

MODEL J-810
SPECTROPOLARIMETER

Operation manual

J-800 for Windows®

JASCO Corporation

Contents

1. General	1
1.1 About This Manual	1
1.2 Descriptions covered by This Manual	1
1.3 Rules of Denotations	2
1.4 Program Window	2
2. Start/Stop of Program and [Spectra Manager] Menu Reference	5
2.1 Start	5
2.1.1 Turning ON power to J-810 spectropolarimeter	5
2.1.2 Starting Windows 95/NT and [Spectra Manager] program	6
2.1.3 Starting measurement or analysis program	7
2.1.4 Cautions during operation	9
2.2 End	10
2.2.1 End of measurement or analysis program	10
2.2.2 Turning OFF power to PC and spectropolarimeter	10
2.3 [Spectra Manager] Menu Reference	10
2.3.1 [Application] menu	11
2.3.1.1 [Analysis]	11
2.3.1.2 [Measure]	11
2.3.1.3 [Exit]	11
2.3.2 [Instrument] menu	11
2.3.2.1 [Start]	11
2.3.2.2 [Stop]	11
2.3.2.3 [Set communication port...]	12
2.3.2.4 [Option...]	12
2.3.2.4.1 [Instrument] dialog box	13
2.3.2.4.2 [Accessory (Standard)] dialog box	13
2.3.2.4.3 [Temperature control] dialog box	13
2.3.2.4.4 [Titrator] dialog box	15
2.3.2.4.5 [Magnetic field control] dialog box	16
2.3.2.5 [Instrument information...]	17
2.3.3 [Help] menu	17
3. Introduction to Spectrum Measurement Program and Spectrum Analysis Program	18
3.1 Operation Overview	18
3.2 Measuring, Saving and Printing Spectrum	18
3.2.1 Sample preparation	19
3.2.3 Setting parameters	19
3.2.4 Setting sample and spectrum measurement	21
3.2.5 Saving spectrum	22
3.2.6 Printing spectrum	22
3.3 Operation of Spectrum Analysis Program	23
3.3.1 Starting the spectrum analysis program	23
3.3.2 Loading spectrum	24
3.3.3 Calculating optical constant (molecular ellipticity)	25
3.3.4 Noise reduction	26
3.4 Shutdown	27

3.4.1	End of Spectrum Measurement/Analysis Programs and Windows 95/NT	27
3.4.2	Turning OFF power to PC and spectropolarimeter	28
4.	[Spectrum Measurement] Menu Reference	29
4.1	[Measurement] Menu	30
4.1.1	[Start]	30
4.1.2	[Parameter...]	30
4.1.2.1	[Parameters] dialog box	31
4.1.2.2	[Data Mode] dialog box	32
4.1.2.3	[Data File] dialog box	33
4.1.2.4	[Option] dialog box	34
4.1.2.5	<Save...> ([Parameters - Save] dialog box)	34
4.1.2.6	<Open...> ([Parameters - Open] dialog box)	35
4.1.3	[Baseline Correct...]	36
4.1.4	[Accessory...]	37
4.1.5	[Alternate Mode]	37
4.1.6	[External Trigger]	37
4.1.7	[Exit]	37
4.2	[Control] Menu	37
4.2.1	[Move Wavelength...]	37
4.2.2	[CD Detector...]	38
4.2.3	[Light Source...]	39
4.2.4	[Shutter...]	39
4.2.5	[Nitrogen Flowrate...]	40
4.2.6	[Sample Chamber Valve...]	40
4.2.7	[ORD-M Zero Clear]	40
4.2.8	[Accessory...]	40
4.2.8.1	[Fluorometric detector] dialog box	41
4.2.8.2	[Titrator] dialog box	42
4.2.8.3	[Magnet] dialog box	44
4.2.8.4	[Alternator] dialog box	44
4.2.8.5	[Temperature] dialog box	45
4.2.8.6	[Cell position] dialog box	45
4.3	[View] Menu	45
4.4	[Help] Menu	46
4.4.1	[Error Information...]	46
4.4.2	[About...]	46
5.	[Time Course Measurement] Menu References	47
5.1	[Measurement] Menu	48
5.1.1	[Start]	48
5.1.2	[Parameter...]	48
5.1.2.1	[Parameters] dialog box	49
5.1.2.2	[Data Mode] dialog box	50
5.1.2.3	[Data File] dialog box	50
5.1.2.4	[Option] dialog box	50
5.1.2.5	<Save...> ([Parameters - Save] dialog box)	50
5.1.2.6	<Open...> ([Parameters - Open] dialog box)	50
5.1.3	[Accessory...]	50
5.1.4	[External Trigger]	50
5.1.5	[Exit]	50

5.2	[Control] menu	50
5.3	[View] Menu	51
5.4	[Help] Menu	51
6.	[Interval Scan Measurement] Menu References	52
6.1	[Measurement] Menu	53
6.1.1	[Start]	53
6.1.2	[Parameter...]	53
6.1.2.1	[Parameters] dialog box	54
6.1.2.2	[Data Mode] dialog box	55
6.1.2.3	[Data File] dialog box	55
6.1.2.4	[Option] dialog box	55
6.1.2.5	<Save...> ([Parameters - Save] dialog box)	55
6.1.2.6	<Open...> ([Parameters - Open] dialog box)	55
6.1.3	[Baseline Correct...]	55
6.1.4	[Accessory...]	55
6.1.5	[External Trigger]	56
6.1.6	[Exit]	56
6.2	[Control] Menu	56
6.3	[View] Menu	56
6.4	[Help] Menu	56
7.	[Data Monitor] Menu References	57
7.1	[Setting] Menu	57
7.1.1	[Parameter...]	57
7.1.2	[Data Mode...]	58
7.1.3	[Move Wavelength...]	58
7.1.4	[CD Detector...]	58
7.1.5	[Light Source...]	58
7.1.6	[Exit]	58
7.2	[Help] Menu	58
8.	[Environment] References	59
9.	Appendix	61
9.1	How to Select Parameters	61
9.2	Spectra Manager Installation	64
9.2.1	Before installation	64
9.2.2	Installing the Spectra Manager	64
9.2.2.1	Starting up SETUP.EXE	64
9.2.2.2	Inputting operator/company name	67
9.2.2.3	Designating the Spectra Manager program directory	67
9.2.2.4	Designating the Spectra Manager data directory	68
9.2.2.5	Copying files to hard disk	69
9.3	Designating the Serial Port (RS-232C)	69

1. General

1.1 About This Manual

This manual describes the configuration and operating procedure for the Model J-800 spectropolarimeter. It is made up of nine sections, including this section (1. General). Each section contains the following information. Refer to "Spectra Analysis Program Instruction Manual" for the [Spectra Analysis], [File Viewer] and [JASCO Canvas] programs. In this manual, Microsoft Windows is referred to as Windows and the personal computer as PC.

1. Introduction

Describes how to use this manual, rules of denotations, and screen configuration. Read it first.

2. Start/stop of program and [Spectra Manager] menu reference

Describes the procedures for turning ON power to the J-810 and PC, starting Windows and programs, exiting the programs and shutdown of PC and J-810. Here, make exercise in the start and shutdown of the instrument. Refer to Section 3 and higher for the program operation.

Also are described the menus in the [Spectra Manager] window that appears with start of program.

3. Introduction to spectrum measurement/analysis program

This section describes spectrum measurement by the measurement program and a part of the analysis program by using simple examples. Those who are not familiar with Windows operation, who are not experienced in the operation of spectropolarimeter or those who use it for the first time should operate it as instructed here. Overview of the J-810 will be understood.

4 to 7. Measurement program reference

Reference menus of the measurement program, such as spectrum measurement, time course measurement, interval scan measurement, etc. Read the required portion, as required.

4. [Spectrum Measurement] menu reference

5. [Time Course Measurement] menu reference

6. [Interval Scan Measurement] menu reference

7. [Data Monitor] menu reference

8. [Environment] reference

Explanation of environment setting (diagnosis of instrument, initialization, I/O port check). Read the required portion, as required.

9. Appendix

Contains suggestions on the setting of parameters and how to set up software and set communication port. Read the required portion, as required.

1.2 Descriptions covered by This Manual

The J-810 program is an application program that runs on Windows 95/NT. Therefore, basic knowledge about Windows operation is required to use this program. This manual does not contain detailed information about the standard operation of

Windows, such as selection of open commands from menus, copying of file, etc. Those who use Windows for the first time should make exercise in the standard operation of Windows referring to the manual attached to Windows.

1.3 Rules of Denotations

For ease of understanding, the following rules of denotations are used throughout this manual.

General Notation

Notation	Meaning
[Measurement] menu [Parameters...] command	Names of menus, commands, and text boxes are enclosed in square brackets '[]', followed by a description indicating whether the function is a menu, command, text box, etc.
<OK>, <Cancel>	Names of buttons are enclosed in angular brackets '< >'.

Keyboard Operations

Notation	Meaning
Shift CTRL	Names of keys found on the keyboard are enclosed in boxes.
Alt , F	Keys that are to be pressed in succession are separated by commas. In the example shown on the left, the Alt key is to be pressed and released, followed by the F key.
Shift + →	Keys that are pressed simultaneously are separated by "plus" signs. In the example shown on the left, press the → key while holding down the Shift key.

Mouse Operations

Notation	Meaning
Point	Move the mouse pointer to the specified item.
Click	Quickly press and release the mouse button.
Double-click	Click the mouse button twice in rapid succession.
Drag	Point to an item, click and hold down the mouse button. Move the mouse with the button held down, and release the button when the pointer is in the desired position.

1.4 Program Window

(1) [Spectrum Measurement] window

Names of controls in the window are described below using the [Spectrum Measurement] window as an example.

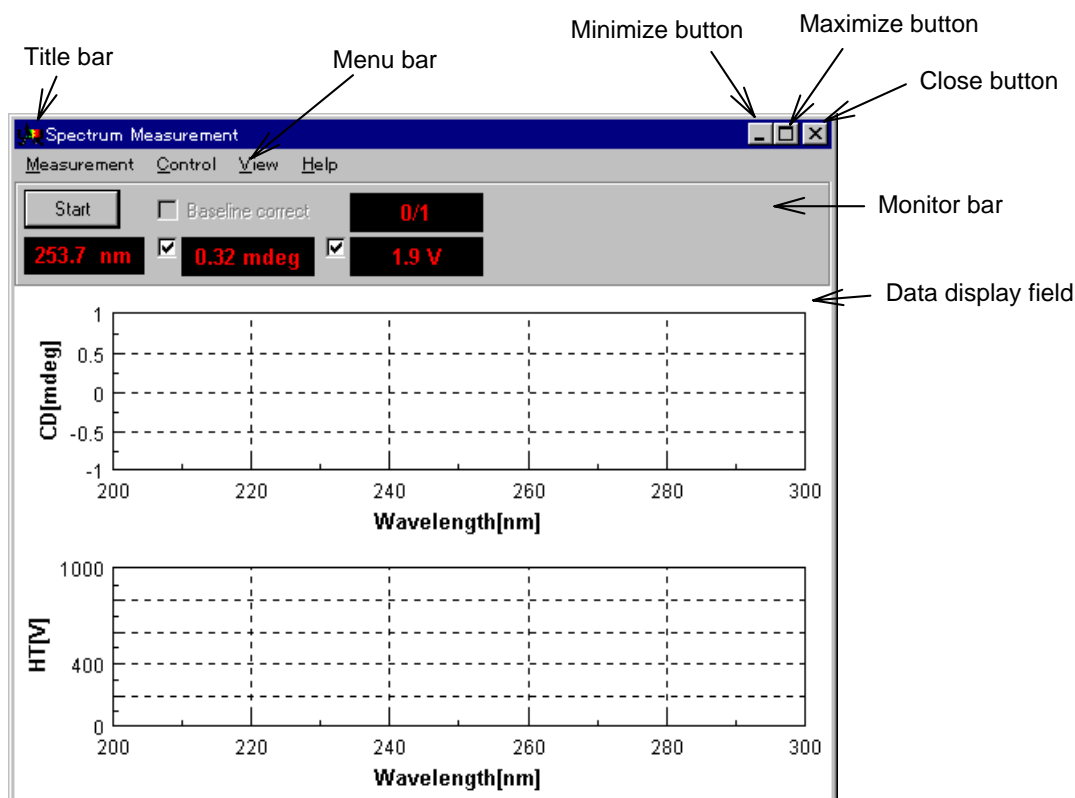


Fig. 1.1 [Spectrum Measurement] window

Name	Function
Title bar	Displays the name of the program window. The title bar in an active window (window on which the operator is working) differs from that in other windows in color and brightness.
Menu bar	Displays the names of menus that can be used. Each menu contains commands (operation) that can be used.
Monitor bar	Displays the current wavelength, measured value and operation button.
Maximize button	Clicking on this button expands an active program window on screenful display. In this state, the maximize button changes to a button that restores the original size. Clicking on the button that restores the original size returns the window to the original size.
Minimize button	Clicking on this button minimizes the window.
Close button	Clicking on this button closes the window.

(2) [Spectra Manager] window

The first window that appears when the [Spectra Manager] program on the [Jasco] menu is started. (See Fig. 1.2.) Menus of programs used by J-810 are displayed. Here are performed the start/stop of the spectropolarimeter and program, setting of communication port, and registration of optional accessories.

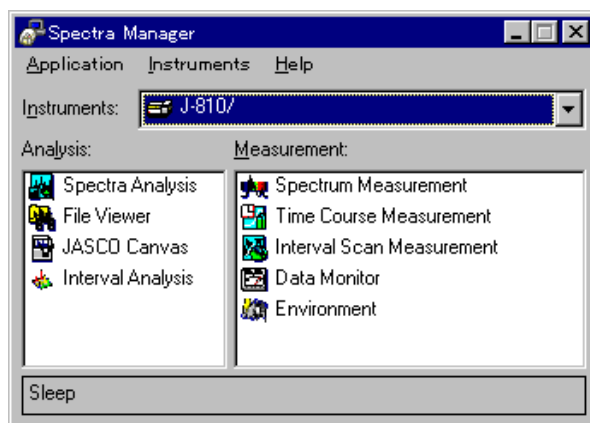


Fig. 1.2 [Spectra Manager] window

(3) [Spectra Analysis] window

The [Spectra Analysis] program can open multiple windows to display data. This window is called a View. (See Fig. 1.3.) Multiple data can be overlaid in one View. Executing Spectrum measurement and Time course measurement starts the [Spectra Analysis] program and opens a View and displays measured data.

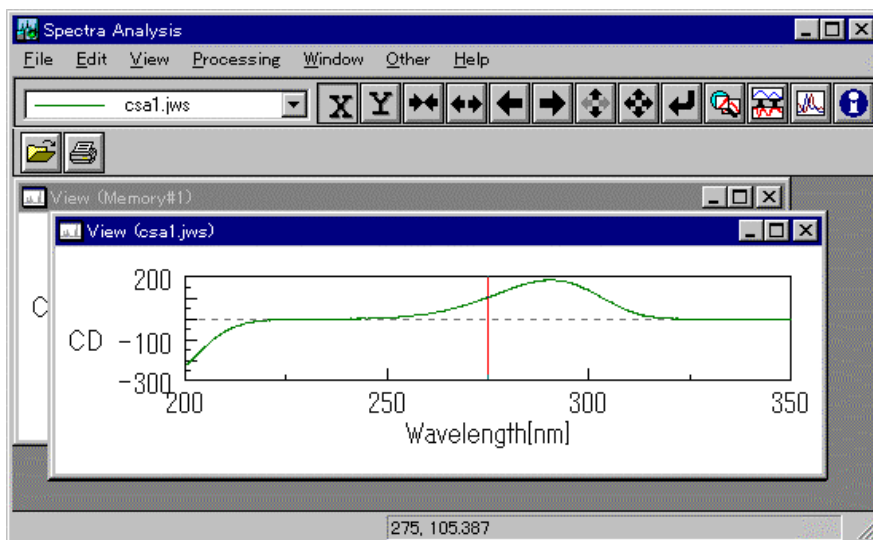


Fig. 1.3 [Spectra Analysis] window

Note: In this manual, the analysis program is briefly summarized in Section 3. Refer to the operation manual for the spectrum analysis program for more information.

2. Start/Stop of Program and [Spectra Manager] Menu Reference

This section describes start/stop of the program and [Spectra Manager] window.

2.1 Start

2.1.1 Turning ON power to J-810 spectropolarimeter

- (1) Make sure that the standard detector is installed on the J-810 main unit. If a long wavelength detector is installed, change it with the standard detector. Refer to the hardware manual for how to remove and install the detector.
- (2) Feed nitrogen gas at a flow rate of 3 to 5 ℓ/min . It takes about five minutes to displace the optical system interior with nitrogen at this flow rate. If measurement is made on a shorter wavelength side than 200 nm, light will be absorbed by a small amount of oxygen in air. In this case, increase the flow rate because the energy of the light incident on the sample decreases.

Measurement to 200 nm 3 to 5 ℓ/min

Measurement to 185 nm 5 to 15 ℓ/min

Measurement to 180 nm 15 to 20 ℓ/min

Measurement to less than 180 nm More than 20 ℓ/min

WARNING: Lighting the xenon (Xe) lamp in air will generate ozone gas, which is harmful to human body. Feed nitrogen gas before lighting the light source.

CAUTION: Ozone gas absorbs light at wavelengths of 200 to 300 nm and 600 to 700 nm. This makes it difficult to make measurement in these wavelength regions, but also will deteriorate optical parts. Always feed nitrogen gas before lighting the light source.

CAUTION: Never use helium gas. It will permeate into the photomultiplier tube, deteriorating not only the degree of vacuum but also its functions.

Note: If a PC-controlled nitrogen gas flowmeter (optional accessory) is installed, all you do is just open the main valve of the gas cylinder. Nitrogen will start flowing when the instrument is started. The flow rate can be controlled at will on the measurement program.

- (3) With the 450W Xe lamp, feed cooling water to the light source at a flow rate of about 2 ℓ/min .

Note: The step (3) above is not necessary for the 150W Xe lamp, of which light source is cooled with air.

- (4) Turn ON the "Power" switch at the front left bottom of the main unit.

Note: Just turning ON the "Power" switch does not light the light source. The light

source will be lit automatically when the measurement program is started.

2.1.2 Starting Windows 95/NT and [Spectra Manager] program

(1) Starting PC and Windows 95/NT

Turn ON the power switches on PC and display. Windows 95/NT starts. Refer to Windows 95/NT manual for more information.

(2) Starting Spectra Manager

Start [Spectra Manager] of [jasco] according to the Windows starting procedure. (See Fig. 2.1.) Spectra Manager window appears. (See Fig. 2.2.)

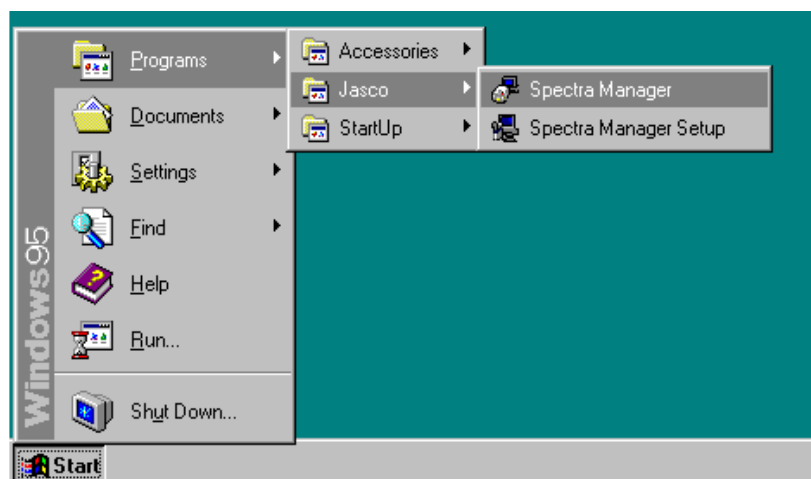


Fig. 2.1 Windows start screen

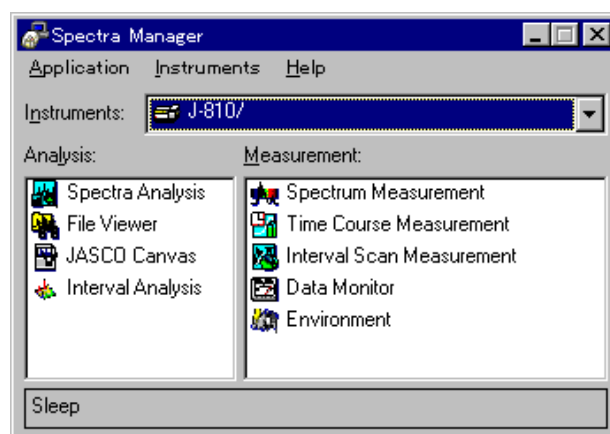


Fig. 2.2 [Spectra Manager] window

[Spectra Manager] window displays the program menu used by the J-810 spectropolarimeter.

Note: Fig. 2.2 shows the program menu of the standard spectropolarimeter.

Optional application program, if any, is added here. Refer to "2.3" [Spectra Manager] menu reference for more information about [Spectra Manager] window.

Note: If multiple instruments are controlled by one PC, J-810 may not be displayed in the [Instrument] box. In this case, take the step (3) below.

- (3) Click on the arrow (▼) at extreme left of the [Instrument] box to display the instrument list and select J-810 from the list. The menu in Fig. 2.2 appears.

