# V-530/550/560/570

# Spectrophotometer

## Instruction Manual

### V-500 for Windows®

JASCO

P/N:0302-0304C January 2003

# Safety Considerations

To ensure operation safety, this instrument must be operated correctly and maintained according to a regular schedule. Carefully read to fully understand all safety precautions in this manual before operating the instrument. Please take a moment to understand what the signal words ***WARNING!***, **CAUTION**, and *Note* mean in this manual.

## (1) Safety symbols

Instruction manual symbol. If the product is marked with this symbol, refer to the instrument manuals to protect the instrument against damage.

**WARNING** A **WARNING** indicates an potentially hazardous situation which, if not avoided, could result in death or serious injury

.

**CAUTION** A **CAUTION** indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against damaging the equipment.

Do not proceed beyond a **WARNING** or **CAUTION** notice until you understand the hazardous conditions and have taken the appropriate steps.

*Note* A *Note* provides additional information to aid the operator in obtaining optimal instrument performance.

## (2) Warning Label

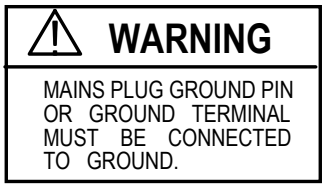
Warning labels are attached at several locations on this instrument. Do not remove, deface or damage the warning labels. If a warning label peels off the instrument or becomes illegible, contact your local JASCO distributor and state the part number of the label you want to replace.

**1) Warning for FUSE** (Fig.1 or Fig. 2)


Only use fuses of the specified rating to protect both operator and instrument from fire and other hazards. When replacing a fuse, refer to the hardware manual (4.4.1 Replacing the fuse). The warning labels that pertain to fuse ratings are located on the back panel of the instrument.

Part No.: 0822-0120A

**2) Warning for GROUND** (Fig.1 or Fig.2)




This instrument must be grounded correctly; either the mains plug ground pin or through the ground terminal on the rear panel of the instrument.

Part No.: 0822-0125A

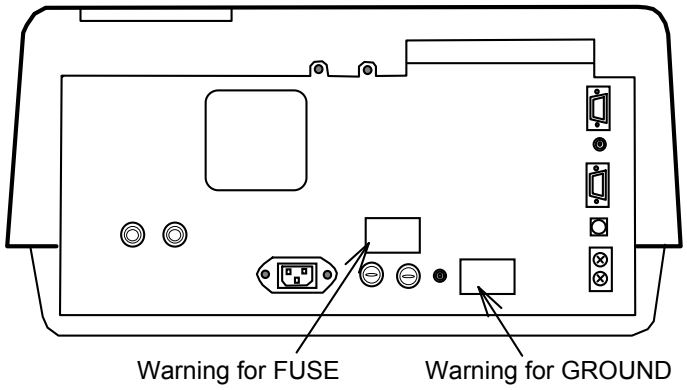



Figure 1 Warning Labels on the V-530 Back Panel

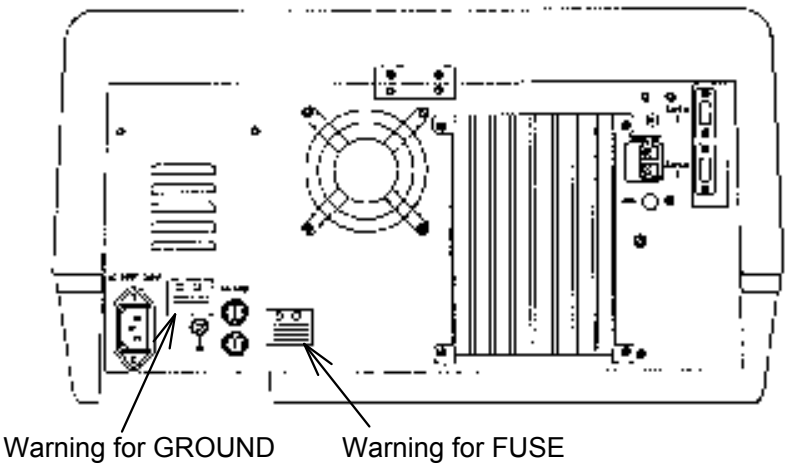



Figure 2 Warning Labels on the V-550/560/570 Back Panel

## (2) Warning for carrying

The weight (in kilograms) of each instrument is as follows:

| V-530 | V-550 | V-560 | V-570 |
|---|---|---|---|
| 16.0 | 30.5 | 32.0 | 33.0 |

When moving the instrument, hold the handgrips at the bottom of the instrument firmly (see Fig. 3).

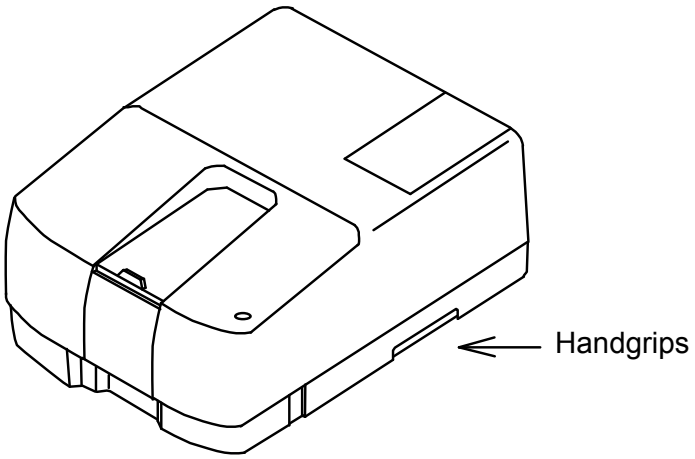



Figure 3 Example: V-550/560/570 side view

# Regulatory Statements

*CE Notice*

Marking by the symbol CE indicates compliance of this JASCO system to the EMC (Electromagnetic Compatibility) and Low Voltage Directives of the European Community. This symbol indicates that this JASCO system meets the relevant basic safety and health requirements of the EC Directive based on the following technical standards:

- EN55011 ---- ”Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment.” ---- Group 1, Class A.

| | |
|---|---|
| **WARNING**: | This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures. |

- EN50082-1 -- "Electromagnetic compatibility -- Generic immunity standard Part 1: Residential, commercial, and light industry."
- IEC61000-4-2 -- "Electromagnetic compatibility for industrial-process measurement and control equipment Part 2: Electrostatic discharge requirements."-- Severity level 3.
- IEC61000-4-3 -- "Electromagnetic compatibility for industrial-process measurement and control equipment Part 3: Radiated electromagnetic field requirements." -- Severity level 2.
- IEC61000-4-4 -- "Electromagnetic compatibility for industrial-process measurement and control equipment Part 4: Electrical fast transient/burst requirements."-- Severity level 3.
- IEC1010-1: 1990 + Amd.1: 1992 + Amd.2: 1995 -- Safety requirements for electrical equipment for measurements, control and laboratory use.
- IEC61000-3-2: 1995 + Amd.1: 1998 + Amd.2: 1998 --- "Electromagnetic compatibility: Limits for harmonic current emissions (equipment input current up to and including 16A per phase).
- A "Declaration of Conformity" in accordance with the above standards has been made and is on file at JASCO EUROPE srl, Via Confalonieri 25, 22060 CREMELLA (LC), Italy.

FCC Statement (for USA only)

Federal Communications Commission Radio Frequency Interference Statement

| | |
|---|---|
| ***WARNING:*** | *This equipment generates, uses, and can radiate radio frequency energy. If it is not installed and used in accordance with the instruction manual, it may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Part 15 of FCC Rules, which are intended to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.* |

# Preface

This instruction manual is your guide for using this instrument. It instructs first-time users on how to use the instrument, and serves as a reference for experienced users.

Before using the instrument, please read this instruction manual carefully, and make sure that the contents are fully understood. This manual should be easily accessible to the operator at all times during instrument operation. When not using the instrument, keep this manual in a safe place. If this instruction manual becomes lost, order a replacement from your local JASCO distributor.

The instruction manual is divided into following volumes:

1) Hardware manual: Describes the principles of operation, specifications, maintenance, troubleshooting of this instrument.
2) Operation manual: Describes the configuration of this measument program, functions, and operating procedures.
3) Analysis: Describes the configuration of spectra analysis and file viewer program. (DS type)

*Note: The operating procedure varies with the type of instrument. Operation is described by type. Read the relevant portion.*

# Installation Requirements

To ensure operation safety, observe the following conditions:

(1) Do not operate the instrument under voltage fluctuations exceeding 10% of the recommended line voltage. Otherwise, the instrument may not function properly.

(2) Frequency or spike noise in the power supply should be minimal.

(3) Ensure that the instrument is grounded.

(4) Operate the instrument in a temperature range of 10 ~ 35°C.

(5) Operate the instrument in a humidity range of 35 ~ 85%(RH). If ambient humidity exceeds 85%(RH), condensation may deteriorate optical components.

(6) Operate the instrument in an atmospheric pressure range of 950 ~ 1060hPa.

(7) Avoid strong magnetic fields and sources of high frequency. The instrument may not function properly when near a strong magnetic field or high frequency source.

(8) Avoid vibration from vacuum pumps, electric motors, processing equipment and machine tools.

(9) Avoid dust and corrosive gas. Do not install the instrument where it may be exposed to dust, especially in locations exposed to outside air or ventilation outlets that discharge dust particles.

(10) Do not install the instrument in a location where it may be exposed to direct sunlight.

(11) Install the instrument in a horizontal and stable position. (This includes a table or desk upon which the instrument is installed.)

(12) Ensure that no air conditioner blows air directly onto the instrument. This may prevent stable measurement.

(13) Install the instrument in a location that allows easy access for maintenance.

*Note: The above conditions do not guarantee optimal performance of this instrument.*

# Servicing

Contact your local JASCO distributor for instrument servicing. In addition, contact your JASCO distributor before moving the instrument to another location. Consumable parts should be ordered according to part number from your local JASCO distributor. If a part number is unknown, give your JASCO distributor the model name and serial number of your instrument.

***Do not return contaminated products or parts that may constitute a health hazard to JASCO employees.***

# Notices

(1) JASCO shall not be held liable, either directly or indirectly, for any consequential damage incurred as a result of product use.

(2) Prohibitions on the use of JASCO software

- Copying software for purposes other than backup
- Transfer or licensing of the right to use software to a third party
- Disclosure of confidential information regarding software
- Modification of software
- Use of software on multiple workstations, network terminals, or by other methods (not applicable under a network licensing agreement concluded with JASCO)

(3) The contents of this manual are subject to change without notice for product improvement.

(4) This manual is considered complete and accurate at publication.

(5) This manual does not guarantee the validity of any patent rights or other rights.

(6) In general, company names and product names are trademarks or registered trademarks of the respective companies.

(7) JASCO and the JASCO logo are registered trademarks of JASCO Corporation

# Limited Warranty

Products sold by JASCO, unless otherwise specified, are warranted for a period of one year from the date of shipment to be free of defects in materials and workmanship. If any defects in the product are found during this warranty period, JASCO will repair or replace the defective part(s) or product free of charge.

THIS WARRANTY DOES NOT APPLY TO DEFECTS RESULTING FROM THE FOLLOWING:

1) IMPROPER OR INADEQUATE INSTALLATION
2) IMPROPER OR INADEQUATE OPERATION, MAINTENANCE, ADJUSTMENT OR CALIBRATION
3) UNAUTHORIZED MODIFICATION OR MISUSE
4) USE OF CONSUMABLE PARTS NOT SUPPLIED BY AN AUTHORIZED JASCO DISTRIBUTOR
5) CORROSION DUE TO THE USE OF IMPROPER SOLVENTS, SAMPLES, OR DUE TO SURROUNDING GASES
6) ACCIDENTS BEYOND JASCO'S CONTROL, INCLUDING NATURAL DISASTERS

This warranty does not cover the consumable parts listed below:

1) Deuterium lamp, tungsten lamp, xenon lamp and other light sources
2) Mirrors in the light source section, and cell windows
3) Fuses, batteries, glassware, chart paper and ink

The LC system only contains:

4) Plunger seals, needle seals, cell window gaskets, valve seals, disk seals and other seal materials
5) Tubing and fittings (e.g., ferrules, compression screws), and filters (e.g., inlet filters, line filters, other solvent filters)
6) Pre-columns and guard columns

THE WARRANTY FOR ALL PARTS SUPPLIED AND REPAIRS PROVIDED UNDER THIS WARRANTY EXPIRES ON THE WARRANTY EXPIRATION DATE OF THE ORIGINAL PRODUCT. FOR INQUIRIES CONCERNING REPAIR SERVICE, CONTACT YOUR JASCO DISTRIBUTOR AFTER CONFIRMING THE MODEL NAME AND SERIAL NUMBER OF YOUR INSTRUMENT.

JASCO Corporation
2967-5, Ishikawa-machi, Hachioji-shi
Tokyo 192-8537
JAPAN

# Contents

# 1. Introduction

## 1.1 Layout of this Manual

This section describes the layout and function of this manual. The V-500 for Windows® instruction manual consists of 10 sections, including this one. Read this manual carefully in order to ensure a full understanding of the operating procedures before using the V-530/550/560/570.

For [Spectra Analysis] program, refer to the "Spectra Analysis/File Viewer Instruction Manual". For [JASCO Canvas] program, refer to the "JASCO Canvas Instruction Manual".

Hereafter, this manual will refer to the V-500 for Windows as the V-500W, and to Microsoft Windows as Windows.

**Section 1. Introduction**

This section explains the writing syntax and display configuration used in this manual. Read this section first.

**Section 2. Starting up/exiting programs and [Spectra Manager]**

This section outlines the procedures associated with operating the V-500W including starting up the spectrophotometer, PC, Windows, and V-500W, as well as exiting V-500W and Windows and shutting down the spectrophotometer. Specific program operations are described in subsequent sections. This section also describes the menu that appears when you start up JASCO [Spectra Manager].

**Section 3. Introduction to quantitative analysis and spectrum measurement**

This section describes quantitative analysis and spectrum measurement. This section introduces the inexperienced user to Windows, spectrophotometry, and V-500W operation.

**Sections 4. to 9. Standard measurement program reference**

This section provides a reference to explain the functions of each measurement program. It also explains the procedure for setting instrumental hardware and self-diagnostics.

**Section 10. Appendix**

This section describes how to install the software and set the serial port.

## 1.2 Foreword and Notation Used

V-500W runs on Windows 95/98/NT4.0/2000, so you need to be familiar with basic Windows operations. This manual does not explain how to open menus, select commands, or copy files. If necessary, read the Windows documentation before operating V-500W.

The following notational conventions 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, or other. |
| **<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 linked by a plus sign. 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 where you want it. |

## 1.3 Overview of [Spectra Manager]

The following programs are registered in the [Spectra Manager] of the Model V-500W as standard.

Measurement programs

(1) [Quantitative measurement] program

This program creates a calibration curve by measuring a standard sample with known concentration according to the common quantitative analysis method and measures an unknown sample to find its concentration.

(2) [Spectrum measurement] program

This program obtains the UV/VIS absorption spectrum of a sample. The spectrum measured by this program is automatically transferred to the [Spectra Analysis] program.

(3) [Time Course Measurement] program

This program measures the changes in a sample with time at a fixed wavelength. The time course data obtained by this program is transferred to the [Spectra

Analysis] program.

(4) [Fixed Wavelength Measurement] program

This program measures the absorbance or transmittance of a sample at a fixed wavelength. Up to eight wavelengths can be set and measured.

(5) [Abs/%T Meter] program

This program reproduces the analog spectrophotometer on the CRT screen, so you can read the absorbance (Abs) or transmittance (%T) at an arbitrary wavelength on the meter.

(6) [Environment] program

This program sets the system hardware, does self-diagnosis, sets optional accessories, and calibrates wavelengths.

Analysis program

(1) [Spectra Analysis] program

This program saves, prints, and processes (difference spectrum, peak picking, smoothing, derivative, vertical axis conversion, and so on) spectrum data or time course data.

(2) [File Viewer] program

You use this program to search for a spectrum saved on the disk.

(3) [JASCO Canvas] program

You use this program to lay out and print spectra, measurement parameters, comments, and so on. You can also create drawings and enter characters.

*Note: This manual describes the measurement program. For the Analysis program, refer to the Spectra Analysis Program Manual.*

# 2. Starting and exiting programs and [Spectra Manager]

This section describes how to start and exit programs and the [Spectra Manager].

## 2.1 Startup

### 2.1.1 Turning ON the spectrophotometer

Turn ON the power switch on the right side of the spectrophotometer.

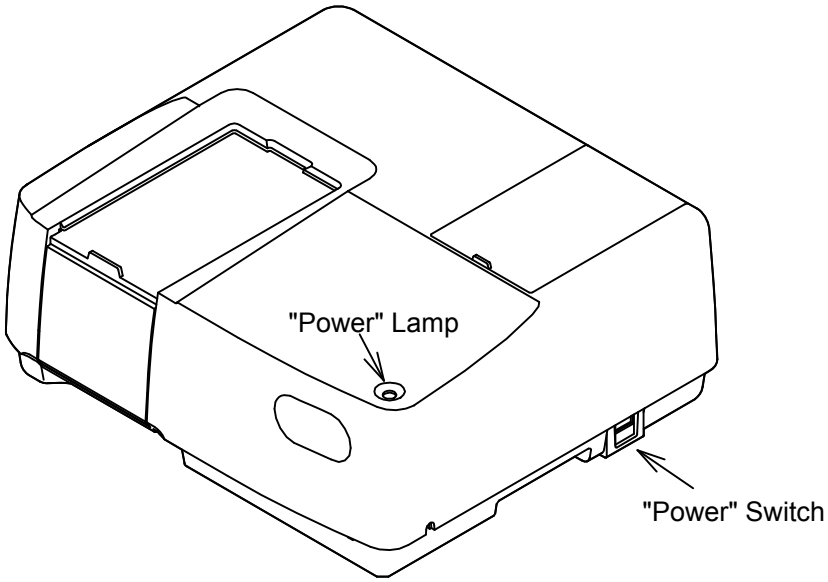



Figure 2.1 Spectrophotometer (V-530)

When the power is turned ON, the power lamp on the spectrophotometer is lit.

The light source needs about five minutes to become stable. Then measurement may begin.

### 2.1.2 PC and Windows® startup

Turn ON the power switches for the PC and CRT. Microsoft Windows should start automatically. If necessary, refer to the Microsoft Windows instruction manual

### 2.1.3 [Spectra Manager] startup

(1) When Windows is started, [Jasco]-[Spectra Manager] also starts. (See Fig. 2.2.) The [Spectra Manager] window appears. (See Fig. 2.3.)

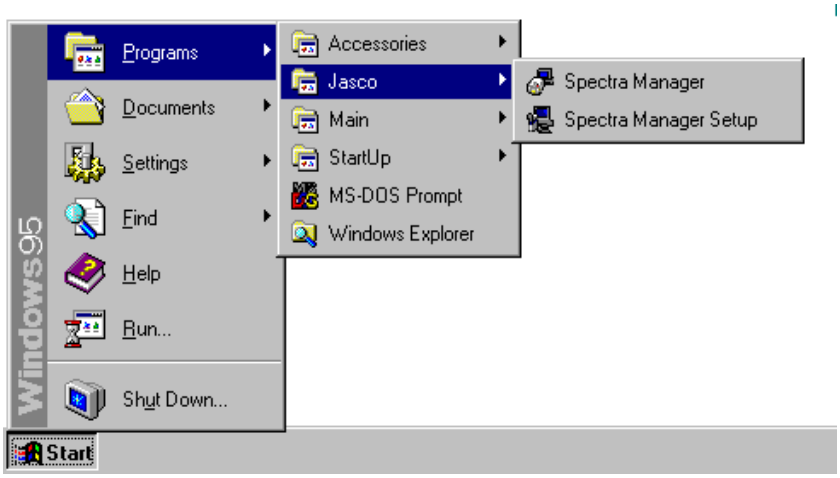



Figure 2.2 Windows screen

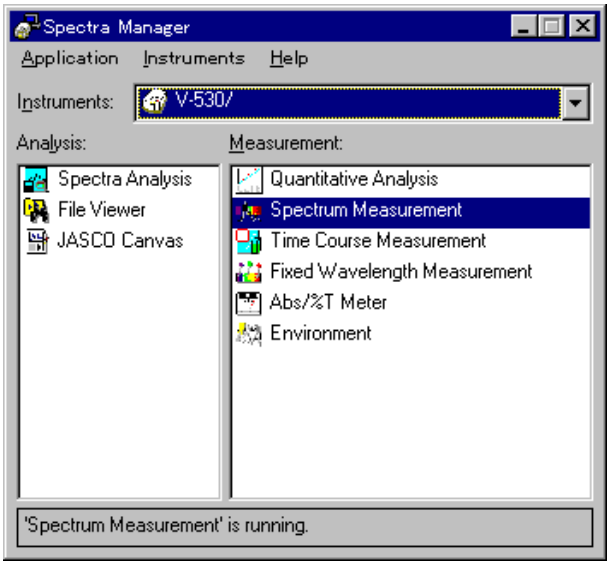



Figure 2.3 [Spectra Manager] window

(2) In the [Spectra Manager] window, make sure the Instrument in the [Instruments:] box is the spectrophotometer you are using. If not, click the arrow at the right side of the box and select the correct spectrophotometer. The window changes to the menu for that spectrophotometer.

*Note: The [Spectra Manager] window displays the available programs for the spectrophotometer. Fig. 2.3 shows an example of the standard program menu. If an optional application program has been included, it will also appear in the [Spectra Manager] window. See Section 2.3, [Spectra Manager] Menu for a full explanation.*

(3) Double-click a program on the menu. The selected program starts and the program window appears. The spectrophotometer also starts automatically, but needs about two minutes to warm up. Messages appear throughout the procedure. For example, when the [Spectrum Measurement] program is started, the [Spectrum Measurement] display shown in Fig. 2.5 appears after the display

shown in Fig. 2.4 appears.

*Note: See Section 3 Introduction for a full description of the Measurement program operation.*

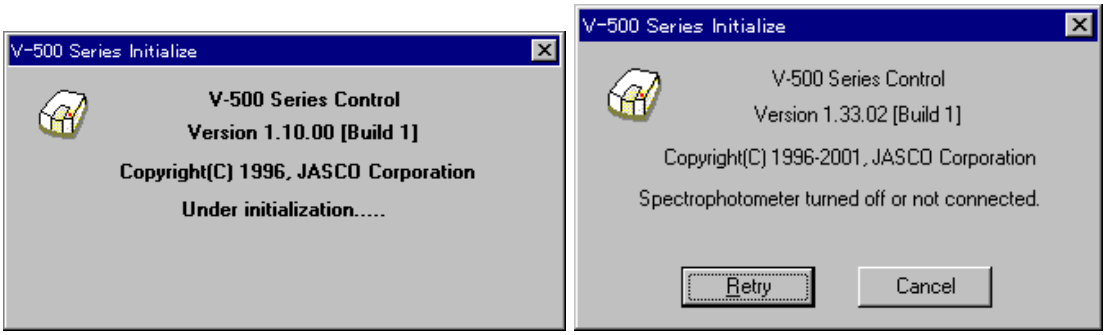



Figure 2.4 Message boxes during startup

*Note: Check the following if the message on the right in Fig. 2.4 appears.*

- *Power to the spectrophotometer is turned ON.*
- *The spectrophotometer and PC are correctly interfaced.*
- *The PC environment (for example, communication port) is correctly set.*

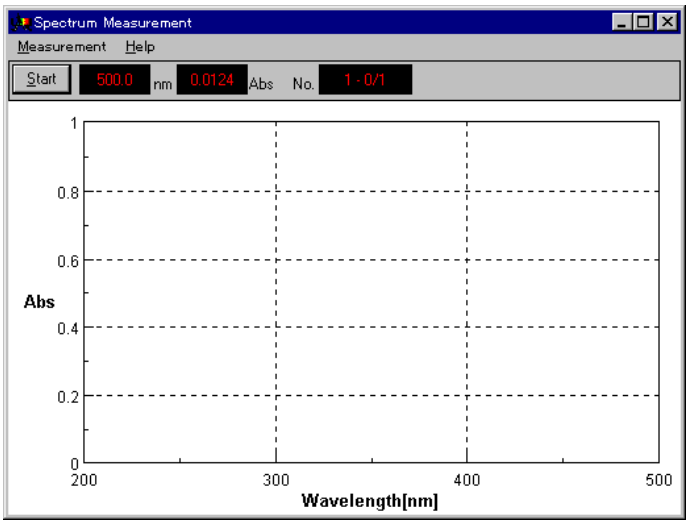



Figure 2.5 [Spectrum Measurement] display

## 2.2 Exiting

This section describes how to exit the [Measurement] or [Analysis] programs and how to shut down the spectrophotometer and PC.

