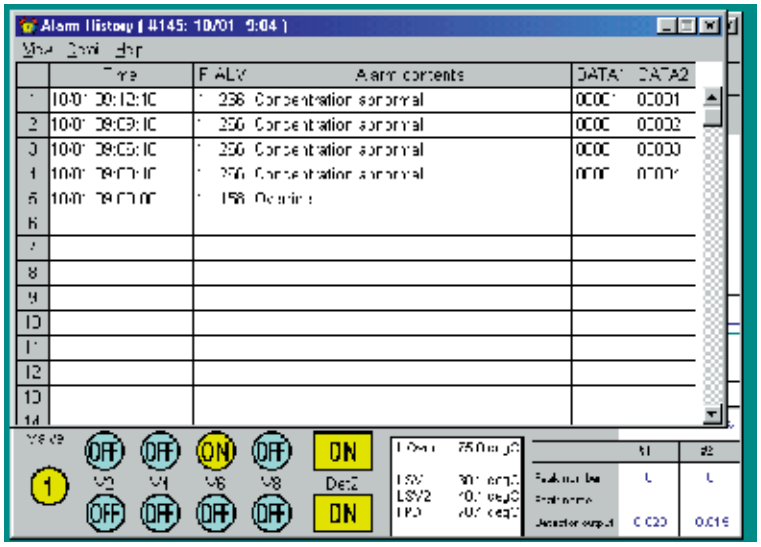
In the Analyzer Operation window, click on the [Alarm Status] command in the [Display] menu. The Alarm Status window opens.



F0505.ai

Opening the Alarm History Window

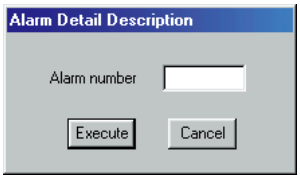
In the Analyzer Operation window, click on the [Alarm History] command in the [Display] menu. The Alarm History window opens.



F0506.ai

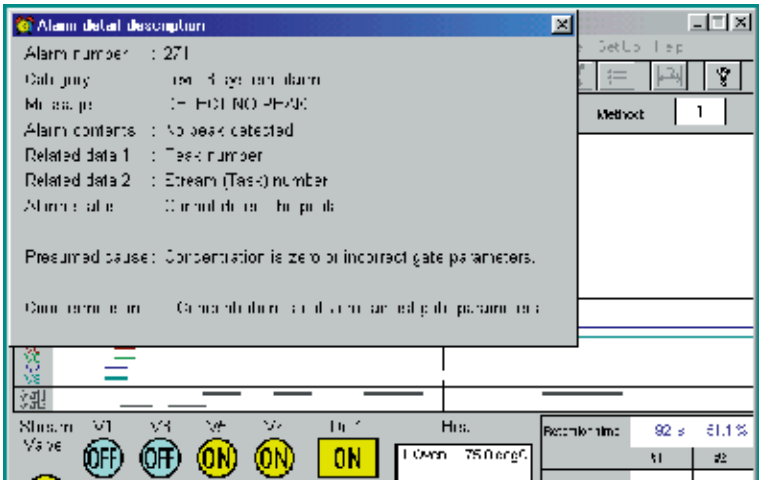
Opening the Alarm Detail Description Window

(1) In the Analyzer Operation window, click on the [Alarm Details] command in the [Display] menu. The Alarm Detail Description dialog box pops up, asking you to specify the alarm number.



F0507.ai

(2) Type in the alarm number and click on the [Execute] button. The Alarm Detail Description window for the specified alarm number opens.



F0508.ai

HELP !

If you have typed an unregistered alarm number, the number appears as an “undefined alarm.” In that case, close the Alarm Detail Description window, and then retype in the correct alarm number.

Opening an Alarm Window from Another Alarm Window

Opening the Alarm Status Window

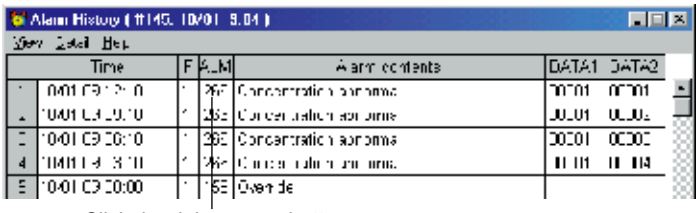
While the Alarm History window is open, click on the [Alarm Status] command in the [View] menu. The Alarm Status window opens.

Opening the Alarm History Window

While the Alarm Status window is open, click on the [Alarm History] command in the [View] menu. The Alarm History window opens.

Opening the Alarm Detail Description Window

While the Alarm Status or Alarm History window is open, click the right mouse button on the alarm number in question.



Click the right mouse button.

F0509.ai

The Alarm Detail Description window for the specified alarm number opens.

- The Alarm Detail Description window can also be opened by clicking on the [Display] command in the [Detail] menu.

Closing the Alarm Window

While the alarm window is active, click on the [Close] command in the control menu.
The alarm window closes and the screen returns to the parent window.

5.3 Deleting the Records of Alarm History

The displayed contents of the Alarm History window can be cleared to restart recording alarms.

NOTE

The contents of the Alarm History window can be erased only at user level B or C.

Deleting Historical Alarms

Procedure

In the Alarm Status or Alarm History window, click on the [Clear History] command in the [View] menu. The contents of the Alarm History window are erased.

5.4 Creating a User Alarm Description

For user-defined alarms and alarms raised by an external contact (DI) (those set in the Alarm Setting window on the LCD panel), the user can edit the contents of the alarms that are shown in the Alarm Detail Description window.

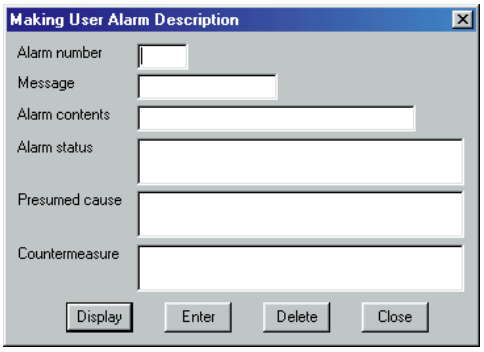
NOTE

Messages for user-defined alarm must be defined here in the Maintenance Terminal, although they can be defined from the LCD panel of the analyzer itself. User-defined alarms set in the analyzer and in the Maintenance Terminal are independent of each other.

Defined Information

User Alarm Description window

Use this window to define the description of a user alarm.



F0510.ai

Defined Items

The following table lists the items which can be defined in the User Alarm Description window.

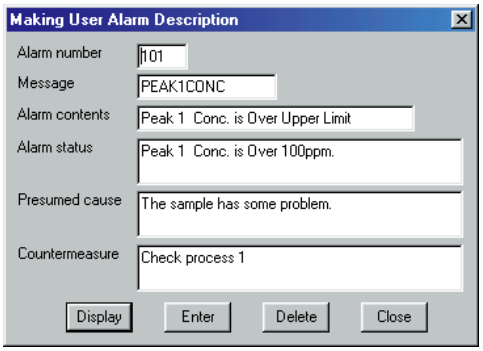
Item	Description
Alarm number	The number of the alarm for which the user alarm description has been created. Type in one of the alarm numbers already registered with the Alarm Setting window of the LCD panel.
Message	Type in the alarm message (up to 16 letters). This item must be registered independently of the one registered on the LCD panel of the analyzer.
Alarm contents	Type in an explanation and/or the purpose of the alarm (up to 32 letters).
Alarm status	Type in the alarm criteria and limit value(s) (up to 80 letters).
Presumed cause	Type in the likely cause of the alarm (up to 80 letters).
Countermeasure	Type in the fundamental countermeasure or temporary corrective action according to the likely cause (up to 80 letters).

Defining Detailed Descriptions

Procedure

(1) In the Alarm Status or Alarm History window, click on the [Making User Alarm Description] command in the [Detail] menu. The User Alarm Description window opens.

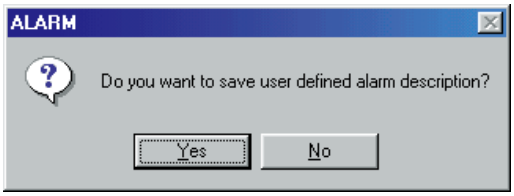
(2) Type in the alarm number, message, alarm contents, alarm status, presumed cause, and countermeasure.



F0511.ai

- Enter an alarm number and then click on the [Display] button to view the previously defined description for the alarm.

(3) Click on the [Enter] button. A confirmation dialog box pops up.



F0512.ai

HELP !

- If the alarm number entered is out of the scope of the numbers allocated for userdefined alarms, a dialog box of “UNDEFINED USER ALARM” pops up. Check the alarm number and reenter the correct one.
- The applicable ranges of used-defined alarm numbers are summarized in the following table.