2.1.3 Starting measurement or analysis program

Double click a desired program from the displayed menu. The program starts and the desired window appears.

Starting the measurement program (icon at left in Fig. 2.2) starts the spectropolarimeter and lights the light source. About two minutes are required to start the spectropolarimeter. Actions during start are reported by messages.

For example, Fig. 2.4 appears after Fig. 2.3 when the [Spectrum measurement] program is started.



Fig. 2.3 Message box at start

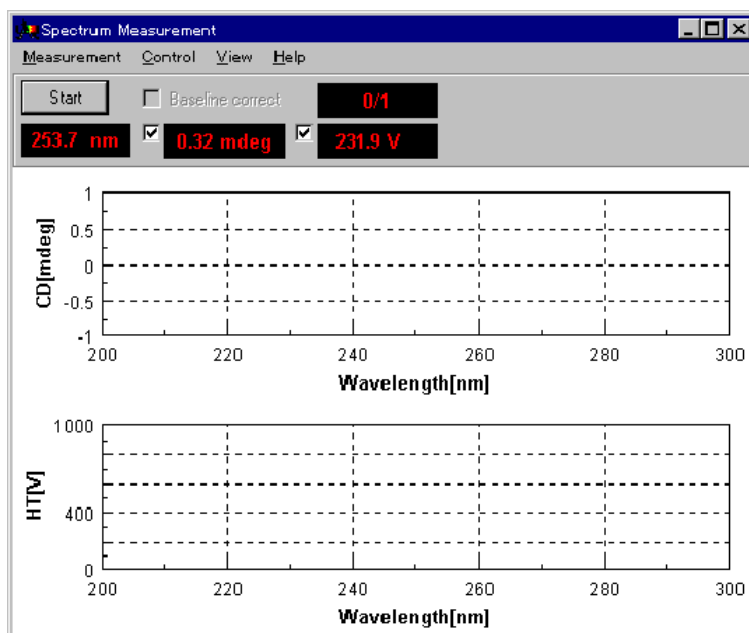


Fig. 2.4 [Spectrum measurement] window

Note (1): If the instrument is equipped with a nitrogen flowmeter and an idling time (refer to "2.3.2.4.1") is set, the light source will light with elapse of the time. Whether the light source has lit or not can be checked on the "Lamp" LED on the amplifier panel on the front of the main unit.

Note (2): If self-diagnosis is not completed normally, the dialog box at the left of Fig. 2.5 will appear. Clicking on the <Detail> button displays error information (right screen in Fig. 2.5).

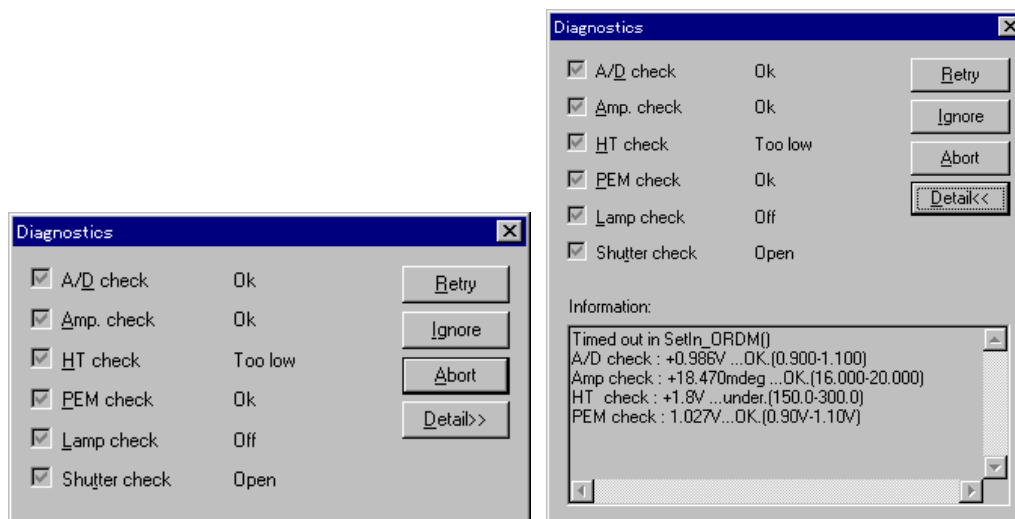


Fig. 2.5 [Self-diagnosis] dialog box

If the light source does not light, the error message "HT value too small" will appear simultaneously with the light source going out, as shown in Fig. 2.5. In that event, click on <Ignore>, start the measurement program, click on [Control] - [Light source control...], open the [Light source control] dialog box and light the light source. (Refer to "4.2.3".)

If the light source does not light or any error message is displayed, contact your local distributor along with [Error information of instrument].

Note (3): If the light source temperature exceeds the normal level, a warning message (see Fig. 2.6) will be displayed along with buzzer alarm. In that event, take actions according to Table 2.1 "Corrective Actions against Errors".

Note (4): The alarm [Nitrogen flow rate low] will appear if a PC-controlled nitrogen flowmeter or a nitrogen flowmeter with sensor is installed.

Note (5): If water leaks in the sample compartment, it is reported by an alarm and buzzer. Stop water supply, remove water, allow it dry up and eliminate the cause of water leakage.

Note (6): If the instrument is equipped with an optional water leak stop valve in the sample compartment, water will stop automatically with water leak alarm. After eliminating the cause of water leak, click on [Control] - [Sample

compartment stop valve...], display the [Sample compartment water leak stop valve control] dialog box and open the valve (Refer to "4.2.6".)

Note (7): If the instrument will not be attended frequently during operation, it is recommended to provide a water leak stop valve in the sample compartment to minimize damage by water leakage.

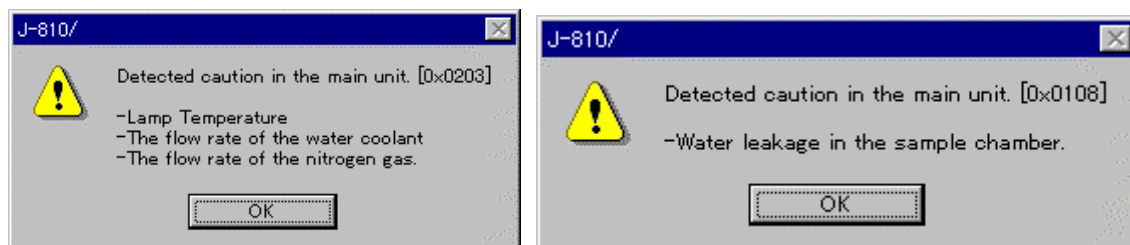


Fig. 2.6 Error message

Table 2.1 Error Messages and Corrective Actions

Error message	Corrective action
Light source temperature high	Stop the instrument and restart operation. For the 450W light source, increase the light source cooling water flow rate.
Light source cooling water flow rate low	Increase the light source cooling water flow rate.
Nitrogen flow rate low	Increase nitrogen gas flow rate. (Refer to "4.2.5".)
Water leak in sample compartment	Refer to Notes (5) through (7) above.

2.1.4 Cautions during operation

- (1) If the instrument is not attended for one hour or so, keep the light source lit. Turning ON/OFF the light source frequently will shorten its life.
- (2) If the slit width is set manually, do not widen the slit more than required. If it is widened excessively, the detector will be deteriorated sooner. Do not set the HT voltage (voltage applied to photomultiplier tube) below 170 volts.
- (3) If sample is spilt in the sample compartment, immediately wipe it off with gauze or the like.
- (4) If a sample or solvent that releases harmful gas is measured or if the humidity in the room is extremely high (more than 80%), install a sample compartment window to protect the monochromator. If measurement is made in a shorter wavelength region than 200 nm, however, do not install the window.
- (5) Do not plug or remove the connector with the power turned ON. Failure can result.
- (6) The light source can be turned ON/OFF during operation. For the 450W light source, do not forget to stop light source cooling water when the light source is turned OFF. If cooling water is not stopped, dew will be condense on the light source unit, causing deterioration of optical parts. Feed cooling water

whenever the light source is lit.

2.2 End

This section describes the procedure from existing the measurement or analysis program to turning OFF the power to the spectropolarimeter and PC.

2.2.1 End of measurement or analysis program

Exits the measurement or analysis program.

- (1) To exit the spectrum analysis program, click on [File] - [Exit]. If data not yet saved exists or if the data on the disk is changed, it is reported a message to that effect. Take actions according to the message.
- (2) To exit the spectrum measurement program, click on [Measure] - [Exit].
- (3) To exit the Spectra Manager, click on [Application] - [Exit]. [Spectra Manager] window closes, reverting to the Windows screen.
- (4) Exit Windows according to the manual for Windows 95/NT.

2.2.2 Turning OFF power to PC and spectropolarimeter

- (1) Turn OFF the "Power" switch on the main unit after making sure that the sample compartment is empty of sample.
- (2) Turn OFF the power to PC and display. Do not forget to turn OFF the power to the display, in particular.
- (3) With the 450W light source, stop the cooling water to the light source.

CAUTION: Stop cooling water whenever the light source is turned OFF. If cooling water is not stopped, dew will condense on the light source unit, deteriorating the optical parts.

- (4) Stop nitrogen gas.

2.3 [Spectra Manager] Menu Reference

[Spectra Manager] starts the program for making measurements, data analysis and environment setting using the spectropolarimeter, selects, starts/stops and sets communication port of the spectropolarimeter and registers optional accessories.

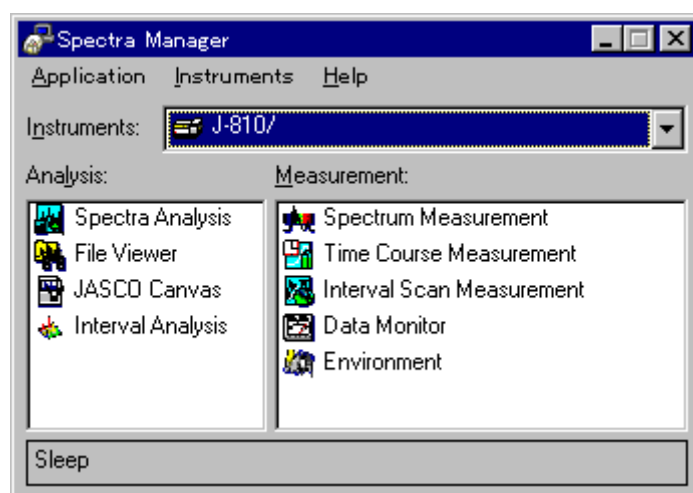


Fig. 2.7 [Spectra Manager] window

Fig. 2.7 shows the standard measurement/analysis program menu. It is added to this menu when an application program is installed. The left side shows the analysis menu and the right side shows the measurement menu. Double clicking the menu starts the program. If the spectropolarimeter has not been started, they will start simultaneously.

2.3.1 [Application] menu

2.3.1.1 [Analysis]

Starts the currently selected analysis program. Refer to its manual for more information.

Note: The program can also be started by double clicking the menu.

2.3.1.2 [Measure]

Starts the currently selected measurement program.

Note: The program can also be started by double clicking the menu.

2.3.1.3 [Exit]

Closes [Spectra Manager] window.

2.3.2 [Instrument] menu

2.3.2.1 [Start]

Initializes the spectropolarimeter and starts communication (start). About two minutes are required. Normally, this operation is not required because the spectropolarimeter is automatically started by starting the measurement program.

2.3.2.2 [Stop]

Stops communication with the spectropolarimeter.

Note: When [Spectra Manager] program is exited, communication with the spectropolarimeter stops automatically.

2.3.2.3 [Set communication port...]

Changes the communication port with the spectropolarimeter. Serial port COM1 has been set as default.

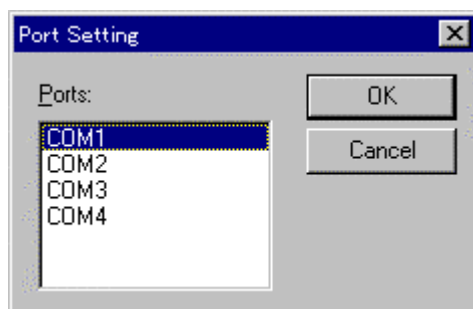


Fig. 2.8 [Set communication port] dialog box

The communication port can be changed by clicking on the <OK> button after clicking on a desired port from [Communication port] list.

2.3.2.4 [Option...]

Registers the status at start of instrument and optional accessories at your hand. Accessories cannot be controlled in the measurement program unless it is registered here.

Note: Whenever an optional accessory is used, open this dialog box and register it. The accessory cannot be controlled unless it is registered.

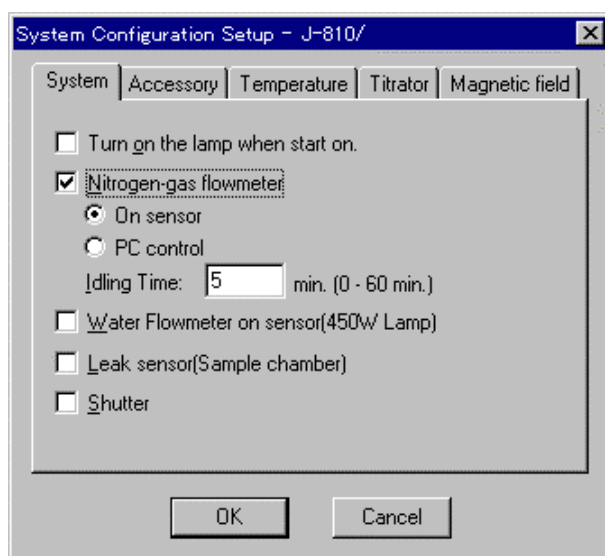


Fig. 2.9 [Set system config.] - [Instrument]

[Set system config.] dialog box is made up five boxes of [Instrument], [Accessory (Standard)], [Temp. control], [Titrator] and [Magnetic field control]. Clicking on the top tag displays the dialog box for the accessory clicked on. Dialog boxes are described below.

2.3.2.4.1 [Instrument] dialog box

Sets the status at start of instrument. Refer to Fig. 2.9 for the dialog box. Click it on to put a check mark, as and if required.

Note: Putting a check mark here allows control of the shutter open/close and change of nitrogen flow rate in the measurement program.

[Light light source at start] Sets light source ON/OFF at start.

[Nitrogen flowmeter] Sets parameters of nitrogen flowmeter. If the instrument has a flowmeter, put a check mark.

[With sensor] Select this for a nitrogen flowmeter with sensor.

[PC control] Select this when the nitrogen flowmeter is the PC-controlled type.

[Idling time] Enter a time from start of nitrogen feed to lighting of light source.

[Light source cooling water flowmeter with sensor] Put a check mark for the J-810 (450W xenon lamp).

[Sample compartment leak water stop valve] Put a check mark when the instrument has a sample compartment leak water stop valve (optional accessory).

[Shutter] In the case of J-810, put a check mark.

2.3.2.4.2 [Accessory (Standard)] dialog box

Here, put a check mark to an optional accessory at your hand. It cannot be used unless a check mark is put.

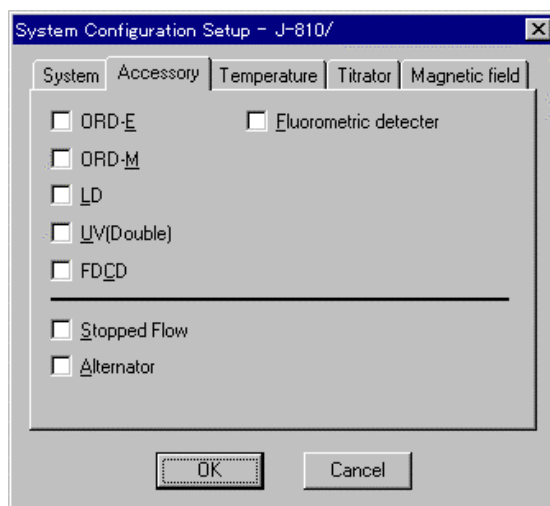


Fig. 2.10 [Set system config.] - [Accessory (Standard)] dialog box

2.3.2.4.3 [Temperature control] dialog box

Here, the temperature controller is registered and deleted. Register a temperature controller at your hand. It cannot be used unless it is registered.

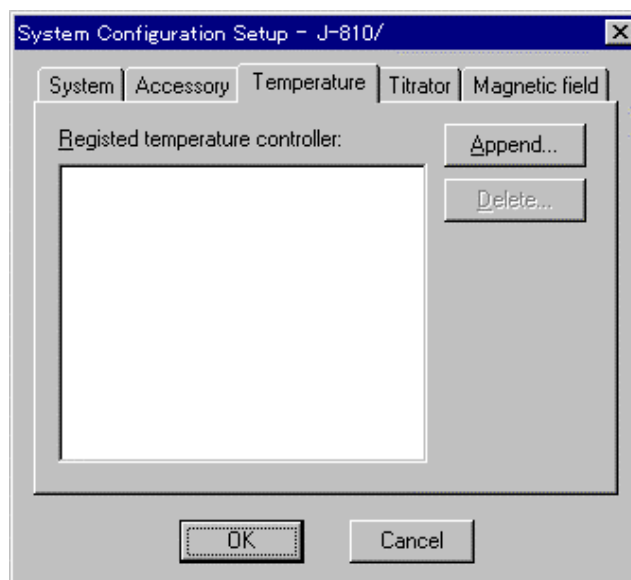


Fig. 2.11 [Set system config.] - [Temperature control] dialog box

[Registered temp. controller list] The registered temperature controller is displayed.

<Add...>

Registers a temperature controller. Clicking on it displays the following dialog box.

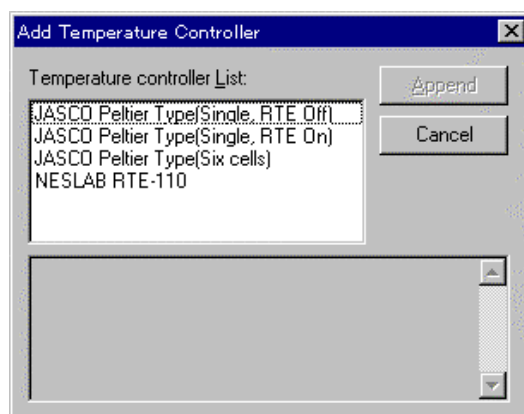


Fig. 2.12 [Add temp. controller] dialog box

Select a temperature controller to be registered from [Temp. controller list]. Details of the temperature controller are displayed in the following box. Click on <Add...> button after checking the contents. The following messages appears.

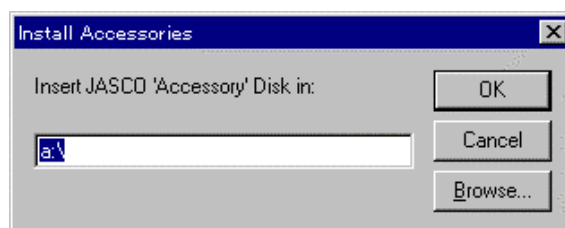


Fig. 2.13 [Install accessory] dialog box

Insert the program disk for the selected accessory in the disk drive and click on <OK>. The accessory is registered.

The folder can be referenced by clicking on the <Reference...> button.

<Delete...>

Deletes the selected temperature controller from the [Registered temp. controller list].

2.3.2.4.4 [Titrator] dialog box

Registers and deletes titrator. Cannot be used unless it is registered.

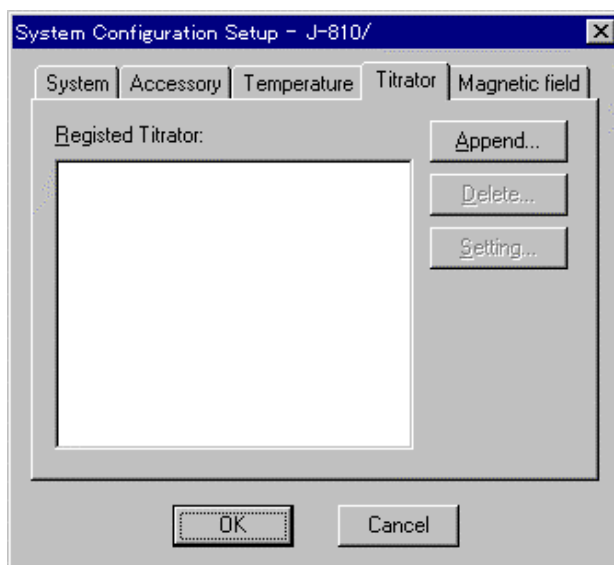


Fig. 2.14 [Set system config.] - [Titrator] dialog box

[Registered titrator list] Titrators already registered are displayed.

[Add...] Registers titrators. Clicking on this displays the following dialog box.

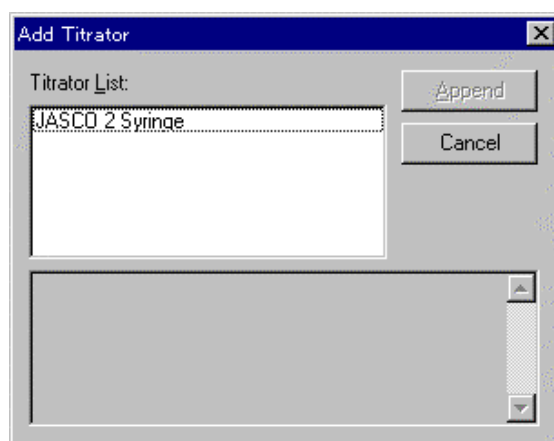


Fig. 2.15 [Add titrator] dialog box

Selects a titrator to be registered from [Titrator list]. Details of the titrator are displayed in the box below. Titrators are registered by clicking on the <Add...> button

after checking the contents.