### 2.2.1 Exiting measurement or spectra analysis program

Ends the [Measurement] or [ Analysis] program and exits it.

(1) Exiting the [Spectra Analysis] program

Click [File] - [Exit]. The [Spectra Analysis] window closes and the [Spectrum

Measurement] window appears.

*Note: If a spectrum has not been saved, a message appears to inform the operator. Proceed according to the message. A message appears for each unsaved spectrum. Repeat procedure accordingly.*

(2) Exiting the [Spectrum Measurement] program

Click [Measurement] - [Exit]. The [Spectrum Measurement] window closes and the [Spectra Manager] window appears.

(3) Exiting the [Spectra Manager] program

Click [Applications] - [Exit].

(4) Exiting Windows

Exit Windows according to the Windows User's Guide.

### 2.2.2 PC and spectrophotometer shutdown

(1) Turn OFF the power to the PC and display. Do not forget to turn off the display.

(2) Check that the sample chamber is empty. Then turn OFF the power to the spectrophotometer.

## 2.3 [Spectra Manager] Menu

The [Spectra Manager] is used to start measurement, spectra analysis and environment setting using the spectrophotometer, and selecting, for starting up and shutting down the spectrophotometer, as well as for setting the communication port.

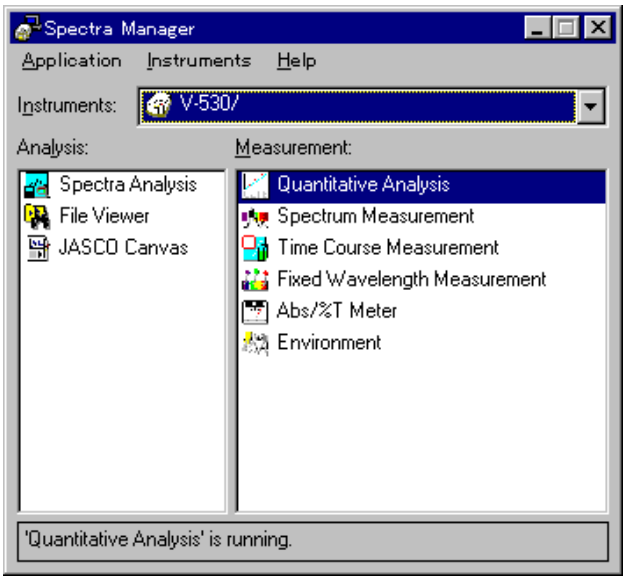



Figure 2.6 [Spectra Manager] window

Fig. 2.6 shows the standard [Measurement] and [Analysis] program menu. When additional programs are installed, they are added to this menu. The [Analysis] menu appears on the left and the [Measurement] menu appears on the right. Double-click a program to start it. If the spectrophotometer has not already been started, it will start together with the program.

*Note: If multiple instrument programs are installed in the PC, select one from the [Instrument] list.*

**Menu**

[Application] menu

| | |
|---|---|
| [Analysis] | Starts the [Analysis] program. |
| [Measurement] | Starts the [Measurement] program. |
| [Exit] | Exits the [Spectra Manager] window and returns to Windows. |

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

[Instruments] menu

| | |
|---|---|
| [Start] | Initializes the spectrophotometer and starts communication. Initialization takes about two minutes. This operation is usually not necessary because the spectrophotometer starts automatically when the [Measurement] program is started. |
| [Stop] | Stops communication with the spectrophotometer. This operation is usually not necessary because communication |

| | |
|---|---|
| | with the spectrophotometer stops automatically when the [Measurement] program is exited. |
| [Port Setting...] | Changes the communication port with the spectrophotometer. [COM1] is the default serial port for V-500W. See Section 10.2 Setting the Serial Port (RS-232C). |
| [Option...] | Install the optional accessory (Refer to the accessory instruction manual). |
| [About...] | Displays the version information of the control driver of the spectrophotometer. |

[Help] menu

| | |
|---|---|
| [Contents] | Displays the help Contents window. |
| [Search Topic] | Displays the keyword window. |
| [About...] | Displays the version information of the control program of the spectrophotometer. |
| [System information...] | Displays the system information. |

# 3. Quantitative Analysis and Spectrum Measurement

This section describes quantitative analysis and spectrum measurement. The parameters are described only briefly in order to clarify the operation flow. Follow the procedures outlined below in order to become familiar with the operation of V-500W. For more detailed information, see the section for each program.

## 3.1 Quantitative Analysis Introduction

The following sections briefly describe the quantitative analysis program and its operation flow, followed by the procedure for creating calibration curves, unknown sample measurement, and saving and printing results.

### 3.1.1 Quantitative analysis program overview

#### 3.1.1.1 Quantitative analysis program

The quantitative analysis program has the following features.

(1) Three methods of analysis outlined.

1) 1-wavelength quantitative analysis. Fig. 3.1 (1).
   Used for normal solution sample.
2) 2-wavelength quantitative analysis. Fig. 3.1 (2).
   Used for baseline correction.
3) 3-wavelength quantitative analysis. Fig. 3.1 (3).
   Used for baseline correction.
   The following formula is used for 3-wavelength quantitative analysis. WL1 is the wavelength and E (1) the absorbance at that wavelength.

$$\Delta Abs = E(1) - \frac{|WL1 - WL2| \cdot E(3) + |WL3 - WL1| \cdot E(2)}{|WL3 - WL2|}$$

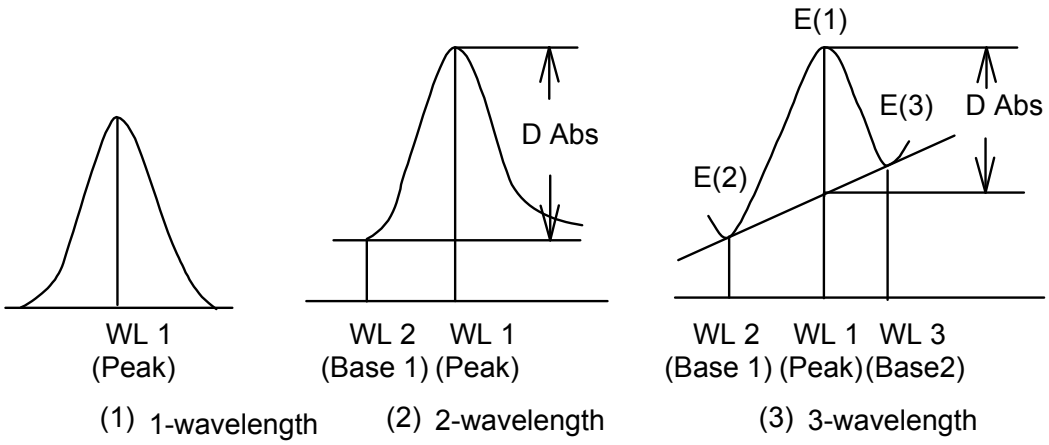



Figure 3.1 Quantitative analysis methods

(2) The calibration curve can be selected from the modes shown below, according to

the application.

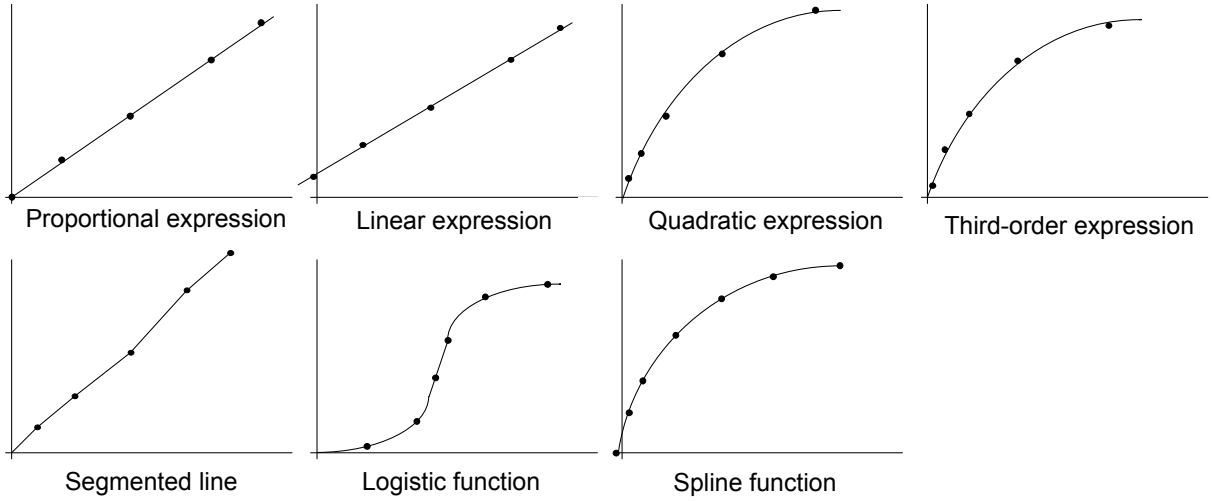



Figure 3.2 Calibration curve modes

(3) The operator can set whether to use standard measurement data (set of concentration/absorbance) to calculate the calibration curve.

### 3.1.1.2 Quantitative analysis operation

Start quantitative analysis program — See Section 3.1.2
↓
Create file
↓
Set quantitative analysis method and measurement parameters
↓
Set calibration curve parameters and input standard sample concentration — See Section 3.1.3
↓
Measure standard sample blank
↓
Measure standard samples
↓
Display calibration curve
↓
Modify (check and correct) calibration curve — See Section 3.1.4
↓
Save calibration curve — See Section 3.1.5
↓
Measure unknown samples — See Section 3.1.6
↓
Save results — See Section 3.1.7
↓
Print Results — See Section 3.1.8
↓
Exit quantitative analysis program — See Section 3.1.9

### 3.1.2 Program startup

In the [Spectra Manager] window, double-click [Quantitative Analysis].
The message UNDER INITIALIZATION appears and measurement parameters are transferred to the spectrophotometer. When transfer is finished, the program starts and the following window appears.

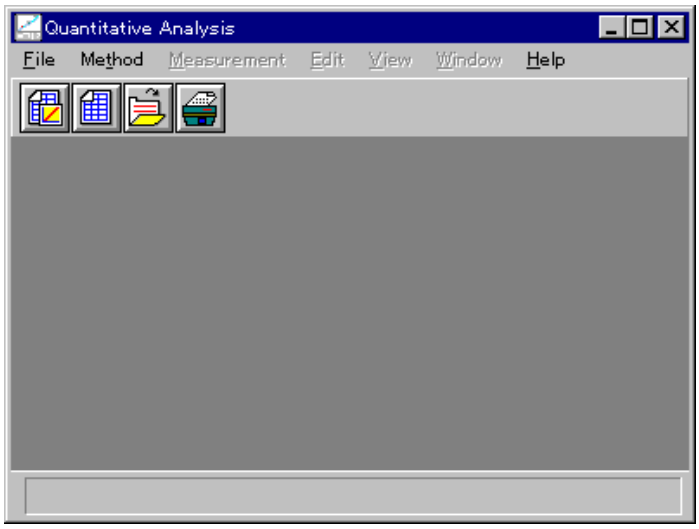



Figure 3.3 [Quantitative analysis] window

### 3.1.3 Calibration curve creation

(1) Click [File] - [New...]. The following dialog box appears.

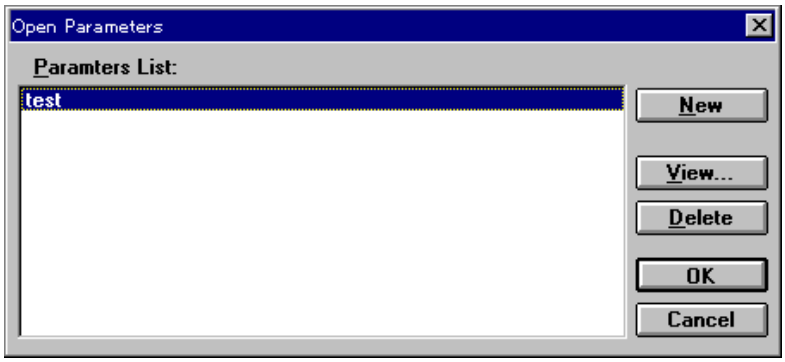



Figure 3.4 [Open Parameters] dialog box

(2) Click <New> to open the following dialog box.

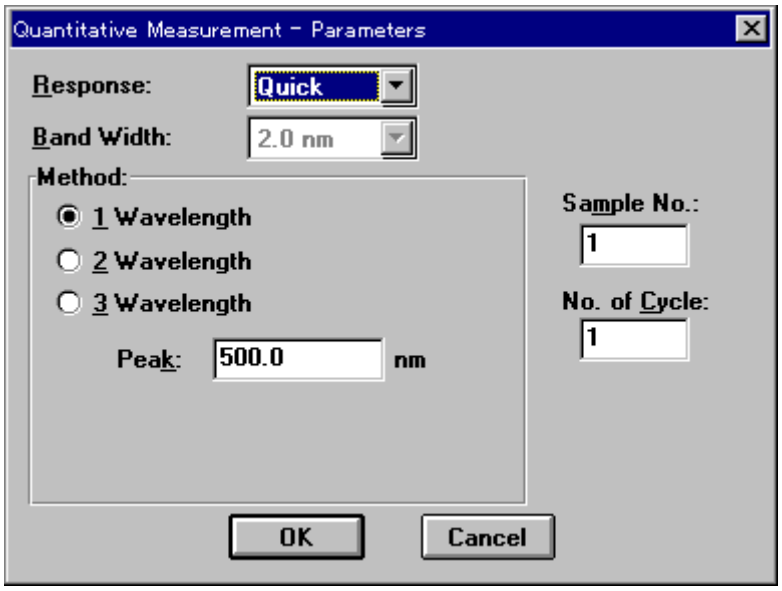



Figure 3.5 [Quantitative Measurement Parameters] dialog box

(3) Changing measurement parameters procedure

The [Quantitative Measurement Parameters] dialog box displays the instrument default settings. The following parameters may be changed.

Response: Fast
Method: 1 Wavelength
Peak wavelength: XXX nm

1) [Response] is a drop-down list box. Click the arrow to the right of the box to display the full list of options. To select [Fast] response, click [Fast].

Change other parameters if necessary.

2) Click the [1-wavelength] option button of the [Method] group to select this method. The button becomes filled in [•]. Next, use the number pad to input the peak wavelength of the standard sample into the [Peak] text box.

(4) Click <OK> to transfer the measurement parameters to the spectrophotometer. When transfer is finished, the [Calibrate Curve Parameters] dialog box appears. You can set the calibration curve parameters and input the concentration of the standard sample.

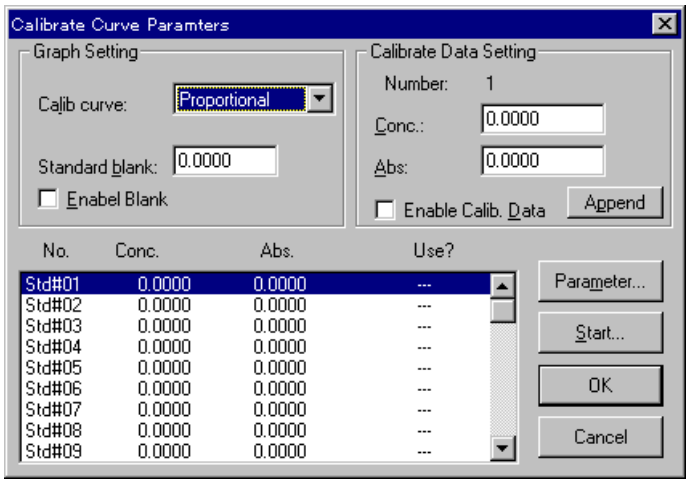



Figure 3.6 [Calibrate Curve Parameters] dialog box

(5) Calibration curve parameter setting

1) Set [Calib. curve] to [Proportional]. Use the same procedure as for changing parameters

2) If [Standard blank] is known, input that value to the text box. If the [Standard blank] is unknown, it will be measured later. In that case, steps 2) and 3) are not necessary.

3) Select the [Enable Blank] checkbox. The checkbox is marked with an [x].

(6) Inputting concentration

1) Click the [Std#01] line of the standard data display field. The cursor moves to that line.

2) Input concentration to the [Conc.] text box of the [Calibrate Data Setting] group. Click <Append>. The concentration appears in the standard data display field and the cursor moves to the next line automatically.

*Note: If the absorbance of the standard sample is known, measuring the standard sample is not necessary. Input the absorbance, then select the [Enable Calib. Data] checkbox. Click <Append>.*

3) Repeat step 2) as many times as the number of standard samples.

4) Click the [Std#01] line in the data display field. The cursor returns to line 1.

(7) Click <Start...>. The [Quantitative Measurement] dialog box opens. The standard blank and standard samples are measured.

*Note: The [Quantitative Measurement] dialog box appears on top of the [Calibrate Curve Parameters] dialog box. To view the [Calibrate Curve Parameters] dialog box, click and drag the title bar of the [Quantitative Measurement] dialog box. Both dialog boxes are active. The calibration curve parameters can be changed according to steps (5) and (6).*

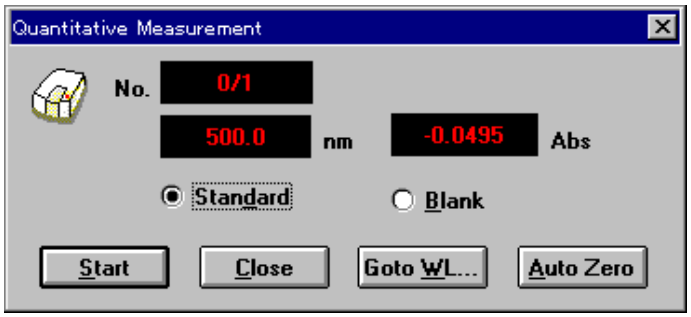



Figure 3.7 [Quantitative Measurement] dialog box

(8) Measuring the standard blank

1) Select the [Blank] option button.

2) Place the standard blank in the cell holder of the sample chamber. The cell holder is on the near-side.

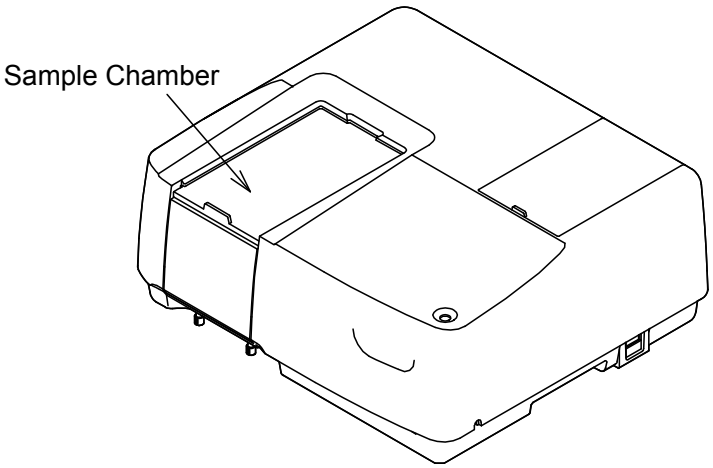



Figure 3.8 Sample chamber

3) Click <Start>. The standard blank is measured. The value automatically appears in the [Standard blank] text box of the [Calibrate Curve Parameters] dialog box and the [Enable Blank] checkbox becomes selected.

*Note: When <OK> is clicked and the [Calibrate Curve Parameters] dialog box is closed, the standard blank value is subtracted from the absorbance value of the standard sample. The standard blank and standard sample can be measured in any order.*

(9) Standard samples measurement

Before measuring the standard samples, check that the cursor is positioned at the first line of the standard data display field. Click the [Std#01] line to move the cursor to the first line.

1) Select the [Standard] option button.

2) Place standard sample No. 1 in the cell holder.

3) Click <Start>. The standard sample is measured. The absorbance value appears automatically in the standard data display field of the [Calibrate Curve Parameters] dialog box. The [Use] field changes from [---] to [Use]. The cursor automatically moves to the next line.

*Note: The standard blank value is not subtracted from the absorbance in the standard data display field.*

4) Repeat steps 2) and 3) as many times as the number of standard samples.

5) After standard sample measurement, click <Close> to close the [Quantitative Measurement] dialog box.

(10) Displaying the calibration curve

Click <OK> in the [Calibration Curve Parameters] dialog box. The standard blank value is subtracted from the absorbance value of the standard sample and the [Calibrate Curve] window opens. At the same time, the [Method Information] and [Data sheet] windows open.

*Note: If a calibration curve is created by clicking [Method] - [New], only the [Calibrate Curve] and [Method Information] windows open.*

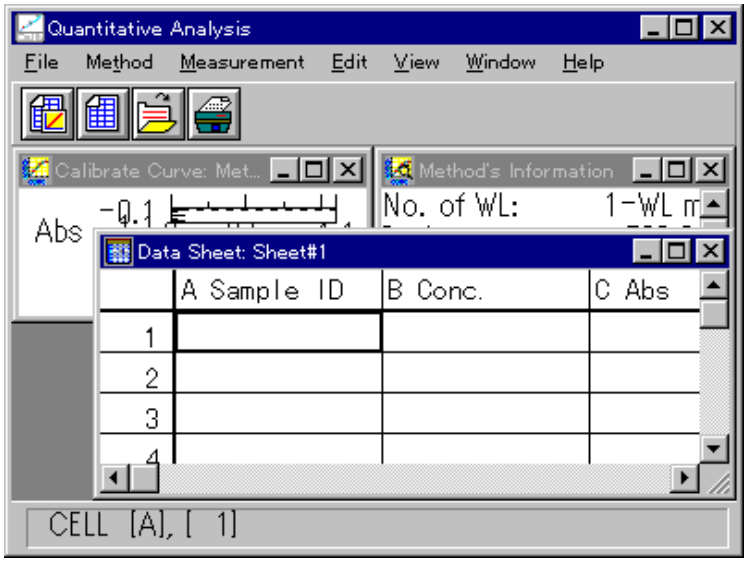



Figure 3.9 [Data Sheet] window

### 3.1.4 Calibration curve modification

Click the title bar of the [Calibrate Curve] window to activate it. The calibration curve can be confirmed. If the calibration curve must be changed, click [Method] - [Modify...]. The [Calibrate Curve Parameters] dialog box opens (See Fig. 3.8).

Calibration curve parameters can be changed accordingly, and then the standard sample can be re-measured. Data can be also invalidated rather than continuing with measurement.

*Note: The calibration curve cannot be modified after measuring an unknown sample.*

(1) Re-measurement

1) Move the cursor to the incorrect data line.

2) Click <Start...> to open the [Quantitative Measurement] dialog box. Repeat standard sample measurement.

(2) Invalidating

1) Move the cursor to the incorrect data line.

2) Unselect the [Enable Calib. Data] checkbox, and then click <Append>. The [Use] changes to [---].

### 3.1.5 Saving quantitative analysis method

Save to disk the quantitative analysis method (calibration curve data) and the measurement parameters.

(1) Click [Method] - [Save As...]. The following dialog box appears.

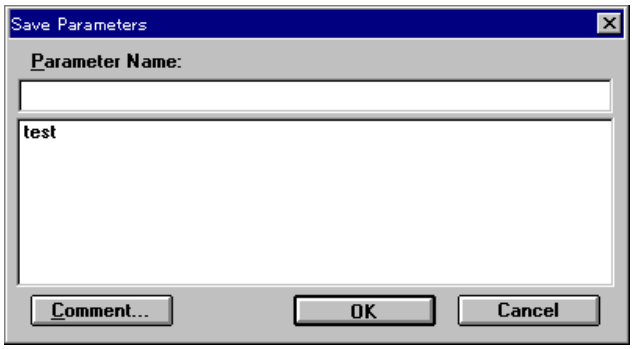



Figure 3.10 [Save Parameters] dialog box

(2) Input a filename to the [Parameter Name] text box. The filename may contain up to 32 characters. A maximum of 32 calibration curve files may be input.

Note: *Click <Comment...> to open the [Comments] dialog box. Sample name, operator, and organization can be input if necessary.*

(3) Click <OK> to save the quantitative analysis method onto the disk.

### 3.1.6 Unknown sample measurement

(1) Click [Measurement] - [Measurement...]. The following dialog box appears.