Alarm Type		Range of Alarm Numbers
Alarm level 2	User-defined alarms	101 to 132
	Alarms generated by DI	141 to 148
Alarm level 3	User-defined alarms	201 to 232
	Alarms generated by DI	241 to 248

(4) Click on the [OK] button. The defined, detailed description is written to an initialization file.

(5) Repeat steps 2 through 4 for defining descriptions for another user-defined alarms, if any.
(6) Click on the [Close] button to finish.

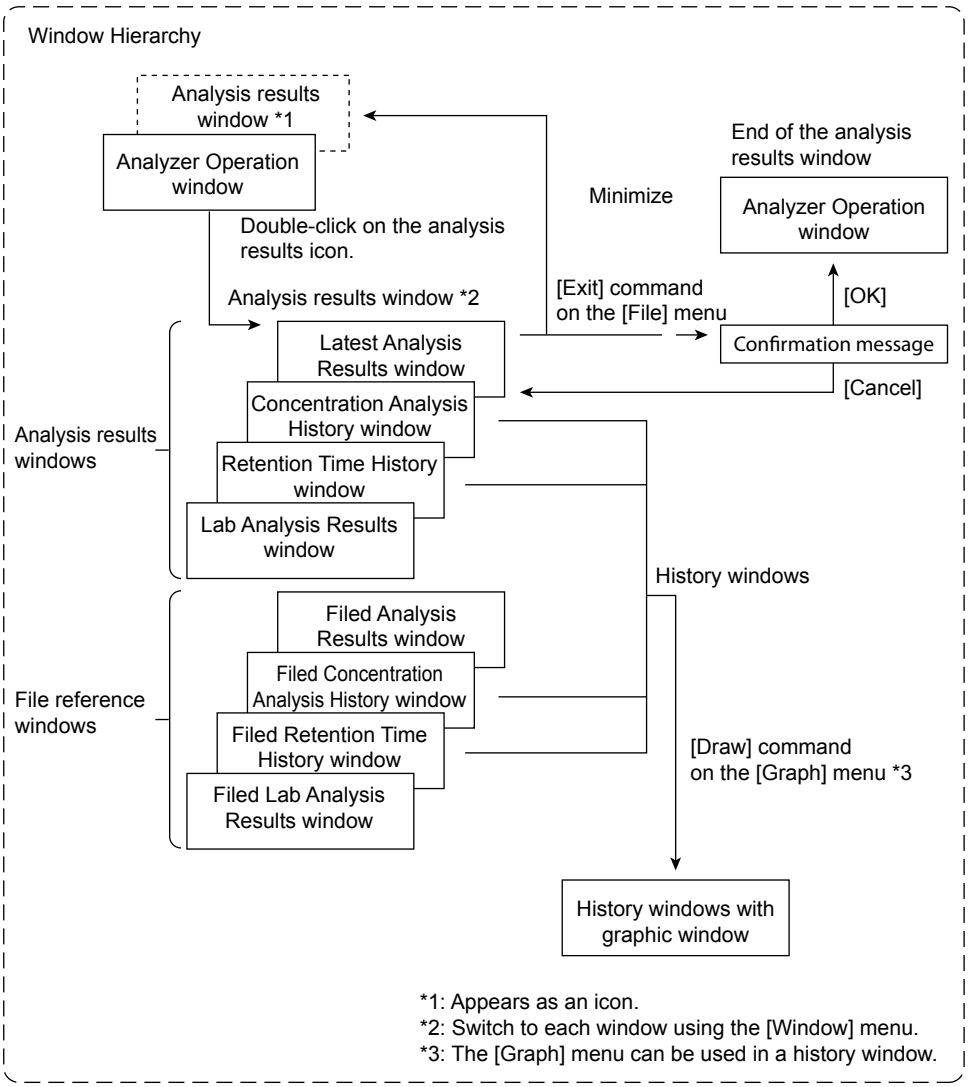
Deleting a User Alarm Description

Procedure

(1) In the Alarm Status or Alarm History window, click on the [Making User Alarm Description] command in the [Detail] menu.
(2) Type in the alarm number and click on the [Display] button. The defined description for the alarm number appears.
(3) Click on the [Delete] button. A confirmation dialog box pops up. If you want delete the on-screen user alarm description, click on the [OK] button.
(4) The user alarm description of the specified alarm number is erased and deleted from initialization file “GIMT.INI”.
(5) Click on the [Close] button to finish.

6. Analysis Results Windows

Analysis Results windows display the data analyzed by the analyzer. They consist of a total of eight windows: four acquisition windows that acquire analysis results and four reference windows that are used to open and refer to files. Also, on a history record window, a graph window can be viewed at the same time. This chapter describes how to open and close the Analysis Results windows, the types and configurations of the windows, how to switch between the windows, how to save and read data, how to process and re-save data, and how to graph and reset historical data.



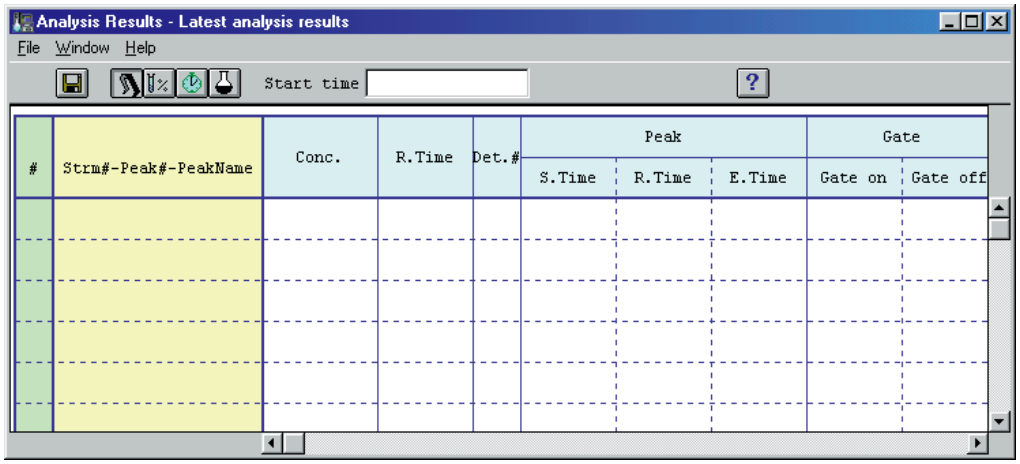
6.1 Opening and Closing an Analysis Results Window

The Latest Analysis Results window opens when the Analysis Results window is started.

Opening the Window (Latest Analysis Results Window)

Procedure

Double-click on the icon of the analysis results window while the Analyzer Operation window is open. The Analysis Results window is activated and the Latest Analysis Results window opens.



F0602.ai

Closing the Window

Before Closing the Window

When closing the Analysis Results window, take note of the following.

NOTE

- Only the concentration analysis history and the retention time history can be saved in the window-closing procedure. If there are any other windows to be saved, save them before closing the Analysis Results window.

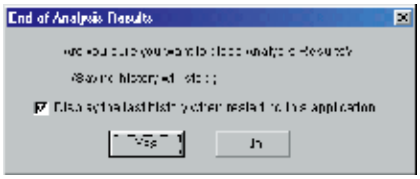
See Also

For details on saving windows, see Section 6.4.

- Close the Analysis Results window at the same time as you close the Analyzer Operation window. When not in use, the Analysis Results window should be minimized as icons.

Procedure

(1) Click on the [Exit] command in the [File] menu. A dialog box pops up to confirm the end of the session.



F0603.ai

Checking the box next to “Display the last history when restarting this application”, allows the last history data to be retrieved and included in analysis result data when the analysis results window is opened next time. It is recommended that this function be enabled by a checking mark here.

If the assigned total number has been changed by the time of the next startup, the last history data will not be included even if the box next to “Display the last history when restarting this application” is checked, and all the information will be reset. Note that all the data that have not been saved before or at the last time the window is closed will be erased.

If the Analysis Results window is not closed in a normal way due to errors or other reasons, the last history data will not be retrieved and all the information will be reset.

(2) Click on the [Yes] button.

A dialog box pops up to ask if you want to save the historical records on concentration analysis, and then the historical records on retention time.

F0604.ai

(3) If you want to save the records, click on the [Yes] button. Type the destination for saving in the dialog box. After saving, the Analysis Results window closes. If you do not want to save them, click on the [No] button. The Analysis Results window closes without saving the historical records.

To abort closing of the Analysis Results window, click on the [Cancel] button.

TIP

How to Minimize the Window to an Icon

- To minimize an Analysis Results window to an icon, click the Minimize button ( ) in the top right of the window.