<Delete...>

Deletes a selected titrator from [Registered titrator list].

<Set...>

Click on this button after selecting a titrator from [Registered titrator list]. The following dialog box appears.

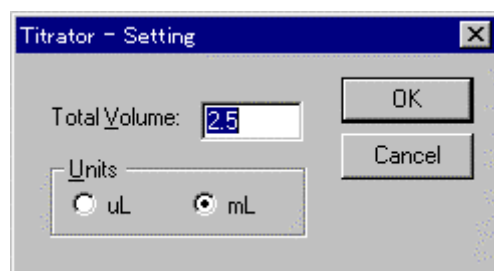


Fig. 2.16 [Titrator - Set] dialog box

[Syringe volume]

Enter the volume of syringe.

[Unit]

Select the unit of the syringe.

2.3.2.4.5 [Magnetic field control] dialog box

Registers and deletes magnetic field controller. It cannot be used unless it is registered.

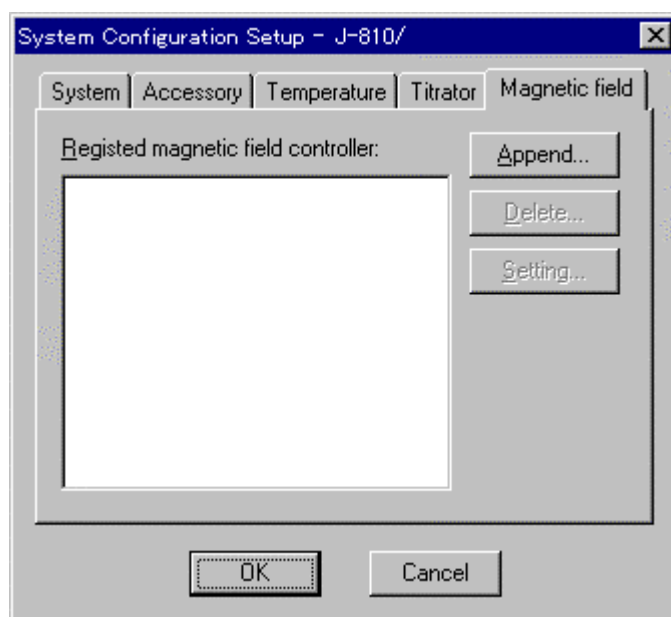


Fig. 2.17 [Set system config.] - [Magnetic field control] dialog box

[Registered magnetic field controller list] Magnetic field controllers already registered are displayed.

<Add...>

Registers a magnetic field controller. Clicking on this displays the following dialog box.

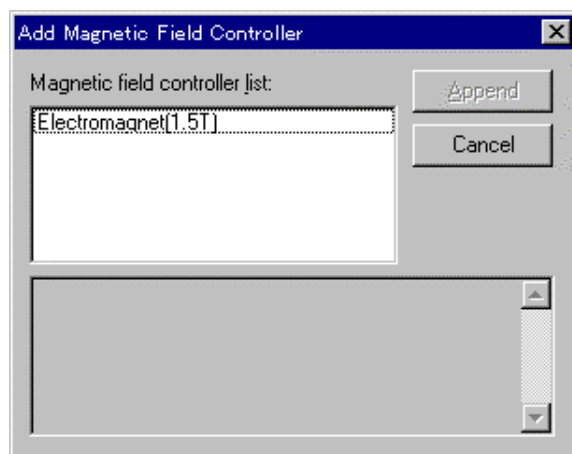


Fig. 2.18 [Magnetic field controller] dialog box

Select a magnetic field controller to be registered from [Magnetic field controller list]. Details of the magnetic field controller are displayed in the box below. It can be registered by clicking on the <Add...> button after checking the contents.

<Delete...>

Deletes a selected magnetic field controller from [Registered magnetic controller list].

<Set...>

Click on this button after selecting a magnetic field controller from [Registered magnetic field controller list]. The following dialog box appears.

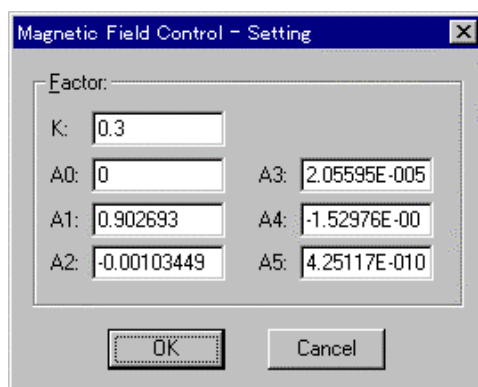


Fig. 2.19 [Magnetic field control - Set] dialog box

Enter the factor of instrument function.

2.3.2.5 [Instrument information...]

Displays the version information of the instrument control driver.

2.3.3 [Help] menu

Displays the version information of this software.

3. Introduction to Spectrum Measurement Program and Spectrum Analysis Program

This section explains the procedure for starting the spectrum measurement program, measuring a standard sample, saving the measured spectrum onto a disk and printing it on a printer for exercise in the operation of the spectropolarimeter.

Note: Refer to "2.1" for the startup of the instrument. Here, explanation begins with startup of the measurement program from the [Spectra Manager] window.

3.1 Operation Overview

A. Operation Overview of Spectrum Measurement Program

Prepare sample	See "3.2.1".
↓	
Start spectrum measurement program	See "3.2.2".
↓	
Set parameters	See "3.2.3".
↓	
Set sample	See "3.2.4".
↓	
Measure sample	See "3.2.4".
↓	
Display spectrum (spectrum analysis program start)	See "3.2.4".
↓	
Save spectrum	See "3.2.5".
↓	
Print	See "3.2.6".

B. Operation Overview of Spectrum Analysis Program

Start spectrum analysis program	See "3.3.1".
↓	
Load spectrum	See "3.3.2".
↓	
Calculate optical constant (molecular ellipticity)	See "3.3.3".
↓	
Noise reduction	See "3.3.4".
↓	
End (shutdown)	See "3.4".

3.2 Measuring, Saving and Printing Spectrum

The procedure for measuring d-10-ammonium camphosulfonic acid (NH₄-CSA), which is a standard accessory, saving the measured spectrum onto a disk and printing it on the printer.

3.2.1 Sample preparation

As sample is used 0.06% (w/v) d-10-ammonium camphosulfonic acid (NH₄-CSA) solution. Prepare a sample using NH₄-CSA, which is a standard accessory. Put the prepared sample into a 10mm cell.

3.2.2 Starting the spectrum measurement program

Double click [Spectrum Measurement] of [Spectra Manager]. The spectrum measurement program starts and the following window appears.

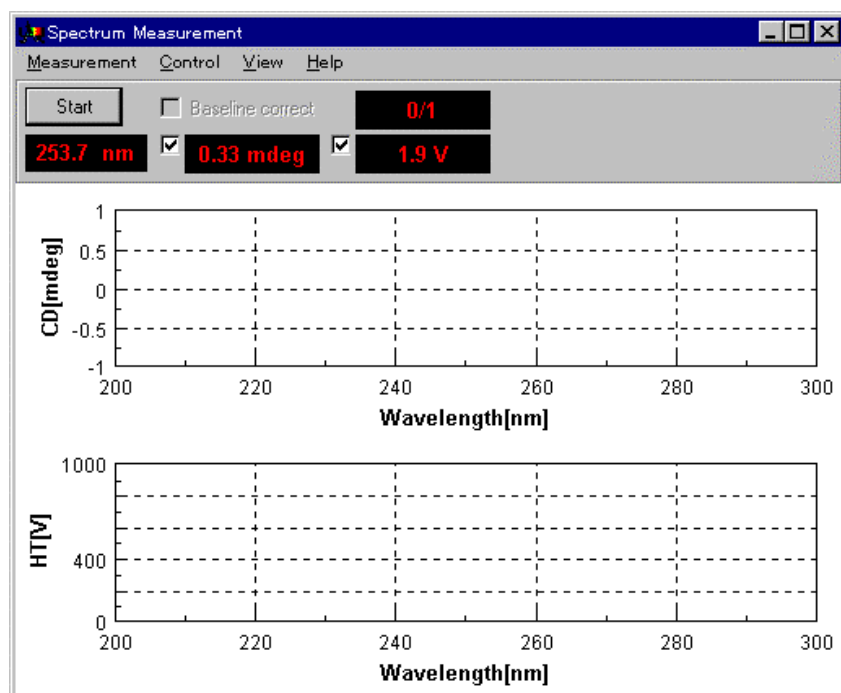
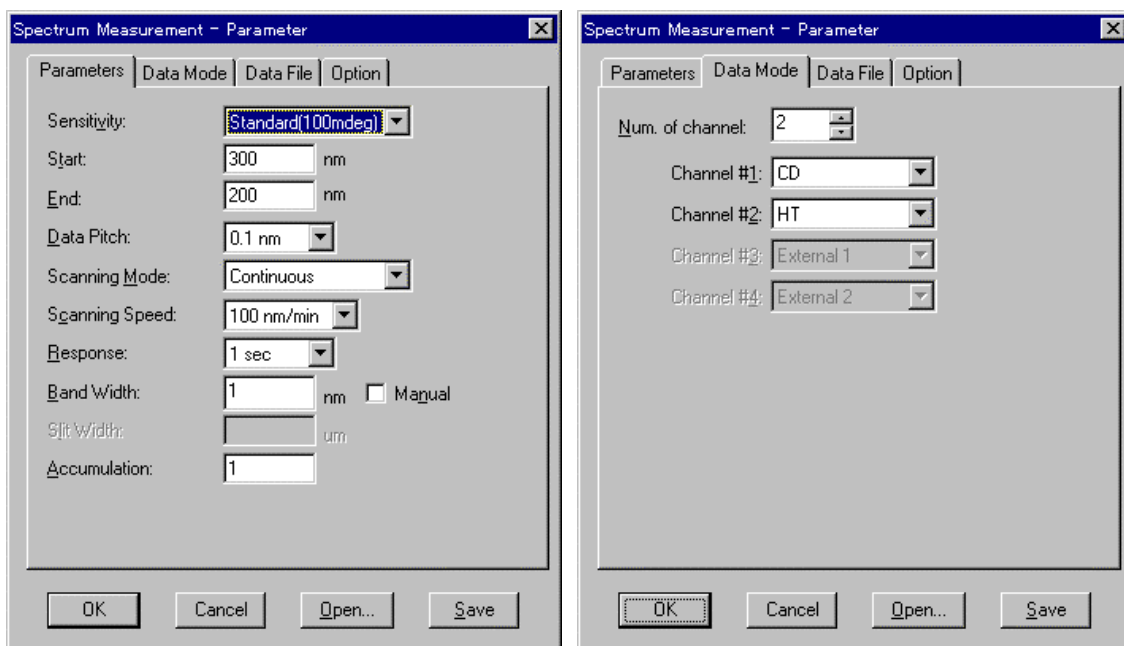


Fig. 3.1 [Spectrum Measurement] window

3.2.3 Setting parameters

- (1) Click on [Parameter] from the [Measurement] menu. The following dialog box appears. The parameters setting dialog box is made up of dialog boxes: [Parameters], [Data Mode], [Data File] and [Option]. Clicking on a top tag changes over the dialog box. Clicking on the tag [Data Mode], for example, when the [Parameters] dialog box is active (being displayed) displays the [Data Mode] dialog box.

Note: The [Data File] dialog box is necessary when saving measured data automatically on the disk. The [Data Mode] dialog box is for setting the number of measuring channels and the photometric mode. The [Option] dialog box is for comment editing.



[Parameters] dialog box

[Data mode] dialog box

Fig. 3.2 [Spectrum Measurement - Parameter] dialog box

(2) Changing parameters

Parameters currently displayed in the [Parameters] dialog box are selected. Here, set them as follows.

[Sensitivity:] : Low (1000 mdeg)
 [Start:] : 350 nm
 [End:] : 200 nm
 [Data Pitch:] : 0.1 nm
 [Scanning Mode:] : [Continuous]
 [Scanning Speed:] : 50 nm/min
 [Response:] : 1 sec
 [Band Width:] : 1.0 nm
 [Accumulation:] : 1

1) Changing [Sensitivity:]

[Sensitivity:] is a drop-down type box. Click on the arrow at extreme right. A list of sensitivities is displayed. Then, click on [Low (1000 mdeg)]. Sensitivity is set to [Low (1000 mdeg)].

2) Changing [Start:] and [End:].

Input 350 nm into the [Start:] text box, and 200 nm into the [End:] text box. To input [Start:], for example, click on its text box. A cursor appears in the text box, waiting for input. Delete unnecessary numerals and input a wavelength with numeric keys.

Change other parameters in the same way.

Note: Set the parameters of the [Data Mode], [Data File] or [Option] dialog box, if required.

(3) Upon completion of parameter setting, click on the <OK> button. Parameters

are transferred to the main unit. The transfer process is displayed by messages on the screen.

3.2.4 Setting sample and spectrum measurement

(1) Setting sample

- 1) Set the cell holder on the cell holder receiver in the sample compartment so that the cell holder is in contact with the light shield.
- 2) Put the cell prepared in "3.2.1" in the left corner of the cell holder and lightly hold it with the cell holddown.

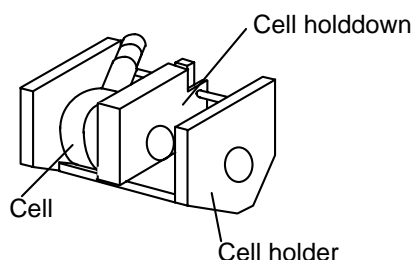


Fig. 3.3 Setting the cell

Note: Refer to "CD/ORD measuring method" for cell types.

(2) Measurement

Click on [Start] from the [Measurement] menu (or <Start> button). The sample is measured and the progress of measurement is displayed on the screen. Upon completion of measurement, the [Spectra Analysis] program starts automatically, opening a new View and displaying a spectrum (see Fig. 3.4).

Note: If the spectrum analysis program is already started, starting measurement opens a new View of the spectrum analysis program and displays a spectrum, but the spectrum analysis program is not activated. The View spectrum is invisible because it is hidden behind the [Spectrum Measurement] window. Before printing out or saving the spectrum of View, click on the task bar [Spectra Analysis] to make it active.

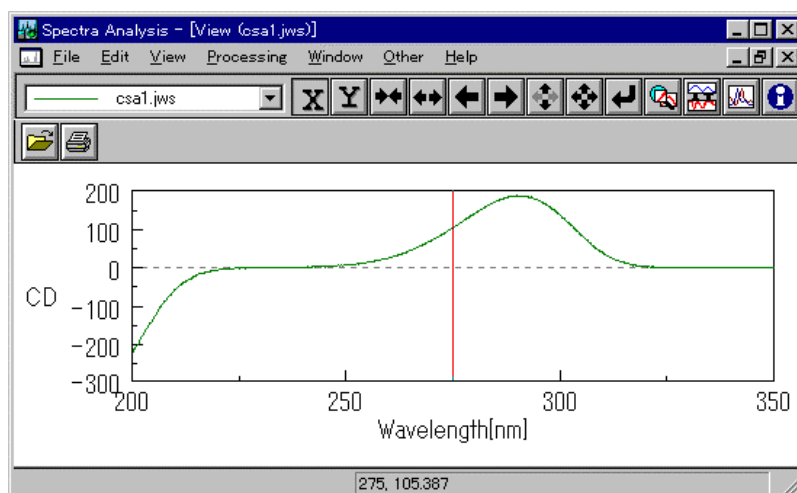


Fig. 3.4 [Spectra Analysis] window

3.2.5 Saving spectrum

Saves a measured spectrum onto a disk.

Note: Save it when the spectrum analysis program is activated.

- (1) Click on [Save As...] from the [File] menu. The following dialog box appears.

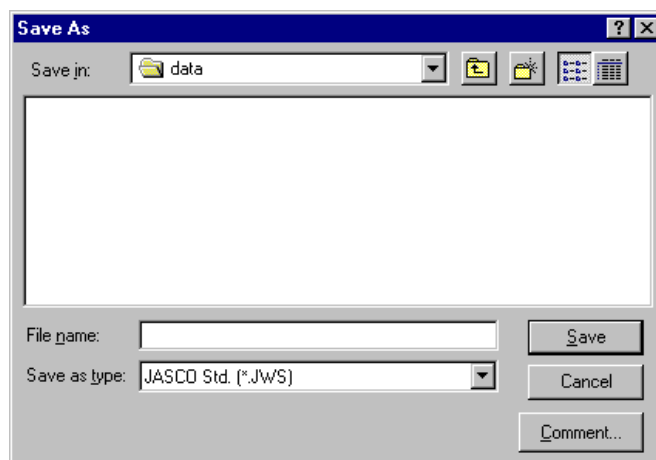


Fig. 3.5 [Save As...] dialog box

- (2) Select a place to save the spectrum.
- (3) Input a file name into the [File Name:] text box. The extension (after ".") need not to be inputted.

Note: If necessary, click on the <Comment...> button to open the [Comment] dialog box and input the sample name, operator, organization, etc.

- (4) Click on the <OK> button. The spectrum is saved on the disk.

3.2.6 Printing spectrum

The measured spectrum is printed out on the printer.

- (1) Click on [Print Setup...] from the [File] menu. The following dialog box appears. Contents of the dialog box vary with the printer incorporated. Check the printer name, form, print orientation, etc.

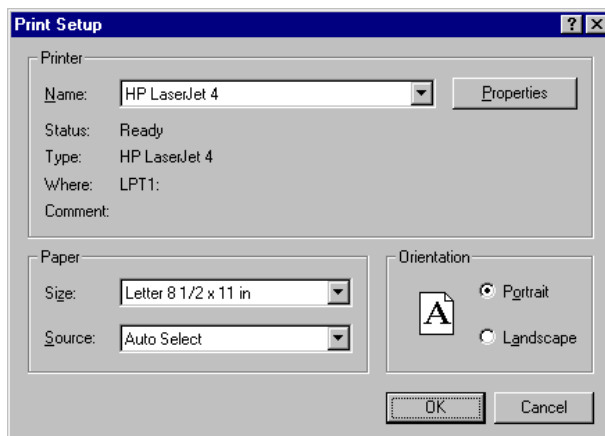


Fig. 3.6 [Print Setup] dialog box

- (2) Click on [Print...] from the [File] menu. The following dialog box opens.

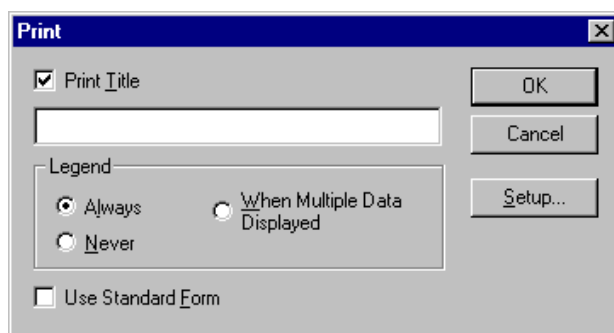


Fig. 3.7 [Print] dialog box

- (3) Set whether the title and legend are to be printed out or not, if necessary.
- (4) Click on the <OK> button. The spectrum is printed out on the printer.

3.3 Operation of Spectrum Analysis Program

The spectrum analysis program can save and print a spectrum as mentioned in the preceding section, process data (optical constant calculation, noise reduction, peak picking, derivative and differential spectrum calculation, etc.) and change display style (scale, color, line style, etc.) and perform other functions related to spectra.

Here are described loading of spectrum saved on the disk (in the preceding section) into the View of spectrum analysis program, optical constant (molecular ellipticity) calculation and noise reduction.

3.3.1 Starting the spectrum analysis program

Note: If spectrum analysis is made after spectrum measurement, startup operation is unnecessary.

Double click [Spectra Analysis] of [Spectra Manager]. The spectrum analysis program starts displaying the following window.

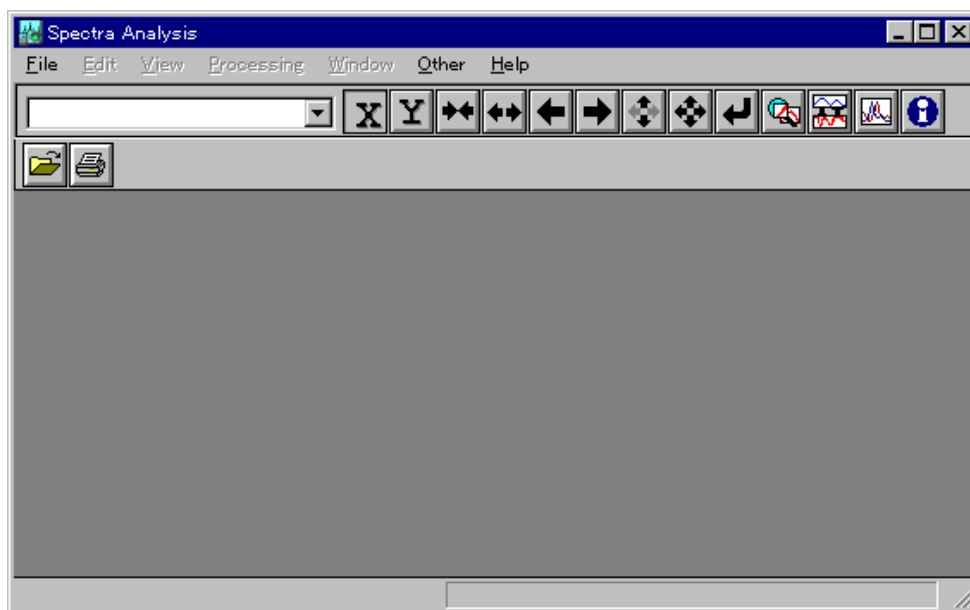


Fig. 3.8 [Spectra Analysis] window

3.3.2 Loading spectrum

The spectrum on the disk is loaded to the View of the spectrum analysis program.