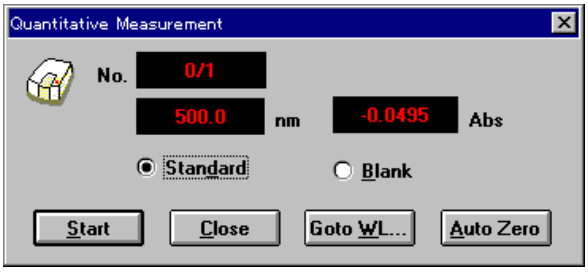



Figure 3.11 [Quantitative Measurement] dialog box

(2) Sample blank measurement

Measure the sample blank according to the following procedure. If the sample blank is not measured, the standard sample blank value is used as the sample blank value.

*Note: The sample blank value can be confirmed by clicking [Measurement] - [Blank Correction].*

1) Select the [Blank] option button.

2) Place the sample blank in the cell holder of the sample chamber.

3) Click <Start>. The sample blank is measured. The results appear on the [Data Sheet].

(3) Sample measurement

1) Select the [Sample] option button.

2) Place the sample in the cell holder

3) Click <Start>. The sample is measured and concentration is calculated from the calibration curve displayed in the window. The results appear on the [Data Sheet].

4) Repeat steps 2) and 3) as many times as the number of samples.

*Note: The sample blank is subtracted from the absorbance value of the sample when calculating concentration. The sample blank can be re-measured during sample measurement. The blank value is valid for subsequent sample measurements.*

<<Re-measurement>>

To re-measure a sample, move the cursor to the line in the [Data Sheet] window. Repeat measurement. The previous data is automatically overwritten. Following sample re-measurement, measurement resumes at the next sample number. In order to resume measurement at a specific sample number, do one of the following procedures.

- Close the [Quantitative Measurement] dialog box before measurement. Click [Measurement] - [Parameters...] to open the [Quantitative Measurement - Parameters] dialog box. Input the sample number.
- After measurement, rewrite the data using the data sheet modifying function (see Section 4.4, "[Edit] menu").

*Note: The line with the incorrect measurement can be invalidated (see Section 4.4.4, "[Title...]").*

### 3.1.7 Saving data sheet

Save to disk the data sheet and quantitative analysis method.

(1) Click [File] - [Save As...] to open the following dialog box.

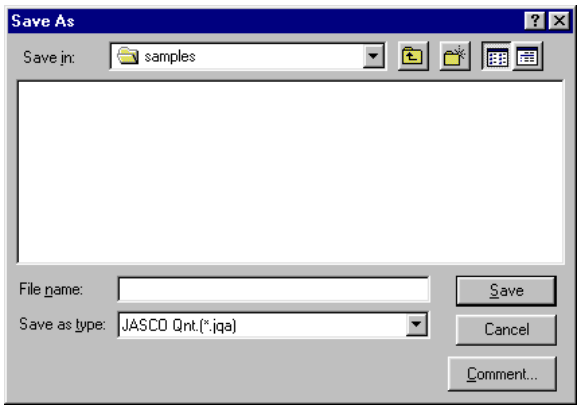



Figure 3.12 [Save As] dialog box

(2) Input a filename to the [File Name] text box. Up to 8 characters can be input. The extension is not necessary (after the ".").

*Note: Click <Comments...> to open the [Comments] dialog box. Sample name, operator, and organization can be input if necessary.*

(3) Click <Save> to save the data sheet to disk.

### 3.1.8 Printing results

Print quantitative analysis data using a printer.

(1) Click [File] - [Page Setup...]. The following dialog box appears. Select items to print. Click <OK> to confirms the items. The dialog box closes.

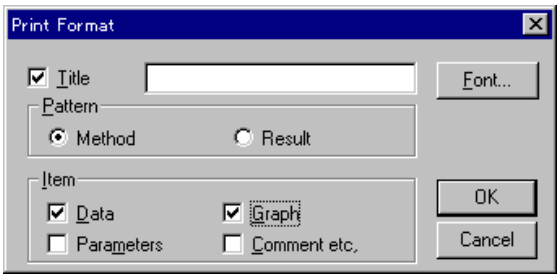



Figure 3.13 [Print Format] dialog box

(2) Click [File] - [Print]. The following dialog box appears. The content of the dialog box varies according to the printer.

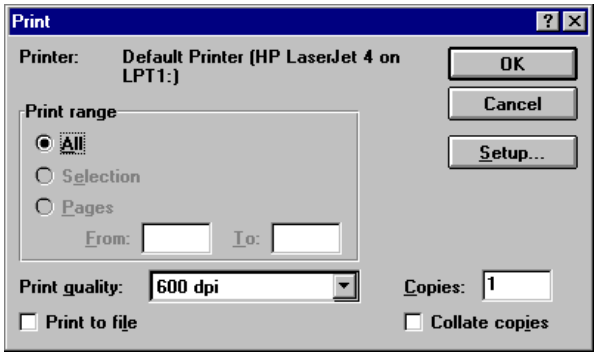



Figure 3.14 [Print] dialog box

(3) Click <OK> to print the quantitative analysis data.

### 3.1.9 Exiting quantitative analysis

Click [File] - [Exit] to return to the [Spectra Manager] window after measurement is finished.

| *Note: If unsaved [Data Sheet] and/or [Calibrate Curve] data exist, a message appears to ask if the data should be saved. Proceed according to the message.* |
|---|

## 3.2 Spectrum Measurement

This section describes the procedures for starting the Spectrum Measurement program, measuring standard samples, saving measured spectra to disk, and printing data.

### 3.2.1 Procedural overview

The Spectrum Measurement program measures sample spectra for a set of measurement parameters. It also does baseline measurement for correcting sample spectra. Spectra cannot be printed or saved in the Spectrum Measurement program. Spectrum measurement automatically starts the [Spectra Analysis] program and the spectra are displayed in the active view. Spectra can be saved or printed in the [Spectra Analysis] program.

| | |
|---|---|
| [Spectrum measurement] program start | See Section 3.2.2. |
| ↓ | |
| Setting measurement parameters | See Section 3.2.3. |
| ↓ | |
| Setting the baseline(or Measurement) | See Section 3.2.4. |
| ↓ | |
| Sample measurement | See Section 3.2.5. |
| ↓ | |
| Spectrum save | See Section 3.2.6. |
| ↓ | |
| Printing results | See Section 3.2.7. |
| ↓ | |
| Exit (shutdown instrument). | See Section 3.2.8. |

### 3.2.2 [Spectrum measurement] program startup

In the [Spectra Manager] window, double-click [Spectrum Measurement]. The program starts and the following window appears.

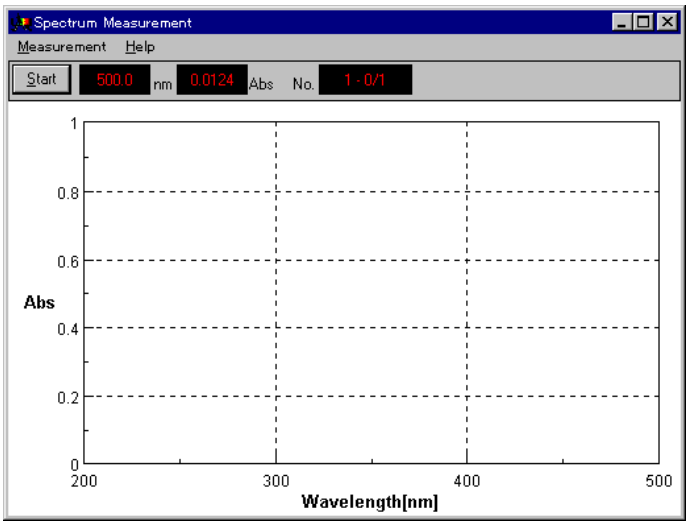



Figure 3.15 [Spectrum Measurement] window

### 3.2.3 Setting measurement parameters

(1) Click [Measurement] - [Parameter...]. The following dialog box appears. The dialog box consists of two pages, [Parameter] and [Data File]. Click the [Data File] tab to activate the [Data File] dialog box. Click the [Parameters] tab to reactivate the [Parameters] dialog box.

*Note: The [Data File] function is necessary for saving data automatically to disk.*

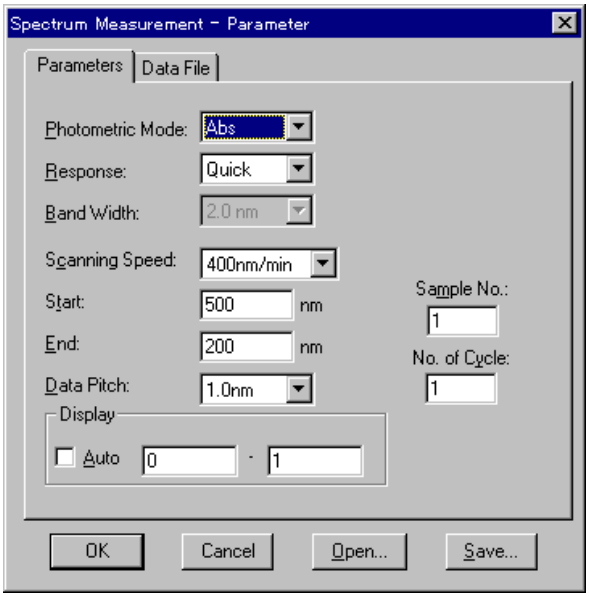



Figure 3.16 [Parameters] dialog box

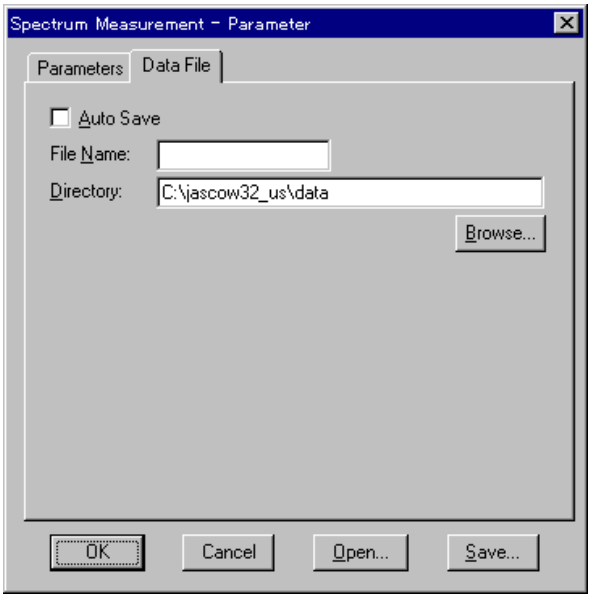



Figure 3.17 [Data File] dialog box

(2) Changing measurement parameters procedure

The default parameters for the instrument appear in the [Parameters] dialog box. The parameters can be changed, according to the examples below.

- Photometric Mode: T%
- Measuring wavelength range: 600 to 400

1) Changing photometric mode

The [Photometric Mode] is a drop-down list box. Click the arrow to the right of the box to display the available modes. Click [%T] to set that photometric mode.

2) Changing wavelength range

Input the longer wavelength end into the [Start] text box and the shorter wavelength end into the [End] text box.
For example, to input the starting wavelength, click the appropriate text box. The cursor appears in the [Start] text box. The starting wavelength can be input using the number keys.
Change other parameters, as required

(3) After changing the necessary parameters, click <OK> to transfer the parameters to the spectrophotometer.

### 3.2.4 Setting the baseline(or Measurement)

The baseline defines the "0" absorbance (100% for transmittance) level. The baseline value is subtracted from the measured data (divided for transmittance) in order to determine the correct spectrum of a sample. The baseline is inherent to each instrument. When the baseline is measured, it varies according to the set of parameters such as the response setting and scanning speed. In order to maximize the accuracy of the spectra, the baseline must be measured under the same conditions as those used for measuring the spectra.

The measured baseline is saved, even when the power is turned off. Therefore, it can be used again when the Spectrum Measurement program is started.

*Note: When an optional accessory is installed in the sample chamber, the optical path changes. Thus, the baseline must be re-measured.*

(1) Click [Measurement] - [Baseline...] . The following dialog box appears. A message in the dialog box asks the operator whether a baseline exists.

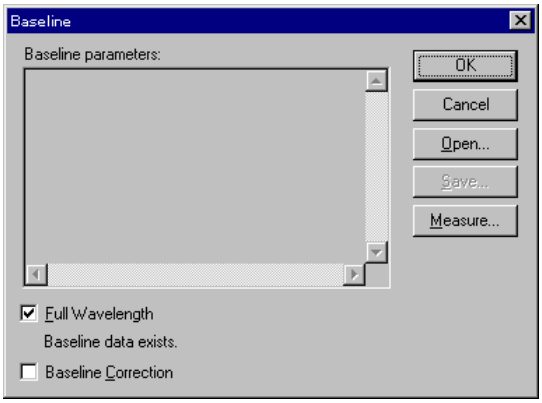



Figure 3.18 [Baseline Correction] dialog box

*Note: When a partial baseline exists, measurement parameters are displayed in the [Baseline parameters] display field.*

When [Baseline data exist.] is displayed:
Previously measured baseline data exist in memory. Do step (2) to use that baseline or step (3) to re-measure the baseline.
When [Baseline data not exist.] is displayed:
Proceed to step (3) to measure the baseline.

(2) Select the [Baseline Correction] checkbox, and then click <OK>. This completes baseline setting.

(3) Select the [Full Wavelength] checkbox, and then click <Measure...> to display the following dialog box.

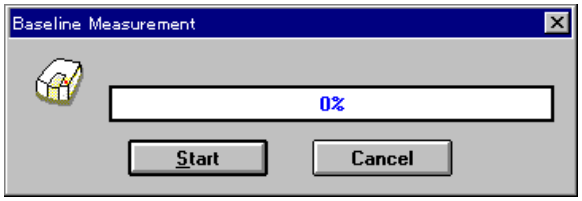



Figure 3.19 [Baseline Measurement] (1) dialog box

*Note: If the <Measure> button is clicked without putting a check mark to [Full Wavelength], measurement will start immediately without displaying Fig. 3.20. In this case, the partial baseline is measured (see Section 4.2.1.3 [Baseline (B)...]).*

(4) Make sure that the sample chamber is empty. Click <Start> to begin measurement. The measured baseline is saved in memory. At the same time, the [Baseline Correction] checkbox is selected. To confirm that the [Baseline Correction] checkbox has been selected, do step (1) again.

*Note: Full baseline measurement parameters are those that are currently selected except the measurement range. Measurement can be stopped by clicking the <Stop> button during measurement. When measurement is stopped, the full baselines in memory will disappear.*

### 3.2.5 Sample measurement

(1) Place a sample in the cell holder on the near-side of the sample chamber, and then close the lid.

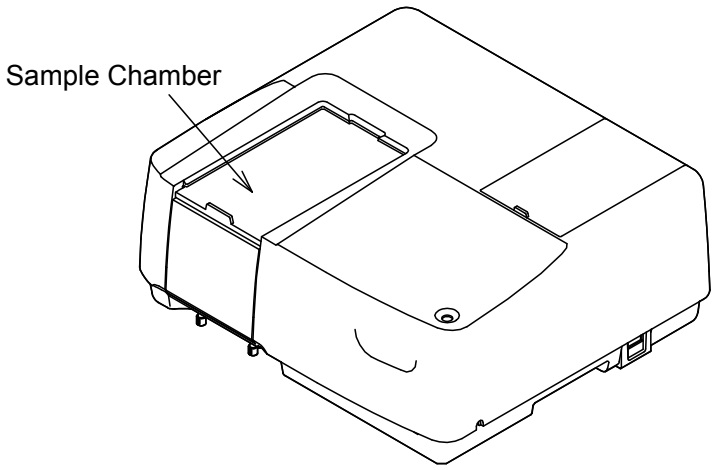



Figure 3.20 Sample chamber

(2) Click [Measurement] - [Start] (or click the <Start> button). The sample is measured and the measurement progression appears. When measurement is finished, the [Spectra Analysis] program starts automatically and the spectrum is displayed in the active view.

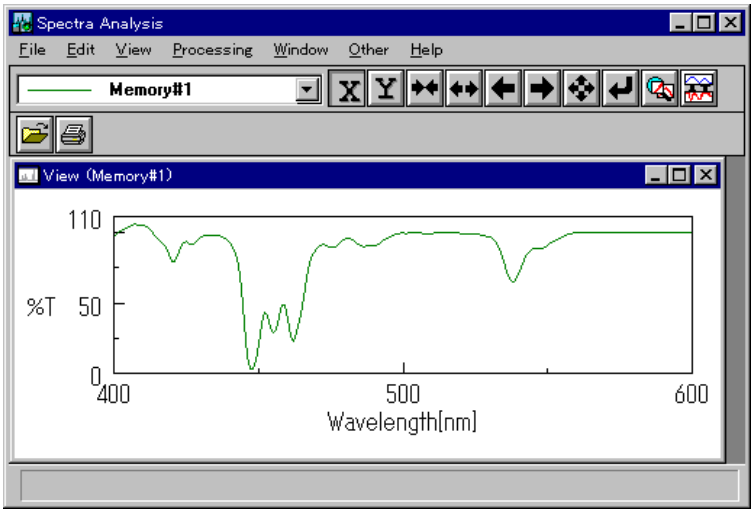



Figure 3.21 [Spectra Analysis] window (spectrum view)

### 3.2.6 Spectrum save

Spectra can be saved in a file.

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

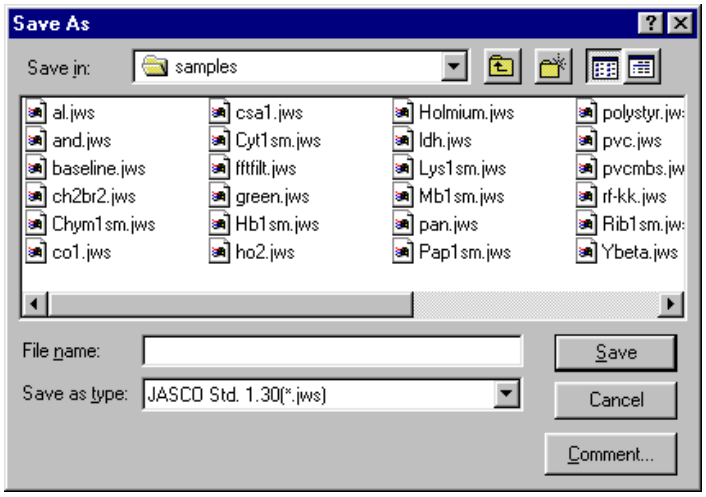



Figure 3.22 [Save As] dialog box

(2) Input the filename in the [File Name] text box. Up to 8 characters can be input. The extension is not required (after the ".").

(3) Click <Save> to save spectra to disk.

### 3.2.7 Printing results

Spectra can be printed using a printer.

(1) Click [File] - [Print Setup...]. The following dialog box appears. The content of the dialog box varies according to the active printer.

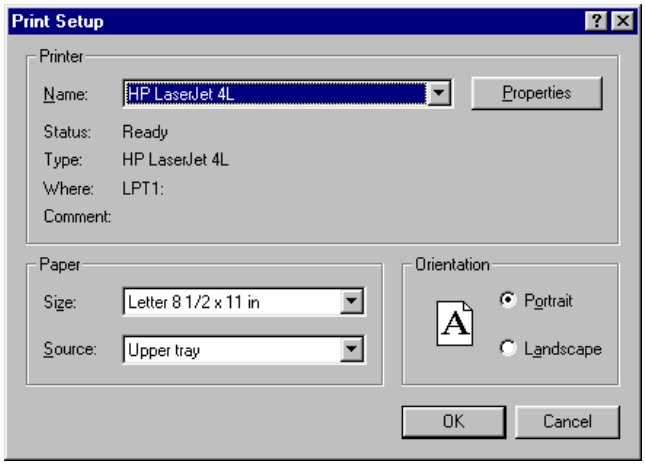



Figure 3.23 [[Print Setup] dialog box

(2) Click [File] - [Print...] to print the spectra.

### 3.2.8 Instrument shutdown

(1) Exiting the [Spectra Analysis] program

Click [File] - [Exit]. The [Spectra Analysis] window closes and the [Spectrum Measurement] window appears.

*Note: If an unsaved spectrum exists, a message appears to inform the operator. Proceed according to the message. A message appears for each unsaved spectrum. Repeat procedure accordingly.*

(2) Exiting the [Spectrum Measurement] program

Click [Measurement] - [Exit]. The [Spectrum Measurement] window closes and the [Spectra Manager] window reappears.

(3) Exiting the [Spectra Manager] program

Click [Applications] - [Exit].

(4) Exiting Windows

Exit Windows according to the Windows User's Guide.

(5) PC and spectrophotometer shutdown

Turn off the power to both the PC and CRT. In particular, make sure that the CRT has been turned OFF. Check that the sample chamber is empty, then turn off the spectrophotometer.

# 4. [Quantitative Analysis]

Double-click [Quantitative Analysis] in the [Spectra Manager] window. The program starts and the following window appears after spectrophotometer initialization.

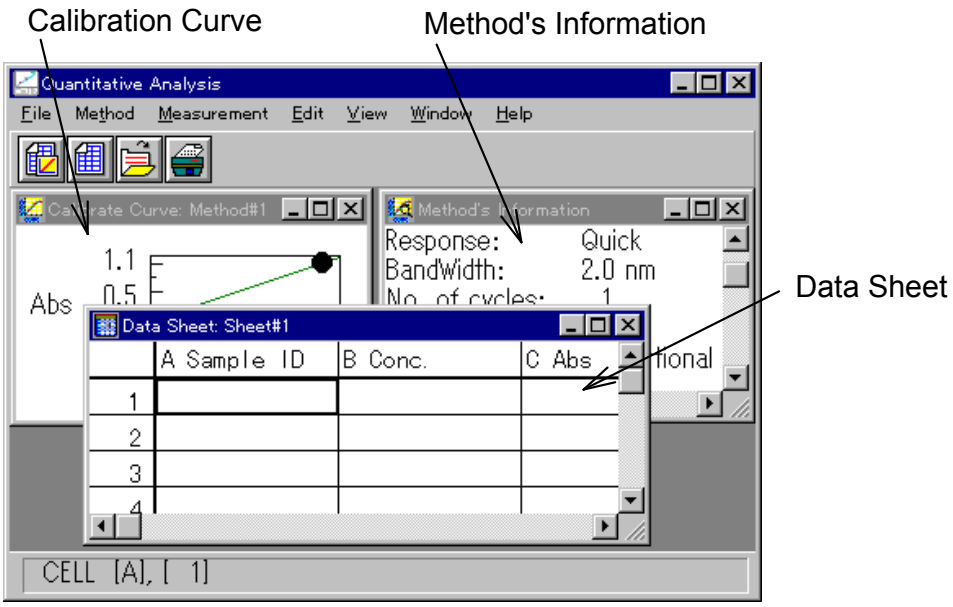



Figure 4.1 [Quantitative Analysis] window

**[Quantitative Analysis] window**

The [Quantitative Analysis] program display contains the following three windows (see Fig. 4.1). These three windows may be opened simultaneously. However, no more than one of the same window may be opened at the same time.

| | |
|---|---|
| [Calibration Curve] | Displays a calibration curve. Always appears when the [Method Information] window is opened. |
| [Data Sheet] | Measurement of unknown sample is done when this window is open. [Calibration Curve] and [Method Information] windows must be opened in order to display this window. |
| [Method Information] | Displays information including measurement parameters, calibration curve data, and comments. Always appears when the [Calibration Curve] window is opened. |

**menu**

[File] menu

| | |
|---|---|
| [New...] | Opens a new [Data Sheet] display. |
| [Open...] | Opens a saved [Data Sheet] file. |
| [Save] | Saves the active [Data Sheet] under the current filename. Measurement parameters and calibration curve data are also saved at that time. |
| [Save As...] | Saves the active [Data Sheet] under a new filename. Measurement parameters and calibration curve data are also saved at that time. |
| [Page Setup...] | Sets print contents such as [Data Sheet], calibration curve, or measurement parameters. |
| [Print Setup...] | Sets the target printer and the printing conditions. |

| | |
|---|---|
| [Print...] | Prints the data from the active window set by [Page Setup...]. |
| [Exit] | Exits the quantitative analysis program and returns to the [Spectra Manager]. |

[Method] menu

| | |
|---|---|
| [New...] | Creates a new calibration curve. |
| [Open...] | Opens saved quantitative analysis method files. |
| [Save As...] | Saves quantitative analysis method data, including calibration curve, and measurement parameters. |
| [Modify...] | Edits existing calibration curve data. |
| [Information...] | When the [Method Information] window is in icon form, starting this function reopens the original window. |

[Measurement] menu

| | |
|---|---|
| [Measurement...] | Measure a sample blank or unknown sample. |
| [Parameters...] | Set measurement parameters. |
| [Blank Correction...] | Set whether to input the sample blank value and whether blank correction should be done. |

[Edit] menu

| | |
|---|---|
| [Copy Picture] | Copies a calibration curve to the clipboard as a picture. |
| [Copy Bitmap] | Copies a calibration curve to the clipboard as a bitmap. |
| [Copy Text] | Copies the results of quantitative analysis to the clipboard in a text format. |
| [Invalid] | Invalidates selected lines from the Data Sheet. |
| [Data Input...] | Inputs measurement data directly using the number keys. |
| [Title...] | edits the [Data Sheet] column title. |

[View] menu

| | |
|---|---|
| [Font...] | Sets the font for the [Data Sheet] or calibration curve. |
| [Format...] | Sets the number of decimal places to appear on the [Data Sheet]. |
| [Cell Width...] | Sets the cell width for each column of the [Data Sheet]. |
| [Scale...] | Sets the scale of the vertical and horizontal axes of the calibration curve. |
| [Pattern...] | Sets the calibration curve, frame, scale line color, line style, or line width. |
| [Grid...] | Sets whether to display the vertical and horizontal axes of the calibration curve. |
| [Style...] | Sets the scale interval and decimal places of the vertical and horizontal axes of the calibration curve. |
| [Marker...] | Sets the type, size, and color of the marker used to indicate specific data points on the calibration curve, and whether to fill the inside of the marker. |

[Window] menu

| | |
|---|---|
| [Cascade] | Overlays the [Data Sheet], [Calibrate Curve], and [Method |

| | |
|---|---|
| | Information] windows in the display. |
| [Tile] | Displays the [Data Sheet], [Calibrate Curve], and [Method Information] windows side-by-side. |

[Help] menu

| | |
|---|---|
| [About...] | Displays version information for the [Quantitative Analysis] program. |

**Tool button**

 Creates a new calibration curve ([Method]-[New...])