6.2 Types and Layouts of Analysis Results Windows

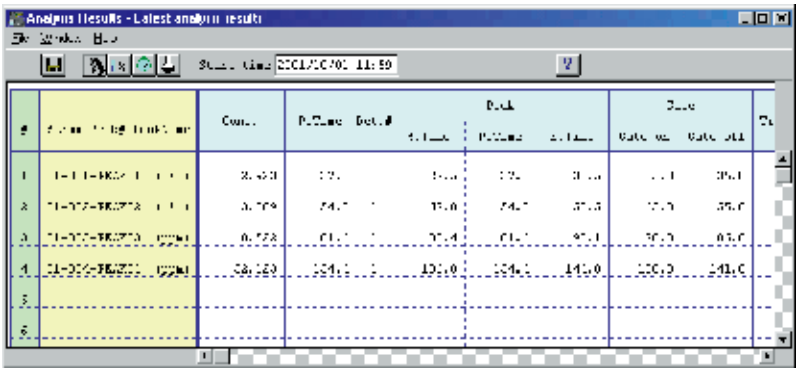
The Analysis Results windows consist of the windows for acquiring analysis results (Latest Analysis Results, Concentration Analysis History, Retention Time History and Laboratory Analysis Results windows) and the windows for referring to files (File Analysis Results, File Concentration Analysis History, File Retention Time History and File Laboratory Analysis Results windows). This section describes the layouts and contents of these windows.

Latest Analysis Results Window

The Latest Analysis Results window displays the most recent results of analysis for the stream done by the analyzer in the Process mode. The analysis results are updated each time the analyzer completes an analysis. To record the current data for future reference, save this window. To view the data not shown on the initial screen, use the scroll bar.

Window Layout

The following figure shows the layout of the Latest Analysis Results window.



F0605.ai

To view the unseen parts of the data, click on the  or  buttons on the horizontal or vertical scroll bar to scroll the page.

NOTE

If settings of the Stream Sequence or Peak are changed while the Analysis Results window is active:

- Click on the [Exit] command in the [File] menu to close the Analysis Results window once. Next, exit the Maintenance Terminal. And then, restart the Maintenance Terminal, and reopen the Analysis Results window. Continuous operation without restarting the overall functions of the Maintenance Terminal may result in incorrect data display.

Contents of Information

The following table summarizes the contents of the data items shown in the Latest Analysis Results window.

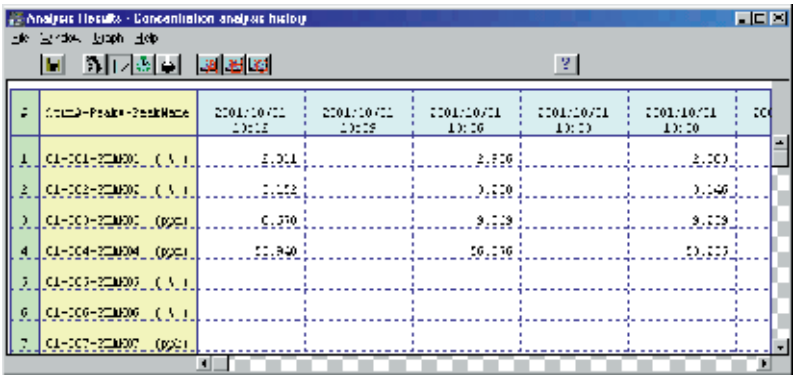
Item	Description
Analysis start time	Indicates the date and time when analysis of the on-screen data started.
#	Indicates the relative number (1 to 255) of peaks (the serial number of all peaks of all streams).
Stream# - Peak# - Peak name	Indicates the peaks of the stream, in ascending order (in the order of their assignment) of the peak number, in which the latest analysis has been executed. The system uses dashes "-" to connect the stream number, peak number and peak name in sequence, followed by the concentration unit (%, ppm or no unit) in parentheses.
Concentration	Indicates the concentration for each peak (the unit of concentration immediately follows the peak name).
Retention time	Indicates the retention time (in seconds) for each peak.
Det. #	Indicates the detector number (1 or 2) for each peak.
Peak-peak start/ retention/peak end	Indicates the starting time/retention time/ending time (in seconds) for each peak processing.
Gate start/gate end	Indicates the gate start time/end time (in seconds) for each peak.
Tracking	Indicates the state of tracking for each peak as "Baseline", "Tracking" or "None."
Peak levelstart/ height/end	Indicates the starting level/top level/ending level (mV) for each peak.
Area	Indicates the integrated value (mV-sec) of the level for each peak.
Shape	Indicates the state of data processing for each peak using a two-character code. Indicates "p" if it is a tangent correction, or "H" if it is a vertical separation.
Half width	Indicates the half width (in seconds) for each peak.
Tailing factor	Indicates the tailing factor for each peak
Variation coefficient	Indicates the concentration variation coefficient for each peak.
Method	Indicates the concentration calculation method for each peak. Indicates Area correction, Calibration, External third-order expression, External linearization, or Indirect method, appropriate for the given concentration calculation method. (There is no indication if there is no appropriate method.)

Concentration Analysis History Window

The Concentration Analysis History window is used to view the trend of the concentration data which the analyzer has analyzed to date in the Process mode. This window shows all the peaks assigned at the startup of the Analysis Results window. The Concentration fields of peaks not measured at the given time remain blank. To view the data not shown on the initial screen, use the scroll bar.

Window Layout

The following figure shows the layout of the Concentration Analysis History window.



F0606.ai

Contents of Information

The following table summarizes the contents of the data items shown in the Concentration Analysis History window.

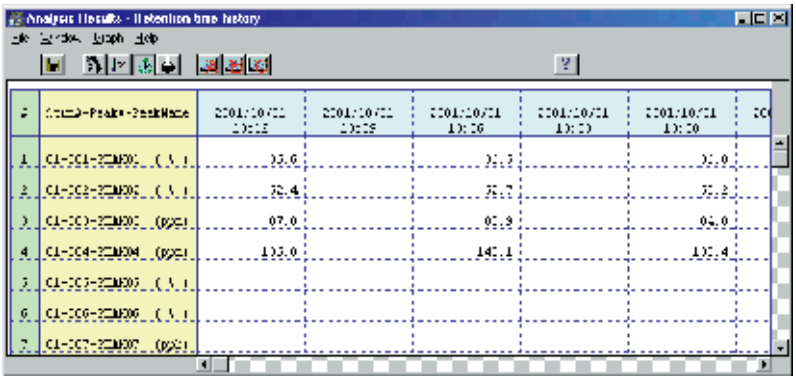
Item	Description
Analysis start time	Indicates the date and time when analysis of the on-screen data started.
#	Indicates the relative number (1 to 255) of peaks (the serial number of all peaks of all streams).
Stream# - Peak# - Peak name	Indicates the peaks of the stream, in ascending order (in the order of their assignment) of the peak number, in which the latest analysis has been executed. The system uses dashes "-" to connect the stream number, peak number and peak name in sequence, followed by the concentration unit (%, ppm or no unit) in parentheses.
Date/time	Indicates the date (year/month/day) and time (hour/minute) when the analysis for each cycle started (up to 250 date/time data items). If the number of data items exceeds 250, the oldest data item is discarded to make way for a new data item.
Concentration	Indicates the concentration for each peak (the unit of concentration immediately follows the peak name).

RetentionTime History Window

The Retention Time History window is used to view the trend of the retention time data which the analyzer has analyzed to date in the Process mode. This window shows all the peaks assigned at the startup of the Analysis Results window. The Retention Time fields of peaks not measured at the given time remain blank. To view the data not shown on the initial screen, use the scroll bar.

Window Layout

The following figure shows the layout of the Retention Time History window.



F0607.ai

Contents of Information

The following table summarizes the contents of the data items shown in the Retention Time History window.

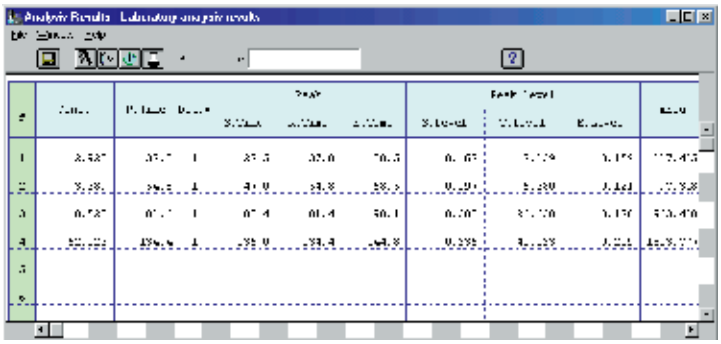
Item	Description
#	Indicates the relative number (1 to 255) of peaks (the serial number of all peaks of all streams).
Stream# - Peak# - Peak name	Indicates the peaks of the stream, in ascending order (in the order of their assignment) of the peak number, in which the latest analysis has been executed. The system uses dashes "-" to connect the stream number, peak number and peak name in sequence, followed by the concentration unit (%, ppm or no unit) in parentheses.
Date/time	Indicates the date (year/month/day) and time (hour/minute) when the analysis for each cycle started (up to 250 date/time data items). If the number of data items exceed 250, the oldest data item is discarded to make way for a new data item.
Retention time	Indicates the retention time for each peak (in seconds).