(1) Click on [Open] on the [File] menu. The following dialog box appears.

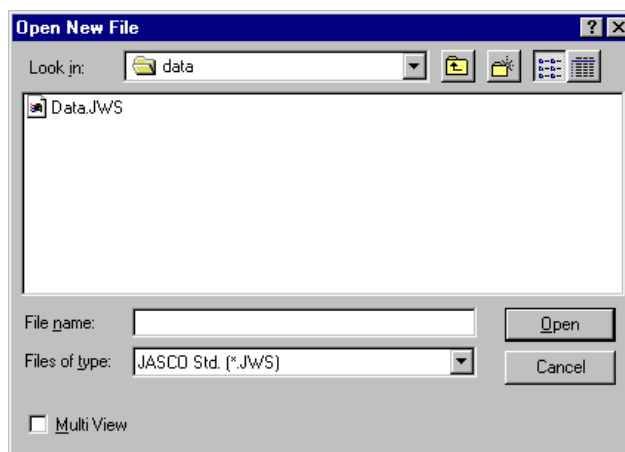


Fig. 3.9 [Open New File] dialog box

(2) Click on the file name saved in "3.2.5 Saving spectrum" from the [File Name] list.

(3) Click on <OK>. A new View opens and the designated spectrum appears.

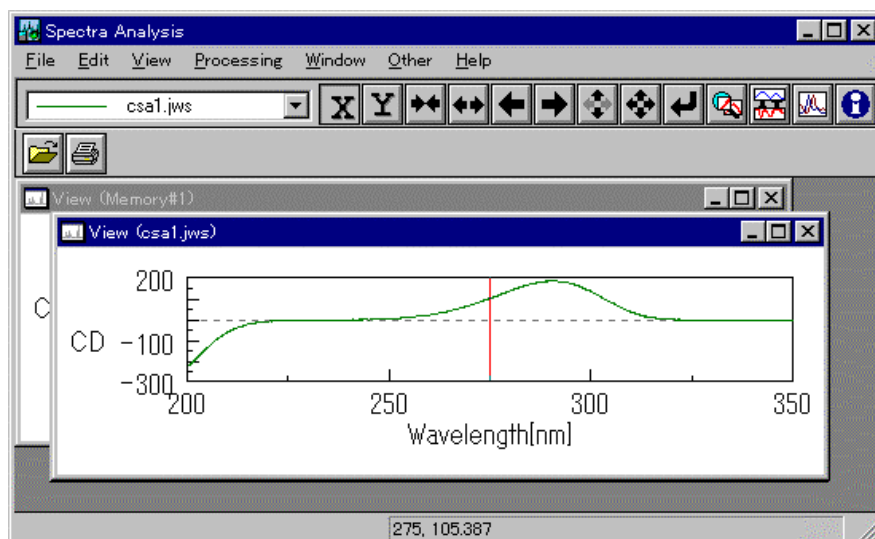


Fig. 3.10 Spectrum View

3.3.3 Calculating optical constant (molecular ellipticity)

- (1) Click on [Processing] - [CD-Option] - [Optical Const...]. The following dialog box appears.

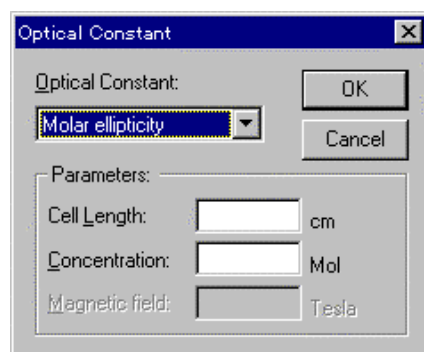


Fig. 3.11 [Optical Constant] dialog box

- (2) Select [Molecular ellipticity] from the [Optical Constant] drop-down list.
- (3) Input [Cell Length:] and [Concentration].
- (4) Click on <OK>. Molecular ellipticity is calculated and the result is displayed on a new View.

Note: The name is [Memory n] (n: Number) because data is not yet saved.

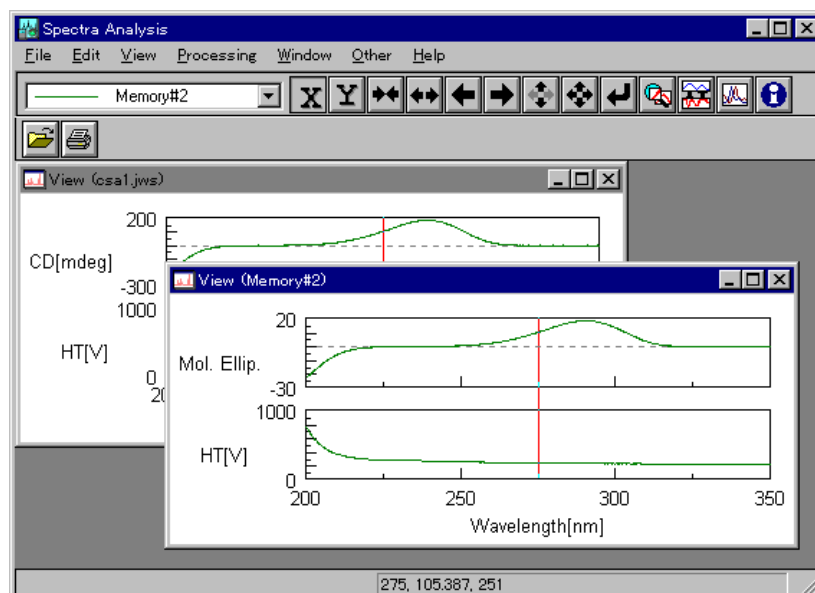


Fig. 3.12 Spectrum View (molecular ellipticity)

3.3.4 Noise reduction

Noise having a certain period is eliminated from the spectrum. If the peak is as sharp as noise, it cannot be eliminated.

- (1) Click on the [Processing] - [Correction] - [FFT filter...]. The following dialog box appears.

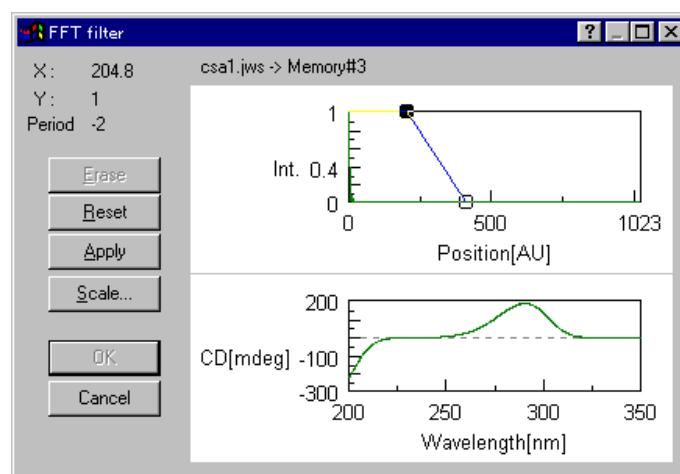


Fig. 3.13 [FFT Filter] dialog box

The FFT filter shape (frequency distribution diagram) is displayed at the top and the original spectrum at the bottom of the spectrum display field because noise reduction is not yet executed immediately after the dialog box is opened.

- (2) The filter shape is changed by moving the small rectangle on the FFT filter at the top. Moving the mouse pointer near to the rectangle changes the shape to that of tweezers xxx. Drag the rectangle. Moving the mouse pointer near to the filter changes its shape to that of a syringe xxx. Here, clicking on the mouse adds movable points (maximum 32) to it. The X and Y values correspond to the

coordinates of movable points and the period to that of noise (in nm).

Note: Clicking on the <Reset> button resumes the initial filter shape (straight line with only 2 moving points). Clicking on <Erase> deletes one moving point. Two or more movable points cannot be deleted.

Note: If the frequency distribution diagram is not easy to read, operate the <Scale...> button to expand it. Clicking on the button displays the following dialog box. Input the values of vertical and horizontal axes and click on <OK> to expand or reduce the frequency distribution diagram.

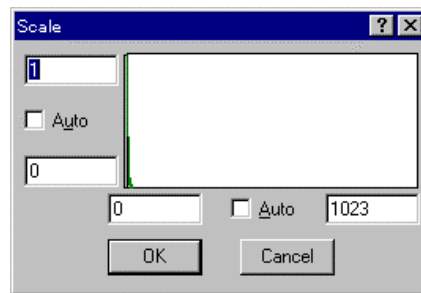


Fig. 3.14 [Scale] dialog box

- (3) Upon determining the filter shape, click on the <Apply> button. Noise reduction is executed with the created filter and the spectrum at the bottom is rewritten to a result spectrum.

Note: If a satisfactory result is not obtained, execute steps (2) and (3) again.

- (4) Click on <OK>. The result appears on a new View.

3.4 Shutdown

3.4.1 End of Spectrum Measurement/Analysis Programs and Windows 95/NT

- (1) End of spectrum analysis program

Upon completion of a series of analyses, click on [File] - [Exit]. The [Spectra Analysis] window disappears and the [Spectrum Measurement] window appears from below.

Note: If there is any spectrum not saved in the window, it is reported by a message to that effect. Take actions according to the message. The message is repeated as many number of times as the number of unsaved spectra. Repeat the procedure appropriately.

- (2) End of spectrum measurement program

Execute [Measurement] - [Exit]. The [Spectrum Measurement] window disappears, reverting to the [Spectra Manager] window.

- (3) End of [Spectra Manager] program

Click on [Application] - [Exit].

(4) End of Windows 95/NT

Exit the Windows 95/NT according to the operation of Windows 95/NT.

3.4.2 Turning OFF power to PC and spectropolarimeter

- (1) Turn OFF the power to PC and display. Do not forget to turn off the display unit, in particular.
- (2) Turning off power to spectropolarimeter
 - 1) Make sure that the sample compartment is empty of sample, turn OFF the "Power" switch on the main unit.
 - 2) If the 450W light source is used, stop its cooling water.
 - 3) Shut off nitrogen gas.

4. [Spectrum Measurement] Menu Reference

Starting the spectrum measurement program displays the following window.

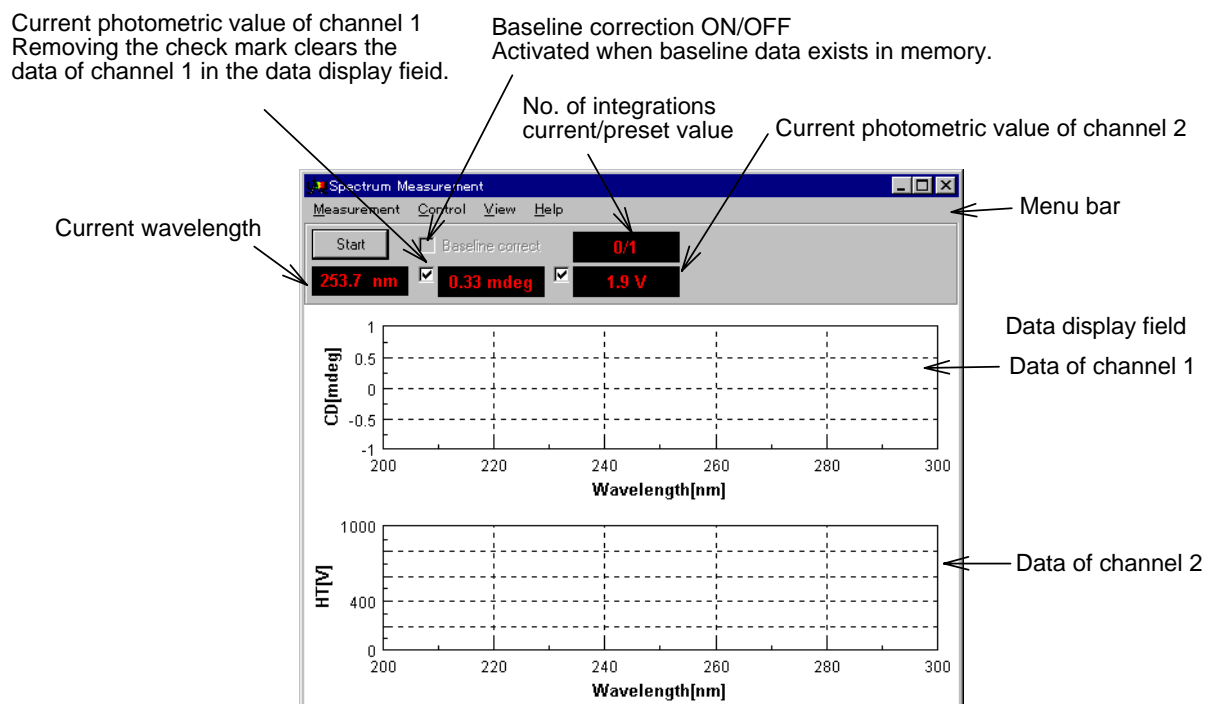


Fig. 4.1 [Spectrum Measurement] window

Note: Fig. 4.1 shows two types (2 channels) of data. The program can display up to four types of data simultaneously by changing the number of measuring channels.

[Measurement] menu

- [Start] Starts or stops measurement.
- [Parameter...] Sets parameters.
- [Baseline Correct...] Sets baseline correction and selects baseline data.
- [Accessory...] Selects optional accessory.
- [Alternate Mode] Sets whether alternate measurement is made or not (when provided with automatic sample changer).
- [External Trigger] Sets whether measurement is to be made by external trigger or not (when provided with stopped flow unit).
- [Exit] Exits the spectrum measurement program.

[Control] menu

- [Move Wavelength...] Moves the current wavelength to a desired value.
- [CD Detector...] Sets detector (CD/ORD/LD/UV) sensitivity.
- [Light Source...] Turns ON/OFF the light source. Displays/clears the light source operating time.
- [Shutter...] Opens or closes the shutter (when provided).
- [ORD-M Zero Clear] Zeroes the photometric value of ORD-M (when provided).
- [Accessory...] Controls compatible accessories in a batch.

[View] menu

- [Channel 1] Displays the channel 1 View.
- [Channel 2] Displays the channel 2 View.

[Channel 3]	Displays the channel 3 View.
[Channel 4]	Displays the channel 4 View.
[Help] menu	
[Error Information...]	Displays instrument error information.
[About...]	Displays the version and copyright.

4.1 [Measurement] Menu

4.1.1 [Start]

Starts spectrum measurement. Displays the progress of measurement in real time.

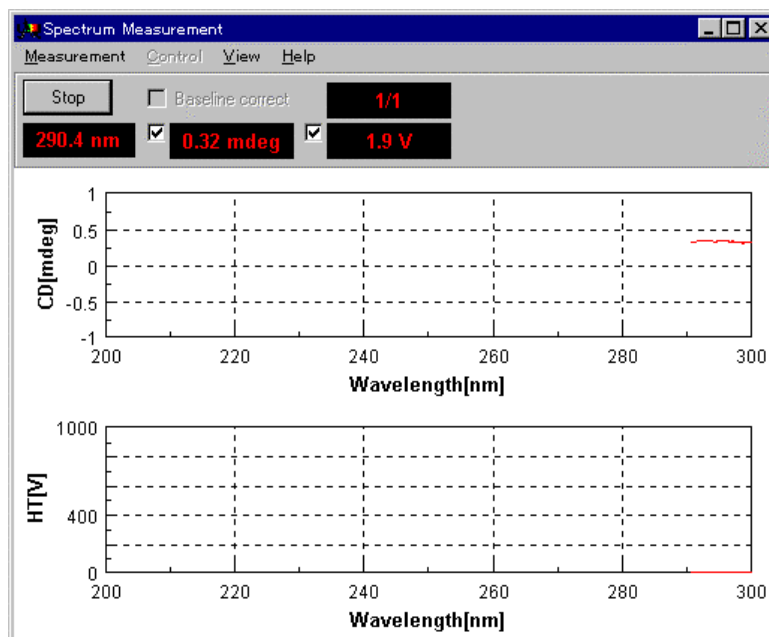


Fig. 4.2 Spectrum measuring window

Upon completion of measurement, the spectrum analysis program starts automatically, opens a new View and displays a spectrum.

Note: If the spectrum analysis program is started already, executing measurement opens a new View of the spectrum analysis program and displays a spectrum, but the spectrum analysis program is not activated. The View spectrum is invisible hidden behind the [Spectrum Measurement] window. Before printing or saving the spectrum in the View, click on the task bar [Spectra Analysis] to activate it.

Note: Suspending measurement displays a spectrum from [Start] to measured wavelength in the View.

4.1.2 [Parameter...]

Sets parameters, edits comment and saves and loads parameters onto or from the hard disk.

The parameters dialog box is made up of four dialog boxes : [Parameters], [Data Mode], [Data File] and [Option]. They can be changed by clicking on a tag at the

top. Clicking on the tag [Data Mode], for example, when the [Parameters] dialog box is active displays the [Data Mode] dialog box. Dialog boxes are described below.

4.1.2.1 [Parameters] dialog box

Sets the parameters of the main unit.

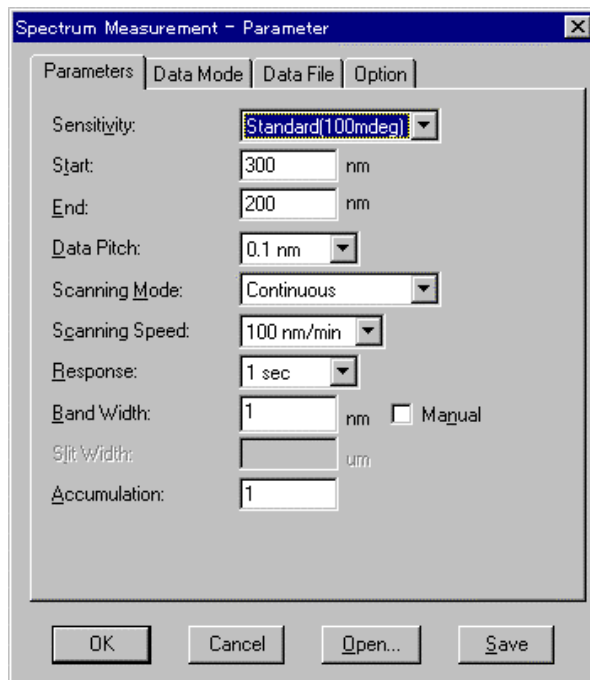


Fig. 4.3 [Parameters] dialog box

Note: Refer to "9.1" for more information about parameters and suggestions on how to select them.

[Sensitivity:]	Selects sensitivity from the drop-down list.
[Start:]	Measurement start wavelength (longer wavelength end).
[End:]	Measurement end wavelength (shorter wavelength end).
[Data Pitch:]	Selects data acquisition interval from the drop-down list.
[Scanning Mode:]	Selects a scan mode out of continuous scan and step scan.
[Scanning Speed:]	Selects a wavelength scanning speed. Can be entered when the scan mode is [Continuous].
[Response:]	Integration time per data. When the scan mode is [Step (Auto Response)], designate a range.
[Band Width:]	Sets spectrum band width. Putting a check mark to [Manual] activates [Slit Width:].
[Slit Width:]	Sets slit width. Can be entered when the band width is [Manual]. Set range: 1 to 3000 μm

CAUTION: If the slit width is set manually, do not widen it excessively. Excessive width may deteriorate the detector. Do not set the HT voltage (photomultiplier voltage) to below 170 V.

[Accumulation]	No. of spectrum integration. Set range: 1 to 999
<OK>	Transfers the set parameters to the spectropolarimeter and closes the dialog box.
<Cancel>	Stops setting of parameters. Control returns to previous parameters and closes the dialog box.

4.1.2.2 [Data Mode] dialog box

The number of measurement channels and photometric mode are set.

