

**Scanner Utility for  
Microsoft<sup>®</sup> Windows<sup>®</sup>  
<32bit>  
Version 8.0**

# Introduction

Thank you for purchasing the "Scanner Utility for Microsoft Windows V8.0".

This software contains a TWAIN-compliant image scanner driver (simply called "driver" in this guide) and utilities.

This guide provides a description summary of the driver, as well as a description of the installation method and procedures for appropriate use. Please read this guide before starting to use the software.

In addition, read the README.TXT file on the CD-ROM for the latest information not included in this manual.

In this guide, product names are abbreviated as follows:

- "Microsoft® Windows® 95 operating system": "Windows® 95"
- "Microsoft® Windows NT® Workstation operating system Version 4.0" and "Microsoft® Windows NT® Server operating system Version 4.0": "Windows NT® 4.0"
- "Microsoft® Windows® 98 operating system": "Windows® 98"
- "Microsoft® Windows® 2000 operating system": "Windows® 2000"
- "Microsoft® Windows® Millennium Edition": "Windows® Me"

When "Windows® 95," "Windows® 98," "Windows NT® 4.0," "Windows® 2000" and "Windows® Me" are referred to collectively, they are simply referred to as "Windows®". Unless otherwise indicated, explanations refer to "Windows® 95," "Windows® 98," "Windows NT® 4.0," "Windows® 2000," and "Windows® Me" collectively.

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## Organization

This manual explains how to install and use this driver, and how to use the TWAIN scanning utility.

- TWAIN

This section gives an overview of the TWAIN specification.

- Installation

This section explains the procedure for installing the environments in which this driver may operate.

- Using the Driver

This section explains how to use the driver.

- Using the Utilities

Use of the following utilities is explained:

- Using the Gamma Pattern Editor

- Troubleshooting

This section explains the possible causes of error messages and operation errors and the corresponding recommended actions.

- Appendix

The appendix contains the specifications of image scanners.

# Contents

<b>1. Outline.....</b>	<b>1</b>
1.1 Characteristics of this Driver.....	1
1.2 Operating Environment.....	1
1.3 Explanatory Notes .....	2
1.4 Explanation of terms.....	3
<b>2. TWAIN .....</b>	<b>4</b>
2.1 TWAIN.....	4
2.2 TWAIN Application .....	4
<b>3. Installation .....</b>	<b>6</b>
3.1 Preparation.....	6
3.2 Starting Installation.....	6
3.3 Uninstall.....	7
<b>4. Using the Driver.....</b>	<b>8</b>
4.1 Selecting the Driver .....	8
4.2 Screen Configuration.....	9
4.3 Displaying Driver Information .....	10
4.4 Setting Information on Image Scanning .....	11
4.5 Specifying Driver Operation.....	18
4.6 Setting "Scanning Area" .....	20
4.7 Setting Options.....	21
4.8 Setting Advance Options .....	31
4.9 Setting the Configuration Options .....	43
4.10 Basic Scan Dialog.....	46
4.11 Download Pattern File.....	48
<b>5. Using the Gamma Pattern Editor .....</b>	<b>52</b>

5.1 Start-up.....	52
5.2 [File] menu.....	53
5.3 [Help] menu .....	54
5.4 Gamma Pattern Editing .....	55
<b>6. How to Use the FUJITSU Scanner Control Center .....</b>	<b>56</b>
6.1 Outline.....	56
6.2 How to Start the FUJITSU Scanner Control Center .....	56
6.3 Pop-up Menu.....	57
<b>7. Troubleshooting .....</b>	<b>62</b>
7.1 Error Messages .....	62
7.1.1 Messages from the TWAIN Driver.....	62
7.1.2 Error messages relating to gamma correction pattern editing.....	69
7.1.3 Messages concerning to FUJITSU Scanner Control Center.....	70
<b>8. Appendix.....</b>	<b>72</b>
8.1 Relevant Image Scanner Specification.....	72
8.2 Maintenance Service .....	87

# 1. Outline

## 1.1 Characteristics of this Driver

- This driver complies with TWAIN regulations V1.8 (the latest version as of May 2000), which are global standards for image scanners. The driver can be used in all TWAIN-compliant applications.
- This driver also supports an image scanner that has the "double-sided scan" function. If the application supports continuous scan, a double-sided document can be scanned.

## 1.2 Operating Environment

This driver can be used in the following systems:

- An IBM PC/AT compatible machine (recommended: Intel Pentium 100MHz or higher) on which one of the following operating systems are installed
  - Microsoft® Windows® 95
  - Microsoft® Windows® 98
  - Microsoft® Windows® Me
  - Microsoft® Windows NT® Server Version 4.0 (Installation of Service Pack 3 or later recommended)
  - Microsoft® Windows NT® Workstation Version 4.0 (Installation of Service Pack 3 or later recommended)
  - Microsoft® Windows® 2000 Professional Edition
- Adaptec® SCSI adapter or Fujitsu FMV SCSI adapter
  - In some cases, the driver may not operate with the above systems. Please check in advance with your place of purchase.
  - Notes are provided on the accepted SCSI adapters in README.TXT, which is included in the installation media. Please read these notes before use.
- Adaptec® EX-SCSI™ Pro Version 4.5 or later or the following 32-bit versions of ASPI Manager (included, for example, in the Adaptec SCSI installer for Windows 95/Windows NT or on Fujitsu SCSI driver disk V1.2):

Windows® 95, Windows® 98, Windows NT® 4.0	V4.01 or later
Windows® 2000, Professional Edition	V4.60 or later

- RAM of 16 megabytes or more
- Free hard disk space of 4 megabyte or more
- CD-ROM drive (required for installation)
- Mouse (recommended)

### 1.3 Explanatory Notes

The descriptions in this manual are prepared based on the following rules:

◇ Menus and buttons

The menus and buttons used in the program description are enclosed in [].