Laboratory Analysis Results Window

The Laboratory Analysis Results window displays the most recent results of laboratory analysis done by the analyzer in the Lab mode in the order that peaks are detected. The results of a laboratory analysis are updated each time the analyzer completes a laboratory analysis. To record the current data for future reference, save this window. To view the data not shown on the initial screen, use the scroll bar.

Window Layout

The following figure shows the layout of the Laboratory Analysis Results window.



F0608.ai

To view the unseen parts of the data, click on the  or  buttons on the horizontal or vertical scroll bar to scroll the page.

Contents of Information

The following table summarizes the contents of the data items shown in the Laboratory Analysis Results window.

Item	Description
Analysis start time	Indicates the date and time when analysis of the on-screen data started.
#	Indicates the number (1 to 255) of peaks (that have been detected).
Concentration	Indicates the concentration (in percent) for each peak.
Retention time	Indicates the retention time (in seconds) for each peak.Indicates the detector number (1 or 2) for each peak.
Det. #	Indicates the starting time/retention time/ending time (in seconds) for each peak.
Peak-peak start/ retention/peak end	Indicates the state of tracking for each peak as Baseline, Tracking or None.
Tracking	Indicates the starting level/top level/ending level (mV) for each peak.
Peak level start/ height/end	Indicates the integrated value (mV-sec) of level for each peak.
Area	Indicates the state of data processing for each peak using a two-character code.
Shape	Indicates “p” if it is a tangent correction, or “H” if it is a vertical separation.
Half width	Indicates the half width (in seconds) for each peak.
Tailing constant	Indicates the tailing constant for each peak

File Analysis Results Window

The File Analysis Results window is used to retrieve and refer to the data of the Latest Analysis Results window saved in a file. (Other analysis results acquisition windows cannot be opened from this window.) The information shown in this window is exactly the same as the one shown in the Latest Analysis Results window.

See Also

For details on the contents of information, see “Latest Analysis Results Window,” in Section 6.2.

File Concentration Analysis History Window

The File Concentration Analysis History window is used to retrieve and refer to the data of the Concentration Analysis History window saved in a file. (Other analysis results acquisition windows cannot be opened from this window.) The information shown in this window is exactly the same as the one shown in the Concentration Analysis History window.

See Also

For details on the contents of information, see “Concentration Analysis History Window,” in Section 6.2.

File Retention Time History Window

The File Retention Time History window is used to retrieve and refer to the data of the Retention Time History window saved in a file. (Other analysis results acquisition windows cannot be opened from this window.) The information shown in this window is exactly the same as the one shown in the Retention Time History window.

See Also

For details on the contents of information, see “Retention Time History Window” in Section 6.2.

File Laboratory Analysis Results Window

The File Laboratory Analysis Results window is used to retrieve and refer to the data of the Laboratory Analysis Results window saved in a file. (Other analysis results acquisition windows cannot be opened from this window.) The information shown in this window is exactly the same as the one shown in the Laboratory Analysis Results window.

See Also

For details on the contents of information, see “Laboratory Analysis Results Window” in Section 6.2.

6.3 Switching Between Analysis Results Windows

In all cases, only one Analysis Results window can be opened at a time. To view a different window, switch to it. However, this is not applied for graph windows created in the history record windows (Concentration Analysis History, Retention Time History, File Concentration Analysis History, and File Retention Time History windows), meaning that a graph window and its original history record window that contains the data source for the graph can be viewed simultaneously.

TIP

Visible Graph Windows

- A graph window, which is created by executing any [Draw] command in the [Graph] menu while a history record window is open, can be viewed together with the history record window that contains the data source for the graph. If you switch from the data-source history record window to a different window, the graph window open together with the history record window closes. If you switch back to the data-source history record window, its graph window opens again.

Window Menu

To switch between analysis results windows, use the [Window] menu. From this menu, select the name of a window you want to open. A check mark (✓) appears next to the name of a currently-open window.

TIP

Switching Between the Analysis Results Acquisition Windows Using the Tool Buttons

- You can also switch between the analysis results acquisition windows by clicking on the buttons on the toolbar.

To switch to	Click on
Latest Analysis Results window	 button
Concentration Analysis History window	 button
Retention Time History window	 button
Laboratory Analysis Results window	 button

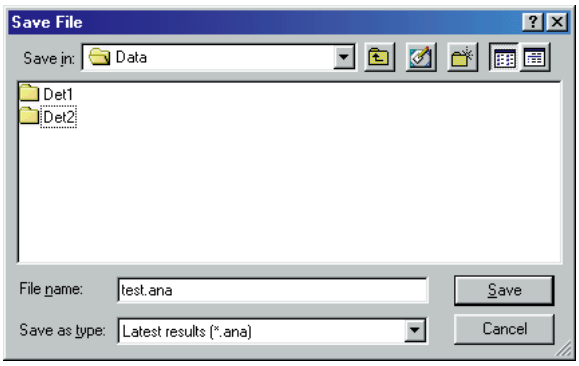
6.4 Saving and Retrieving Data

The data of the analysis results acquisition windows (Latest Analysis Results, Concentration Analysis History, Retention Time History and Laboratory Analysis Results windows) are updated each time the analyzer completes an analysis. The data can be saved in files, and retrieved in the file reference windows (File Analysis Results, File Concentration Analysis History, File Retention Time History or File Laboratory Analysis Results window) for future reference. In addition, the data of a history record can automatically be saved at a fixed interval.

Saving Data of an Analysis Results Acquisition Window

Procedure

(1) Open the analysis results acquisition window to be saved and click on either the [Save] command in the [File] menu or the button on the toolbar.
A dialog box pops up to ask you to type in the save destination.



F0609.ai

(2) After confirming the names of the drive and directory, type in a file name before the extension code and click on the [OK] button. The data are written in the file and thus saved.

TIP

Extensions

- Extensions suffixed to file names during data saving are classified as shown below depending on the type of window you work with. These extensions identify the type of the window in question.
  Latest Analysis Results window: .ana
  Concentration Analysis History window: .cnc
  Retention Time History: .rtm
  Laboratory Analysis Results window: .lab

Format of Files Saved

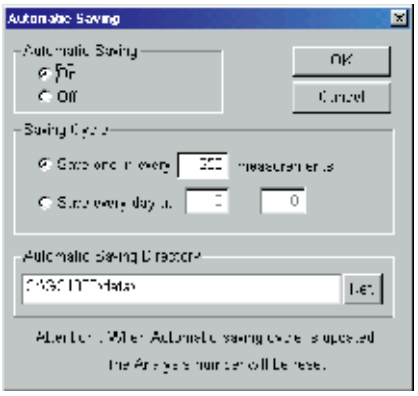
- Files are saved only in text format (comma-delimited format). Data can be retrieved in a general application as well as in the file reference window of an Analysis Results window.
- The saved file is not displayed. For reference to the file, switch to the file reference window and call for the file.

Automatic Saving of a History Record Window

In the Concentration Analysis History or Retention Time History window, use the [Automatic Saving] command in the [File] menu to save the data of both the concentration analysis history and the retention time history at a fixed interval. (Whichever in both windows the settings are made, the same Automatic Saving dialog box appears that is used commonly for both history data.)

Procedure

(1) Open the Concentration Analysis History or Retention Time History window. Click on the [Automatic Saving] command in the [File] menu. The Automatic Saving dialog box pops up.



F0610.ai

(2) Click on the [On] radio button in the Automatic Saving field.

(3) Specify the automatic saving cycle in either a measurement cycle or a specific time for daily saving in the Saving Cycle field.

(4) Specify the directory where the data is to be saved in the Automatic Saving Directory field. The default setting is "\data" directory right under the installation directory.

(5) Click on the [OK] button. The data of the concentration analysis history and retention time history will be simultaneously and automatically saved in two files as follows.

- Two files are saved with the following names again and again each time analysis ends. (The files are overwritten every time so that the contents are always updated to the latest history record data.)
  Concentration Analysis History: C_NOW. TMP
  Retention Time History: R_NOW. TMP
- In addition, the data are automatically saved in new files at every automatic-saving cycle. The files are saved with a file name including the year (last one digit), month (1 to 9, a, b, c), day, time information and the appropriate extension.