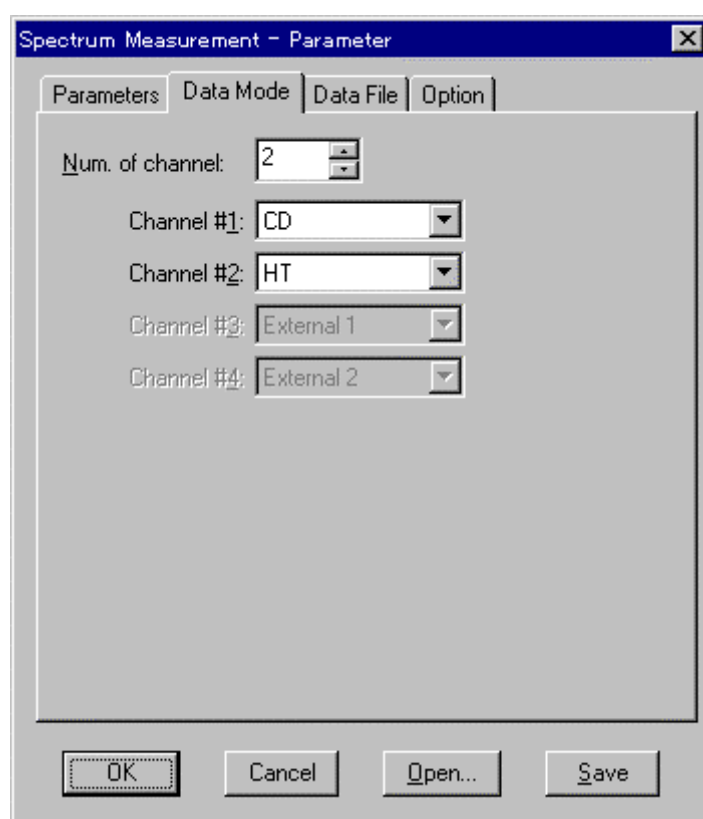


Fig. 4.4 [Photometric mode] dialog box

[Num. of channel:]	Four channels maximum. Four types of data can be acquired simultaneously.
[Channel #1:]	The selectable range varies with an optional accessory at your hand. <ul style="list-style-type: none"> • CD: Circular dichroism signal • CD/DC result • Test signal: For instrument test • LD (when LD accessory is provided) • ORD-E (when ORD-E accessory is provided)

- ORD-M (when ORD-M accessory is provided)
- UV (single)
- UV (double) (when UV (double) accessory is provided)
- FDCD (when FDCD accessory is provided)
- FDCD/DC result (when FDCD accessory is provided)

[Channel #2:] Selectable range: HT: Photomultiplier tube voltage, DC: Photomultiplier tube DC voltage

[Channel #3:] For external input signals (for "EXT 1" terminal on the rear panel of amplifier)

[Channel #4:] For external input signals (for "EXT 2" terminal on the rear panel of amplifier)

Note: The external input signal is acquired through "EXT 1" and "EXT 2" terminals on the amplifier rear panel. The input range is -1 to +1 V. Output signal (DCV) can be acquired from an external device such as thermostatted cell holder or pH meter.

4.1.2.3 [Data File] dialog box

Sets the file name and folder for automatic saving of spectra.

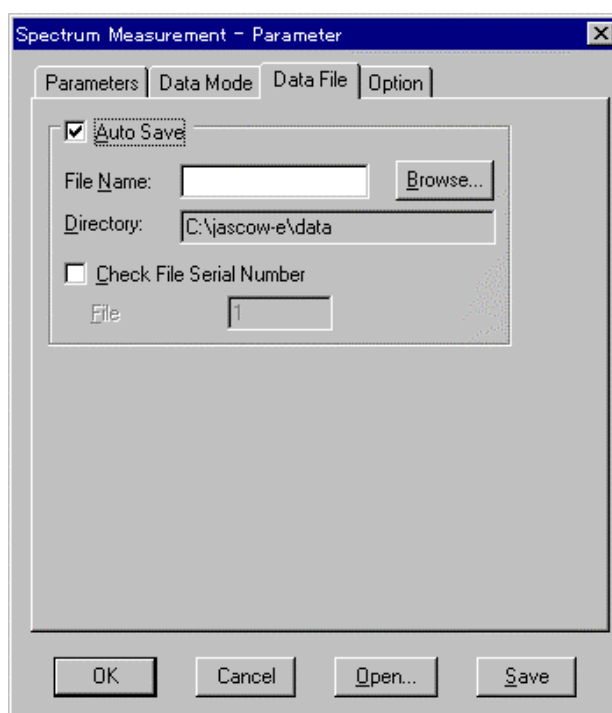


Fig. 4.5 [Data File] dialog box

[Auto Save] Sets whether measured spectrum is to be saved automatically or not. If a check mark is put here, enter a file name.

[File Name:] Enters a file name.

[Check File Serial Number] Sets whether a file number is to be affixed or not. If a check mark is put here, enter a file number.

[File] Enter a file number. The number is incremented by 1 with each data measurement.
Input range: 1 to 999

Note: The file name of saved data is [File Name] + [File].

[Directory:] Destination folder for saving.

<Browse...> Opens a dialog box for designating a destination folder.

4.1.2.4 [Option] dialog box

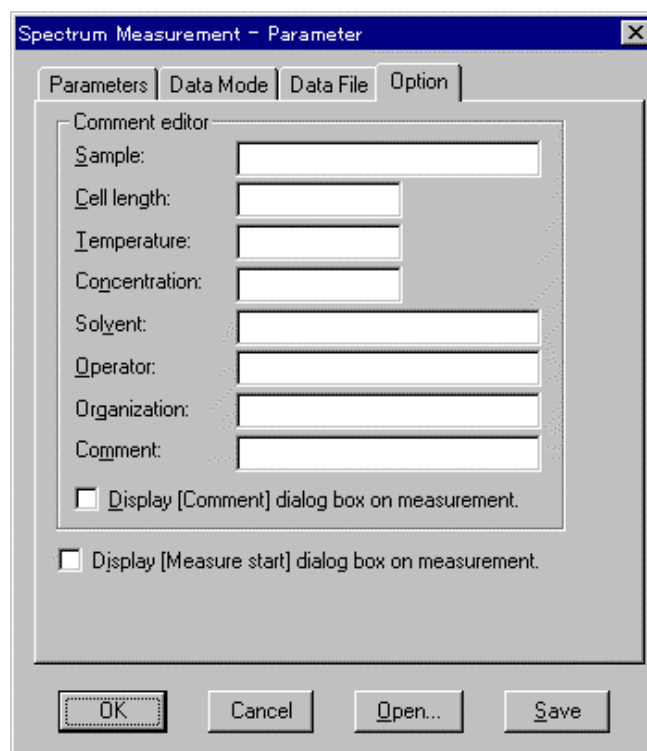


Fig. 4.6 [Option] dialog box

Set [Sample:] (30), [Cell length:] (10), [Temperature:] (10), [Concentration:] (12), [Solvent:] (30), [Operator:] (30), [Organization:] (94) and [Comment:] (126). The numbers in parentheses are the maximum numbers of characters.

[Display [Comment] dialog box on measurement.] : Putting a check mark opens the [Comment] dialog box simultaneously with start of measurement.

[Display [Measure start] dialog box on measurement.] : Putting a check mark opens the [Measure start] dialog box simultaneously with start of measurement.

4.1.2.5 <Save...> ([Parameters - Save] dialog box)

Saves parameters in the parameters library on the hard disk.

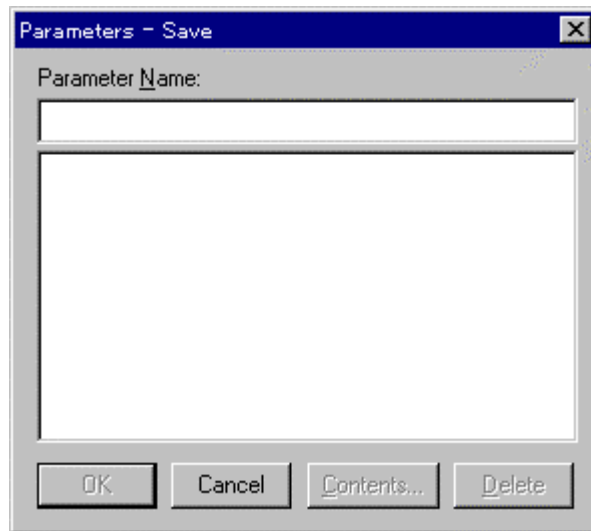


Fig. 4.7 [Parameters - Save] dialog box

- | | |
|-------------------|--|
| [Parameter Name:] | The parameter name is entered in this text box within 32 characters. If a name already stored in [Parameters List] is used, select it from the list. The parameters are overwritten. |
| <OK> | Saves parameters. |
| <Cancel> | Reverts to the [Spectrum Measurement - Parameters] dialog box. |
| <Contents...> | Displays currently selected parameters. Use it to check parameters. |
| <Delete> | Deletes currently selected parameters. |

4.1.2.6 <Open...> ([Parameters - Open] dialog box)

Loads the parameters in the parameters library on the hard disk into memory.

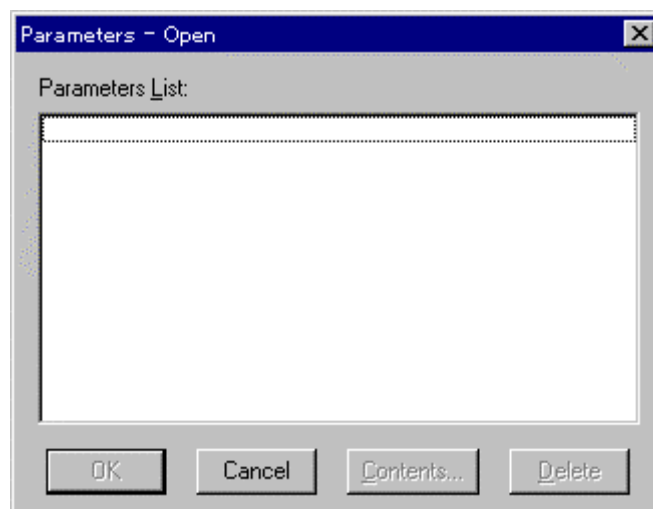


Fig. 4.8 [Parameters Open] dialog box

- | | |
|--------------------|--|
| [Parameters List:] | Selects parameters to be loaded into memory from the list. |
|--------------------|--|

<OK>	Loads parameters into memory.
<Cancel>	Reverts to the [Spectrum Measurement - Parameters] dialog box.
<Contents...>	Displays currently selected parameters. Use it to check parameters.
<Delete>	Deletes currently selected parameters.

4.1.3 [Baseline Correct...]

Sets whether baseline data loading and baseline correction are to be made or not. Data used for baseline correction must be measured and saved in a file in advance. If baseline data loading and baseline correction are set here, baseline data will be subtracted from the spectra to be measured subsequently.

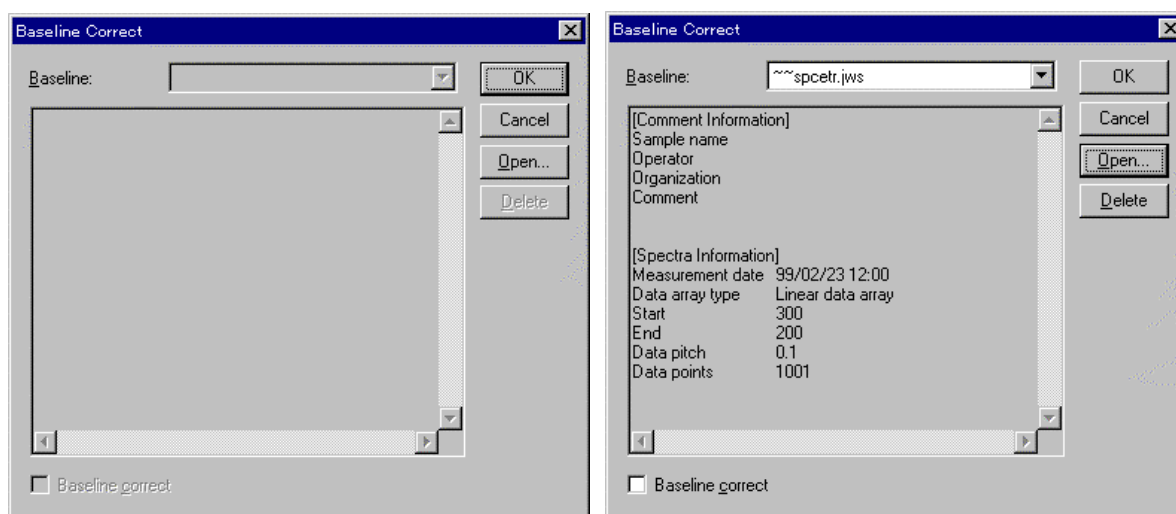


Fig. 4.9 [Baseline Correct] dialog box

Note: The dialog box at the left is blank because no baseline data exists in memory. When baseline data is loaded, file name and spectrum information appear as shown on the right screen.

[Baseline correct]	Sets whether the baseline in memory is to be used or not. It can be used if a check mark is put.
<OK>	Updates the set contents and closes the dialog box.
<Cancel>	Quits the setting and closes the dialog box.
<Open...>	Baseline data saved on the disk is loaded into memory. When data is loaded, [Baseline correct] is activated (right screen in Fig. 4.9). Clicking on this button displays the [Open] dialog box. Designating baseline data here and clicking on the <Open> loads the baseline data into memory.
<Delete>	Deletes baseline data. Clicking on it displays the following dialog box. Clicking on <Yes> deletes the baseline data (left screen in Fig. 4.9).

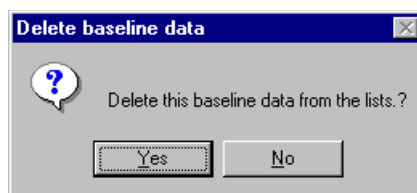


Fig. 4.10 [Delete baseline data] dialog box

4.1.4 [Accessory...]

Selects an optional accessory to be used.

Note: If a titrator, temperature controller or electromagnet is used, open this dialog box and select one. Otherwise, the accessory cannot be controlled.

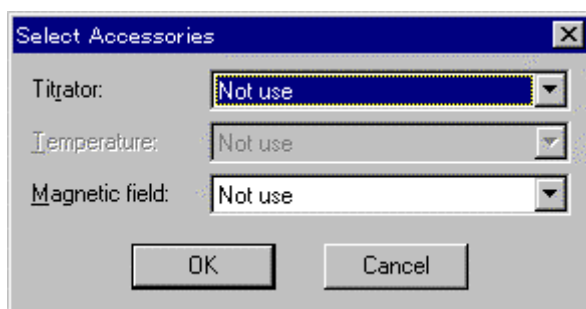


Fig. 4.11 [Select Accessories] dialog box

Select an optional accessory from the drop-down list. If no accessory is used, select [Not use].

CAUTION: Before using an electromagnet, remove the emission detector cable from the "DA1" connector on the rear panel of the main unit. Otherwise, a high voltage will be applied to the emission detector and may damage it.

4.1.5 [Alternate Mode]

Sets whether alternate measurement is to be made or not (when provided with automatic sample changer).

4.1.6 [External Trigger]

Sets whether measurement is to be started by external trigger or not (when provided with stopped flow unit).

4.1.7 [Exit]

Exits the spectrum measurement program.

4.2 [Control] Menu

4.2.1 [Move Wavelength...]

Moves the wavelength of J-810 to a desired value.

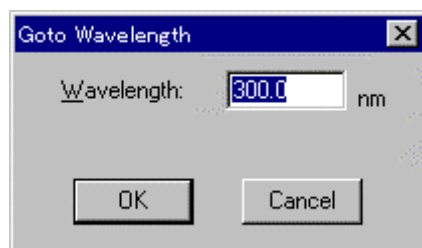


Fig. 4.12 [Goto Wavelength] dialog box

[Wavelength:]	Text box for input of wavelength.
<OK>	Moves the wavelength to a set wavelength.
<Cancel>	Closes the dialog box without changing previous wavelength setting.

4.2.2 [CD Detector...]

Sets detector (CD/ORD/LD/UV) sensitivity.

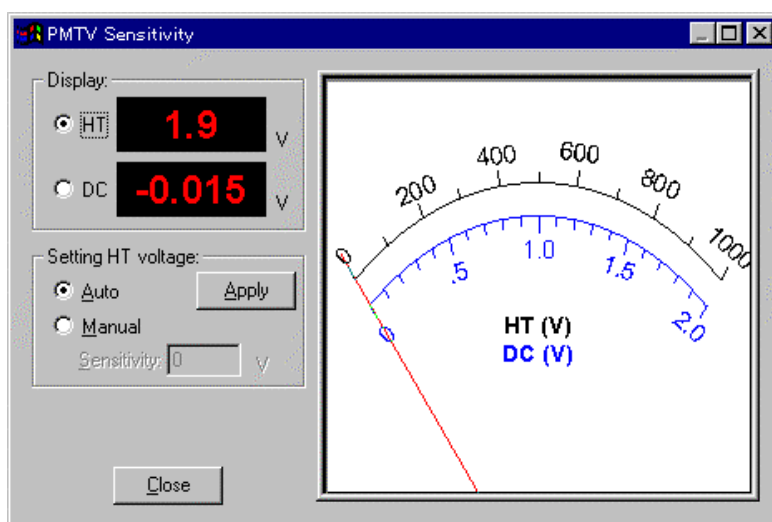


Fig. 4.13 [PMTV Sensitivity] dialog box

[Display]	Changes over the meter indication at the right to [HT] or [DC] with an option button. [HT]: Displays the photomultiplier HT voltage. [DC]: Displays the photomultiplier DC voltage.
[Setting HT voltage:]	Select [Auto] or [Manual] with option button. If [Manual] is selected, input [Sensitivity:] and click on the <Apply> button. Set range: 0 to 1000 V

CAUTION: Set the HT voltage so that the DC voltage does not exceed 2 V. Otherwise, the detector may be deteriorated or damaged.

<Close:>	Closes the dialog box.
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4.2.3 [Light Source...]

Turns ON/OFF the light source and displays and clears the light source operating time.

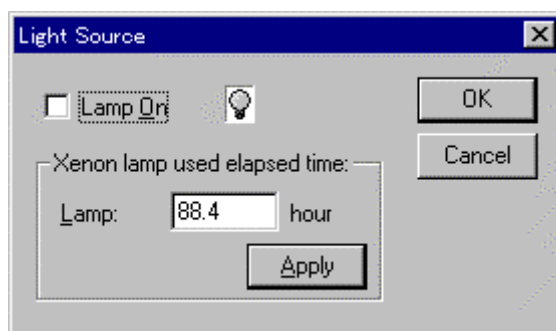


Fig. 4.14 [Light Source] dialog box

[Lamp On]

Turn ON/OFF the light source. Putting a check mark and clicking on the <OK> button lights the light source and illuminates the lamp display yellow at the right.

[Xenon lamp used elapsed time:]

Displays the light source operating time. After replacing the lamp, input zero and click on the <Apply> button.
Set range: 0 to 10000 hours

4.2.4 [Shutter...]

Opens or closes the shutter. Effective for an instrument having a shutter.

This instrument uses a high output xenon lamp as the light source. It irradiates sample with high intensity ultraviolet rays. When measuring a sample that is vulnerable to photolysis, minimize the irradiating time or narrow the slit width to lower the beam intensity. In such a case, open the shutter only during measurement by using this function.

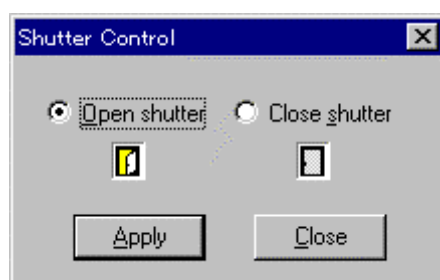


Fig. 4.15 [Shutter Control] dialog box

Select [Open shutter] or [Close shutter] and then click on the <Apply> button. The shutter opens or closes. Click on <Close> to close the dialog box.

Note: Closing the shutters zeroes the HT voltage.

Note: When the main unit is turned ON, the shutter is open state.

4.2.5 [Nitrogen Flowrate...]

Controls the nitrogen flow rate. Effective when the instrument is provided with a PC-controlled nitrogen flowmeter.

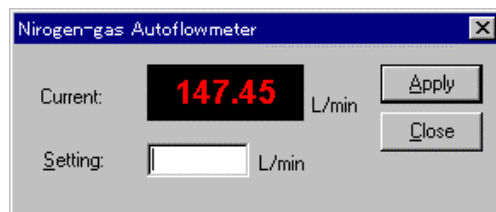


Fig. 4.16 [Nitrogen-gas Autoflowmeter] dialog box

Displays the current nitrogen flow rate at [Current:]. To change the flow rate, input a flow rate in the [Setting:] text box and then click on the <Apply> button. Clicking on the <Close> button closes the dialog box.

4.2.6 [Sample Chamber Valve...]

Opens/closes the sample chamber leak stop valve. Effective when the instrument has the stop valve.

Note: If water leakage occurred in the sample and the stop valve closed automatically, eliminate the cause of leakage, then open this dialog box and open the stop valve.

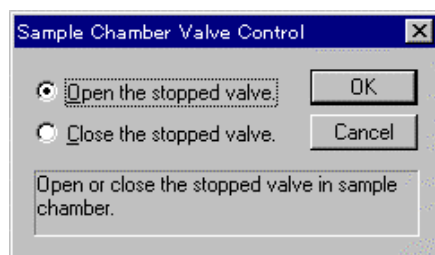


Fig. 4.17 [Sample Chamber Valve Control] dialog box

Select [Open the stopped valve.] or [Close the stopped valve.] and click on the <OK> button.

4.2.7 [ORD-M Zero Clear]

Zeroes the photometric value of ORD-M. Effective when ORD-M is provided.

4.2.8 [Accessory...]

Controls optional accessories in a batch. Clicking on it displays the following dialog box. Fig. 4.18 shows tags for three accessories. Clicking on a tag changes over the dialog box.

Note: If a titrator, temperature controller or electromagnet is used, select an accessory to be used according to "4.1.4". Otherwise, the dialog box will not appear in the dialog box for accessories.