 Opens a new [Data Sheet] display ([File]-[New...])

 Opens a saved [Data Sheet] file ([File]-[Open...])

 Prints the data from the active window set by [Page Setup...] ([File]-[Print...])

## 4.1 [File] menu

### 4.1.1 [New...]

Opens a new [Data Sheet] display.

*Note: If an unsaved [Data Sheet] and/or [Calibrate Curve] is in the window when [New...] is clicked, a message appears to ask the operator whether the data should be saved. Proceed according to the message.*

When [New...] is clicked, the following dialog box appears.

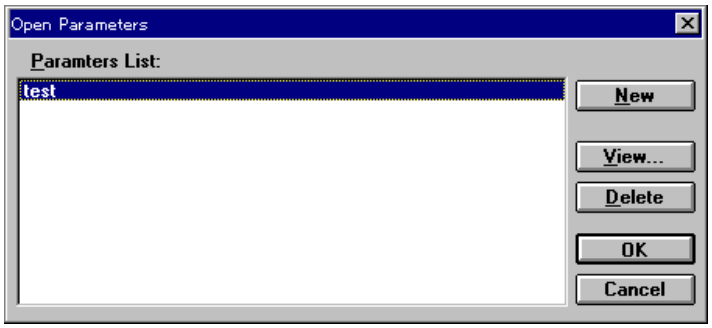



Figure 4.2 [Open Parameters] dialog box

| | |
|---|---|
| [Parameters List] | Lists the available quantitative analysis methods. |
| <New> | Opens the [Quantitative Measurement-Parameters] dialog box. A new quantitative analysis method file can be added. See Section 4.2.1, [New...]. |
| <View...> | Displays details of the currently selected quantitative analysis method file. |
| <OK> | Loads the details of the currently selected quantitative analysis method file, and simultaneously opens the [Calibrate Curve], [Method Information] and [Data Sheet] windows. |

*Note: The [Data Sheet] window is the collective display of the [Calibrate Curve] and [Method Information] windows which appear in this window at all times.*

<Cancel> Closes the dialog box without changing the original parameters.

<Delete> Deletes the currently selected quantitative analysis method file.

Click <View...> to open the following dialog box.

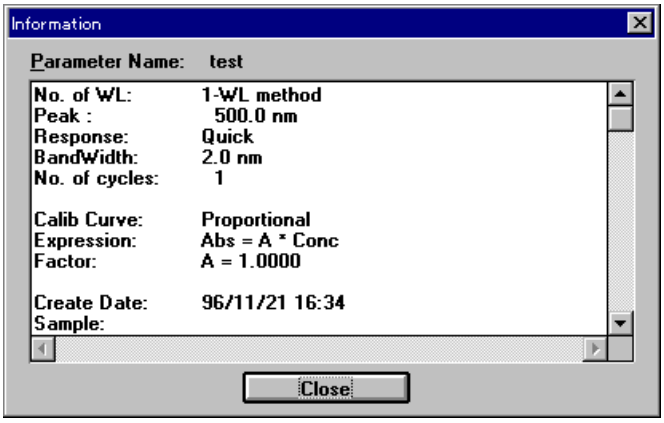



Figure 4.3 [Information] dialog box

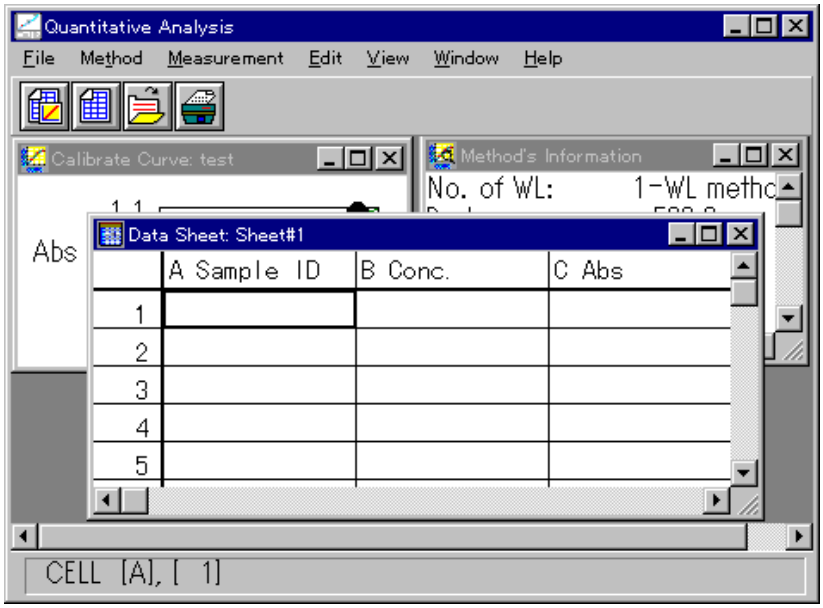



Figure 4.4 [Data Sheet] window

An unknown sample can be measured from the [Data Sheet] window using the displayed quantitative analysis method.

### 4.1.2 [Open...]

Opens a saved [Data Sheet] file.

*Note: If an unsaved [Data Sheet] or [Calibrate Curve] is in the window when [Open...] is clicked, a message appears to ask the operator whether the data should be saved. Proceed according to the message.*

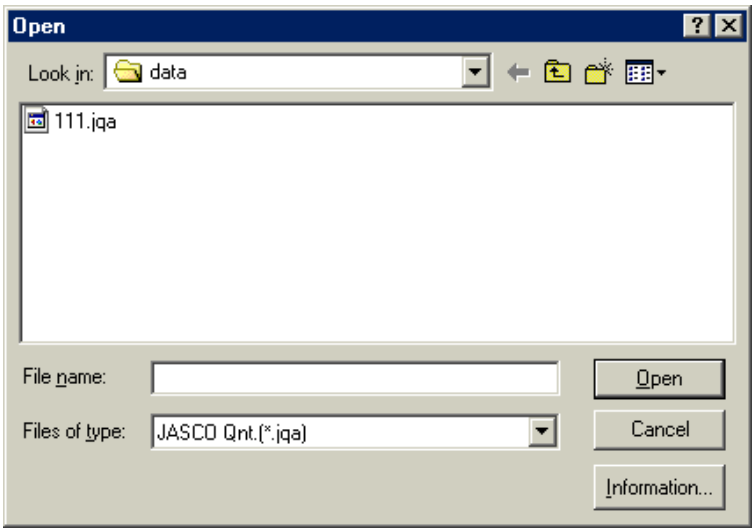



Figure 4.5 [Open] dialog box

| | |
|---|---|
| [Look in] | Sets target drive or directory. Available drives or directory appear in the drop-down list box. |
| File name list box | Select a filename. |
| [File name] | Text box for inputting a filename. The filename can also be selected from the filename list. |
| [Files of type] | Only JASCO JQA is available. |
| <Information...> | Displays information about the quantitative analysis method file. |

### 4.1.3 [Save]

Saves the active [Data Sheet] under the current filename. Measurement parameters and calibration curve data are also saved. This function overwrites any previous data in that file.

### 4.1.4 [Save As...]

Saves the active [Data Sheet] under a new filename. Measurement parameters and calibration curve data are also saved.

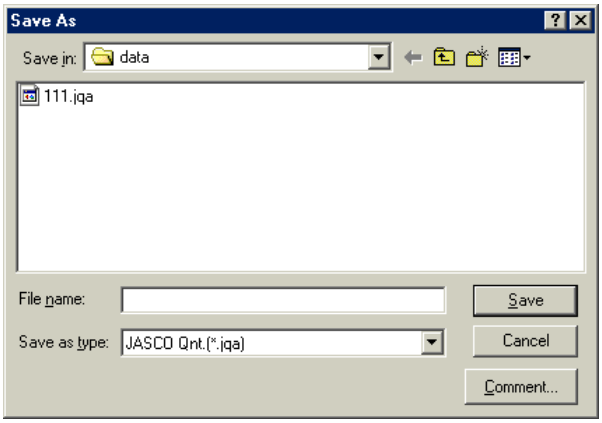



Figure 4.6 [Save As] dialog box

[Save in] Sets target drive or directory. Available drives or directory appear in the drop-down list box.

File name list box Lists existing files in the target directory. Refer to this list when naming a file. To use the name of an existing file, click the filename.

[File name] Input name of [Data Sheet] file to be saved. If the extension is omitted, the set File Type extension is affixed automatically. If an existing filename is input, and then <OK> is clicked, the following dialog box appears.

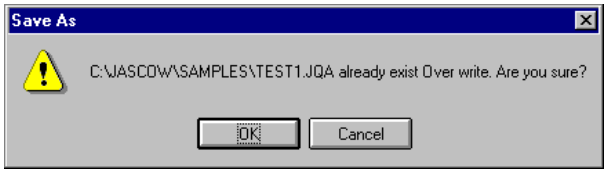



Figure 4.7 Dialog box displayed when an existing file is specified

If <OK> is clicked, the original file is erased.

[Save as type] Lists available file types (extension). A file cannot be saved if an incorrect extension is input.

<Comment> Sample Name, Operator, Comment, and Copyright can be added or edited in this dialog box.

### 4.1.5 [Page Setup...]

Sets print contents such as [Data Sheet], calibration curve, or measurement parameters.

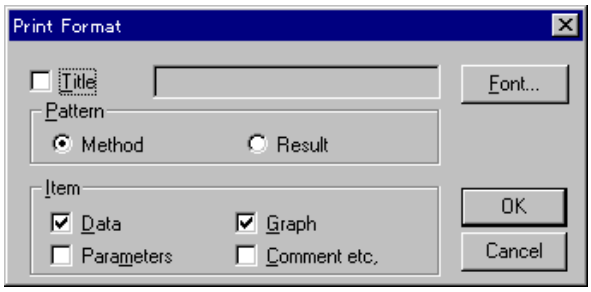



Figure 4.8 [Print Format] dialog box

[Title] Title input text box. Up to 62 characters may be input.
[Pattern] group The quantitative analysis method or results can be printed by selecting either the [Method] or [Result] option button.
[Item] Check box items such as [Parameters] and [Graph] can be selected for printing from this group. A check mark next to the item indicates that it will be printed.
<Font...> Opens the [Font] dialog box.

### 4.1.6 [Print Setup...]

Sets the target printer and the printing conditions.

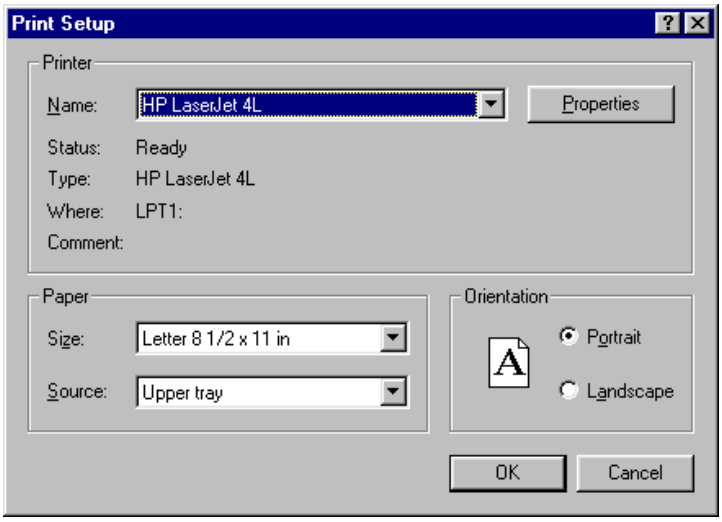



Figure 4.9 [Print Setup] dialog box

[Specific Printer] Lists available printers. (Additional printers can be selected by adding them from the [Main] group control panel.)
<Option> button Sets the printing conditions for the target printer. The dialog box that appears varies according to the printer.

### 4.1.7 [Print...]

Prints the data from the active window set in [Page Setup...].

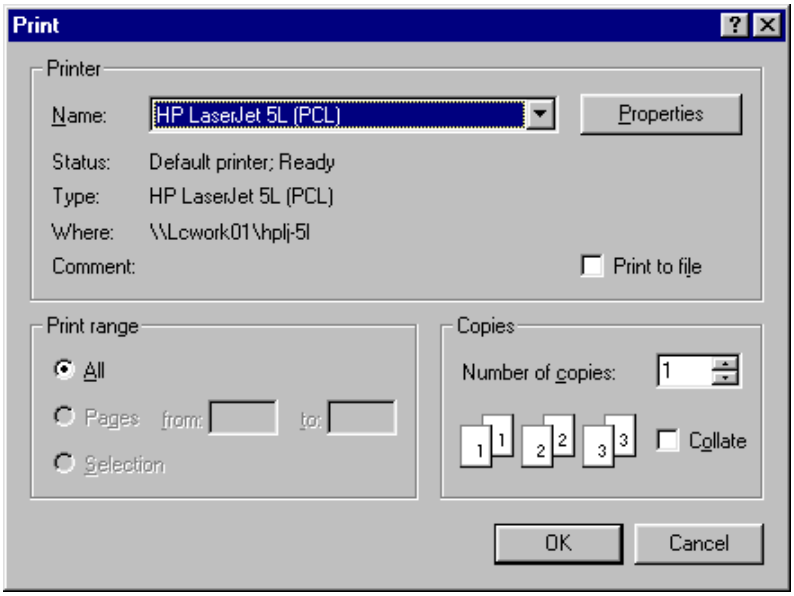



Figure 4.10 [Print] dialog box

| | |
|---|---|
| [Print range] | Only [All pages] is available. |
| [Print Quality] list | Sets print quality. Cannot be set for some printers. The resolution of the printer is in dpi, which is the number of dots per inch (2.4 cm). The higher the number, the higher the resolution. |
| [Setup...] | Sets the target printer and printing conditions for that printer. The same procedure as that for [Printer Setting] is used. |

### 4.1.8 [Exit]

Exits the quantitative analysis program and returns to the [Spectra Manager]. If an unsaved [Data Sheet] or [Calibrate Curve] exists, a message asks whether it should be saved. Proceed according to the message.

## 4.2 [Method] menu

### 4.2.1 [New...]

Creates a new calibration curve. Click [New...] to open the following dialog box.

*Note: If a calibration curve has not been saved, a message appears to ask the operator whether to save it. Proceed according to the message.*

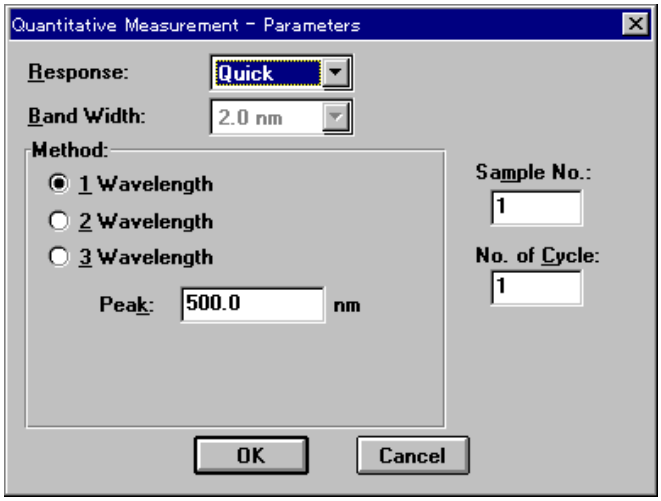



Figure 4.11 [Quantitative Measurement - Parameters] dialog box

[Response] Response by simple moving average.
- Quick: Moving average during about 0.03 sec
- Fast: Moving average during about 0.25 sec
- Medium: Moving average during about 1 sec
- Slow: Moving average during about 4 sec

[Band width] Spectral bandwidth. Selectable range varies according to the model.
V-530: Fixed at 2 nm
V-550/560: 0.1, 0.2, 0.5, 1, 2, 5, 10 nm
V-570: 0.1, 0.2, 0.5, 1, 2, 5, 10 nm
0.4, 0.8, 2, 4, 8, 20, 40 nm (near infrared region)

*Note: When using the V-570 for measurement from the near-infrared region to the visible region in succession, the bandwidths listed in Table 4.1 should be paired. If the bandwidth is set to the same (nearly equal) value, noise in the near-infrared region measurement value will increase.*

*Note: In the Table below, L after the bandwidth means low stray light mode. In this mode, the slit is masked at the top and bottom to improve the purity of light by cutting off unnecessary light.*

Table 4.1

| Ultraviolet (UV) / visible region bandwidth (nm) | Near-infrared (NIR) bandwidth (nm) |
|---|---|
| 0.1 | 0.4 |
| 0.2 | 0.8 |
| 0.5 | 2 |
| 1 | 4 |
| 2 (L2) | 8 |
| 5 (L5) | 20 |
| 10 (L10) | 40 |

[Method] No. of wavelengths used in quantitative analysis. Selects optimum number. of wavelengths (1, 2, or 3) according to the sample condition.

1-wavelength: For common solution sample. See Fig. 4.13 (1).

2-wavelength: For baseline correction. See Fig. 4.13 (2).

3-wavelength: For baseline correction. See Fig. 4.13 (3).

In [3-wavelength], the absorbance value is obtained from the following equation:

$$\Delta Abs = E(1) - \frac{|WL1 - WL2| \cdot E(3) + |WL3 - WL1| \cdot E(2)}{|WL3 - WL2|}$$

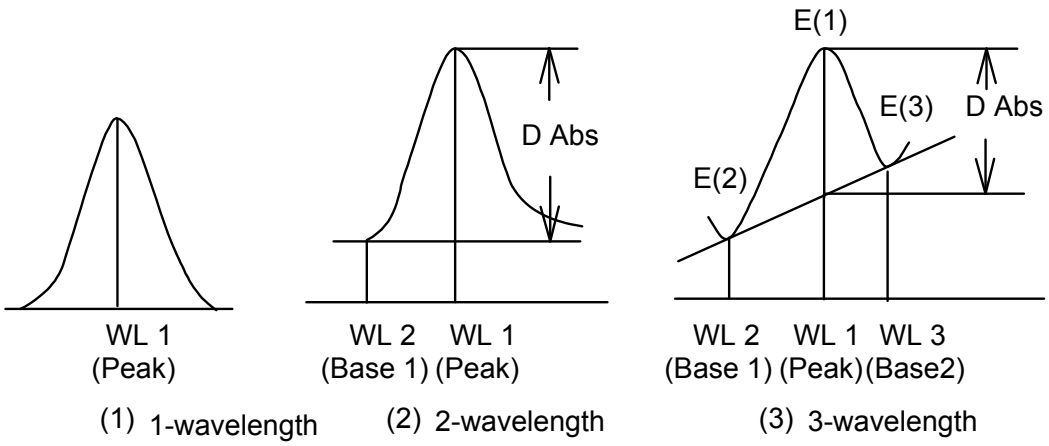



Figure 4.12 Quantitative analysis method according to number of wavelengths.

[Peak] Peak wavelength

[Base 1] Base 1 wavelength

[Base 2] Base 2 wavelength

The input range varies according to the model.

V-530: 190.0 to 1100.0 nm

V-550/560: 190.0 to 900.0 nm

V-570: 190.0 to 2500.0 nm

[Sample No.] Sets the sample number for measurement. Sample number increases incrementally by one with each subsequent measurement.

[No. of Cycle] Sets how many times each sample is measured. If 2 or more measurements are set, the [Cycle Time] field appears.

[Cycle Time] Sets the time in seconds between measurements. If the cycle time is shorter than the measurement time, the next

measurement starts immediately.
Input range: 0 to 15000 sec.

<OK> Transfers the measurement parameters to the spectrophotometer. The [Calibrate Curve Parameters] dialog box appears.

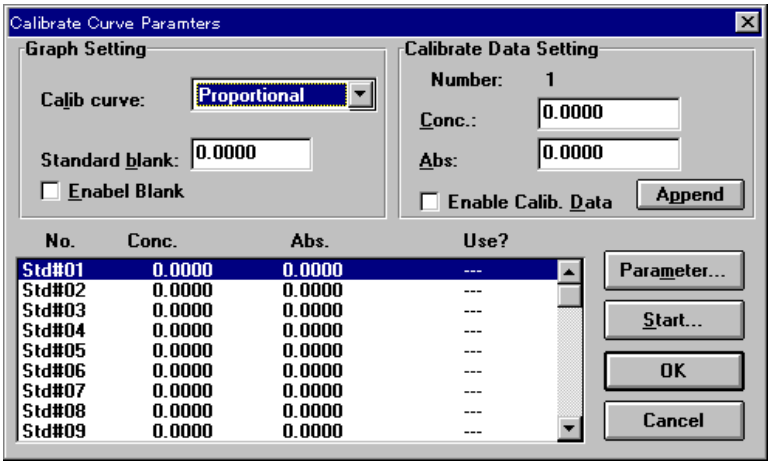



Figure 4.13 [Calibrate Curve Parameters] dialog box

[Graph Setting]

[Calib Curve] The type of calibration curve. Click the drop-down format box and select a type. Fig. 4.15 shows the names of modes and types of graphs.

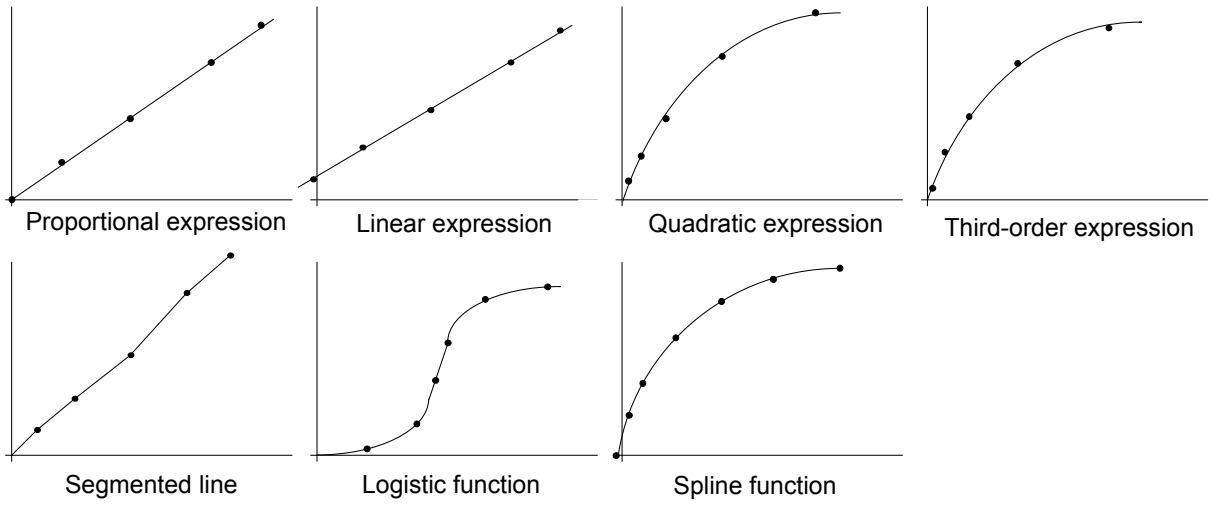



Figure 4.14

[Standard Blank] If the standard blank value is known, select the [Enable Blank] checkbox by entering the value. If the standard blank is unknown, a value does not need to be input, because the standard blank can be measured later from the [Quantitative Measurement] dialog box.