  Assuming that the files are automatically saved after the history record data is acquired at 17:30, December 15, 1999, their file names are:
  "9c151730.cnc" and "9c151730.rtm"

  The data type is identified by the extension: ".cnc" represents the concentration analysis history data and ".rtm" represents the retention time history data.
- Files to be automatically saved are saved under the directory specified in the Automatic Saving Directory field in the Automatic Saving dialog box.
- From the next transfer after clicking on [OK] in the dialog box, automatic saving is executed. Re-specifying the automatic saving cycle resets the number of cumulative analyses to zero. Counting restarts from zero for the re-specified cycle.

(6) To quit automatic saving, open the Concentration Analysis History or Retention Time History window, and again click on the [Automatic Saving] command in the [File] menu. Then select [Off] in the Automatic Saving dialog box.

NOTE

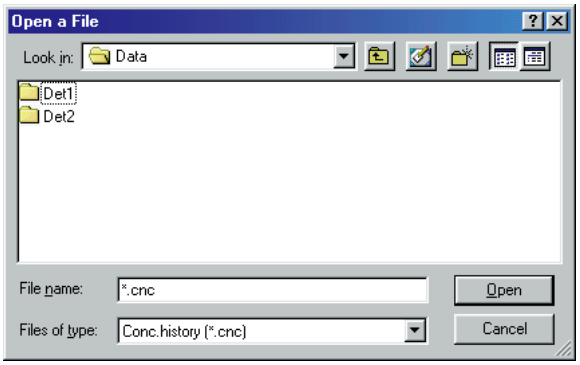
Automatic saving requires a certain free space in the hard disk. If the remaining free space decreases, the automatic saving must be stopped.

Retrieving (Opening) Files

Follow the procedure below to retrieve saved files in a file reference window.

Procedure

(1) Open the file reference window appropriate for the desired analysis results acquisition window. Click on the [Open] command in the [File] menu or the button on the toolbar.
A dialog box pops up asking you to specify the file to be retrieved.



F0611.ai

(2) Click on the file name and then the [OK] button.
The file is retrieved and thus the saved data is shown in the file reference window.

- Zero and negative numbers cannot be displayed correctly on a logarithmic scale. Always select the linear scale for data including zero or negative numbers.

TIP

The data of an opened file can be processed.

See Also

For details on data processing, see Section 6.5.

Closing Files in a File Reference Window

If you no longer need files retrieved onto a file reference window, close them taking the following procedure.

Procedure

Open the file reference window for the file you want to close. Click on the [Close] command in the [File] menu. The file closes.

TIP

- If you have made any changes to the file, a dialog box pops up to ask if you want to save the changes. Click on the [Yes] button to close the box.

F0612.ai

- Only one file can be opened in one file reference window. If you open another file, the previous file closes automatically.

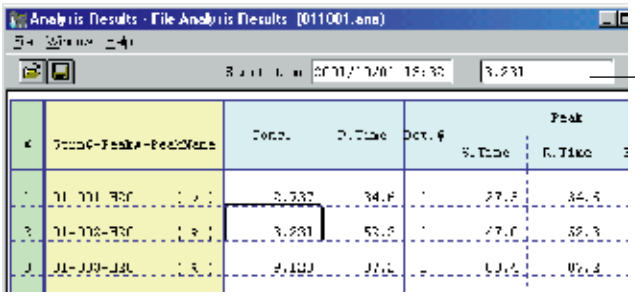
6.5 Processing and Re-saving Data

Data retrieved onto a file reference window (File Analysis Results, File Concentration Analysis History, File Retention Time History or File Laboratory Analysis Results window) can be processed. In addition, processed data can be re-saved ([Save] command) or saved in a file with a different name ([Save As] command).

Processing Data in a File Reference Window

Procedure

(1) In the file reference window, select the cell you want to process and double-click on it (or press the [F2] key). The data value of the selected cell appears in the Cell Contents field on the toolbar.



F0613.ai

(2) Edit the cell contents in the field and press the [Return] key. The new data value appears in the cell. (To cancel editing, press the [ESC] key.)

TIP

Restriction on Data Processing
- Cell contents can be changed or erased. The cell itself, however, cannot be deleted.

How to Select a Cell
- To select a cell, move the mouse cursor to the desired cell and click on it, or using cursor keys.

Overwriting and Saving Files in a File Reference Window

Procedure

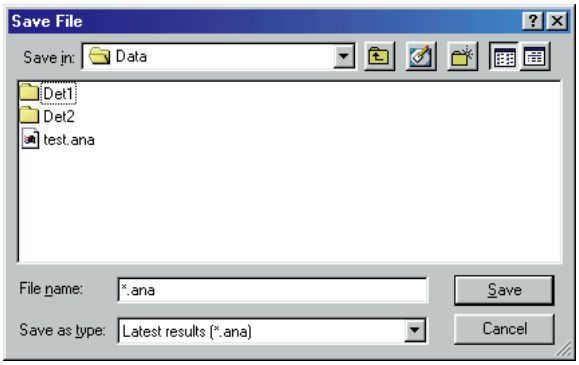
(1) Open the file reference window for the file you want to save. Click on the [Save] command in the [File] menu or click on the button on the toolbar.

(2) In this case, no message appears in the window; the file is just overwritten and saved.

Saving the File Under a Different Name in a File Reference Window

Procedure

(1) Open the file reference window for the file you want to save. Click on the [Save As] command in the [File] menu. A dialog box pops up to ask you to type the save destination.



F0614.ai

(2) After having confirmed the drive and directory names, type the file name under which you want the file saved before the extension code. Click on the [OK] button. The data in the window are written to the new file and thus saved.

TIP

Extensions

- Extensions suffixed to file names during data saving are classified as shown below depending on the type of window you work with. These extensions identify the type of the window in question.
  Latest Analysis Results window: .ana
  Concentration Analysis History window: .cnc
  Retention Time History: .rtm
  Laboratory Analysis Results window: .lab

Format of Files Saved

- Files are saved only in text format (comma-delimited format). Data can be retrieved in a general application as well as in the file reference window of an analysis results window.

6.6 Graphing Historical Data

Graphs can be created from the data of a history record window (Concentration Analysis History, Retention Time History, File Concentration Analysis History or File Retention Time Analysis History window). Graphs can be created in windows A, B, and C simultaneously.

Graph windows which are no longer necessary can be closed.

Making New Graphs

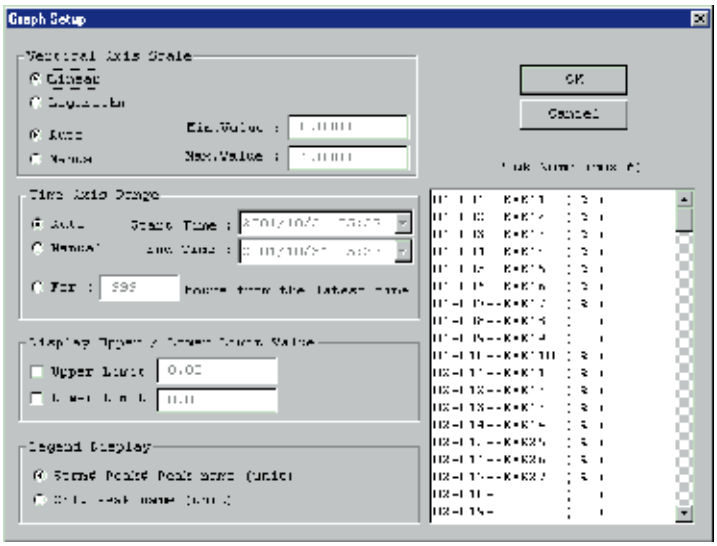
NOTE

Graphs cannot be created from the data of windows other than history record windows (Latest Analysis Results, Laboratory Analysis Results, File Analysis Results and File Laboratory Analysis Results windows).

Creating Graphs in a History Record Window

Procedure

(1) While one of the four history record windows is open, click on the [Draw A], [Draw B], or [Draw C] command in the [Graph] menu or any of the  buttons on the toolbar. The Graph Setup dialog box pops up.



F0615.ai

(2) Select the peak names to be shown on a graph from the list box at the bottom right, as described below.
Selecting consecutive peak names: Drag the mouse from the first peak name to the last one.
Selecting nonconsecutive peak names:
(a) Click on the first peak name or the range of peaks.
(b) Click on the second peak name or the range of peaks while holding down the [CTRL] key.
(c) Repeat step (b) to select all the necessary peak names.
The selected peak names will be highlighted.
- You can select a maximum of six peak names at one time.
- If you have selected the wrong range of peaks, make selection again.