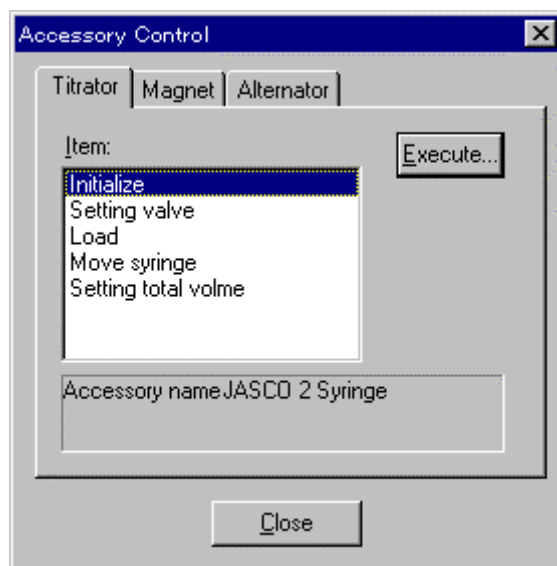


Fig. 4.18 [Accessory Control] dialog box

Dialog boxes (accessories) are explained below.

4.2.8.1 [Fluorometric detector] dialog box

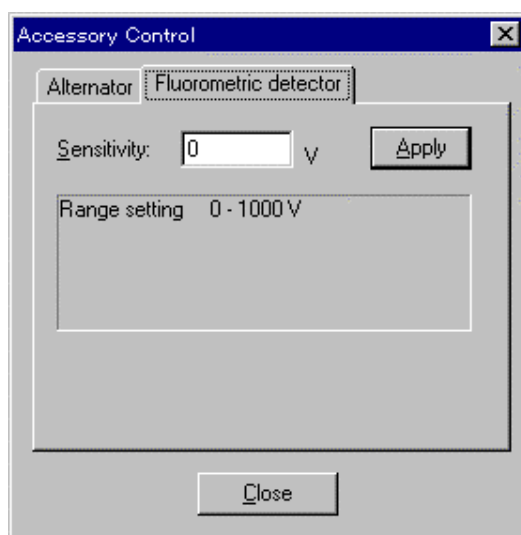


Fig. 4.19 [Fluorometric detector] dialog box

[Sensitivity:]	Enters the emission detector voltage. Input range: 0 to 1000 V
<Apply>	Enters the input value.
<Close>	Closes the dialog box.

4.2.8.2 [Titrator] dialog box

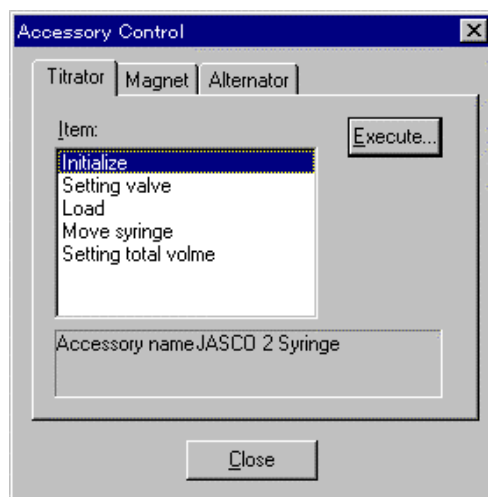


Fig. 4.20 [Titrator] dialog box

[Item:]

Selects the operation of the titrator from the list.

<Execute...>

Clicking on this button after selecting an operation item from the [Item:] list displays the dialog box for the selected item.

When [Initialize] is selected

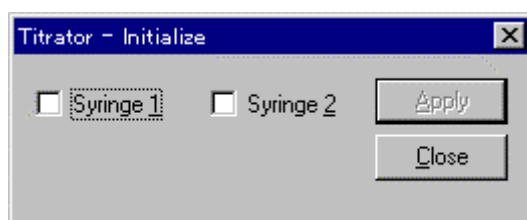


Fig. 4.21 [Titrator - Initialize] dialog box

Put a check mark to a syringe to be initialized and then click on the <Apply> button.

When [Setting valve] is selected

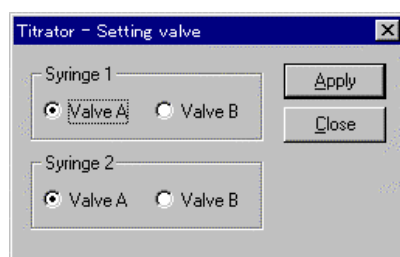


Fig. 4.22 [Titrator - Setting valve] dialog box

Select the valve orientation to be set and then click on the <Apply> button.

When [Load] is selected

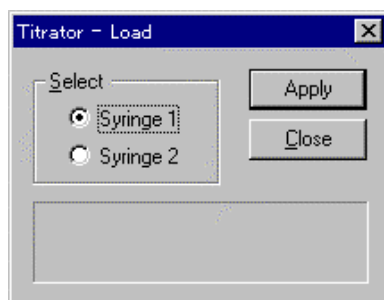


Fig. 4.23 [Titrator - Load] dialog box

Select a syringe to aspirate and then click on the <Apply> button. Aspirates 100 pulses by one click.

When [Move syringe] is selected

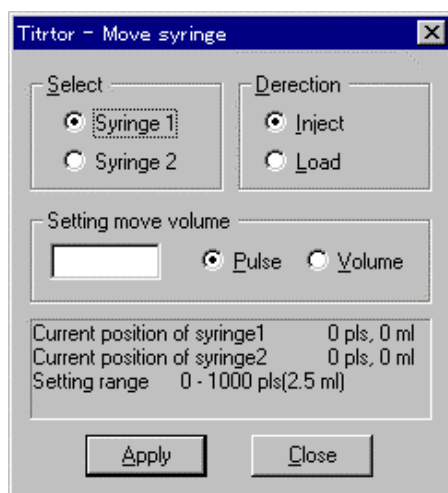


Fig. 4.24 [Titrator - Move syringe] dialog box

Select a syringe to be moved and the moving direction, input a move volume by pulse or volume (ml or μ l) and then click on the <Apply> button. The current position of syringe is displayed in the bottom box for your reference.

When [Setting total volume] is selected

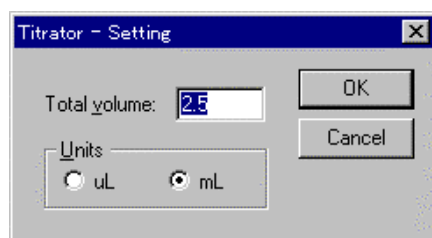


Fig. 4.25 [Titrator - Setting] dialog box

Set the total volume of the syringe in μ l or ml and then click on the <OK> button.

4.2.8.3 [Magnet] dialog box

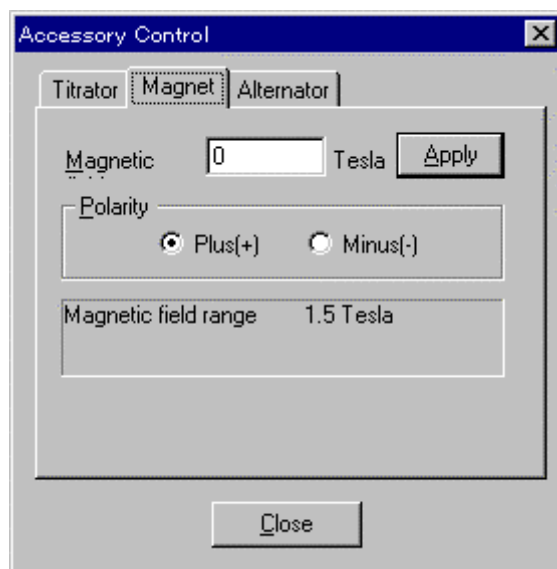


Fig. 4.26 [Magnet] dialog box

[Magnetic]	Sets magnetic field intensity.
[Polarity]	Selects polarity (+/-).
<Apply>	Starts magnetic field control according to the set contents.
<Close>	Closes the dialog box.

4.2.8.4 [Alternator] dialog box



Fig. 4.27 [Alternator] dialog box

Select a cell (sample side or reference side) to be inserted into the light path and then click on the <Apply> button.

4.2.8.5 [Temperature] dialog box

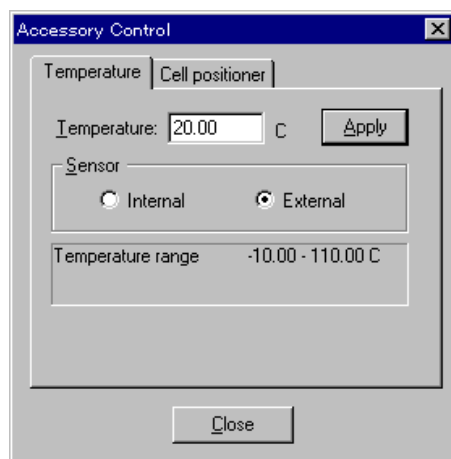


Fig. 4.28 [Temperature] dialog box

[Setting Temperature]	Enters a temperature.
[Monitor sensor]	Selects a sensor to monitor temperature. Effective when the temperature controller has an external sensor.
<Apply>	Starts temperature control according to the setting.
<Close>	Closes the dialog box.

4.2.8.6 [Cell position] dialog box

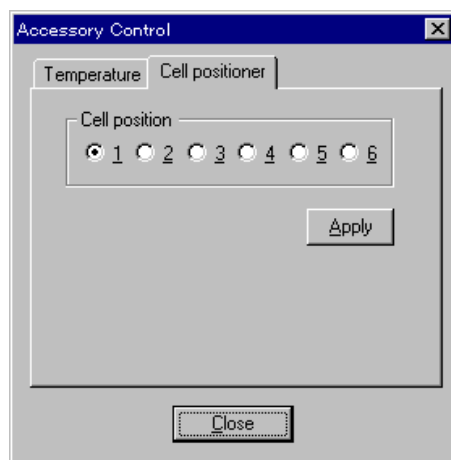


Fig. 4.29 [Cell changer] dialog box

[Cell 1] to [Cell 6]	Selects a cell to be put into the light path.
<Apply>	Inserts a selected cell into the light path.
<Close>	Closes the dialog box.

4.3 [View] Menu

Sets display/no display of channels.

Note: The maximum number of display (measurement) channels is set in the [Spectrum Measurement - Parameter] - [Data Mode] dialog box (see Fig. 4.4 in "4.1.2.2").

4.4 [Help] Menu

4.4.1 [Error Information...]

Displays error information of the instrument.

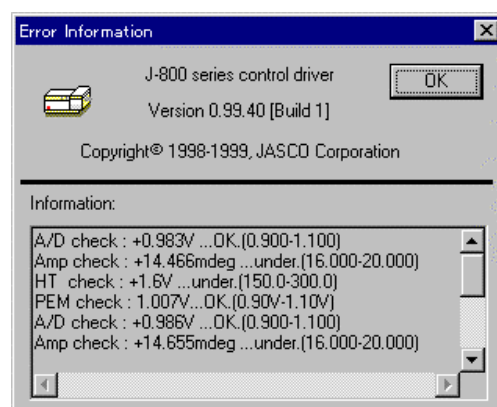


Fig. 4.30 [Error Information] dialog box

4.4.2 [About...]

Displays the version information of the program.

5. [Time Course Measurement] Menu References

Starting the time course measurement program displays the following window.

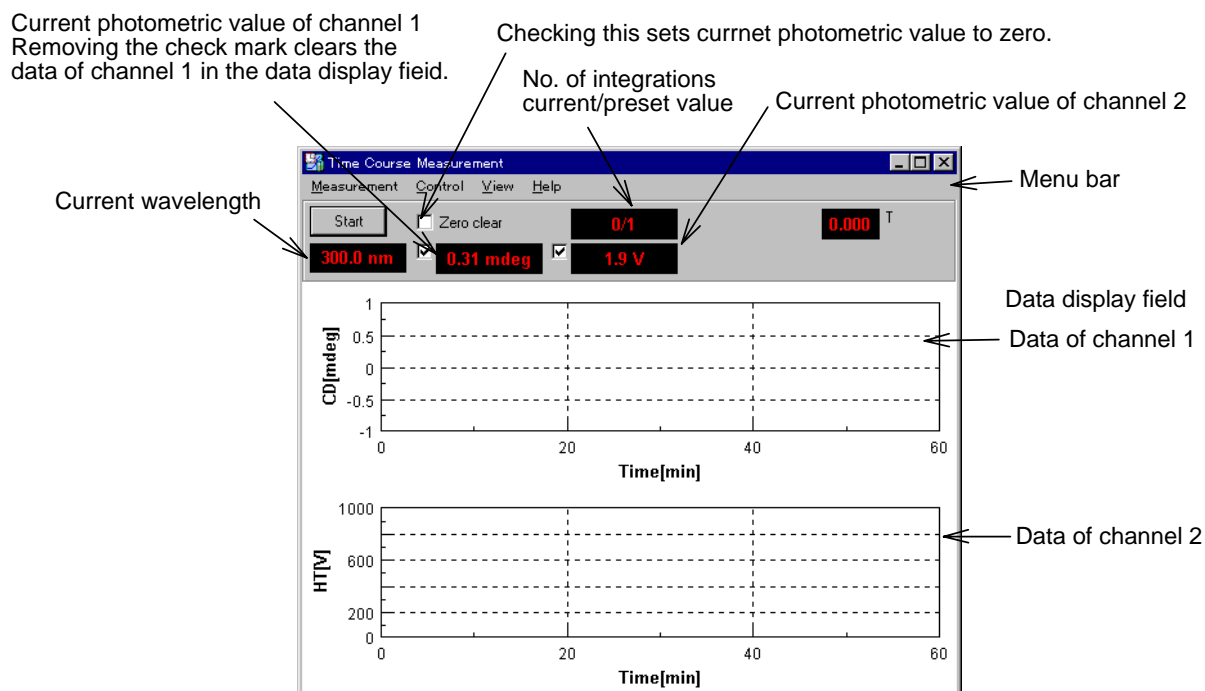


Fig. 5.1 [Time Course Measurement] window

Note: Fig. 5.1 shows two types (2 channels) of data. This program can display up to four types of data simultaneously by changing the number of measuring channels.

[Measurement] menu

- [Start] Starts or stops measurement.
- [Parameter...] Sets parameters.
- [Accessory...] Selects an optional accessory.
- [External Trigger] Sets whether measurement is to be made by external trigger or not (when provided with stopped flow unit).
- [Exit] Exits the time course measurement program.

[Control] menu

- [Move Wavelength...] Moves the current wavelength to a desired value.
- [CD Detector...] Sets detector (CD/ORD/LD/UV) sensitivity.
- [Light Source...] Turns ON/OFF the light source and displays/clears the light source operating time.
- [Shutter...] Opens/closes the shutter (when shutter is provided).
- [Zero Clear] Clears the current photometric value to zero.
- [ORD-M Zero Clear] Sets the photometric value of ORD-M to zero (when ORD-M is provided).
- [Accessory...] Controls compatible accessories in a batch.

[View] menu

- [Channel 1] Display/no display of channel 1 View.
- [Channel 2] Display/no display of channel 2 View.
- [Channel 3] Display/no display of channel 3 View.

[Channel 4]	Display/no display of channel 4 View.
[Help] menu	
[Error Information...]	Displays the instrument error information.
[About...]	Displays version and copyright.

5.1 [Measurement] Menu

Starts time course measurement, sets parameters and selects optional accessories.

5.1.1 [Start]

Starts time course measurement. Progress of measurement is displayed in real time during the measurement.

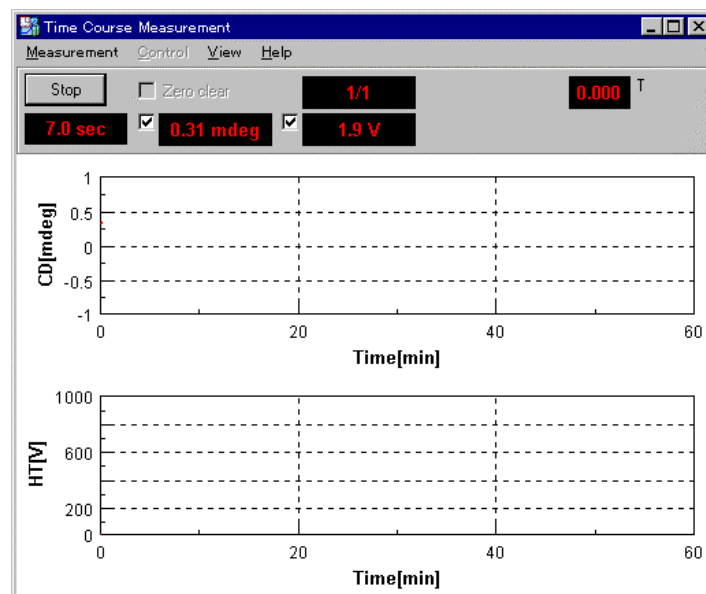


Fig. 5.2 Time course measuring window

Upon completion of measurement, the spectrum analysis program starts automatically, opens a new View and displays data.

Note: If a spectrum analysis program is already started, executing measurement opens a new View of the spectrum analysis program and displays time course data, but the spectrum analysis program is not activated. The View data are invisible hidden behind the [Time Course Measurement] window. Before printing or saving the data of View, click on the task bar [Spectra Analysis] to activate it.

Note: Stopping the measurement displays time course data from the start to the end of measurement in the View.

5.1.2 [Parameter...]

Sets parameters, edits comments, and saves and loads parameters in and from hard disk.

The parameter dialog box is made up of four boxes : [parameters], [Data Mode], [Data File] and [Option]. Clicking on the tag at the top changes the box. Clicking

on the tag [Data Mode], for example, when the [Parameters] dialog box is active displays the [Data Mode] dialog box. Dialog boxes are described below.

5.1.2.1 [Parameters] dialog box

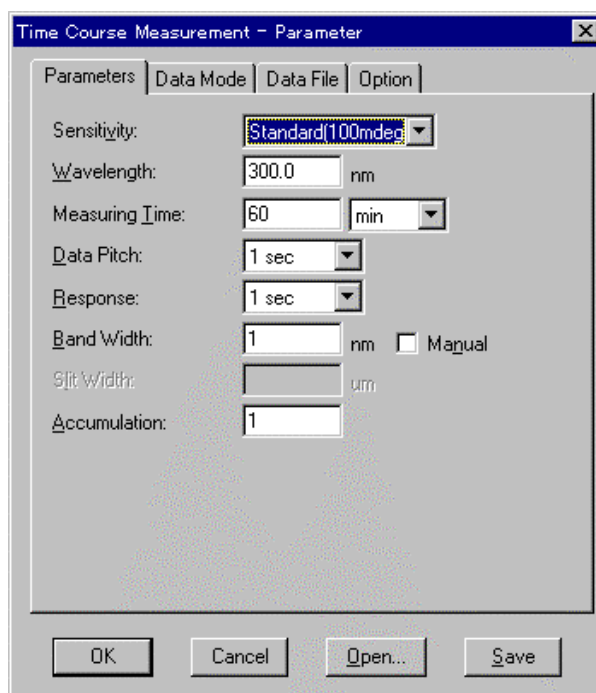


Fig. 5.3 [Parameters] dialog box

Note: Refer to "9.1" for more information about parameters and suggestions on how to select them.

[Sensitivity:]	Selects a sensitivity from the drop-down list.
[Wavelength:]	Wavelength to measure time course data.
[Measuring Time:]	Measurement time. Select the unit of time from msec, sec, min or hour.
[Data Pitch:]	Selects data acquisition interval from the drop-down list.
[Response:]	Integration time per data.
[Band Width:]	Sets spectrum band width. Putting a check mark to [Manual] activates [Slit Width:].
[Slit Width:]	Sets slit width when the band width is [Manual]. Set range: 1 to 3000 μm

CAUTION: If the slit width is set manually, do not widen the slit excessively. An excessive width may deteriorate the detector. Do not set the HT voltage (photomultiplier tube voltage) at 170 V or less.

[Accumulation:]	No. of integration of time course measurement data. Set range: 1 to 999
<OK>	Transfers the set parameters to the spectropolarimeter

and closes the dialog box.

<Cancel> Stops setting of parameters. Reverts to previous parameters and closes the dialog box.

5.1.2.2 [Data Mode] dialog box

Sets the number of measuring channels and photometric mode. Refer to "4.1.2.2" for more information.

5.1.2.3 [Data File] dialog box

Sets file name and folder for automatic saving of time course data. Refer to "4.1.2.3" for more information.

5.1.2.4 [Option] dialog box

Edits the comment of sample name, cell length, etc. Refer to "4.1.2.4" for more information.

5.1.2.5 <Save...> ([Parameters - Save] dialog box)

Saves parameters in the parameters library on the hard disk. Refer to "4.1.2.5" for more information.

5.1.2.6 <Open...> ([Parameters - Open] dialog box)

Loads the parameters saved in the parameters library on the hard disk into memory. Refer to "4.1.2.6" for more information.

5.1.3 [Accessory...]

Selects optional accessories to be used. Refer to "4.1.4" for more information.

5.1.4 [External Trigger]

Sets whether measurement is to be started by external trigger or not (when provided with stopped flow unit).

5.1.5 [Exit]

Exits the time course measurement program.

5.2 [Control] menu

Here, the menu is briefly summarized. Refer to "4.2" for more information.

[Move Wavelength...]	Moves the current wavelength to a desired value. Refer to "4.2.1" for more information.
[CD Detector...]	Sets detector (CD/ORD/LD/UV) sensitivity. Refer to "4.2.2" for more information.
[Light Source...]	Sets turning ON/OFF the light source and displays/clears the light source operating time. Refer to "4.2.3" for more information.
[Shutter...]	Opens/closes the shutter. Effective when it is provided on the instrument. Refer to "4.2.4" for more information.