[Enable Blank] Select the [Enable Blank] checkbox when the standard blank value is input. A check is automatically appended when the standard blank is measured.

[Calibrate Data Setting]

| | |
|---|---|
| [Number] | Indicates the standard sample number. The displayed number reflects the selected standard sample from the standard data display field. The concentration and absorbance of the selected standard sample can be input. |
| [Conc.] | Text box for inputting the standard sample concentration. |
| [Abs] | Text box for inputting the standard sample absorbance if it is known. If the absorbance is unknown, a value does not need to be input because the standard sample absorbance can be measured later from the [Quantitative Measurement] dialog box. |
| [Enable Calib. Data] | Data in the standard data display field can be used for the calibration curve by selecting the [Enable Calib. Data] checkbox. Select the checkbox (x), then click <Append>. The column with [---] in the standard data display field is rewritten to [Use]. |
| <Append> | Click <Append> to write into the standard data display field the concentration and absorbance input in the [Calibrate Data Setting] group. If the [Enable Calib. Data] checkbox is selected, [---] in the standard data display field is rewritten to [Use]. |
| Standard data display field | Shows the input or measured standard data (concentration, absorbance). Data of the selected line can be input or measured. |
| <Parameter...> | Click <Parameter...> to returns to the [Quantitative Measurement Parameters] dialog box. |
| <Start...> | Click <Start...> to open the [Quantitative Measurement] dialog box. The standard blank and standard sample are measured from this dialog box. |

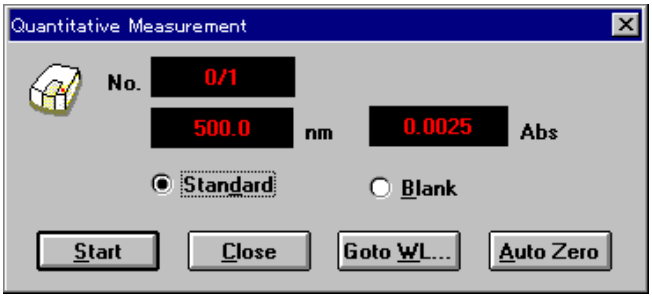



Figure 4.15 [Quantitative Measurement] dialog box

| | |
|---|---|
| [Standard] | Select the [Standard] option button to measure a standard sample. |
| [Blank] | Select the [Blank] option button to measure a standard blank. |
| <Start> | Starts measurement.<br>When a standard sample is measured, the measurement value is written to the [Abs] column of the standard sample data display field in the [Calibrate Curve Parameters] dialog box. At the same time, [---] is rewritten to [Use].<br>When a standard blank is measured, the measurement value is written to the [Standard Blank] text box and the |

[Enable Blank] checkbox is selected.

<Close> Closes the [Quantitative Measurement] dialog box and returns to the [Calibrate Curve Parameters] dialog box.

<Goto WL...> Moves the wavelength of the spectrophotometer to a set wavelength. When <Goto WL...> is clicked, the following dialog box appears.

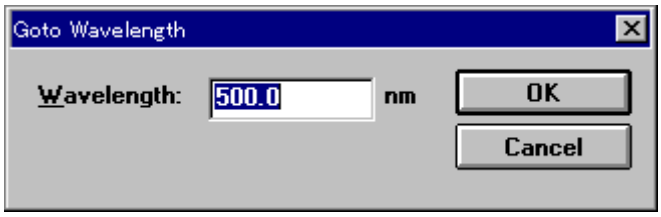



Figure 4.16 [Goto Wavelength] dialog box

[Wavelength]: Text box for inputting wavelength.

<OK>: Click <OK> to accept and move the wavelength of the spectrophotometer to the set wavelength.

<Cancel>: Closes the dialog box without changing the previously set wavelength.

<Auto Zero> Sets the absorbance value of the current wavelength to zero.

<OK> Exits the [Calibrate Curve Parameters] dialog box and opens the [Calibrate Curve] and [Method Information] windows.

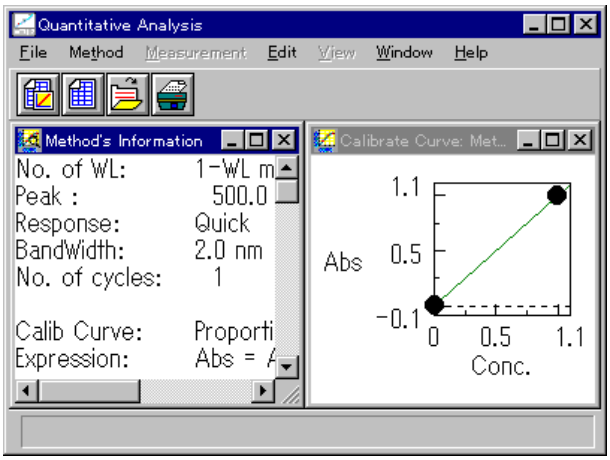



Figure 4.17 [Calibrate Curve] and [Method Information] windows

### 4.2.2 [Open...]

Opens saved quantitative analysis method files.

This function is the same as the one described in [4.1.1 New...].

### 4.2.3 [Save As...]

Saves quantitative analysis method data, including calibration curve, and measurement parameters.

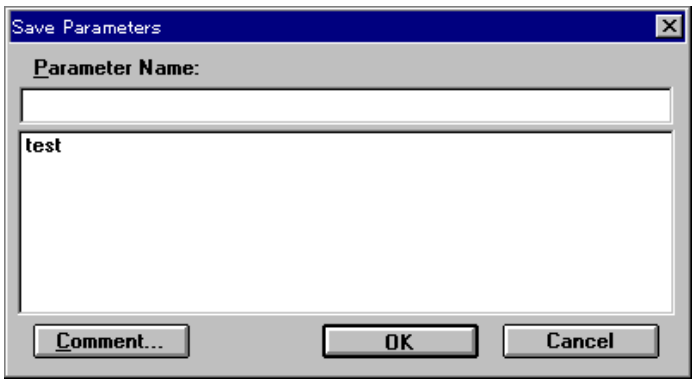



Figure 4.18 [Save Parameters] dialog box

[Parameter Name] Text box for inputting the quantitative analysis method filename. Up to 32 characters may be input. If an existing name from the quantitative analysis method name list is set, the previous file will be overwritten.

<OK> Saves the quantitative analysis method.

<Comments...> Sample name, operator, copyright, and comment can be input or edited. The following dialog box appears.

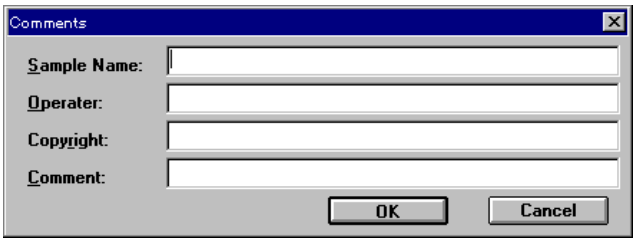



Figure 4.19 [Comments] dialog box

Input [Sample Name] (up to 62 characters), [Operator] (62 ch), [Copyright] (62 ch), and [Comment] (124 ch).

### 4.2.4 [Modify...]

Edits existing calibration curve data. When this function is started, the [Calibrate Curve Parameters] dialog box appears. See the [Calibrate Curve Parameters] dialog box in Section 4.2.1 New...

*Note: If a calibration curve has not been saved, a message appears asking whether it should be saved. Proceed according to the message.*

### 4.2.5 [Information...]

When the [Method Information] window is in icon form, starting this function opens the original window again.

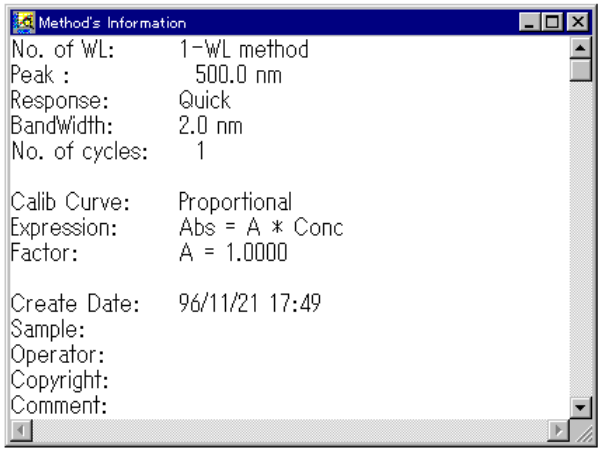



Figure 4.20 [Method Information] window

## 4.3 [Measurement] menu

### 4.3.1 [Measurement...]

Use this function to measure a sample blank or unknown sample. The sample blank is used to correct the absorbance of an unknown sample. The sample blank value cannot be applied retroactively to previously measured unknown samples. If the sample blank is updated, the new value is applied only to all subsequently measured unknown samples.

*Note: To see the current sample blank value, open the [Blank Correction] dialog box (see Section 4.3.3 [Blank Correction]).*

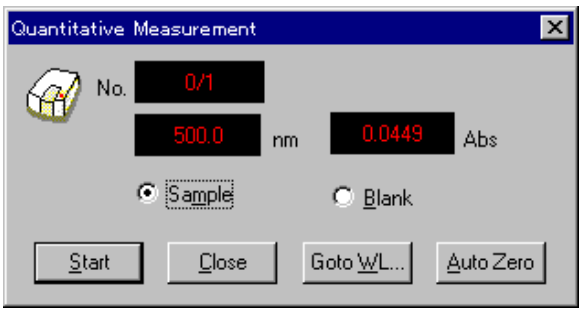



Figure 4.21 [Quantitative Measurement] dialog box

| | |
|---|---|
| [Sample] | Select the [Sample] option button to measure a sample. |
| [Blank] | Select the [Blank] option button to measure a blank. |
| <Start> | Starts measurement. The <Start> button changes to <Stop> during measurement. After measurement, the result is written to the [Data Sheet]. |

*Note: Starting blank measurement automatically selects [Enabled Sample Blank] and puts a check mark in the [Blank Correction] dialog box.*

| | |
|---|---|
| <Close> | Closes the [Quantitative Measurement] dialog box. |
| <Goto WL...> | Moves the wavelength of the spectrophotometer to a set wavelength (see Fig. 4.16). |
| <Auto Zero> | Sets the absorbance value at the current wavelength to zero. |

### 4.3.2 [Parameters...]

Click [Measurement] - [Parameters...] to set measurement parameters.

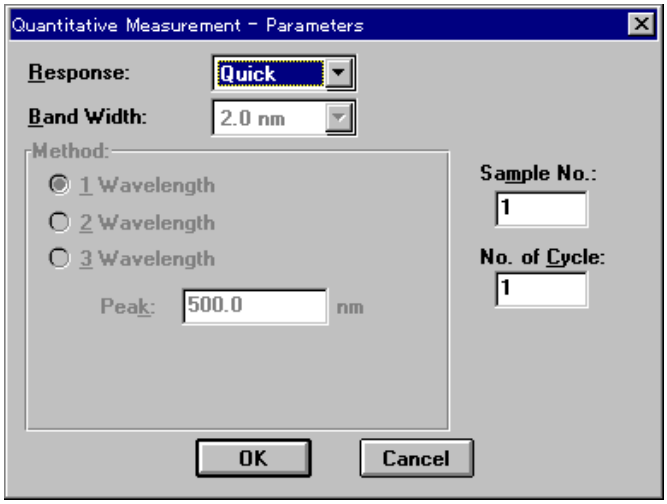



Figure 4.22 [Quantitative Measurement-Parameters] dialog box

The [Quantitative Measurement-Parameters] dialog box shows the measurement parameters from the quantitative analysis method file. [Response], [Band Width], [Sample No.] and [No. of Cycle] can all be changed. See Section 4.2.1 [New...] to see the [Quantitative Measurement-Parameters] dialog box.

### 4.3.3 [Blank Correction...]

Click [Measurement] - [Blank Correction...] to set whether to input the sample blank value and whether blank correction should be done.

*Note: The [Blank Correction] dialog box can be used to confirm whether the sample blank value and blank have been corrected.*

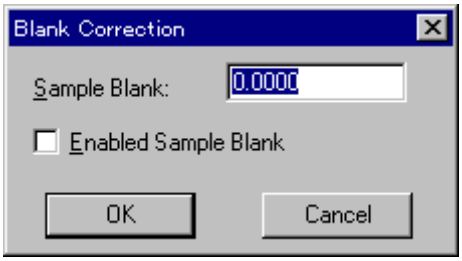



Figure 4.23 [Blank Correction] dialog box

| | |
|---|---|
| [Sample Blank] | Text box for inputting the sample blank value. If the sample blank value is known, input the value, then select the [Enabled Sample Blank] checkbox. If the sample blank is measured, the value is written automatically. |
| [Enabled Sample Blank] | Sets whether to correct the sample blank. |

## 4.4 [Edit] menu

### 4.4.1 [Copy Picture]

Copies a calibration curve to the clipboard as a picture.

### 4.4.2 [Copy Bitmap]

Copies a calibration curve to the clipboard as a bitmap. Suitable for editing graphs using paint-type software such as Paintbrush.

### 4.4.3 [Copy Text]

Copies the results of quantitative analysis to the clipboard in a text format.

### 4.4.4 [Invalid]

Invalidates selected lines from the Data Sheet. The line appears gray and is not printed. To validate the line again, select it, then click [Invalid] again.

### 4.4.5 [Data Input...]

Click [Edit] - [Data Input...] to input measurement data directly using the number keys. Select a cell from the [Data Sheet]. The following dialog box appears. If absorbance data is input, the concentration is calculated according to the current quantitative analysis method and is written to the concentration field.

The [Data Input] dialog box can also be opened by double-clicking a cell.


Figure 4.24 [Data Input] dialog box

### 4.4.6 [Title...]

Select a column. Click [Edit] - [Title...] to edit the [Data Sheet] column title. Up to 30 characters may be input. The [Title] dialog box can also be opened by double-clicking the title field of a column.

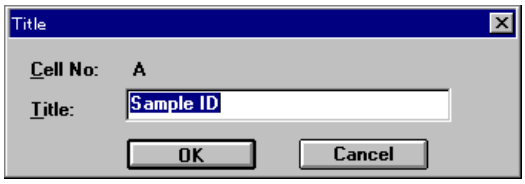



Figure 4.25 [Title] dialog box

## 4.5 [View] menu

The [View] menu contains the following functions.

[Format] and [Cell Width] are active only when the [Data Sheet] window is active. [Scale], [Pattern], [Grid], [Style], and [Marker] are active only when the [Calibrate Curve] window is active. [Font] is active when either window is active. However, when the [Method Information] window is active, all functions related to the display are inactive.

### 4.5.1 [Font...]

Sets the font for the [Data Sheet] or calibration curve. When the [Calibrate Curve] window is active, the following window opens before the [Font] dialog box appears.

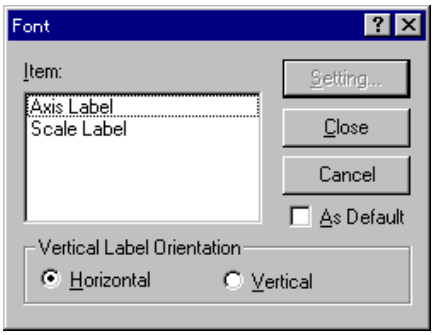



Figure 4.26 [Font Setting] dialog box

[Item] Lists the items for which the font can be set.
[Axis label]: Alphabetic characters for [Intensity] or [Concentration].
[Scale label]: Numeric characters.

[As Default] Select the [As Default] checkbox to use the set fonts in subsequent displays in the [Calibrate Curve] window.

<Setting...> Opens the [Font] dialog box.

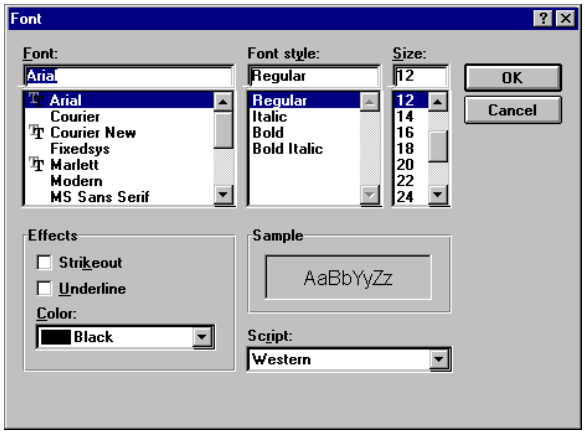



Figure 4.27 [Font] dialog box

| | |
|---|---|
| [Font] list | Select a font from this list. |
| [Font Style] list | Select a font style from this list. |
| [Size] list | Set a font size. |
| [Effects] | Set special character styles such as strike-through or underlined. |
| [Color] list | Set a font color. |
| [Sample] | Displays a sample of the set font. |

### 4.5.2 [Format...]

Select a column. Click [View] - [Format...] to set the number of decimal places to appear on the [Data Sheet]. This can be set individually for each column. This function is active only when the [Data Sheet] window is active.

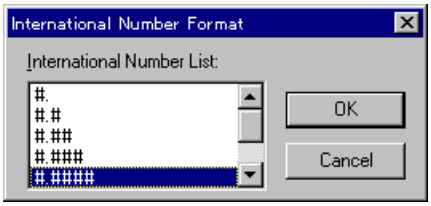



Figure 4.28 [International Number Format] dialog box

### 4.5.3 [Cell Width...]

Click [View] - [Cell Width...] to set the cell width for each column of the [Data Sheet]. This function is active only when the [Data Sheet] window is active.

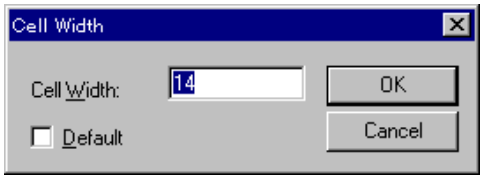



Figure 4.29 [Cell Width] setting dialog box

| | |
|---|---|
| [Cell Width] | Text box for inputting cell width. Input range is 4 to 32 characters. |
| [Default] | The standard cell width is 12 characters. |

### 4.5.4 [Scale...]

Click [View] - [Scale...] to set the scale of the vertical and horizontal axes of the calibration curve. Select the [Auto] checkbox to set the scale to the optimal value according to the calibration curve data. This function is active only when the [Calibrate Curve] window is active.

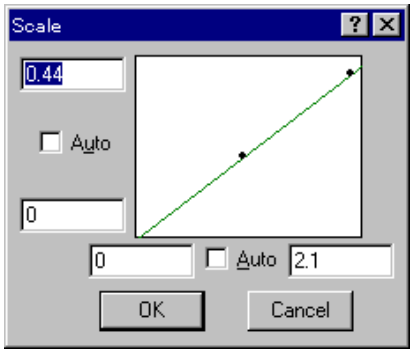



Figure 4.30 [Scale] dialog box

### 4.5.5 [Pattern...]

Click [View] - [Pattern...] to set the calibration curve, frame, scale line color, line style, or line width. This function is active only when the [Calibrate Curve] window is active.

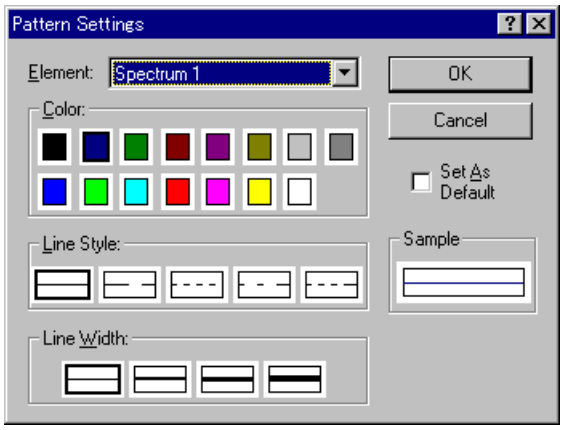



Figure 4.31 [Pattern Settings] dialog box

| | |
|---|---|
| [Element] | Lists the items for which color, line style, and line width can be set. These include calibration curve, frame, and scale line. |
| [Color] | Shows available colors. Select a color from this palette. The line set in the [Element] list will be displayed in the selected color. |
| [Line Style] | Shows available line style. The line set in the [Element] list is displayed with the selected line style. |
| [Line Width] | Shows available line widths. The line set in the [Element] list is displayed with the selected line width. |
| [As Default] | Select the [As Default] checkbox to used the pattern settings in subsequent displays in the [Calibrate Curve] window. |
| [Sample] | Displays a sample of the set pattern. |

### 4.5.6 [Grid...]

Click [View] - [Grid...] to set whether to display the vertical and horizontal axes of the calibration curve. The function can only be started when the [Calibrate Curve] window is active.

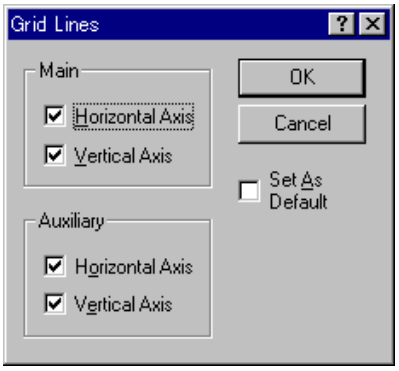



Figure 4.32 [Grid Lines] dialog box

[Main] Select the [Vertical Axis] and/or [Horizontal Axis] checkbox to display the scale line.

[Auxiliary] Not used

[As Default] Select the [As Default] checkbox to use the set grid lines in subsequent displays in the [Calibrate Curve] window.

### 4.5.7 [Style...]

Click [View] - [Style...] to set the scale interval and decimal places of the vertical and horizontal axes of the calibration curve. This function can only be started when the [Calibrate Curve] window is active.

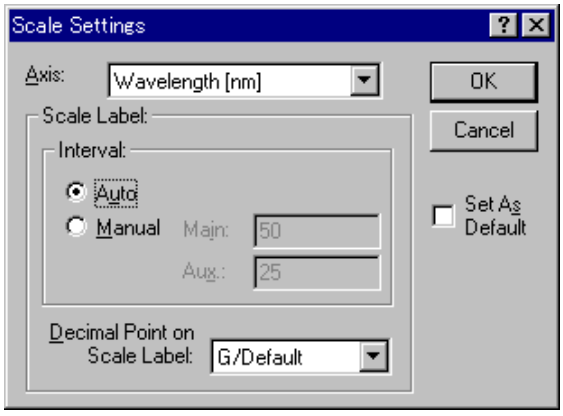



Figure 4.33 [Style Settings] dialog box

[Axis] Lists the axes for which the style can be set. Select [Concentration] or [Absorbance].

[Scale Label] The scale interval and number of decimal places can be set.

[Interval]: Allows the scale interval to be set to [Auto] or [Manual].

[Auto]: The scale interval is set automatically.

[Manual]:Text box for inputting main scale interval.

[Decimal Point on Scale]: Sets the number of decimal places for the main scale.
Default: #.### (3 decimal places)
Integer: Displays only the integer.
#.#: Displays to 1 decimal place.
#.##: Displays to 2 decimal places.

[As Default] Select the [As Default] checkbox to use the set style settings for subsequent displays in the [Calibrate Curve] window.

### 4.5.8 [Marker...]

Click [View] - [Marker...] to set the type, size, and color of the marker used to indicate specific data points on the calibration curve, and whether to fill the inside of the marker.

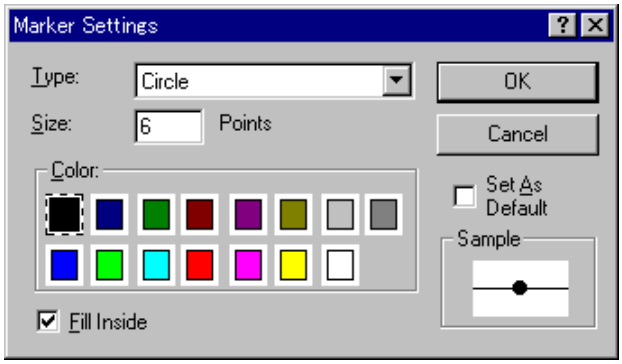



Figure 4.34 [Marker Settings] dialog box

[Type] Lists the types of markers available. Select from circle, square, triangle, rhombus, or cross.

[Size] Sets the marker size.

[Color] Shows available colors. Select a color from this palette.

[Fill Inside] Select the [Fill Inside] checkbox to fill the inside of the marker.

[As Default] Select the [As Default] checkbox to use the set marker patterns in subsequent displays in the [Calibrate Curve] window.