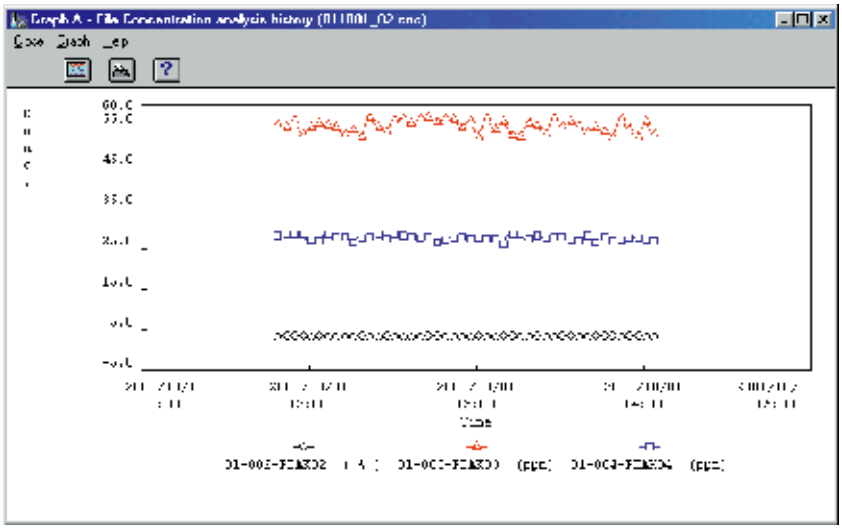
(3) Set up the vertical axis scale (the concentration scale for the Concentration Analysis History window and the retention time scale for the Retention Time History window).
(a) Select either Linear or Logarithmic scale.
(b) Select either Auto or Manual for the scale setting. In automatic scaling, the system automatically sets the scale appropriate for the selected range of peaks. In manual setting, the minimum and maximum values of the axis should be entered here.
- Zero and negative numbers cannot be indicated correctly in a logarithm scale. Always select the linear scale if data values include zero or negative numbers.

(4) Set the range of the time axis.
(a) Select either Auto or Manual. In automatic setting, the system graphs the entire range of the time shown in a history record window. In manual operation, select the starting time and ending time from the drop-down list box. The system graphs the data within the selected range only.
- The starting time must be earlier than the ending time.

(5) Select enabled/disabled display of upper/lower limits. To view upper/lower limits in the graph, check the box next to Upper Limit and/or Lower Limit and enter the value(s).
The upper limit value is indicated in a red line, and the lower limit value is in a blue line. Both or either of the limits can be viewed.

(6) For the format of the peak name displayed in the legend box, select either “Strm# - Peak# - Peak name (unit)” or “Only Peak name (unit).”

(7) Make sure that all settings are completed and click on the [OK] button. The graph window opens.



F0616.ai

TIP

- A graph window always opens together with the history record window, the source of the graphed data.
- To change the contents of graph display, click on the button on the toolbar to view the Graph Setup dialog box where you can make changes.
- A graph window cannot be saved. If necessary, save the history record window and recreate a graph.

Closing a Graph Window

If you no longer need the graph window, close it taking the following procedure.

Procedure

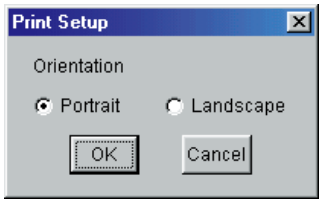
In the graph window you want to close, click on the [Close] command in the [Close] menu. The graph window closes.

Printing a Graph Window

Procedure

In the graph window you want to print, click on the [Print] in the [Graph] menu. The graph will be printed out. This can also be achieved by clicking on the button on the toolbar in the graph window.

Print orientation - portrait or landscape - can be set in the Print Setup dialog box which can be accessed by clicking on the [Print Setup] command in the [Graph] menu.



F0617.ai

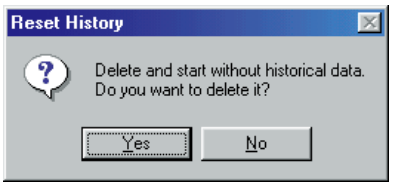
6.7 Resetting Historical Data

If you want to record data from scratch in the Concentration Analysis History and Retention Time History windows, execute the [Reset History] command. Executing the command simultaneously erases all data in both windows, regardless of the state of the analysis results windows.

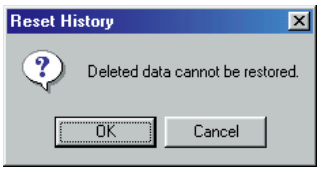
Resetting Historical Data in the Concentration Analysis History and Retention Time History Windows

Procedure

(1) Open the Latest Analysis Results window and click on the [Reset History] command in the [File] menu. A dialog box pops up to ask you if you want to reset the historical data.



F0618.ai



F0619.ai

(2) Click on the [OK] button. This erases all data in the Concentration Analysis History and Retention Time History windows.

- The heading “Strm#-Peak#-Peak Name” remains in the windows.

NOTE

If you have made any change to the operation pattern or peak settings while the Analysis Results window is active:

- Execute the [Exit] command in the [File] menu to close the Analysis Results window once. Next, exit the Maintenance Terminal. And then restart the Maintenance Terminal, and reopen the Analysis Results window. Executing the [Reset History] command without exiting the Analysis Results window results in incorrect data display.

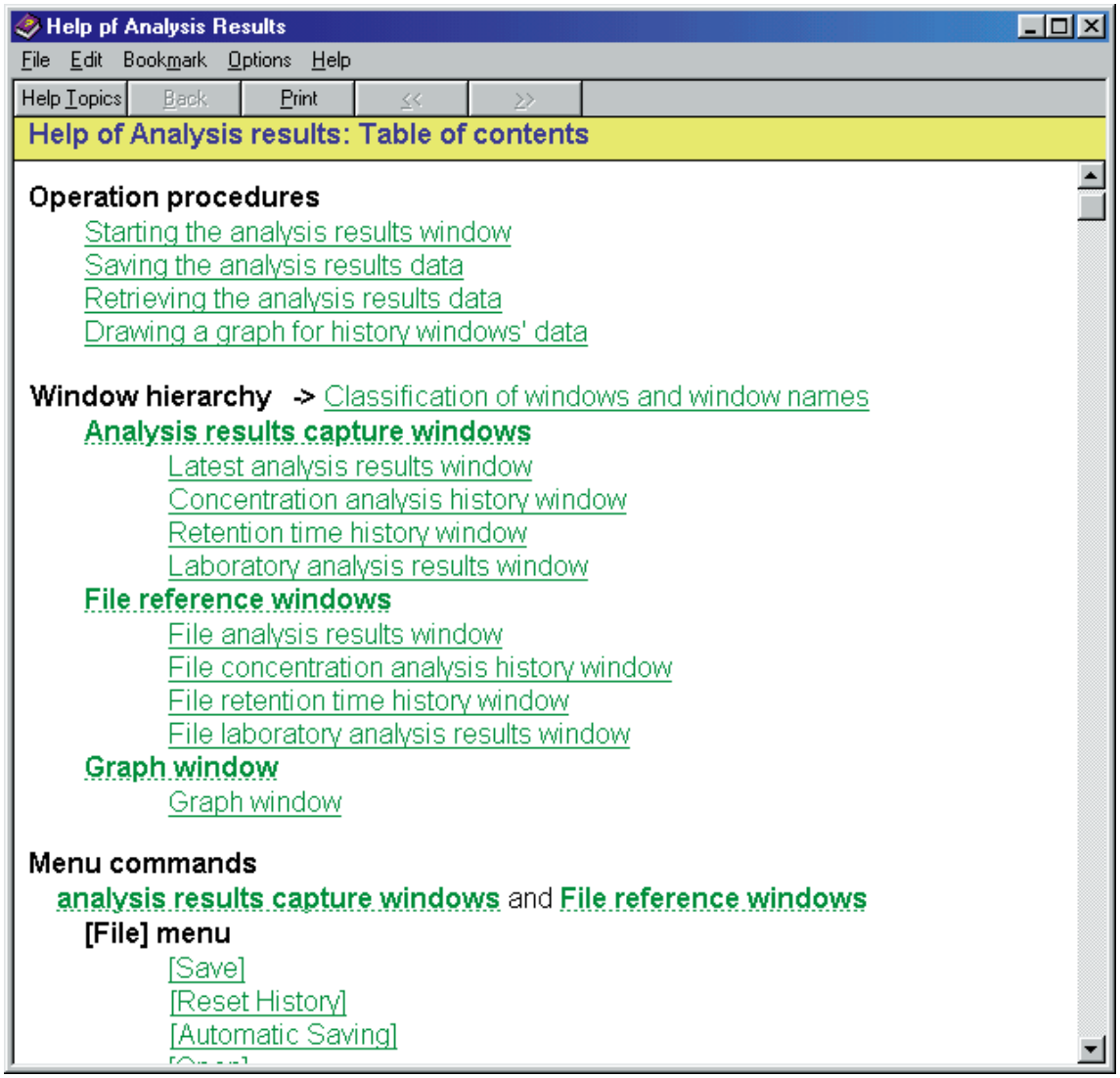
6.8 Opening the Help Window of an Analysis Results Window

Analysis results windows are provided with a help function. If you like to know how to operate with the Analysis Results window or to learn more detailed instructions, you can get such information from the Help window of the Analysis Results window, besides this operation guide.