[Zero Clear]	Clears the current photometric value to zero.
[Nitrogen Flowrate...]	Controls the nitrogen flow rate. Effective when a nitrogen flowmeter is provided.
[Sample Chamber Valve...]	Opens/closes the sample chamber water leak stop valve. Effective when it is provided. Refer to "4.2.6" for more information.
[ORD-M Zero Clear]	Sets the photometric value of ORD-M to zero. Effective when it is provided.
[Accessory...]	Controls optional accessories in a batch. Refer to "4.2.8" for more information.

5.3 [View] Menu

Sets display/no display of the channel.

Note: *The maximum number of display (measurement) channels is set in the [Time Course Measurement - Parameter] - [Data Mode] dialog box (see Fig. 4.4 in "4.1.2.2").*

5.4 [Help] Menu

The help menu is briefly summarized below. Refer to "4.4" for more information.

[Error Information...]	Displays instrument error information.
[About...]	Displays the version information of the program.

6. [Interval Scan Measurement] Menu References

Starting the interval scan measurement program displays the following window.

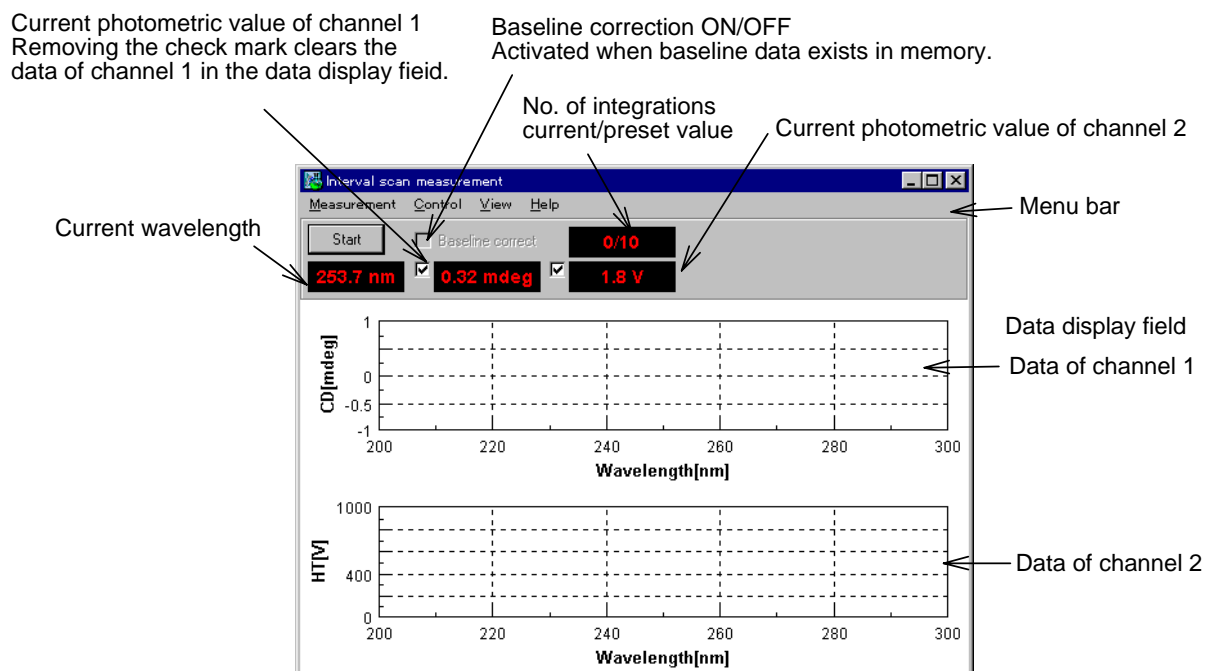


Fig. 6.1 [Interval Scan Measurement] window

Note: Fig. 6.1 shows two types (2 channels) of data. The program can display up to four types of data simultaneously by changing the number of measuring channels.

[Measurement] menu

- [Start] Starts or stops measurement.
- [Parameter...] Sets parameters.
- [Baseline Correct...] Sets baseline correction and selects baseline data.
- [Accessory...] Selects an optional accessory.
- [External Trigger] Sets whether measurement is started by external trigger or not (when provided with stopped flow unit).
- [Exit] Exits the spectrum measurement program.

[Control] menu

- [Move Wavelength...] Moves the current wavelength to a desired value.
- [CD Detector...] Sets detector (CD/ORD/LD/UV) sensitivity.
- [Light source...] Sets whether the light source is to be turned ON or OFF and displays/clears light source operating time.
- [Shutter...] Opens or closes the shutter (when provided).
- [ORD-M Zero Clear] Sets the photometric value of ORD-M to zero (when provided).
- [Accessory...] Controls compatible accessories in a batch.

[View] menu

- [Channel 1] Sets whether channel 1 View is to be displayed or not.
- [Channel 2] Sets whether channel 2 View is to be displayed or not.
- [Channel 3] Sets whether channel 3 View is to be displayed or not.
- [Channel 4] Sets whether channel 4 View is to be displayed or not.

[Help] menu

[Error Information...] Displays instrument error information.

[About...] Displays version and copyright.

6.1 [Measurement] Menu

6.1.1 [Start]

Starts interval scan measurement. Opens the monitor window and displays the progress of measurement in real time.

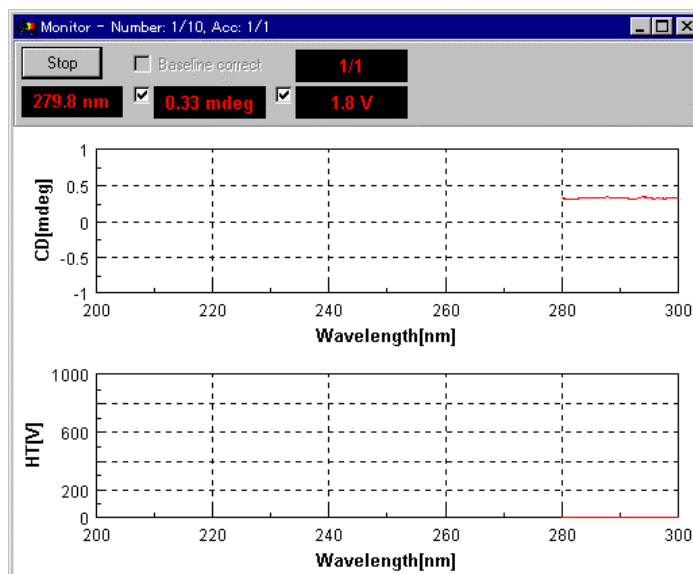


Fig. 6.2 [Monitor] window

Upon completion of all measurements, the interval scan analysis program starts automatically, opens a 2D spectrum View and displays the first measured spectrum.

Note: If measurement is stopped, spectra measured so far will be sent to the analysis program and a new 2D spectrum View with open.

Note: If the interval scan analysis program is already started up and a spectrum is displayed, the message "New data selected. Do you open file?" appears.

Note: If the next sample measurement is started without changing the file name after sample measurement, the message "Same file name exists. Do you overwrite?" appears.

6.1.2 [Parameter...]

Sets parameters, edits comment, and saves and loads parameters onto the hard disk. The parameters dialog box is made up of four boxes : [Parameters], [Data Mode], [Data File] and [Option]. Click on the tag at the top to change over the box. Clicking on the tag [Data Mode], for example, when the [Parameters] dialog box is active displays the [Data Mode] dialog box. Dialog boxes are described below.

6.1.2.1 [Parameters] dialog box

Sets parameters of the main unit.

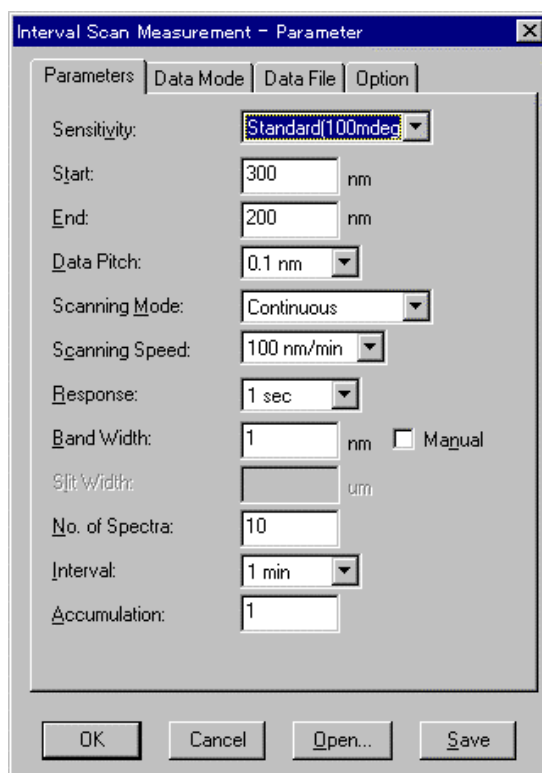


Fig. 6.3 [Parameters] dialog box

Note: Refer to "9.1" for more information about parameters and suggestions on how to select them.

[Sensitivity:]	Selects sensitivity from the drop-down list.
[Start:]	Measurement start wavelength (longer wavelength end).
[End:]	Measurement end wavelength (shorter wavelength end).
[Data Pitch:]	Selects data acquisition intervals from the drop-down list.
[Scanning Mode:]	Selects scanning mode: continuous scan or step scan.
[Scanning Speed:]	Selects wavelength scanning speed. Can be entered when the scan mode is [Continuous].
[Response:]	Integration time per data. When the scanning mode is [Step (Auto Response)], designate the range.
[Band width:]	Sets spectrum band width. Putting a check mark to [Manual] activates [Slit Width:].
[Slit Width:]	Sets slit width. Can be entered when the band width is [Manual]. Set range: 1 to 3000 μm

<p>CAUTION: When the slit width is set manually, do not widen the slit excessively. An excessive width may deteriorate the detector. Do not set the HT voltage (photomultiplier tube voltage) at 170 V or less.</p>
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[No. of Spectra:]	Number of spectra to be measured.
[Interval:]	Selects time from start of spectrum measurement to start of the next measurement from the drop-down list.
[Accumulation:]	No. of integration of spectra. Set range: 1 to 999
<OK>	Transfers set parameters to the spectropolarimeter and closes the dialog box.
<Cancel>	Stops setting of parameters, reverts to previous parameters and closes the dialog box.

6.1.2.2 [Data Mode] dialog box

Sets the number of measuring channels and photometric mode. Refer to "4.1.2.2" for more information.

6.1.2.3 [Data File] dialog box

Sets the file name and folder for automatic saving of interval scan data. Refer to "4.1.2.3" for more information.

6.1.2.4 [Option] dialog box

Edits the comment of sample name, cell length, etc. Refer to "4.1.2.4" for more information.

6.1.2.5 <Save...> ([Parameters - Save] dialog box)

Saves the parameters in the parameters library on the hard disk. Refer to "4.1.2.5" for more information.

6.1.2.6 <Open...> ([Parameters - Open] dialog box)

Loads the parameters saved in the parameters library on the hard disk into memory. Refer to "4.1.2.6" for more information.

6.1.3 [Baseline Correct...]

Sets whether baseline data loading and baseline correction are to be made or not. Data used for baseline correction must be measured and saved in file in advance. If baseline data is loaded and baseline correction is set here, the baseline data will be subtracted from the spectra to be measured later. Refer to "4.1.3" for more information.

6.1.4 [Accessory...]

Selects an optional accessory to be used. Refer to "4.1.4" for more information.

6.1.5 [External Trigger]

Sets whether a measurement is to be started or not by external trigger (when provided with stopped flow unit).

6.1.6 [Exit]

Exits the interval scan measurement program.

6.2 [Control] Menu

Here, the menu is briefly summarized. Refer to "4.2" for more information.

[Move Wavelength...] Moves the current wavelength to a desired value. Refer to "4.2.1" for more information.

[CD Detector...] Sets detector (CD/ORD/LD/UV) sensitivity. Refer to "4.2.2" for more information.

[Light Source...] Sets the light source ON/OFF and displays/clears light source operating time. Refer to "4.2.3" for more information.

[Shutter...] Opens/closes the shutter. Effective when it is provided. Refer to "4.2.4" for more information.

[Zero Clear] Clears the current photometric value to zero.

[Nitrogen Flowrate...] Controls nitrogen flow rate. Effective when provided with a nitrogen flowmeter. Refer to "4.2.5" for more information.

[Sample Chamber Valve...] Opens/closes the sample chamber leak stop valve. Effective when it is provided. Refer to "4.2.6" for more information.

[ORD-M Zero Clear] Sets the photometric value of ORD-M to zero. Effective when it is provided.

[Accessory...] Controls optional accessories in a batch. Refer to "4.2.8" for more information.

6.3 [View] Menu

Sets display/no display of channel.

Note: The maximum number of display (measurement) channels is set in the [Interval Scan Measurement - Parameter] - [Data Mode] dialog box (see Fig. 4.4 in "4.1.2.2").

6.4 [Help] Menu

The help menu is briefly summarized. Refer to "4.4" for more information.

[Error Information...] Displays error information of the instrument.

[About...] Displays the version information of the program.

7. [Data Monitor] Menu References

Starting the photometric value monitor program displays the following window.

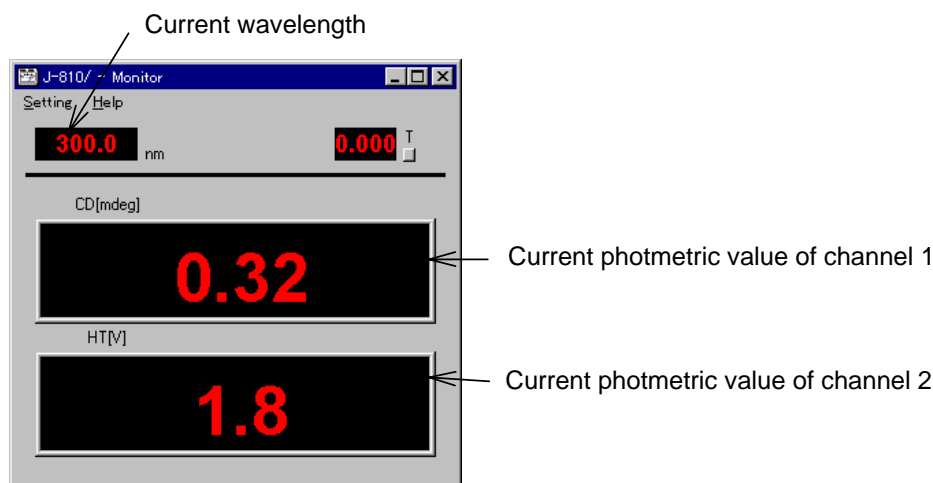


Fig. 7.1 [Monitor] window

Note: Fig. 7.1 shows two types (2 channels) of photometric values. Up to four types of photometric values can be displayed by changing the number of measuring channels.

[Setting] menu

[Parameter...]	Sets parameters.
[Data Mode...]	Sets the number of measuring channels and photometric mode.
[Move Wavelength...]	Moves the current wavelength to a desired value.
[CD Detector...]	Sets detector (CD/ORD/LD/UV) sensitivity.
[Light Source...]	Sets the light source ON/OFF, displays/clears the light source operating time.
[Exit]	Exits the photometric value monitor program.

[Help] menu

[Error Information...]	Displays the error information of the instrument.
[About...]	Displays version and copyright.

7.1 [Setting] Menu

7.1.1 [Parameter...]

Sets photometric value monitoring parameters.

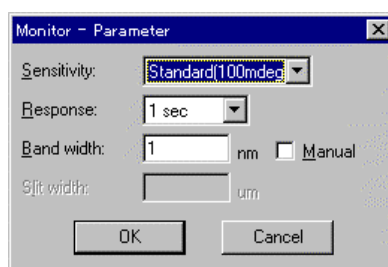


Fig. 7.2 [Monitor - Parameter] dialog box

[Sensitivity:]	Selects sensitivity from the drop-down list.
[Response:]	Integration time per data.
[Band Width:]	Sets spectrum band width. Putting a check mark to [Manual] activates [Slit Width:].
[Slit Width:]	Sets slit width. Can be entered when the band width is [Manual]. Set range: 1 to 3000 μm

<p>CAUTION: If the slit width is set manually, do not widen the slit excessively. An excessive width may deteriorate the detector. Do not set the HT voltage (photomultiplier tube voltage) at 170 V or less.</p>
--

7.1.2 [Data Mode...]

Sets the number of measuring channels and photometric mode. Refer to "4.1.2.2" for more information.

7.1.3 [Move Wavelength...]

Move the current wavelength to a desired value. Refer to "4.2.1" for more information.

7.1.4 [CD Detector...]

Sets detector (CD/ORD/LD/UV) sensitivity. Refer to "4.2.2" for more information.

7.1.5 [Light Source...]

Sets the light source ON/OFF and displays/clears the light source operating time. Refer to "4.2.3" for more information.

7.1.6 [Exit]

Exits the photometric value monitor program.

7.2 [Help] Menu

The help menu is briefly summarized. Refer to "4.4" for more information.

[Error Information...]	Displays error information of the instrument.
[About...]	Displays the version information of the program.

8. [Environment] References

Starting the environment setting program opens the following window.

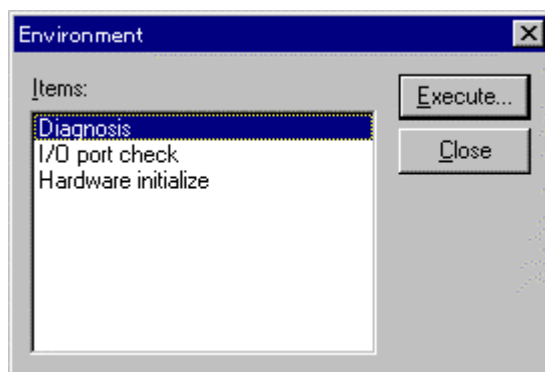


Fig. 8.1 [Environment] dialog box

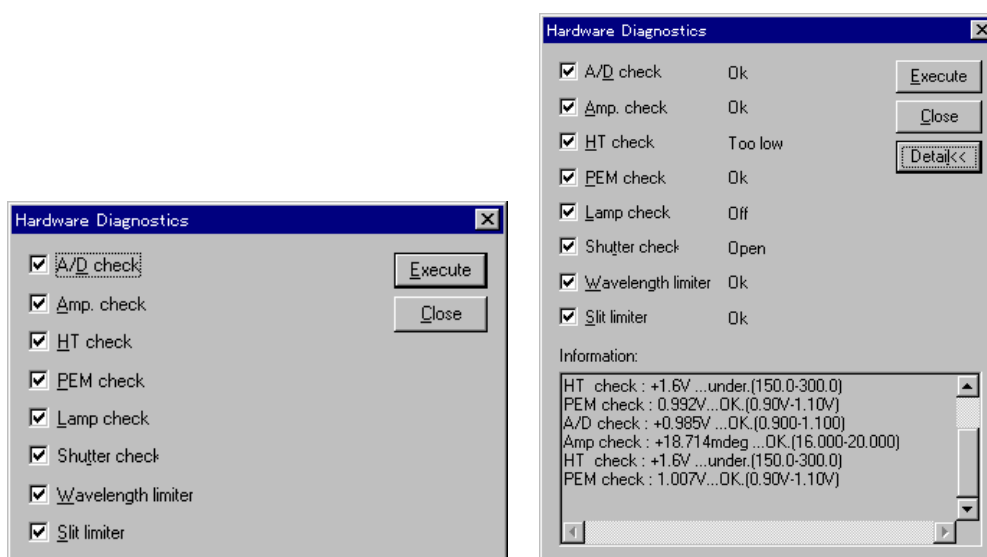
[Items:] list

Selects an item to be executed.

<Execute...>

Clicking on this button after selecting an item to be executed from the [Items:] list displays a dialog box for the selected item.

When [Diagnosis] is selected



Dialog box before diagnosis

Dialog box after diagnosis

Fig. 8.2 [Diagnosis] dialog boxes

Click on the <Execute> button after putting a check mark to an item to be diagnosed. It is diagnosed and the result (right screen in Fig. 8.2) appears. Clicking on the <Detail> button displays instrument error information.

When [Hardware initialize] is selected

During the initialization, the following message appears. Then control returns to the screen in Fig. 8.1.

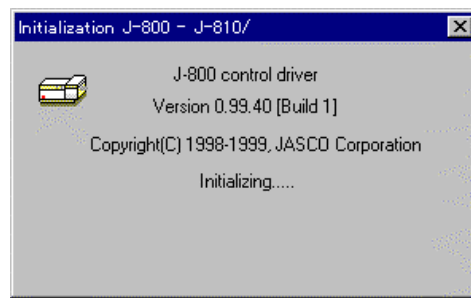


Fig. 8.3 Initializing message

Note: *[I/O port check] is for serviceman.*

9. Appendix

9.1 How to Select Parameters

Parameters selected can seriously affect measurement results. The following summarizes how to select parameters.

(1) Measuring wavelength range

Most CD spectrum peaks appear in a specific wavelength region (short wavelength region as with ultraviolet-visible absorption spectra with most organic compounds). If the optically active absorption band position of sample is known, make measurement from 50 to 100 nm before the leading end of the spectrum to the trailing end of the spectrum where it converges at zero, though it slightly varies with the width and shape of the spectrum.

(2) Data acquisition intervals (resolution)

<In spectrum measurement>

Usually, about 0.2 nm will do. However, if the scanning speed is set at [Step], about 1 nm is appropriate. Make the resolution coarse if spectrum peaks are broad or fine if sharp.

<In time course measurement>

Make the resolution fine in a measurement where the time course change is quick.