[Sample] Displays a sample of the set marker.

## 4.6 [Window] menu

[Cascade] Select [Window] - [Cascade] to overlay the [Data Sheet], [Calibrate Curve], and [Method Information] windows in the display.

[Tile] Select [Window] - [Tile] to display the [Data Sheet], [Calibrate Curve], and [Method Information] windows side-by-side.

## 4.7 [Help] menu

[About...] Click [Help] - [About...] to display version information for the [Quantitative Analysis] program.

# 5. [Spectrum Measurement]

[Spectrum Measurement] measures a sample spectrum. In the [Spectra Manager] window, double-click [Spectrum Measurement]. The spectrophotometer is initialized and the following window appears.

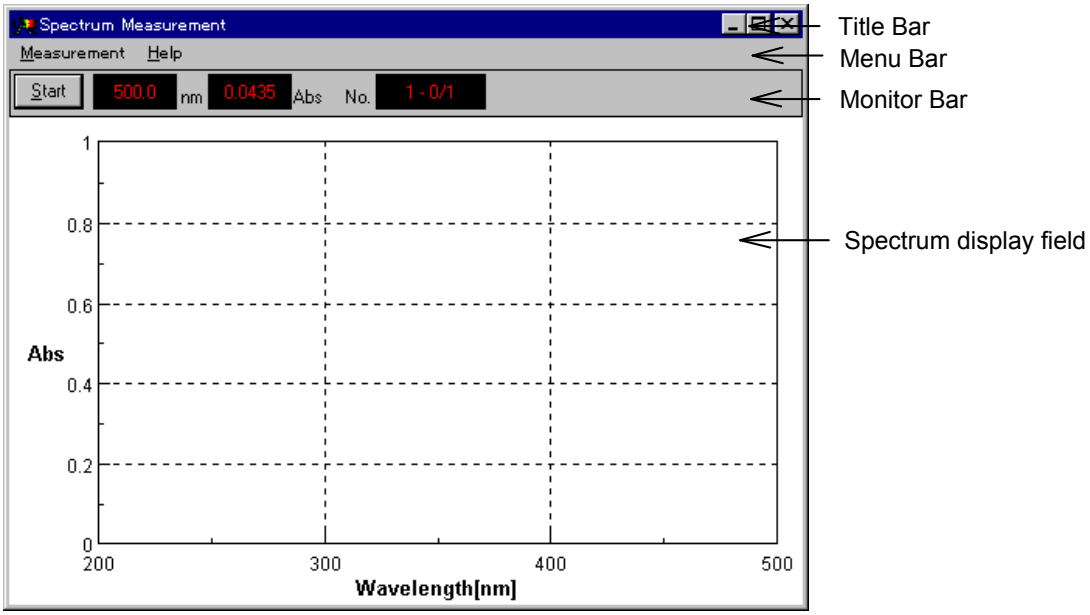



Figure 5.1 [Spectrum Measurement] window

**[Spectrum Measurement] window**

| | |
|---|---|
| Title Bar | Displays the name of the program. The color changes when the window is active. |
| Menu Bar | Contains the menus of the program. Each menu contains a list of commands. |
| Monitor Bar | Displays current measurement values.<br>Wavelength, photometric value, and sample No. from left to right.<br>Double-clicking the wavelength display displays the [Goto Wavelength] dialog box, which is used to move the wavelength to an arbitrary wavelength. Double-clicking the photometric value display displays the [Parameters] dialog box, which is used to set measurement parameters. |
| Spectrum display field | Monitors a spectrum during measurement. When measurement is finished, the spectrum is automatically transferred to the [Spectra Analysis] program. |

**Menu**

[Measurement] menu

| | |
|---|---|
| [Start] | Starts spectrum measurement. |
| [Parameter...] | Set and save parameters. |
| [Baseline] | Measures baseline data for correcting the spectrophotometer baseline. |
| [Goto Wavelength...] | Moves the spectrophotometer wavelength to a set |

| | |
|---|---|
| | wavelength. |
| [Auto Zero] | Sets the absorbance (or transmittance) of the current wavelength to zero (or 100%T for transmittance). |
| [Exchange Wavelength...] | Changes the exchange wavelength of the spectrophotometer light source and the exchange wavelength of the diffraction grating (V-570). |
| [Exit] | Exits the spectrum measurement program and returns to [Spectra Manager]. |

[Help] menu

| | |
|---|---|
| [About...] | Displays information such as the program version. |

## 5.1 [Measurement] menu

### 5.1.1 [Start]

Starts spectrum measurement. The spectrum is displayed in real time. During measurement, the vertical axis of the spectrum is set from 0 to 1 Abs in the photometric mode or 0 to 100 in the T% mode.

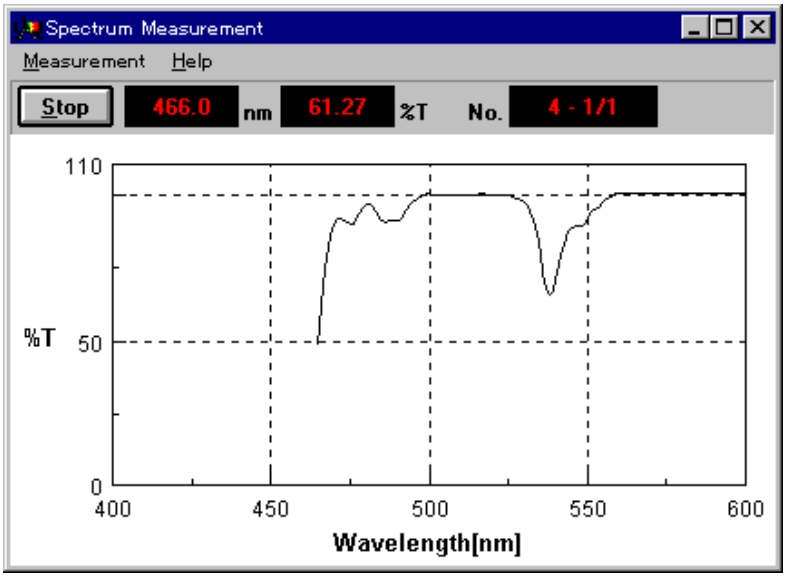



Figure 5.2 Measurement window

When measurement has finished, a new window opens which displays a spectrum on the vertical axis set from the [Parameters] dialog box. At the same time, the spectra analysis program starts.

*Note 1: After activating spectra analysis and starting initial measurement, the next view showing the results covers the [Spectrum View], and hides it. To save the hidden [Spectrum View], save or print it. To display the hidden [Spectrum View] again, change the application.*

*Note 2: If measurement in progress in interrupted, the [Spectrum View] displays all data up to that point.*

### 5.1.2 [Parameter...]

Here you set and save parameters. Click the [Data File] tab to set information such as the filename for automatically saving measurement data.

#### 5.1.2.1 [Parameters] dialog box

Click [Measurement] - [Parameter...] to display the following dialog box.

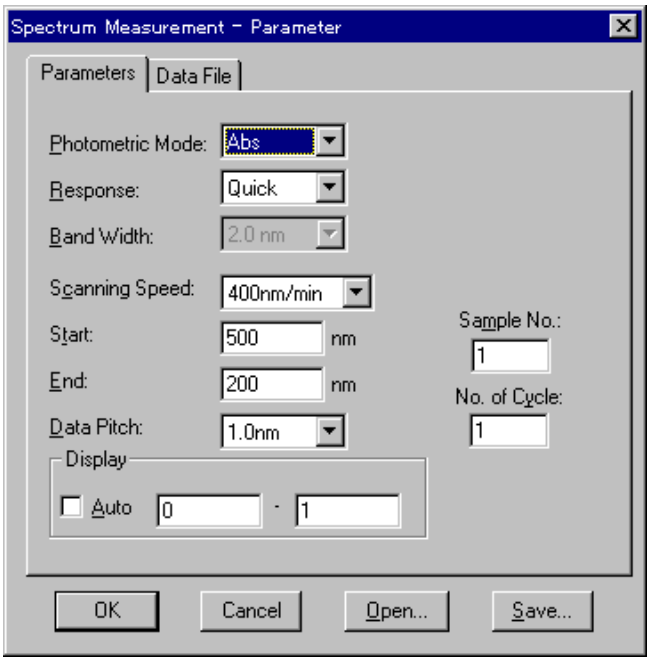



Figure 5.3 [Parameters] dialog box

[Photometric Mode] Sets the photometric mode.
Selectable range:

- Abs: Absorbance measurement
- %T: Transmittance measurement
- %R: Reflectance measurement
- Sample: Single-beam measurement on the sample beam side
- Reference: Single-beam measurement on the reference beam side

*Note: For models V-550/560/570, when [Sample] or [Reference] is set, [PMT voltage] is added to the left side. Input the voltage to be applied to the photomultiplier. Input range is 0 to 1000 V.*

[Response] Response by simple moving average. Selectable range varies according to the model.
V-530:

- Quick: Moving average during about 0.03 sec
- Fast: Moving average during about 0.25 sec
- Medium: Moving average during about 1 sec

V-550/560/570:

- Quick: Moving average during about 0.03 sec
- Fast: Moving average during about 0.25 sec
- Medium: Moving average during about 1 sec
- Slow: Moving average during about 4 sec

[Band width] Spectral bandwidth. Selectable range varies according to the model.
V-530: Fixed at 2 nm
V-550/560: 0.1, 0.2, 0.5, 1, 2, 5, 10 nm
V-570: 0.1, 0.2, 0.5, 1, 2, 5, 10 nm
0.4, 0.8, 2, 4, 8, 20, 40 nm (near infrared region)

*Note: When using the V-570 for measurement from the near-infrared region to the visible region in succession, the bandwidths listed in Table 5.1 should be paired. If the bandwidth is set to the same (nearly equal) value, noise in the near-infrared region measurement value will increase.*

Table 5.1

| Ultraviolet/visible region bandwidth (UV) nm | Near-infrared bandwidth (NIR) nm |
|---|---|
| 0.1 | 0.4 |
| 0.2 | 0.8 |
| 0.5 | 2 |
| 1 | 4 |
| 2 (L2) | 8 |
| 5 (L5) | 20 |
| 10 (L10) | 40 |

[Scanning speed] Wavelength scanning speed. Selectable range varies according to the model.
V-530: 40, 100, 200, 400, 1000, 2000, 4000 nm/min
V-550/560/570: 10, 20, 40, 100, 200, 400, 1000, 2000, 4000 nm/min

[Start] Longer wavelength end of the measurement wavelength range. Forms a pair with [End]. Input range varies according to the model.
V-530: 190.0 to 1100.0 nm
V-550/560: 190.0 to 900.0 nm
V-570: 190.0 to 2500.0 nm

[End] Shorter wavelength end of the measurement wavelength range.

[Data Pitch] Data collecting wavelength interval. Selectable range varies according to the model.
V-530: 0.1, 0.2, 0.5, 1, 2 nm
V-550/560/570: 0.025, 0.05, 0.1, 0.2, 0.5, 1, 2 nm

*Note: The measurement wavelength range is limited by the combination of [Scanning Speed] and [Data Pitch].*

Table 5.2 Combination of [Data Pitch] and wavelength scanning range

| Data Pitch (nm) | Max. measurement wavelength range (nm) |
|---|---|
| 0.025* | 40 |
| 0.05* | 80 |
| 0.1 | 160 |
| 0.2 | 320 |
| 0.5 | 800 |
| 1 | 1600 |
| 2 | 2310 |

*[Data Pitch] of 0.025 and 0.05 nm are not available on model V-530.

*Note: The number of combinations of [Scanning Speed] and [Data Pitch] is limited.*

Table 5.3 Combination of [Scanning speed] and [Data Pitch]

| Data Pitch (nm) / Scanning Speed (nm/min) | 0.025* | 0.05* | 0.1 | 0.2 | 0.5 | 1 | 2 | 5 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| 10* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 20* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 40 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 100 | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 200 | - | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 400 | - | - | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 1000 | - | - | - | - | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2000 | - | - | - | - | - | ✓ | ✓ | ✓ | ✓ |
| 4000 | - | - | - | - | - | - | ✓ | ✓ | ✓ |

*Data pitch of 0.025 and 0.05 nm and scanning Speeds of 10 and 20 nm/min are not available on the V-530.

[Sample No.] Sets which sample should be measured first. Subsequent samples are measured in order from the first sample number, increasing in increments of one.

[No. of Cycle] Sets number of measurements for each sample. If 2 or more measurements are set, the [Cycle Time] field is displayed.

[Cycle Time] Sets the time between measurements in seconds. If the set time is shorter than the measurement time, the next measurement starts immediately.
Input range: 0 to 15000 sec.

[Display] Sets the higher and lower limits of the vertical axis range displayed on the screen. If [Auto] is selected, the full-scale axis is set to about 1.2 times the maximum width of the displayed spectrum, based on the measurement result.

<OK> Ends parameter setting. Click this button to transfer the set parameters to the spectrophotometer. At the same time, the dialog box closes.

<Cancel> Stops parameter setting without changing the previous settings, and closes the dialog box.

<Save...> Parameters can be saved to the parameter library on the hard disk. Click <Save...> in the [Parameters] dialog box to

open the dialog box shown below.


Figure 5.4 [Parameters - Save] dialog box

[Parameter Name] Text box for inputting parameter name. A maximum of 32 characters may be input. Existing parameter names may be selected from the [Parameters List]. In this case, the previous parameter settings are overwritten.

<OK> Saves parameters.

<Cancel> Returns to the [Parameters] dialog box without saving the parameters.

<Contents...> Displays the parameters selected from the parameter list. Use to confirm selections.

<Delete> Deletes set parameters from the parameters list.

<Open...> Previously saved parameters in the parameter library can be selected. Click <Open...> in the [Parameters] dialog box. The dialog box shown below appears.

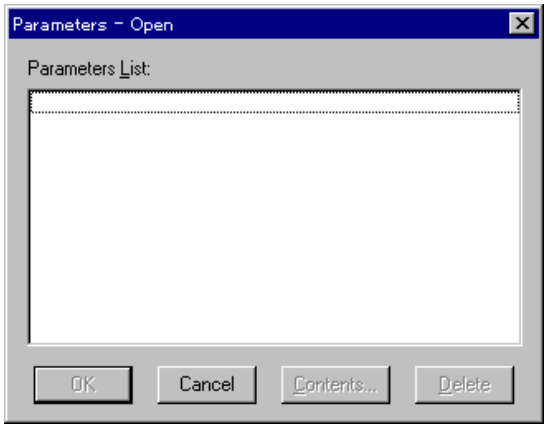



Figure 5.5 [Parameters - Open] dialog box

[Parameters List] Lists available saved parameters.

<OK> Loads selected parameter(s) from memory.

<Cancel> Returns to the [Parameters] dialog box without loading saved parameters.

<Contents...> Displays selected parameters from the parameter list. Use to confirm selections.

<Delete> Deletes selected parameters from the parameter list.

### 5.1.2.2 [Data File] dialog box

Click [Data File] in the [Parameters] dialog box to display the dialog box shown below.

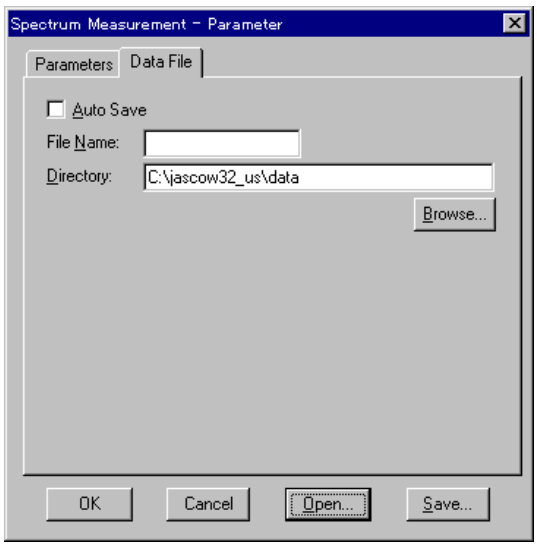



Figure 5.6 [Data File] dialog box

[Auto Save] When this check box is selected, the data from the measured spectrum are saved automatically.

[File Name] Text box for inputting the filename of automatically saved data. Up to 5 characters may be input. The last 3 characters reflect the sample number. The number increases in increments of 1 each time data is saved.

[Directory] Text box for inputting the name of the target drive and directory.

<Browse...> Helps the user to find an appropriate target drive and directory. Click this button to open the [Save As] dialog box. The drive and directory can be changed in this dialog box.

### 5.1.3 [Baseline...]

Measures baseline data for correcting the spectrophotometer baseline. Click [Baseline Correction] to display the dialog box shown below.

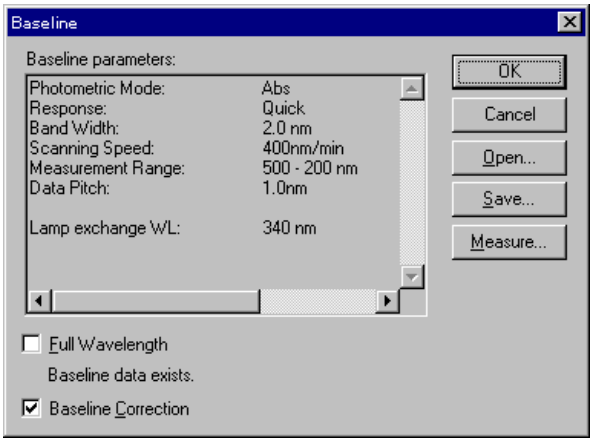



Figure 5.7 [Baseline Correction] dialog box

[Baseline parameters] display field

Displays the measurement parameters for the partial baseline. Used to confirm the wavelength range and other parameters. The partial baseline is saved in the PC memory. If it is not saved, nothing will be displayed here.

[Full Wavelength] Put a check mark when measuring or using the full baseline. Remove the check mark when measuring or using a partial baseline.

[Baseline data exists] This indicates that the full baseline exists in the spectrophotometer memory.

*Note: If the measurement of the full baseline is stopped or if the backup battery for the spectrophotometer has no power, the full baseline will disappear and the message will change to [Baseline data not exist]. Even if the baseline measurement is stopped, the previous baseline will remain because the set baseline has been stored in the PC memory.*

[Baseline Correction] Select this check box to allow a saved baseline to be used. If there are no saved baselines, the check box is deactivated and cannot be selected.
A mark is automatically put when baseline is measured.

<OK> Confirms current settings and returns to previous display.

<Cancel> Returns to previous display without changing any settings.

<Open...> Loads the set baseline saved on the disk in the PC memory. Clicking this opens the following dialog box.

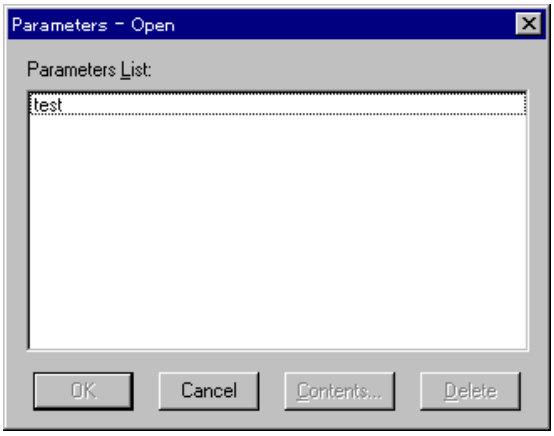



Figure 5.8 [Parameters-Open] dialog box

Selecting a filename from [Parameters List] and clicking <OK> loads it into memory and rewrites [Baseline parameters] to those of the file. If the baseline measurement parameters differ from the currently set measurement parameters, a warning will appear.

<Save...> Saves a set area baseline stored in memory onto the disk. Clicking this opens the following dialog box.


Figure 5.9 [Parameters-Save] dialog box

Entering a filename and clicking <OK> saves the baseline onto the disk.

<Measure...> Measures the baseline. The measuring procedure differs slightly between the full wavelength baseline and the set area baseline.

Measurement of full wavelength baseline

1) Check measurement parameters other than the wavelength range.
2) Put a check mark to [Full Wavelength].
3) Click <Measure...>. The following dialog box appears after the measurement parameters are transferred to the spectrophotometer.

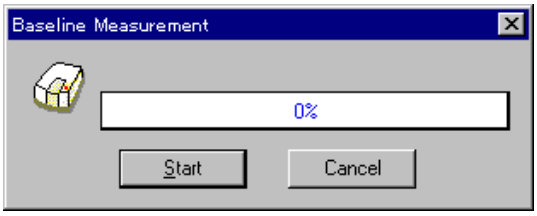



Figure 5.10 [Baseline Measurement] dialog box

4) Click the <Start> button. Baseline measurement starts. During measurement, the following dialog box is displayed. When measurement finishes, a check mark is put in the [Baseline Correction] check box.

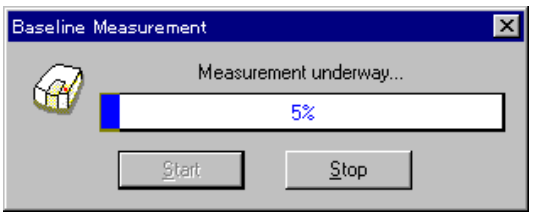



Figure 5.11 Baseline measurement dialog box

*Note: Pressing the <Stop> button during measurement stops the measurement. If measurement is stopped, the full wavelength baseline measured before will disappear. That is, control reverts to the status before baseline measurement.*

Measurement of set baseline

1) Set measurement parameters.
2) Remove the check mark from [Full Wavelength].
3) Click <Measure...>. Baseline measurement starts after transferring the measurement parameters to the spectrophotometer. When measurement finishes, a check mark is put in the [Baseline Correction] check box and the [Parameters-Save] dialog box (Fig. 5.7) opens. Simultaneously, the baseline data is automatically transferred to the [Spectra Analysis] program and is displayed on the View.

*Note: Pressing the <Stop> button during measurement stops the measurement. If measurement is stopped, the set baseline measured before will be effective.*

4) Enter a filename, if necessary, and click the <OK> button. If the filename is used only at this time, click the <Cancel> button.

*Note: The set baseline, which is stored in the PC memory, is effective even if the power is turned OFF unless it is updated. It can also be saved by opening the [Baseline] dialog box.*

### 5.1.4 [Move Wavelength...]

Moves the spectrophotometer wavelength to a set wavelength. Click [Goto Wavelength] to display the dialog box shown below.

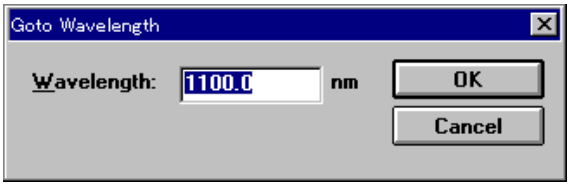



Figure 5.12 [Goto Wavelength] dialog box

| | |
|---|---|
| [Wavelength] | Text box for inputting a wavelength. |
| <OK> | Moves the spectrophotometer wavelength to the set wavelength. |
| <Cancel> | Closes the dialog box without changing the previously set wavelength. |

### 5.1.5 [Auto Zero]

Sets the absorbance (or transmittance) of the current wavelength to zero (or 100%T for transmittance).

### 5.1.6 [Exchange Wavelength...]

Changes the exchange wavelength of the spectrophotometer light source and the exchange wavelength of the diffraction grating (V-570).


Figure 5.13 [Exchange Wavelength] dialog box

[Wavelength for Lamp Exchange] Sets the deuterium lamp and halogen lamp exchange wavelength. Enter a wavelength in the text box.
Input range: 330 to 350 nm (340 nm as default)

### 5.1.7 [Wavelength for Grating Exchange...]

In the V-570, you can also set the exchange wavelength for the diffraction grating.
[Wavelength for Grating Exchange] Sets the exchange wavelength for the diffraction grating for UV/VIS region and diffraction grating for near infrared region.
Input range: 750 to 900 nm

### 5.1.8 [Exit]

Exits the spectrum measurement program and returns to [Spectra Manager].

## 5.2 [Help] menu

[About...] Displays information such as program version.

# 6. [Time Course Measurement]

Measures changes in a sample over time at a set wavelength.

In the [Spectra Manager] window, double-click [Time Course Measurement]. The program starts, and the window shown below opens.