Opening the Help Window

Procedure

(1) Click on the [Contents] command in the [Help] menu (this operation is accessible from any window). The same can be done by clicking on the ? button on the toolbar.
The Help contents appear in the Help window.



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(2) Click on the topic you want to look up so that you can view a more informative window. (Clicking on the underlined topics in green allows you to view more information.)

TIP

Search by Keyword

- To search for the help topic you want to look up, click on the [Help Topics] command in the [Help] menu and type in the keyword of the topic.

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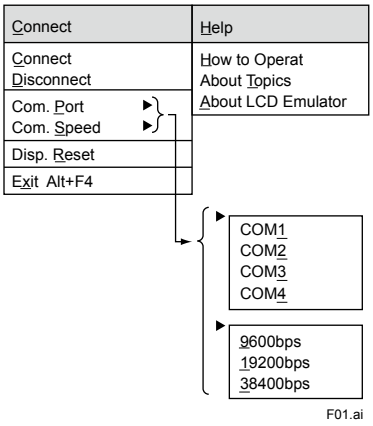
Appendix A Menus

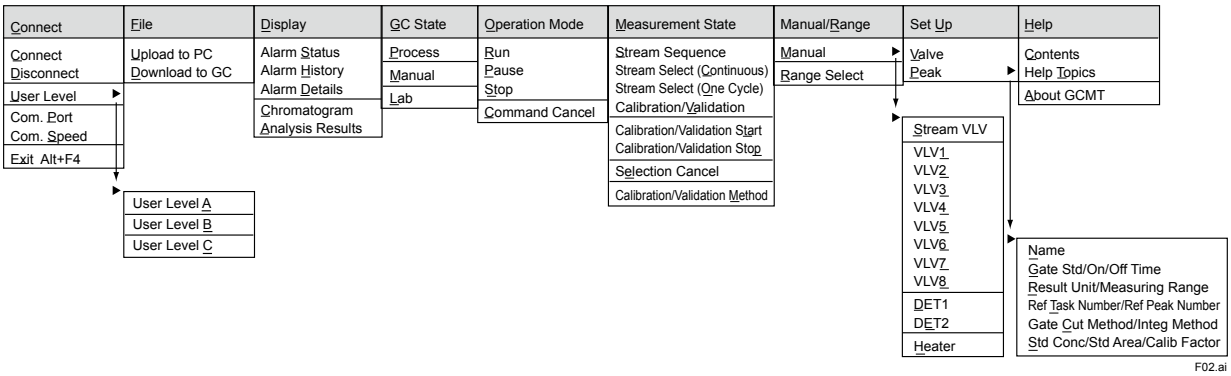
This appendix summarizes the functions used in the Maintenance Terminal.

LCD Emulator Window



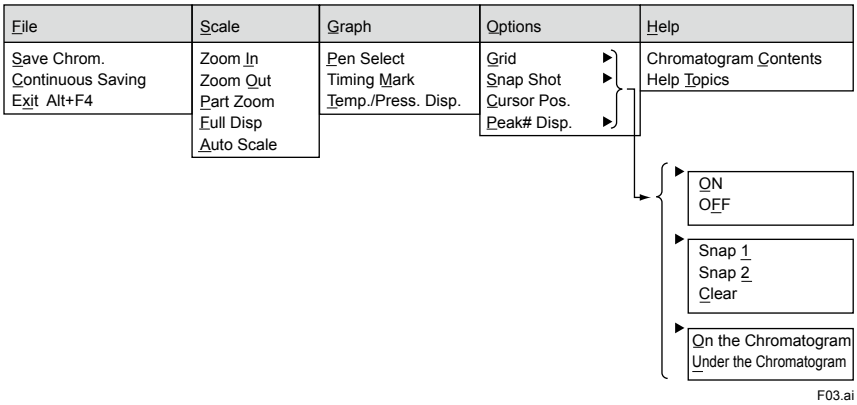
Menu Name	Command Name	Function
Connect	Connect	Establishes a communication link with the analyzer.
	Disconnect	Drops the communication link with the analyzer.
	Com. Port	Used to select a serial port for the communication with the analyzer.
	Com. Speed	Used to select a communication speed to the analyzer.
	Disp. Reset	Turns off the LCD display and again opens the Analyzer Status window.
	Exit	Exits the LCD emulator.
Help	How to Operate	Shows the operation procedures for the LCD emulator.
	Help Topics	Shows a Help topic appropriate for a typed-in keyword.
	About LCD Emulator	Displays the version information on the LCD Emulator window.

Analyzer Operation Window



Menu Name	Command Name	Function
Connect	Connect	Establishes a communication link with the analyzer.
	Disconnect	Drops a communication link with the analyzer.
	User Level	Sets a user level (A, B or C).
	Com. Port	Used to select a serial port for the communication with the analyzer.
	Com. Speed	Used to select a communication speed to the analyzer.
	Exit	Exits the Maintenance Terminal.
File	Upload to PC	Uploads and saves parameter settings from the analyzer to thedisk of the Maintenance Terminal.
	Download to GC	Downloads and saves parameter settings from the disk of theMaintenance Terminal to the analyzer.
Display	Alarm Status	Opens the Alarm Status window.
	Alarm History	Opens the Alarm History window.
	Alarm Details	Opens the Alarm Details window.
	Chromatogram	Opens the Chromatogram window.
	Analysis Results	Opens an Analysis Results window.
GC State	Process	Commands to change to the Process mode.
	Manual	Commands to change to the Manual mode.
	Lab	Commands to change to the Lab mode.
Operation Mode	Run	Commands to change to the Run mode.
	Pause	Commands to change to the Pause mode.
	Stop	Commands to the Stop mode.
	Command Cancel	Cancels the operation mode reserved.
Measurement State	Stream Sequence	Commands to change to Stream Sequence.
	Stream Select (Continuous)	Commands to change to Stream (Continuous).
	Stream Select (One Cycle)	Commands to change to Stream (One cycle).
	Calibration/Validation	Commands to change to Calibration/Validation.
	Calibration/Validation Start	Commands to start the calibration/validation.
	Calibration/Validation Stop	Commands to stop the calibration/validation.
	Selection Cancel	Cancels the measurement scheduled.
	Calibration/Validation Method	Changes the calibration/validation method.
Manual/Range	Manual	Turns on or off valves and detectors in the Manual mode.
	Range Select	Changes the range.
Set Up	Valve	Change the timing for turning on/off the valve.
	Peak	Changes the peak information (peak name, gate time, etc.).
Help	Contents	Shows the Help contents of the GCMT.
	Help Topics	Shows a Help topic appropriate for a typed-in keyword.
	About GCMT	Displays version information on the GCMT.

Chromatogram Window



Menu Name	Command Name	Function
File	Save Chrom.	Saves an on-screen chromatogram to the hard disk.
	Continuous Saving	Enables/Disables the automatic saving of chromatograms.
	Exit	Exits the Chromatogram window.
Scale	Zoom In	Enlarges both the X- and Y-axis scales in single-step increments.
	Zoom Out	Reduces both the X- and Y-axis scales in single-step increments.
	Part Zoom	Zoom in the area selected with the mouse.
	Full Disp	Brings the entire range of a chromatogram into view.
	Auto Scale	Switches Auto-scale on/off.
Graph	Pen Select	Correlates chromatograms with their colors for display.
	Timing Mark	Determines whether to show or hide the information about the Peak No., Peak On/Off and Gate On/Off data items for each chromatogram.
	Temp./Press. Disp.	Selects the chromatogram for which temperature/pressure data are shown.
Option	Grid - ON	Shows the grid in the Closeup window.
	Grid - OFF	Hides the grid in the Closeup window.
	Snap Shot - Snap 1	Saves the currently open Chromatogram window in memory.
	Snap Shot - Snap 2	Saves the currently open Chromatogram window in memory.
	Snap Shot - Clear	Erases the window data saved as Snap 1 and Snap 2.
	Cursor Pos.	Turns on or off the display of the cursor position.
	Peak# Disp.- On the chromatogram	Shows the peak number at the top of a chromatogram.
	Peak Disp.- Under the chromatogram	Shows the peak number at the bottom of a chromatogram.
Help	Chromatogram Contents	Shows the Help contents of the Chromatogram window.
	Help Topics	Shows a Help topic appropriate for a typed-in keyword.