(3) Scanning speed

The scanning speed must be changed according to response. Usually, set the scanning speed at 20 to 100 nm/min and response at 0.25 to 2 sec in measurement. Table 9.1 shows a guide of response with respect to scanning speed.

Table 9.1 Guideline of Response vs. Scanning Speed

Scanning speed (nm/min)	Response (recommended)	Higher limit
10000	1.0 to 2.0 msec	32.0 msec
5000	2.0 to 4.0 msec	64.0 msec
2000	4.0 to 8.0 msec	0.25 sec
1000	32.0 msec to 0.125 sec	0.5 sec
500	64.0 msec to 0.25 sec	1.0 sec
200	0.125 to 0.5 sec	2.0 sec
100	0.25 to 1.0 sec	4.0 sec
50	0.5 to 2.0 sec	8.0 sec
20	1.0 to 2.0 sec	16.0 sec
10	2.0 to 4.0 sec	16.0 sec
5	2.0 to 8.0 sec	16.0 sec
2	4.0 to 16.0 sec	16.0 sec
1	8.0 to 16.0 sec	16.0 sec

(4) No. of integration

The following relationship holds between signal-to-noise ratio and No. of integration.

Increasing the No. of integration improves signal-to-noise ratio of spectrum. Determine it by taking into account the spectrum (sample) condition and

measurement time (increasing the No. of integration prolongs measurement time).

If sensitivity is lower than 100 mdeg/FS, one integration will do.

Table 9.2 shows guidelines of No. of integration when a sample with absorbance 1 or less is measured with a response of 2 sec.

Table 9.2 No. of Integration and Sensitivity (Response 2 sec)

Sensitivity (CD mdeg/FS)	No. of integration
50	1 - 2
20	4
10	4 - 8
5	4 - 16
2	8 - 32
1	16 - 50

Note: In time course measurement, set the time to 1. Integration can be used in stopped flow measurement (see the instruction manual for the stopped flow unit).

(5) Response

<In spectrum measurement>

The following relationship holds between response and signal-to-noise ratio. The signal-to-noise ratio of a spectrum measured for four seconds is twice that for one second.

Data at a given point is the average value of sampling data before and after that time (response/2). Therefore, the longer the response, the greater the effect of previous data on the current data. Do not increase response excessively if scanning is made at a high speed or if resolution is lowered.

Table 9.3 shows response to obtain a spectrum of high signal-to-noise ratio at a desired sensitivity. If sensitivity is higher than 20 mdeg/FS, setting response at 1 to 2 seconds and increasing the number of integration to improve signal-to-noise ratio is very effective because spectra are averaged simultaneously.

Table 9.3 Response to Obtain High Signal-to-Noise Ratio

CD sensitivity (mdeg/FS)	Response (sec)
1000	0.064 - 0.025
500	0.125 - 0.5
200	0.125 - 0.5
100	0.25 - 0.5
50	0.25 - 1.0
20	0.5 - 2.0
10	0.5 - 8.0
5	1.0 - 16.0
2, 1	4.0 - 16.0

Note: Response of 0.5 to 125 msec is used for high speed measurement using a stopped flow unit.

The above table also applies to step scan. In this case, the measurement time

is determined by the sum of time of wavelength movement and wavelength stop time. If the response is on order of seconds, the No. of integration will be dominant in the measurement time and the measurement time will be almost proportional to response. Given that the wavelength interval of measurement wavelength section is W (nm) and the data interval is Step (nm), the following relation holds between total integration time and response.

Total Integration Time = (W/Step + 1) × Response
(W/Step + 1) : Number of data points

<In time course measurement>

In time course measurement, select a response suited to the CD signal change speed due to reaction, etc. In normal reaction, set it at 1/10 of half value period of response or smaller. For example, if the half value period is 20 msec, a response of 0.5 to 2 msec is appropriate. If the change is very slow, set the response to 1 to 16 sec by considering the change speed and signal-to-noise ratio. When used as a monitor of HPLC, a response of about one sec is suited.

(6) Band width and slit width

Usually, set the band width at 1.0 nm before measurement. Decrease it in the measurement of a sharp spectrum such as MCD, or increase it in the measurement by a micro cell, when the signal-to-noise ratio is low. When a long wavelength detector (400 to 1100 nm) is used, increase the band width and set the slit width to about 60 μm to prevent the photomultiplier voltage (HT) from rising abnormally. However, see to it that HT does not become lower than 170 V.

CAUTION: As HT lowers below 170 V, increasing the slit width may damage the photomultiplier tube.

Note: *Most organic substances emit fluorescence. Therefore, measuring a sample having an absorbance of 2 or more at a band width of 2 nm or more may distort the spectrum. Also photolysis of sample can occur in the ultraviolet region. If the sample is susceptible to photolysis, reduce the band width to 0.5 nm or less according to its degree.*

(7) Sensitivity

Set a sample, move the wavelength and select an appropriate sensitivity from the maximum CD value while watching CD data. If the selected sensitivity is inappropriate and spectrum is too small or overflows, it can be redisplayed in an appropriate size after measurement. However, there is a limit to the analog signal that can be processed without being saturated to the selected sensitivity, as shown below.

When sensitivity is 1 to 100 mdeg/FS, normal up to ±100 mdeg

When sensitivity is 200 to 1000 mdeg/FS, normal up to ±2000 mdeg

If CD near ±200 mdeg is measured with the full scale of 100 mdeg, data in that area may be distorted because noise components are contained in the analog signal. In such a case, set the full scale at 200 mdeg. In measuring CD, absorbance (Abs) is usually set at 2 or less. Therefore, a sample with low absorbance can be measured at a high concentration using a cell with long light

path, allowing measurement with lower sensitivity than a sample with higher absorbance having similar ellipticity.

Since measurement with high sensitivity deteriorates the signal-to-noise ratio, minimize sensitivity by increasing sample concentration within the range $Abs < 2$ or by using a cell with long light path. (Refer to the manual for "CD/ORD measurement method").

9.2 Spectra Manager Installation

9.2.1 Before installation

Before installing the [Spectra Manager], confirm the following:

- * The computer and all peripheral devices are properly connected.
- * Windows 95 is installed.
- * Sufficient space is available on hard disk to install the [Spectra Manager].

About 5M bytes is required to install the program.

Note: For first-time users of Windows 95, install Windows according to the procedure described in the Windows 95 User's Guide. Refer to the Windows 95 Instruction Manual for details on how much disk space is required.

9.2.2 Installing the Spectra Manager

Install the [Spectra Manager] after starting up Windows 95 as follows:

1. Start up SETUP.EXE.
2. Input the name of the operator or company.
3. Specify the [Spectra Manager] directory.
4. Specify the data directory.
5. Install the files on the hard disk.

9.2.2.1 Starting up SETUP.EXE

- (1) Click [Settings] - [Control Panel] on the [Start] menu as shown in Fig. 9.1. Fig. 9.2 shows the [Control Panel] window.

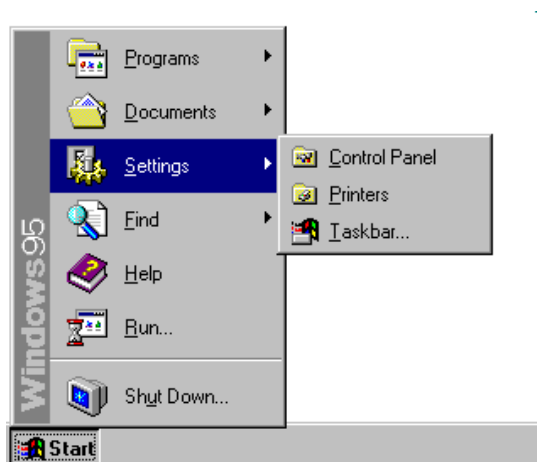


Fig. 9.1 Windows 95



Fig. 9.2 [Control Panel]

- (2) Double-click [Add/Remove Programs] in the [Control Panel] window. Fig. 9.3 shows the [Add/Remove Programs Properties] window.

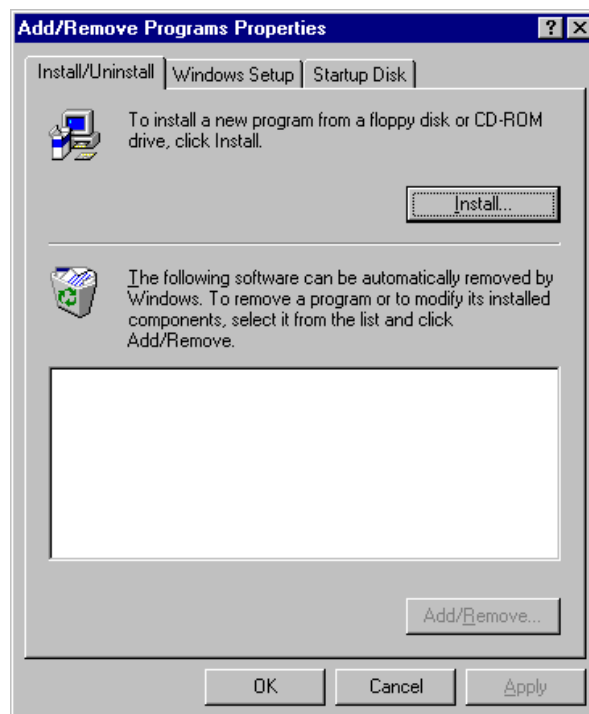


Fig. 9.3 [Add/Remove Programs Properties]

- (3) Select [Install/Uninstall], then click the <Install (I)> button. The window shown in Fig. 9.4 appears.

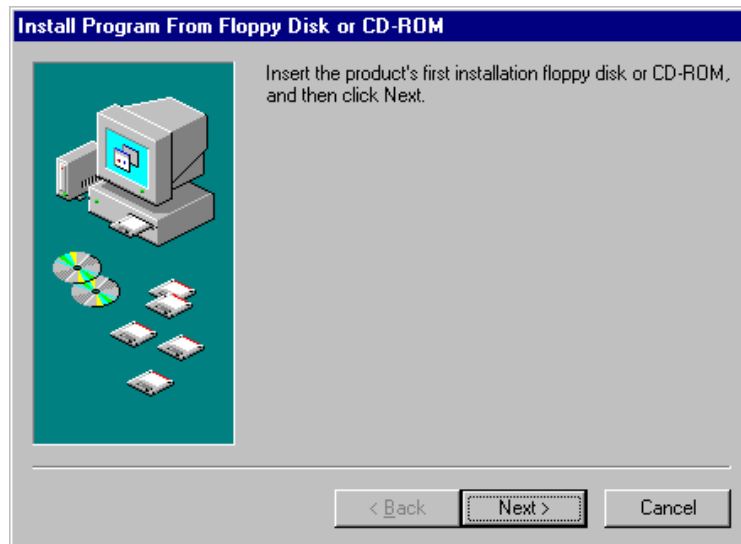


Fig. 9.4 [Install Program From Floppy Disk or CD-ROM]

- (4) Insert the [SETUP Disk] disk into the floppy disk drive. Click the <Next> button in the window shown in Fig. 9.4. The window shown in Fig. 9.5 appears.

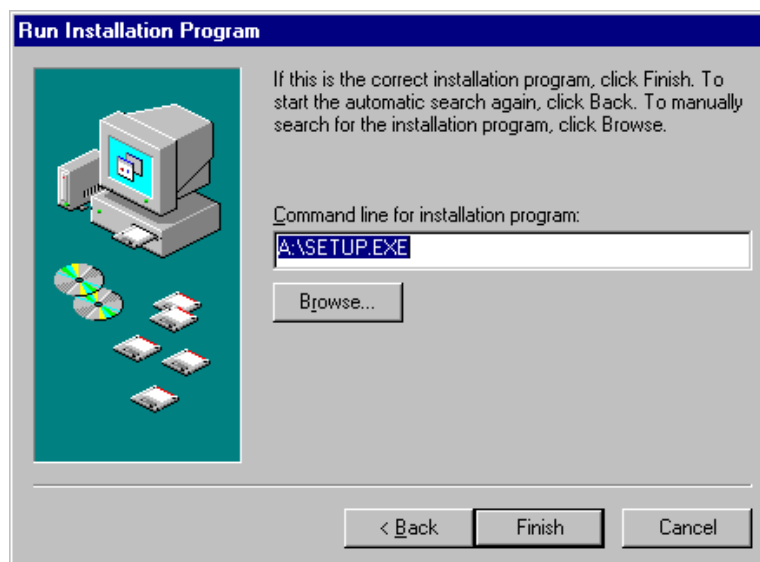


Fig. 9.5 [Run Installation Program]

- (5) Click the <Finish> button. The screen shown in Fig. 9.6. appears.

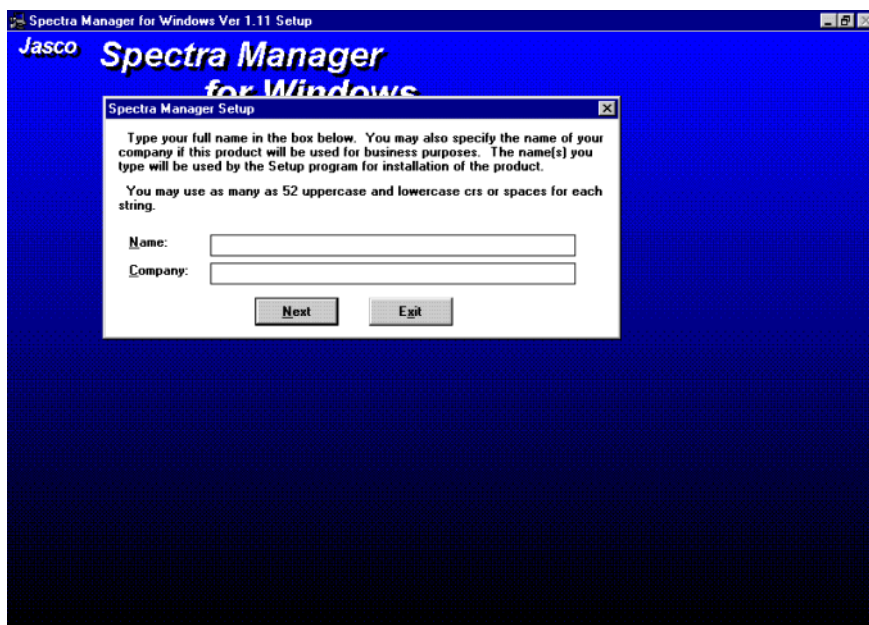


Fig. 9.6 [Spectra Manager] for Windows Setup

9.2.2.2 Inputting operator/company name

- (1) Input the name of the operator or company in the text box shown in Fig. 9.6. The name input is registered in the system. This procedure can be omitted if registration is unnecessary.

Note: *The name of the operator or company is used as the default setting for “Operator” or “Organization” comments with data collected using the [Spectra Manager].*

- (2) Click the <Next> button. The dialog box shown in Fig. 9.7 appears.

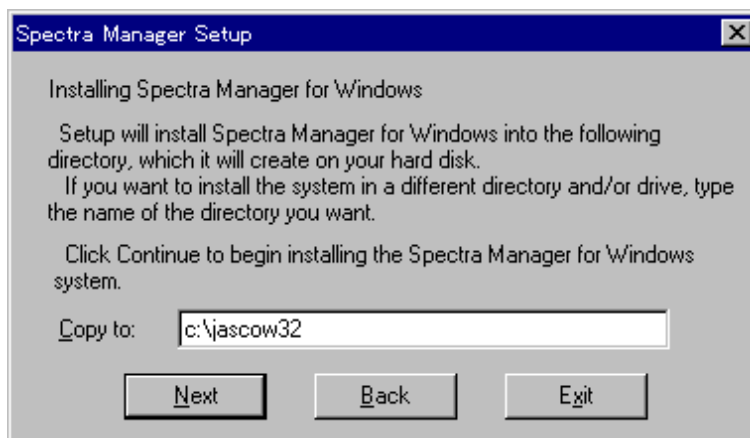


Fig. 9.7 Target program directory designation for [Spectra Manager]

9.2.2.3 Designating the Spectra Manager program directory

- (1) Input the drive and name of the target [Spectra Manager] program directory. The following directory name should be used:

C:\JASCOW32

- (2) Click the <Next> button. The screen shown in Fig. 9.8 appears.

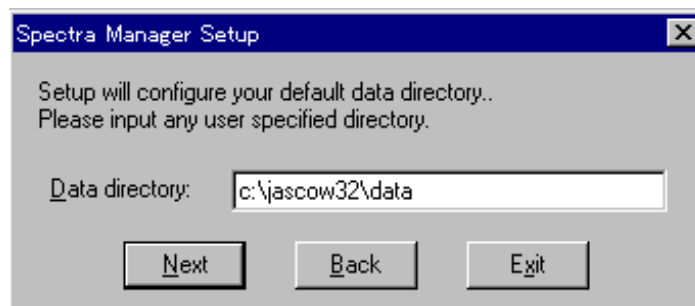


Fig. 9.8 Data Directory input screen

9.2.2.4 Designating the Spectra Manager data directory

- (1) Input the drive and name of the target [Spectra Manager] data directory. The following directory name should be used:

C:\JASCOW32\DATA

- (2) Click the <Next> button. The message prompt shown in Fig. 9.9 appears.



Fig. 9.9 Message prompt for installing spectrofluorometer control driver

- (3) Click the <Yes> button. The dialog box shown in Fig. 9.10 appears.

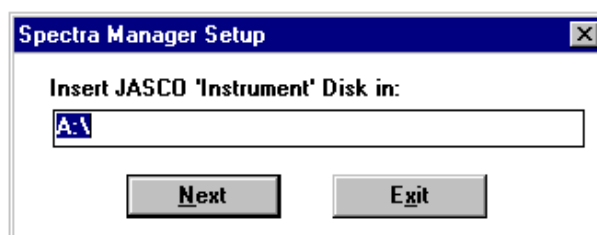


Fig. 9.10 [Spectra Manager] Setup dialog box

- (4) Insert the [Driver Disk] disk into the floppy disk drive. Click the <Next> button. The screen shown in Fig. 9.11 appears.

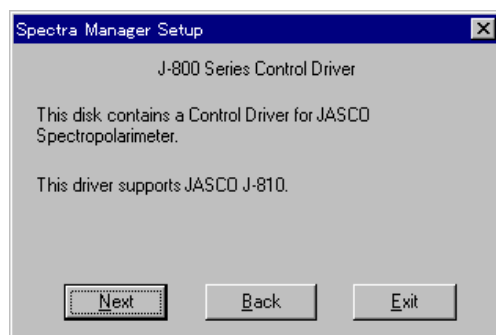


Fig. 9.11 Confirmation of control driver

- (5) Click the <Continue> button. The screen shown in Fig. 9.12 appears.

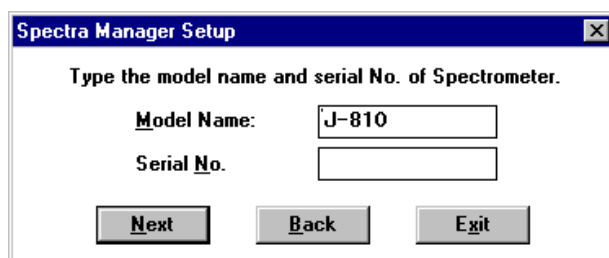


Fig. 9.12 Model name and serial number input screen

- (6) Input the model name and serial number if necessary. Click the <Next> button.

9.2.2.5 Copying files to hard disk

The [Setup] program copies the [Spectra Manager] program and related files to the hard disk. As these files are copied, the [Setup] program may request that the operator insert disks into the floppy disk drive. If so, click <OK> after the appropriate disk has been inserted into the drive.

After the files have been copied, the [Setup] program creates a Jasco group. A dialog box appears, indicating that installation is complete. Click <OK>.

9.3 Designating the Serial Port (RS-232C)

The serial port default value is [COM1]. The serial port number must be changed when the spectrofluorometer is controlled through another port. In such case, the procedure to designate the serial port number is as follows:

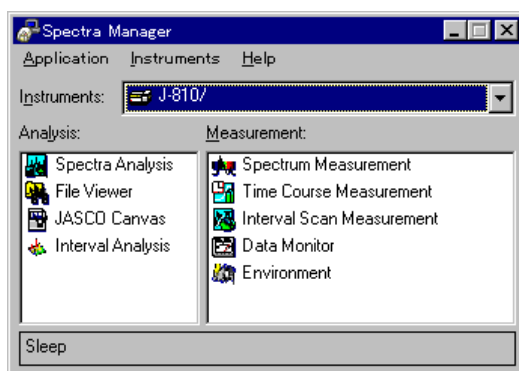


Fig. 9.13 [Spectra Manager] window

- (1) Execute [Instruments] - [Port Setting] on the [Spectra Manager] menu. The dialog box shown in Fig. 9.1 appears.

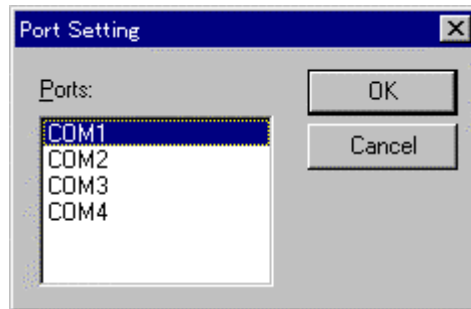


Fig. 9.14 [Port Setting]

- (2) Select the desired serial port in the box, then click <OK>. The newly selected serial port is now set.