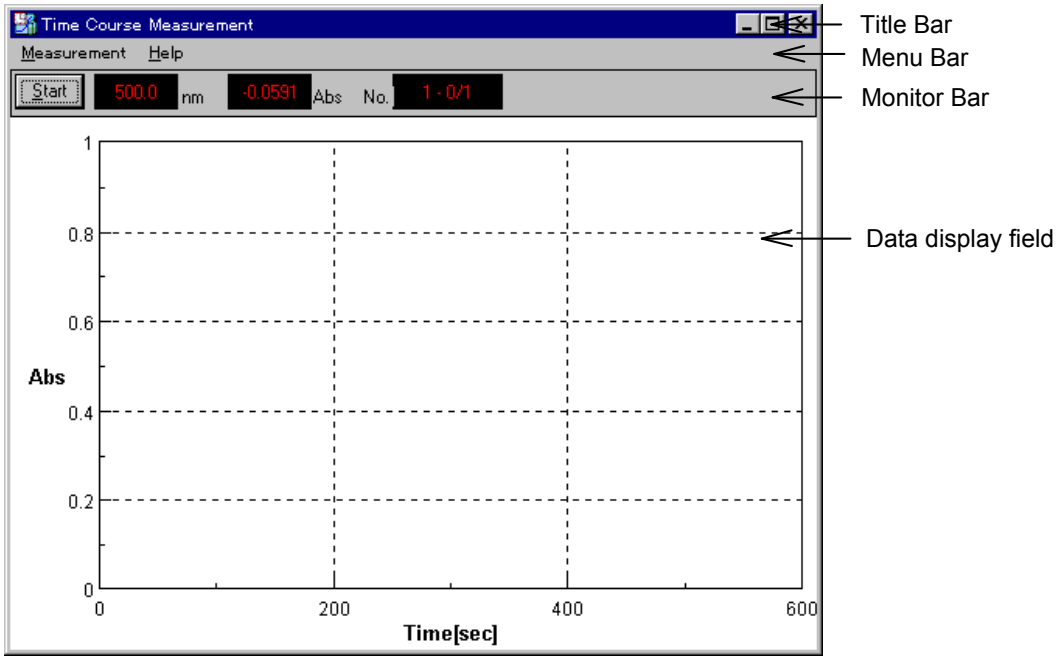



Figure 6.1 [Time Course Measurement] window

**[Time Course Measurement] window**

| | |
|---|---|
| Title Bar | Displays the name of the program. The color changes when the window is active. |
| Menu Bar | Contains the menus of the program. Each menu contains a list of commands. |
| Monitor Bar | Displays current measurement values.<br>Wavelength, photometric value and sample No. from left to right.<br>Double-clicking the wavelength display opens the [Goto Wavelength] dialog box: it is used for moving the wavelength to an arbitrary wavelength. Double-clicking the photometric value display opens the [Parameter] dialog box: it is used for setting measurement parameters. |
| Data display field | Area in which data is displayed. When measurement is finished, the data is automatically transferred to the [Spectra Analysis] program. |

**Menu**

[Measurement] menu

| | |
|---|---|
| [Start] | Starts time course measurement. |
| [Parameter...] | Set and save parameters. |
| [Move Wavelength...] | Moves the spectrophotometer wavelength to a set wavelength. |

| | |
|---|---|
| [Auto Zero] | Sets the absorbance (or transmittance) of the current wavelength to zero (or 100%T for transmittance). |
| [Exit] | Exits the [Time Course Measurement] program and returns to [Spectra Manager]. |

[Help] menu

| | |
|---|---|
| [About...] | Displays information such as program version. |

## 6.1 [Measurement] menu

### 6.1.1 [Start]

Starts time course measurement. Changes are displayed in real time. The vertical axis during measurement is 0 to 1 Abs in photometric mode, and 0 to 100 in T% mode.

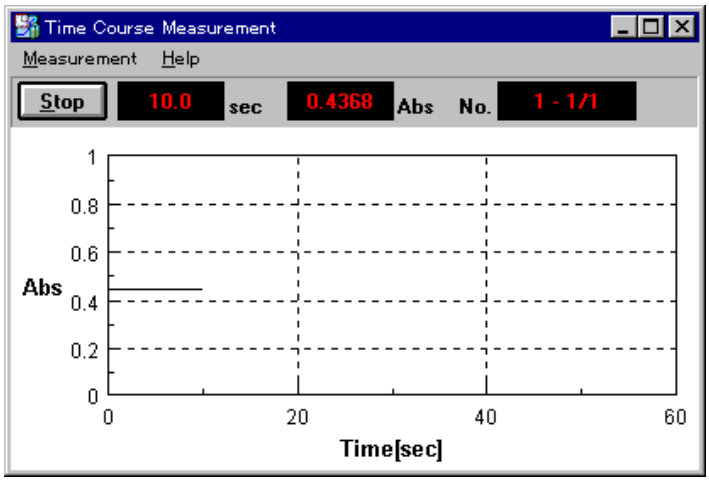



Figure 6.2 [Time course measurement] window

When measurement is finished, the data is displayed again on the vertical axis set by the parameters. At the same time, the [Spectra Analysis] program starts.

To stop measurement, press the <Stop> button. This displays the measurement data again on the set vertical axis and starts the spectra analysis program.

*Note 1: After activating spectra analysis and starting initial measurement, the next view showing the results covers the [Spectrum View], and hides it. To save the hidden [Spectrum View], save or print it. To display the hidden [Spectrum View] again, change the application.*

*Note 2: If measurement in progress is interrupted, the [Spectrum View] displays all data up to that point.*

### 6.1.2 [Parameter...]

Click [Measurement] - [Parameter...] to set and save parameters. The parameter dialog box has two pages: [Parameters] dialog box and [Data File] dialog box. Click the [Data File] tab while the [Parameters] dialog box is active to activate the [Data File] dialog box.

Parameters are set in the [Parameters] dialog box. Information such as the filename for automatically saving measurement data can be input in the [Data File] dialog box.

### 6.1.2.1 [Parameter] dialog box

Click [Measurement] - [Parameter...] to display the dialog box shown below.

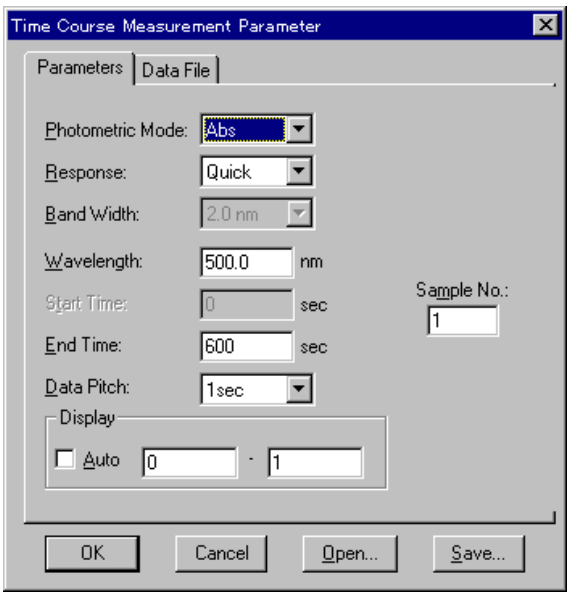



Figure 6.3 [Parameter] dialog box

[Photometric Mode] Sets the photometric mode.
Selectable range:

- Abs: Absorbance measurement
- %T: Transmittance measurement
- %R: Reflectance measurement
- Sample: Single-beam measurement on the sample beam side
- Reference: Single-beam measurement on the reference beam side

*Note: For models V-550/560/570, when [Sample] or [Reference] is selected, [PMT voltage] is added to the left side. Input the voltage to be applied to the photomultiplier. The input range is 0 to 1000 V.*

[Response] Response by simple moving average. Selectable range varies according to the model.
V-530:

- Quick: Moving average during about 0.03 sec
- Fast: Moving average during about 0.25 sec
- Medium: Moving average during about 1 sec

V-550/560/570:

- Quick: Moving average during about 0.03 sec
- Fast: Moving average during about 0.25 sec
- Medium: Moving average during about 1 sec
- Slow: Moving average during about 4 sec

[Bandwidth] Spectral bandwidth. Selectable range varies according to the model.

V-530: Fixed at 2 nm
V-550/560: 0.1, 0.2, 0.5, 1, 2, 5, 10 nm
V-570: 0.1, 0.2, 0.5, 1, 2, 5, 10 nm
0.4, 0.8, 2, 4, 8, 20, 40 nm (near infrared region)

*Note: When using the V-570 for measurement from the near-infrared region to the visible region in succession, the bandwidths listed in Table 4.4 should be paired. If the bandwidth is set to the same (nearly equal) value, noise in the near-infrared region measurement value will increase.*

Table 6.1

| Ultraviolet/visible region bandwidth (UV) nm | Near-infrared bandwidth (NIR) nm |
|---|---|
| 0.1 | 0.4 |
| 0.2 | 0.8 |
| 0.5 | 2 |
| 1 | 4 |
| 2 (L2) | 8 |
| 5 (L5) | 20 |
| 10 (L10) | 40 |

[Wavelength] Sets the measurement wavelength. Input range varies according to the model.

V-530: 190.0 to 1100.0 nm
V-550/560: 190.0 to 900.0 nm
V-570: 190.0 to 2500.0 nm

[End Time] Measurement time interval in seconds.

[Data Pitch] Data collecting wavelength interval. Selectable range varies according to the model.

V-530: 0.1, 0.2, 0.5, 1, 2 nm
V-550/560/570: 0.025, 0.05, 0.1, 0.2, 0.5, 1, 2 nm

[Sample No.] Sets which sample should be measured first. Subsequent samples are measured in order from the first sample number, increasing in increments of one.

[Display] Sets the upper and lower limits of the vertical axis range displayed on the screen. If [Auto] is selected, the full-scale axis is set to about 1.2 times the maximum width of the displayed spectrum, based on the measurement result.

<OK> Ends parameter setting, and closes the dialog box. Click this button to transfer the set parameters to the spectrophotometer.

<Cancel> Stops parameter setting without changing the previous settings, and closes the dialog box.

<Save...> Saves parameters in the parameter library on the hard disk (see Section 5.1.2.1 Parameters] dialog box).

<Open...> Previously saved parameters in the parameter library can be selected (see Section 5.1.2.1 [Parameters] dialog box).

#### 6.1.2.2 [Data File] dialog box

Click [Data File] in the [Parameters] dialog box to display the [Data File] dialog box (see Section 5.1.2.2 [Data File] dialog box).

### 6.1.3 [Move Wavelength...]

Moves the spectrophotometer wavelength to a set wavelength (see Section 5.1.4 [Move Wavelength...]).

### 6.1.4 [Auto Zero]

Sets the absorbance (or transmittance) at the current wavelength to zero (or 100%T for transmittance).

### 6.1.5 [Exit]

Exits the [Time Course Measurement] program and returns to [Spectra Manager].

## 6.2 [Help] menu

| | |
|---|---|
| [About...] | Displays information such as program version. |

# 7. [Fixed Wavelength Measurement]

[Fixed Wavelength Measurement] measures sample absorbance or transmittance at a fixed wavelength. Double-click [Fixed Wavelength Measurement] in the [Spectra Manager] window. The program starts and the window shown below appears.

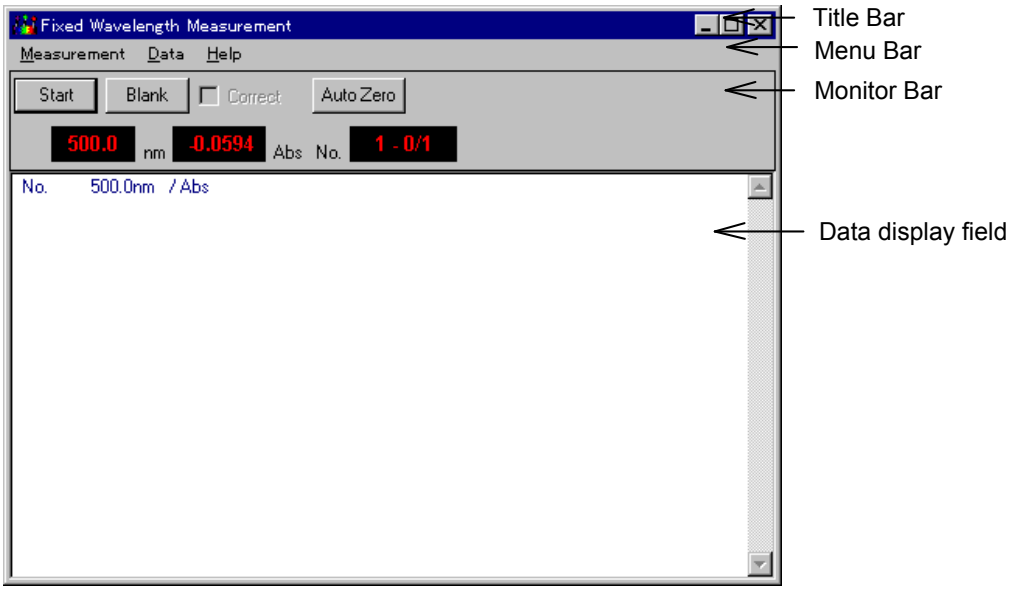



Figure 7.1 [Fixed Wavelength Measurement] window

**[Fixed Wavelength Measurement] window**

| | |
|---|---|
| Title Bar | The color changes when the window is active. |
| Menu Bar | Contains the menus of the program. Each menu contains a list of commands. |
| Monitor Bar | Displays current measurement values.<br>Wavelength, photometric value, and sample No. from left to right.<br>Double-clicking the wavelength display displays the [Goto Wavelength] dialog box, used for moving the wavelength to an arbitrary wavelength. Double-clicking the photometric value display displays the [Parameter] dialog box, used for setting measurement parameters. |
| Data display field | Field where data is displayed. |

**Menu**

[Measurement] menu

| | |
|---|---|
| [Start](Start) | Starts fixed-wavelength measurement. |
| [Blank](Blank) | Starts blank measurement. |
| [Parameter...] | Set and save parameters. |
| [Blank Correct] ([Correct]) | Blank correction ON/OFF. A check mark means it is ON. |
| [Move Wavelength...] | Moves the spectrophotometer wavelength to a set wavelength. |
| [Auto Zero] Auto Zero | Sets the absorbance (or transmittance) of the current wavelength to zero (or 100%T for transmittance). |

| | |
|---|---|
| [Exit] | Exits the [Fixed Wavelength Measurement] program and returns to [Spectra Manager]. |
| [Help] menu | |
| [About...] | Displays information such as program version. |

## 7.1 [Measurement] menu

### 7.1.1 [Start]

Starts fixed-wavelength measurement. To suspend measurement, click <Stop>.

### 7.1.2 [Blank] (Blank) [Blank Correct] ([Correct])

Starts blank measurement. When finished, the blank value (BLK) appears on the screen and a check mark is put to [Blank Correct] ([Correct]). Measuring the sample in this condition subtracts the blank value. If blank correction is not needed, remove the check mark from [Blank Correct] ([Correct]).
Starting the second and later blank measurements displays the following message. Clicking <OK> updates the blank value in memory and displays the blank value (BLK) on the screen. New blank values are applied to the samples that are measured after that.


Figure 7.2 [Blank Measurement] dialog box

*Note: To stop measurement, press the <Stop> button.*

### 7.1.3 [Parameter...]

Sets parameters, and saves them to the hard disk.

Click [Measurement] - [Parameter...] to display the dialog box shown below.

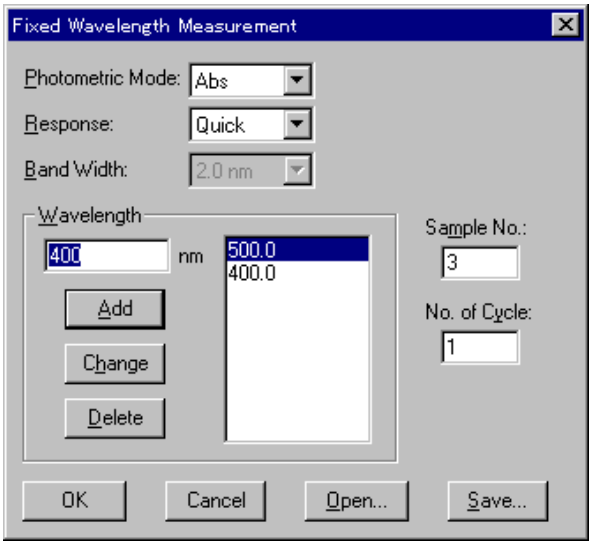



Figure 7.3 [parameters] dialog box

[Photometric Mode] Sets the photometric mode.
Selectable range:

- Abs: Absorbance measurement
- %T: Transmittance measurement
- %R: Reflectance measurement
- Sample: Single-beam measurement on the sample beam side
- Reference: Single-beam measurement on the reference beam side

*Note: For models V-550/560/570, when [Sample] or [Reference] is selected, [PMT voltage] is added to the left side. Input the voltage to be applied to the photomultiplier. The input range is 0 to 1000 V.*

[Response] Response by simple moving average. Selectable range varies according to the model.

V-530:

- Quick: Moving average during about 0.03 sec
- Fast: Moving average during about 0.25 sec
- Medium: Moving average during about 1 sec

V-550/560/570:

- Quick: Moving average during about 0.03 sec
- Fast: Moving average during about 0.25 sec
- Medium: Moving average during about 1 sec
- Slow: Moving average during about 4 sec

[Band width] Spectral bandwidth. Selectable range varies according to the model.

V-530: Fixed at 2 nm
V-550/560: 0.1, 0.2, 0.5, 1, 2, 5, 10 nm
V-570: 0.1, 0.2, 0.5, 1, 2, 5, 10 nm
0.4, 0.8, 2, 4, 8, 20, 40 nm (near infrared region)

*Note: When using the V-570 for measurement from the near-infrared region to the visible region in succession, the bandwidths listed in Table 7.1 should be paired. If the bandwidth is set to the same (nearly equal) value, noise in the near-infrared region measurement value will increase.*

Table 7.1

| Ultraviolet/visible region bandwidth (UV) nm | Near-infrared bandwidth (NIR) nm |
|---|---|
| 0.1 | 0.4 |
| 0.2 | 0.8 |
| 0.5 | 2 |
| 1 | 4 |
| 2 (L2) | 8 |
| 5 (L5) | 20 |
| 10 (L10) | 40 |

[Wavelength] Dialog box for inputting measurement wavelength. Up to 8 wavelengths can be input. The wavelength input range varies according to the model.
V-530: 190.0 to 1100.0 nm
V-550/560: 190.0 to 900.0 nm
V-570: 190.0 to 2500.0 nm
Wavelength display field: Displays the input wavelength.
Text box: Area for inputting wavelength.

<Add>: Loads input wavelength into the display field.

**How to add wavelength**

1) Input a wavelength in the text box.
2) Click <Add>.

<Change>: Rewrites wavelength in the display field.

**How to change wavelength**

1) Select a wavelength from the display field.
2) Input new wavelength in the text box.
3) Click <Change>.

<Delete>: Deletes a wavelength from the display field.

**How to delete wavelength**

1) Select a wavelength to be deleted from the display field.
2) Click <Delete>.

[Sample No.] Sets which sample should be measured first. Subsequent samples are measured in order from the first sample

| | |
|---|---|
| | number, increasing in increments of one. |
| [No. of Cycles] | Sets number of measurements for each sample. If 2 or more measurements are set, the [Cycle Time] field is displayed. If sample is measured by setting multiple cycles, measurement values for each of the cycles as well as the average value are displayed.<br>Input range: 0 to 999. |
| [Cycle Time] | Sets the time between measurements in seconds. If the set time is shorter than the measurement time, the next measurement starts immediately.<br>Input range: 0 to 15000 sec. |
| <OK> | Ends parameter setting. Click this button to transfer the set parameters to the spectrophotometer. At the same time, the dialog box closes. |
| <Cancel> | Stops parameter setting without changing the previous settings, and closes the dialog box. |
| <Save...> | Saves parameters in the parameter library on the hard disk (see Section 5.1.2.1 [Parameters] dialog box). |
| <Open...> | Previously saved parameters in the parameter library can be selected (see Section 5.1.2.1 [Parameters] dialog box). |

### 7.1.4 [Goto Wavelength...]

Moves the spectrophotometer wavelength to a set wavelength (see Section 5.1.4, [Move Wavelength...]).

### 7.1.5 [Auto Zero]

Sets absorbance (or transmittance) at the current wavelength to zero (or 100%T for transmittance).

### 7.1.6 [Exit]

Exits the [Fixed Wavelength Measurement] program and returns to [Spectra Manager].

## 7.2 [Data]

| | |
|---|---|
| [New] | Deletes the displayed data and creates a new data file. Be careful, if the data has not been saved on the disk, the data will be lost. |
| [Save As...] | Saves data under a set name (see Section 4.1.4, [Save As...]). |
| [Print...] | Prints the data (see Section 4.1.7, [Print...]). |
| [Print Setup...] | Sets the target printer and the printing conditions (see Section 4.1.6, [Print Setup]). |

## 7.3 [Help] menu

| | |
|---|---|
| [About...] | Displays information such as program version. |

# 8. [Abs/%T Meter]

[Abs/%T Meter] is a display of the analog spectrophotometer on the screen. You can read Absorbance (Abs) or transmittance (%T) at a set wavelength.

In the [Spectra Manager] window, double-click [Abs/%T Meter]. The program starts and the window below appears.

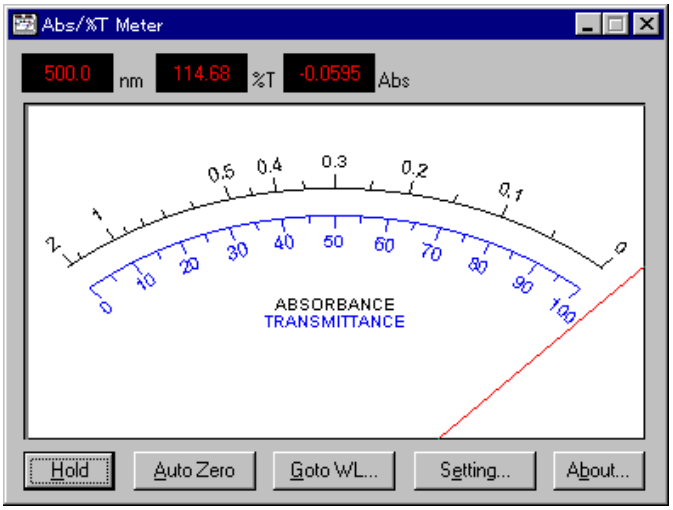



Figure 8.1 [%T/Abs Meter] window

The sample measurement value is displayed on the meter and in the [nm] (wavelength), [%T] (transmittance), and [Abs] (absorbance) field above the meter.

<Hold/Start> Click this button to accept a measurement value. When the meter pointer is fixed in position, this button changes to <Start>. Click this button a second time to return to original status. This function is useful for obtaining data when the meter pointer is unsteady.

<Auto Zero> Sets the absorbance (or transmittance) at the current wavelength to zero (100% for transmittance).

<Goto WL...> Moves the spectrophotometer wavelength to a set wavelength (see Section 5.1.4, [Move Wavelength]).

<Setting...> Sets parameters. Click this button to display the dialog box shown below.

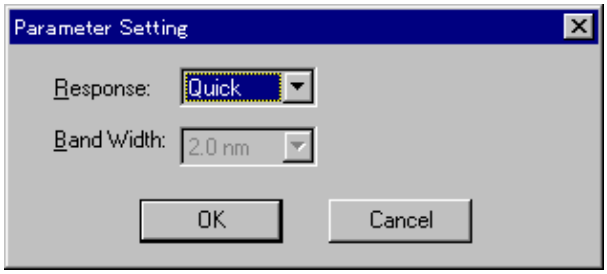



Figure 8.2 [Parameter Setting] dialog box

[Response] Response by simple moving average.

Selectable range:

- Quick: Moving average during about 0.03 sec
- Fast: Moving average during about 0.25 sec
- Medium: Moving average during about 1 sec
- Slow: Moving average during about 4 sec

[Band width] Spectral bandwidth. Selectable range varies according to the model.

| | |
|---|---|
| V-530: | Fixed at 2 nm |
| V-550/560: | 0.1, 0.2, 0.5, 1, 2, 5, 10 nm |
| V-570: | 0.1, 0.2, 0.5, 1, 2, 5, 10 nm<br>0.4, 0.8, 2, 4, 8, 20, 40 nm (near infrared region) |

<About...> Displays program version information.

# 9. [Environment]

System hardware setting, self-diagnosis, optional accessory setting, and wavelength correction can be started from this menu.

In the [Spectra Manager] window, double-click [Environment]. The [Environment] dialog box shown below appears. Click an item.