Alarm Windows (Common to Both Alarm Status and Alarm History Windows)

View	Detail	Help
Alarm Status Alarm History	Display Making User Alarm Description	Alarm Contents Help Topics
Clear History		
Alarm Message		

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Menu Name	Command Name	Function
View	Alarm Status	Opens the Alarm Status window.
	Alarm History	Opens the Alarm History window.
	Clear History	Erases the data of the Alarm History window.
	Alarm Message	Enables/Disables the display of an alarm message.
Detail	Display	Opens the Alarm Detail Description window.
	Making User Alarm Description	Used to set the detailed description for a user defined alarm.
Help	Alarm Contents	Shows the Help contents of the Alarm window.
	Help Topics	Shows a Help topic appropriate for a typed-in keyword.

Analysis Result Window

File	Window	Graph	Help
Save Reset History	Latest Analysis Results Concentration Analysis History Retention Time History Laboratory Analysis Results File Analysis Results File Concentration Analysis History File Retention Time History File Laboratory Analysis Results	Draw A Draw B Draw C	Contents Help Topics About Analysis Results
Automatic Saving			
Open Close Save Save As			
Exit			

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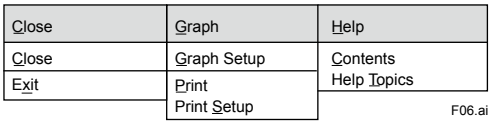
Note: Commands in menus vary depending on the type of the currently open analysis results window. The above table lists the commands for all the types of analysis results windows.

Menu Name	Command Name	Function
File	Save	Saves the data of an analysis results acquisition window in files.
	Reset History	Simultaneously erases the data of both the Concentration Analysis History and Retention Time History windows.
	Automatic Savig	Automatically saves the historical records on concentration analysis and retention time at a fixed interval.
	Open	Opens saved files in the file reference window.
	Close	Closes a file currently open in the file reference window.
	Save	Re-saves the currently open file of the file reference window with the same name.
	Save As	Re-saves the currently open file of the file reference window with another name.
	Exit	Exits the Analysis Results window.
Window	Latest Analysis Results	Opens the Latest Analysis Results window
	Concentration Analysis History	Opens the Concentration Analysis History window.
	Retention Time History	Opens the Retention Time History window.
	Laboratory Analysis Results	Opens the Laboratory Analysis Results window.
	File Analysis Results	Opens the File Analysis Results window.
	File Concentration Analysis History	Opens the File Concentration Analysis History window.
	File Retention Time History	Opens the File Retention Time History window.
	File Laboratory Analysis Results	Opens the File Laboratory Analysis Results window.
Graph	Draw A	Creates graphs using the historical records on concentration analysis, retention time, file concentration analysis, and file retention time.
	Draw B	
	Draw C	
Help	Contents	Displays the Help contents of an Analysis Results window.
	Help Topics	Opens the Help window where you can search for a Help topic on an analysis results window by typing in a keyword.
	About Analysis Results	Displays version information.

Graph Window



Menu Name	Command Name	Function
Close	Close	Closes a graph window.
	Exit	Exits the analysis results window including the graph window.
Graph	Graph Setup	Creates graphs using the historical records on concentration analysis, retention time, file concentration analysis, and file retention time.
	Print	Print a graph.
	Print Setup	Used to select a print orientation (portrait/landscape).
Help	Contents	Displays the Help contents of an analysis results window.
	Help Topics	Opens the Help window where you can search for a Help topic on an analysis results window by typing in a keyword.

Appendix B Messages Summary

This appendix lists the error messages that may appear while you are working with the Maintenance Terminal, along with the corrective measures.

Analyzer Operation Window

Message		Description	Corrective Measures
Common	Stop command has been received.	The communication link has been dropped because the analyzer panel is being operated upon in the field.	After completing the analyzer operation in the field, execute the Connection command.
Exit	Close Maintenance Terminal after Analysis Results Display is closed.	Invalid attempt to exit the Maintenance Terminal without closing the analysis results window.	Close the analysis results window before exiting the Maintenance Terminal.
Analyzer operation	Analyzer has not accepted operation command.	Invalid attempt to change the operation mode or operate valves while at a wrong user level.	Change the mode or operate valves at user level C only.
	Valve operation is only available in Manual mode.	Invalid attempt to operate valves in a mode other than the Manual mode.	Select the Manual mode when operating valves. However, note that valves are operational at user level C only.
	Detector operation is only available in Manual mode.	Invalid attempt to operate the detector in a mode other than the Manual mode.	Select the Manual mode when operating the detector. However, note that the detector is operational at user level C only.
	A higher user level is needed for pattern/ valve /detector operation.	Invalid attempt to change the operation pattern or operate valves at a wrong user level.	The operation pattern can be changed at user levels B and C only; valves can be operated at user level C only.
File operation	File access is only available at user level C.	Invalid attempt to upload or download parameter settings at the wrong user level.	Parameter settings can be uploaded and downloaded at user level C only.
	File operation is only available in Process/Lab - Stop.	Invalid attempt to upload or download parameter settings in a mode other than Process/Lab - Stop.	Make Process/Lab - Stop active before uploading or downloading parameter settings.

Chromatogram Window

Message		Description	Corrective Measures
Continuous Saving	There is less than 1MB of free space on the hard disk.	The free space on the hard disk has fallen below 1 MB during the continuous saving of chromatograms.	Delete unnecessary files to make an free space of 1 MB or mode.
Pen selection	This file is not a Chromatogram file.	Invalid attempt to open a file other than a chromatogram file.	Select the correct file type.
	This function is already in use by another pen.	The selected differential chromatogram is already active for another pen.	Select a different chromatogram or delete the currently active chromatogram.

Alarm Windows

Message		Description	Corrective Measures
History deletion	Alarm history cannot be cleared in User level A.	Invalid attempt to reset the alarm history at the wrong user level.	Alarm histories can be reset at user level B or C only.
Creation of user alarm description	Factory alarm descriptions cannot be changed. Select User defined alarm.	A number other than the user defined alarm numbers has been specified when creating a user alarm description.	Confirm the valid alarm numbers, and then select a correct alarm number.

Analysis Result Window

Message		Description	Corrective Measures
Memory	Memory AI location Error. Not enough memory.	The memory is too low.	Check that memory is reserved sufficiently for work.
File operation	File name is incorrect. This file is not XXX.	Invalid attempt to open the file that does not contain the data corresponding to the onscreen window.	Open the file appropriate for the on-screen window.
	Read error. Data is incorrect. Error occurred reading a file.	Failed to open the file because it contained invalid data.	Open the file that contains the valid data.
	Error occurred while saving file. File cannot be saved.	An error occurred while saving file. Filed to save the file.	Eliminate the cause of the error and then retry saving the file.
	Data has been changed. Do you want to save it?	Changes have been made to the data of the window.	If the file needs to be saved before the window is closed, select “Yes.”
Data editing	Entered valve is incorrect. Only a numerical value can be entered here.	Invalid attempt to type in a data value other than numerals.	Type in a numeric data value.
Automatic saving	Entered value is incorrect. Automatic saving cycle must be between 1 and 250.	An invalid number has been typed in as the interval for automatic saving.	For the interval for automatic saving, type a whole number from 1 to 250.
Graph creation	Graph cannot be drawn. No data available.	Cannot create a graph because the currently open window does not contain graph data.	Create a graph when data are available.
	Graph cannot be drawn. Data is incorrect.	Cannot create a graph because the selected range for the graph being created contains invalid data. This message also appears if the selected range for the graph does not contain any data.	Once again check the data for the selected range of graph. Also check that the range contains necessary data.
	Selection error. Necessary data is not selected.	Some of the data necessary to create the graph remain unselected.	Once again check that none of the necessary data remain unselected.
	Selection error. You can select 1 to 6 Peak names.	Seven or more peaks have been selected at one time during peak selection.	A graph can contain no more than six peaks at a time. Select no more than six peaks.
	Selection error. Start time is set after End time.	The starting time has been set at an later time than the ending time during time-axis setting (manual).	Set the starting time at a time earlier than the ending time.
	Graph cannot be drawn. Min./max. axis scale of a Logarithm graph cannot be set or under zero.	The upper or lower limit of the scale has been set at a value smaller than zero during the setting (manual) of the logarithmic axis.	A logarithmic axis cannot indicate values smaller than zero. When setting the upper and lower limits of a logarithmic axis, use values larger than zero.

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