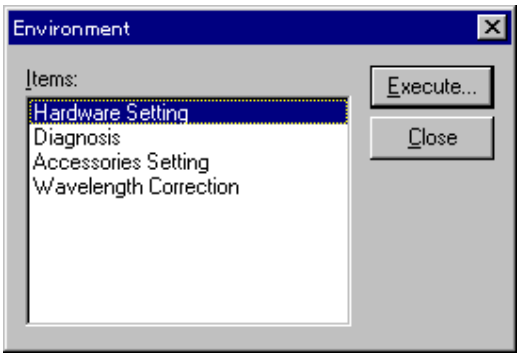



Figure 9.1 [Environment] dialog box

[Items] Lists the items to set.

[Hardware Setting]: Sets whether to turn the lamp ON or OFF, selects the lamp changeover wavelength, and sets the lamp operating hours

[Diagnosis]: Diagnoses the spectrophotometer status.

[Accessories Setting]: Sets the conditions of the optional intelligent accessories that have communicating functions.

[Wavelength Correction]: Corrects the wavelength using the emission of the deuterium lamp.

## 9.1 [Hardware Setting]

Sets whether to turn the lamp ON or OFF, selects the lamp changeover wavelength, and sets the lamp operating hours. Select [Hardware Setting] from the [Environment] dialog box, then press <Execute>. The dialog box shown below appears.

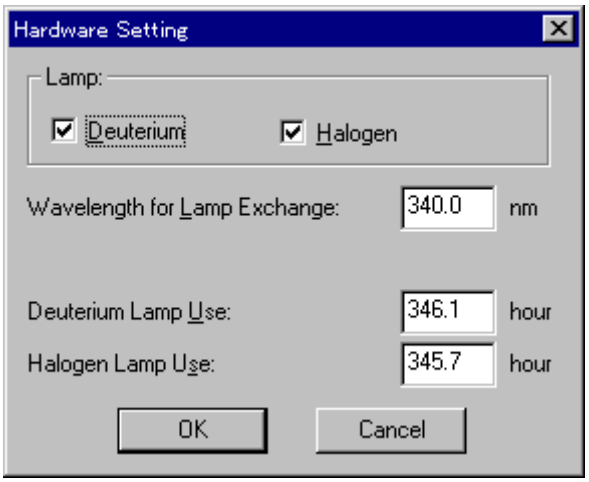



Figure 9.2 [Hardware Setting] dialog box

| | |
|---|---|
| [Lamp] | Sets whether to turn the deuterium and halogen lamps ON or OFF. Select a check box, then press <OK> to close the dialog box. The selected lamp is turned ON. If both lamps are selected, the lit lamp changes from halogen to deuterium at the set [Wavelength for Lamp Exchange] wavelength. At the changeover wavelength, the halogen lamp becomes activated. |
| [Wavelength for Lamp Exchange] | Sets wavelength at which the deuterium lamp switches OFF and the halogen lamp switches ON. Input the wavelength in the text box.<br>Input range: 330 to 350 nm.<br>Default value: 340 nm. |
| [Deuterium Lamp Use] | Total time of deuterium lamp use. When the light source is replaced, input 0 in the text box. The time is reset. |
| [Halogen Lamp Use] | Total time of halogen lamp use. When the light source is replaced, input 0 in the text box. The time is reset. |

*Note: For the V-570, [Wavelength for Grating Exchange] can also be selected.*

| | |
|---|---|
| [Wavelength for Grating Exchange] | Sets the diffraction grating changeover wavelength for the ultraviolet/visible region and for the near-infrared region. Input the wavelength in the text box.<br>Input range: 750 to 900 nm.<br>Default value: 850 nm. |

## 9.2 [Diagnosis] menu

Automatically diagnoses the spectrophotometer for the items listed in the figure below.

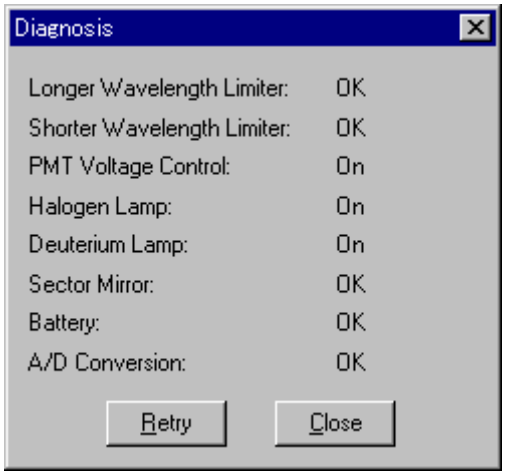



Figure 9.3 [Diagnosis] dialog box

| | |
|---|---|
| [Longer Wavelength Limiter] | OK if the longer wavelength limiter is operating properly. |
| [Shorter Wavelength Limiter] | OK if the shorter wavelength limiter is operating properly. |
| [PMT Voltage Control] | OK if correct voltage is applied to the photomultiplier. |
| [Halogen Lamp] | On if the halogen lamp is operating properly. |
| [Deuterium Lamp] | On if the deuterium lamp is operating properly. |
| [Sector Mirror] | OK if the sector mirror rotates at 33 Hz. |

[Battery] OK if the memory backup battery is charged.
[A/D Conversion] OK if the A/D converter is operating properly.

*Note: For the V-530, [PMT Voltage Control] and [Sector Mirror] are not available.*

<Retry> Does self-diagnosis again.
<Close> Ends self-diagnosis.

## 9.3 [Accessories Setting]

Sets the conditions of the optional intelligent accessories that have communication functions. For details, refer to the instruction manuals for the accessories.

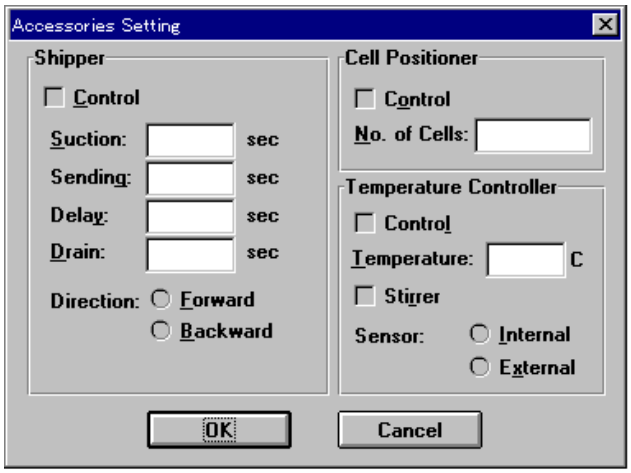



Figure 9.4 [Accessories Setting] dialog box

### Sipper

[Control] check box When checked, the sipper is used.
[Suction] Sample suction time.
[Sending] Time required to pump the sample into the cell. Valid with peristaltic-pump sipper.
[Delay] Waiting time before measurement (from sample suction or end of pumping to start of measurement).
[Drain] Sample discharge time.
[Direction] Sets the draining direction of the measured sample. Activated when the option button is selected. Valid with peristaltic-pump sipper.
[Forward]: Rotates the pump forward and discharges the sample into the waste solution bottle.
[Backward]: Rotates the pump in the reverse direction and recovers sample into the sample container.

### Cell Positioner

[Control] check box When checked, the cell changer is used.
[No. of Cells] Sets how many cells to use.

**Temperature Controller**

| | |
|---|---|
| [Control] check box | When checked, the temperature controller is used. |
| [Temperature] | Set temperature. |
| [Stirrer] | When checked, the stirrer is used. |
| [Sensor] | Selects a temperature sensor. |
| [Internal]: | Allows temperature measurement using the sensor incorporated in the cell holder. |
| [External]: | Allows temperature measurement using external sensor dipped in the cell. Sample temperature can be measured directly. |

## 9.4 [Wavelength Correction]

Corrects the wavelength using the emission of the deuterium lamp. Selecting this item displays the dialog box shown below.

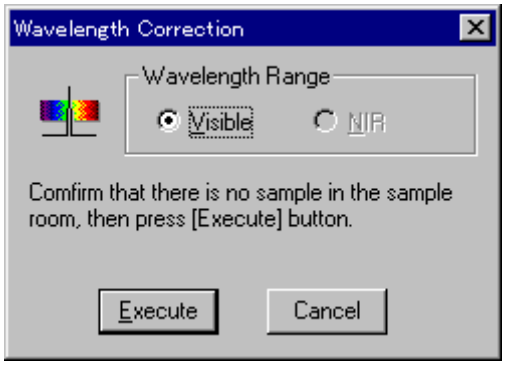



Figure 9.5 [Wavelength Correction] dialog box

| | |
|---|---|
| [Wavelength Range] | For Model V-570, corrects the wavelength for each of the visible and near-infrared regions. |
| <Execute> | Starts wavelength correction. |

# 10. Appendix

## 10.1 Spectra Manager Installation

### 10.1.1 Before installation

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

* The computer and all peripheral devices are properly connected.
* Windows 95/98/NT4.0 is installed.
* Sufficient space (about 5 MB) is available on the hard disk to install the [Spectra Manager].

> ***Note:*** *For first-time users of Windows 95/98/NT4.0/2000, install Windows according to the procedure described in the Windows 95/98/NT4.0/2000 User's Guide.*
>
> *Refer to the Windows 95/98/NT4.0/2000 Instruction Manual for details on how much disk space is required.*

### 10.1.2 Installing Spectra Manager from Floppy Disk

Install the [Spectra Manager] after starting up Windows 95/98/NT4.0 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.

#### 10.1.2.1 Starting up SETUP.EXE

(1) Click [Settings] - [Control Panel] on the [Start] menu as shown in Fig. 10.1. The [Control Panel] window is shown in Fig. 10.2.

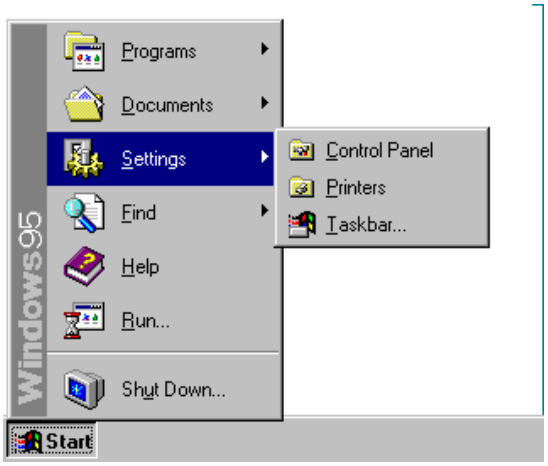



Figure 10.1 Windows 95


Figure 10.2 [Control Panel]

(2) Double-click [Add/Remove Programs] in the [Control Panel] window. The window below appears.


Figure 10.3 [Add/Remove Programs Properties]

(3) Select [Install/Uninstall], then click the <Install (I)> button. The window below appears.

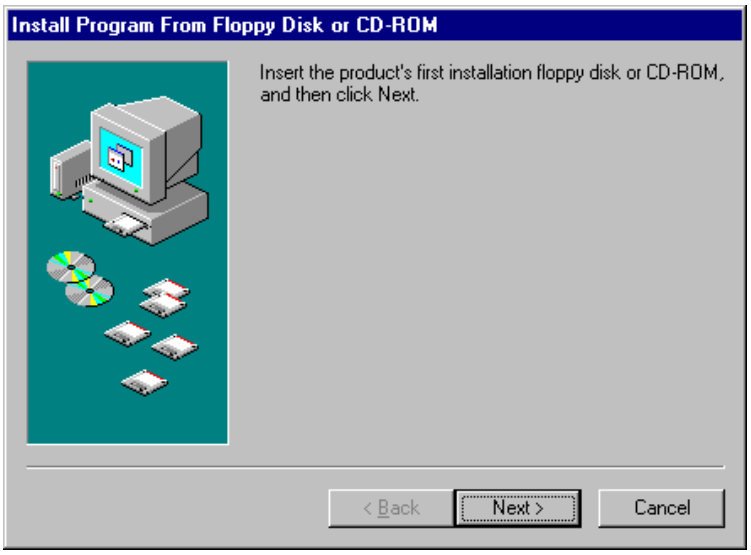



Figure 10.4 [Install Program From Floppy Disk or CD-ROM]

(4) Click the <Next> button in the window shown in Fig. 10.4. The window shown in Fig. 10.5 appears.

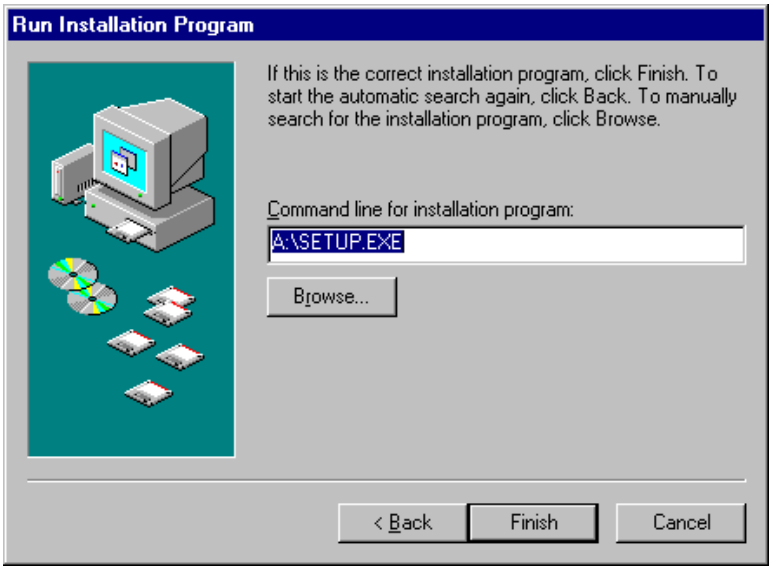



Figure 10.5 [Run Installation Program]

(5) Click the <Finish> button. The window below appears.

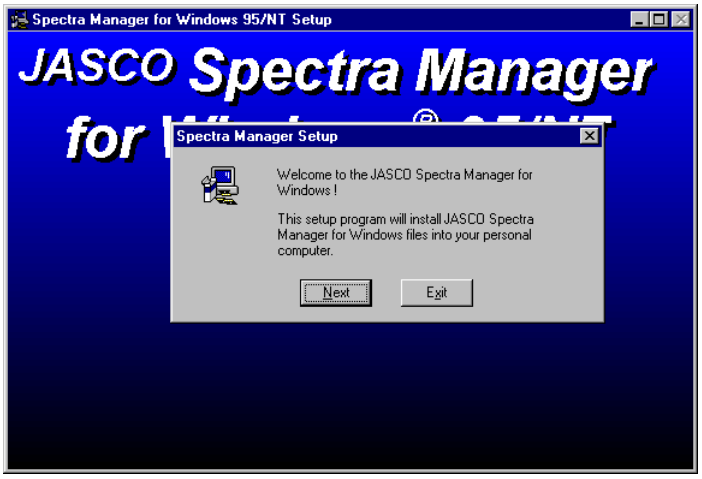



Figure 10.6 [Spectra Manager] for Windows Setup

(6) Click the <Next> button. The screen shown in Fig. 10.7. appears.

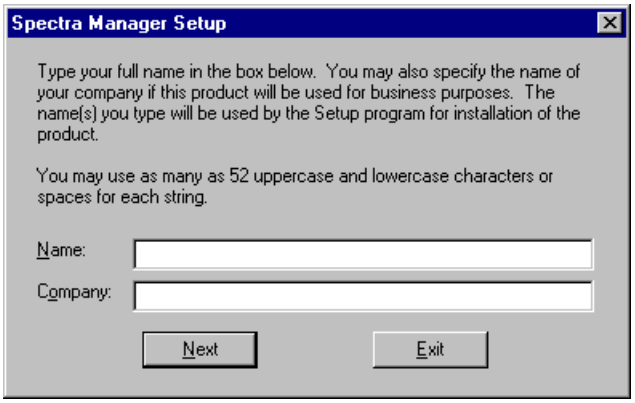



Figure 10.7

### 10.1.2.2 Inputting operator name or company name

(1) Input the name of the operator or company in the text box shown in Fig. 10.7. The name that you 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. 10.8 appears.

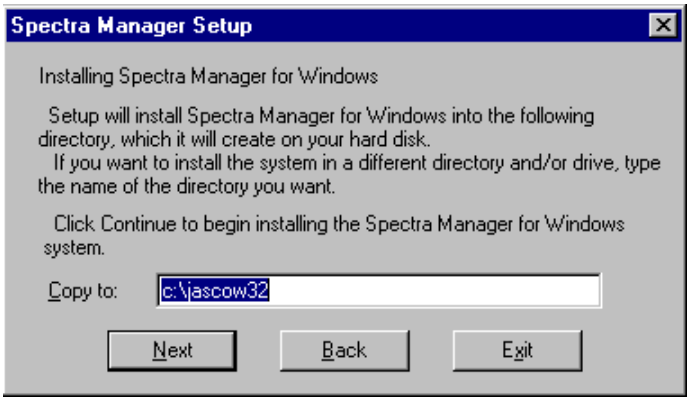



Figure 10.8 Target program directory setting for [Spectra Manager]

### 10.1.2.3 Setting the 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. 10.9 appears.

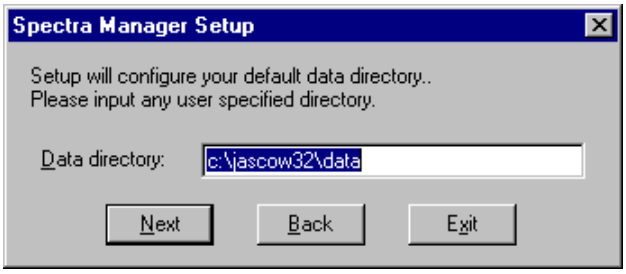



Figure 10.9 Data Directory input screen

### 10.1.2.4 Setting the 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. 10.10 appears.


Figure 10.10 Message prompt for installing Spectrophotometer control driver

(3) Click the <Yes> button. The dialog box shown in Fig. 10.11 appears.

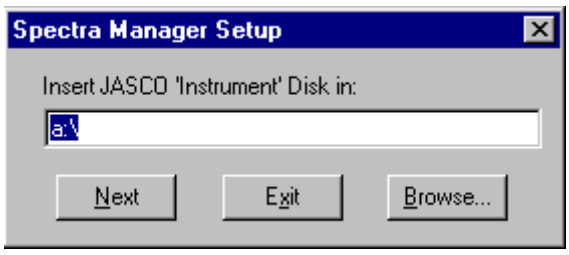



Figure 10.11 [Spectra Manager] Setup dialog box

(4) Insert the [JASCO Instrument] disk into the floppy disk drive. Click the <Next> button. The screen shown in Fig. 10.12 appears.


Figure 10.12 Confirmation of control driver

(5) Click the <Continue> button. The screen shown in Fig. 10.13 appears.

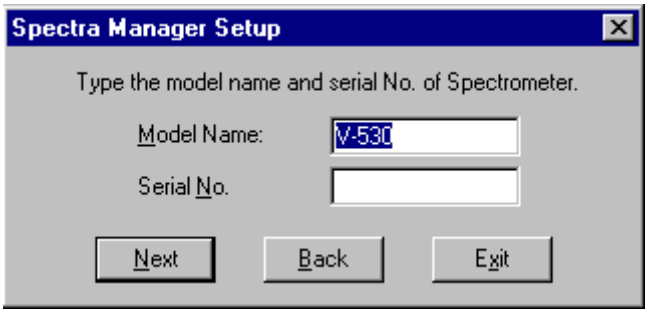



Figure 10.13 Model name and serial number input screen

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

#### 10.1.2.5 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, [Setup] may request that the operator insert disks into the floppy disk drive. If so, click <OK> after each 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 has finished. Click <OK>.

### 10.1.3 Installing Spectra Manager from CD-ROM

(1) Open [Control Panel], select [Add/Remove Programs] to run program.


Figure 10.14

(2) Place the setup CD in the CD-ROM drive and click <Setup>.

(3) The message " If this is the correct installation program,…" will appear. Here, click <Browse...>.

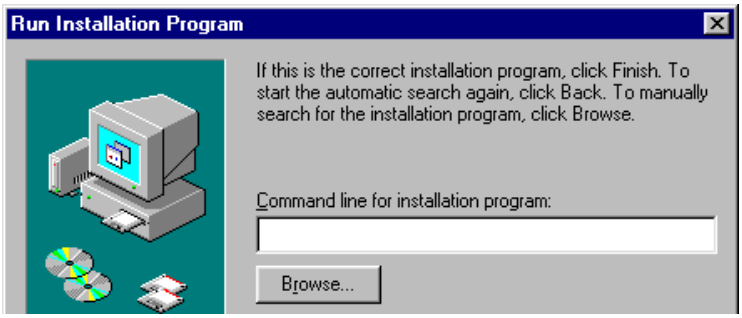



Figure 10.15

(4) Select CD-ROM drive [Spectra Manager\Disk1\Setup], click <OK> and the setup of Spectra Manager will begin. When "user name" is requested during the setup, please input company or personal user name.

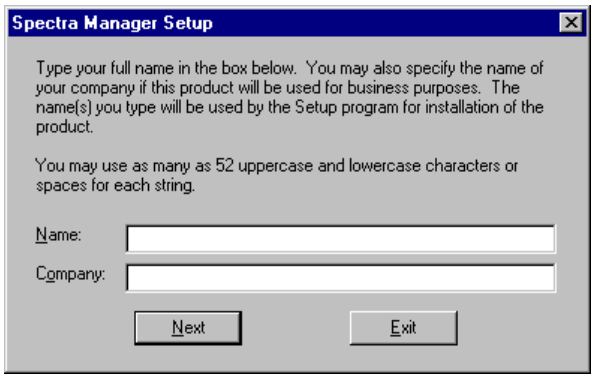



Figure 10.16

(5) When the setup of Spectra Manager is finished, setup of [Instrument driver] will start automatically. Please select and click [Instrument driver Ver x.xx.xx\Disk1] to continue the setup.

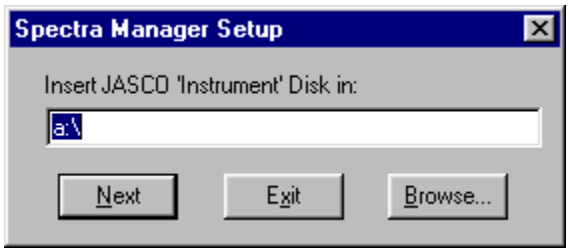



Figure 10.17

(6) The next step will be to set up each of the various applications. Click <start> on the taskbar and proceed to [program], then [Jasco], then [Spectra Manager setup] and click to run program.


Figure 10.18

(7) Select [application] from the menu box and click <next>.

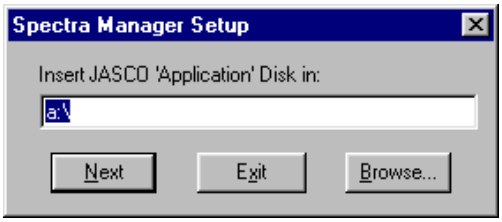



Figure 10.19

(8) In the same way as above, click the <Browse..> button to start the setup of the application.

(Repeat this process to set up each application).

## 10.2 Setting the Serial Port (RS-232C)

The serial port default value is [COM1]. The serial port number must be changed when the Spectrophotometer is controlled through another port. The procedure is as follows:

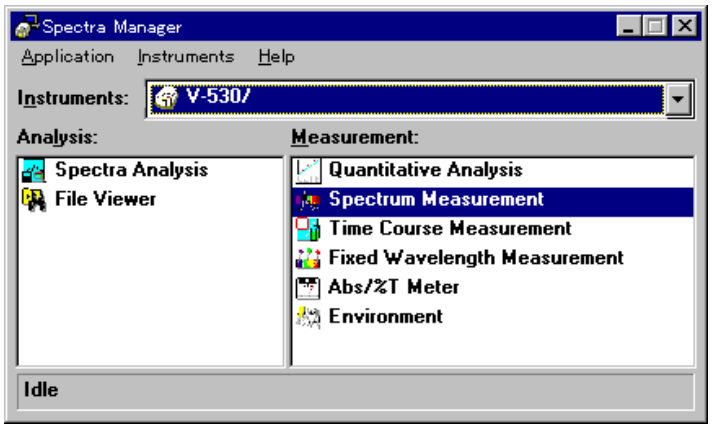



Figure 10.20 [Spectra Manager] window

(1) Click [Instruments] - [Port Setting] on the [Spectra Manager] menu. The dialog box shown in Fig. 10.21 appears.

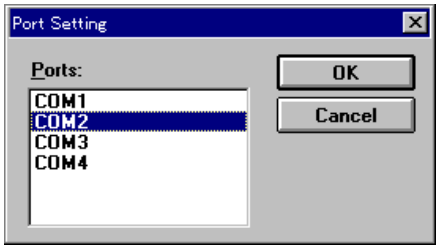



Figure 10.21 [Port Setting]

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

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