Example: [File] menu, [OK] button

◇ Keyboard

The keytop indications comply with the standard keyboard of the Fujitsu FMV series.

Major differences between the Fujitsu FMV keyboard and other keyboards are shown below.

FMV keytops	Other possible keytops
Alt	Previous screen, GRPH
Ctrl	CTRL
Esc	ESC
Enter	Return, 
Shift	SHIFT
Back space	Backspace, BS
F1	PF1, f-1

◇ Terms related to mouse operation

Terms related to major mouse operations are explained below.

Click: To press and release the mouse button

Double click: To quickly press the mouse button twice

Drag: Move the mouse while keeping the mouse button pressed

◇ Notes on operation procedures

If some menus need to be operated in a certain order, the procedural order is described as follows:

[A] - [B] - [C]

In accordance with this description, operation [A] is executed first, followed by [B] and [C] in that order.

◇ Figures

Figures and screen operations in this guide refer to Microsoft® Windows® 2000. They are also followed when using other operating systems.

Note that the expressions may vary with the type of scanner connected.

## 1.4 Explanation of terms

◇ IPC option board

IPC-2/2D in this guide refers to the IPC-2 and IPC-2D image processing circuit.

IPC-3/3D in this guide refers to the IPC-3 and IPC-3D option board.

## 2. TWAIN

### 2.1 TWAIN

TWAIN is the specification that defines the standard software protocol and application programming interface (API) for data exchange between a software application program and an image input device such as the image scanner.

[TWAIN development background]

In the past, development of a new scanner inevitably required the development of a compatible driver and a sample (demonstration) program exclusively designed for the new scanner. As the scanner is upgraded, the driver may need to be upgraded as well to maintain its compatibility with the upgraded scanner. Therefore, the use is most likely to be restricted to one specific scanner model to avoid the complication of learning new operation methods and replacing the peripheral driver, etc., involved in scanner replacement.

In view of the incompatibility among different scanners and peripheral equipment and the accompanying inconvenience, there was a demand for standardization of the related hardware and software, and TWAIN was established as a result.

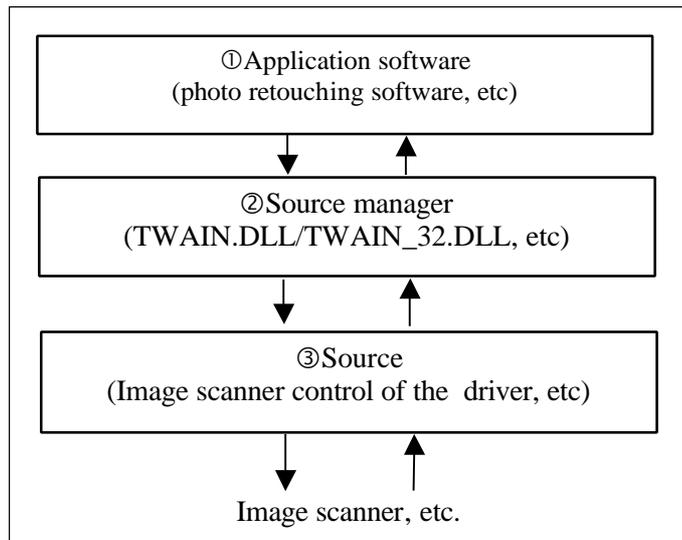
The user may now choose among all the input devices and software (driver or application programs) conforming to the TWAIN standard, and configure a most suitable system for himself, without being restricted to the products of a certain series or a certain manufacturer.

### 2.2 TWAIN Application

TWAIN mainly applies to the following three software components:

- ① Application software
- ② Source manager
- ③ Source

The components are related to each other as shown below.



**Figure TWAIN Application**

## 3. Installation

### 3.1 Preparation

1. Check that the operating system is installed correctly.
2. Check that the SCSI adapter is connected to the computer.
3. Check whether the SCSI driver and ASPI manager are installed correctly and operating (For windows<sup>®</sup> 2000, 4.60 or later)

#### Note

Version 4.01 or later of the ASPI Manager is required. Use Explorer or a similar program to check the version number of the WNASPI32.DLL file.

The environment setup tools described later can be used for checking.

4. If the previous version was installed, first confirm that it has been uninstalled (deleted).
5. Confirm that there is sufficient free space on the hard disk to install the software.

### 3.2 Starting Installation

1. Start Windows.

#### Note

A user name with administrator authority must be used to log on to Windows(R) 2000 or Windows NT(R) 4.0.

Ask the system administrator for the details of logging on.

2. Close any other currently open applications.
3. Insert the setup CD-ROM in the CD-ROM drive. Here, the CD-ROM drive is temporarily called "D:". (If the environment you are using is different, replace the appropriate parts below.)
4. Double-click on "install.exe" in the "D: \Driver1\ASPI" folder of the CD-ROM using Explorer. Then, installation starts.

When an automatic start is specified, the start screen of the setup disk is displayed. Installation can be started from this screen too.

5. When the setup screen is displayed, continue the process by following the on-screen instructions.
6. Confirm that the following group is created when setup has been completed. The displayed icon depends on the selection of "Components" during installation.



**Figure Fujitsu TWAIN group**

### 3.3 Uninstall

The uninstall process removes the software and returns the hard disk to its pre-installation state.

1. Click on [Start], followed by [Settings], and then [Control Panel]. The Control Panel is then displayed.
2. Double-click on "Add/Remove Programs" from the icon list of the Control Panel. The panel of properties of [Add/Remove Programs] is displayed.
3. Select "Scanner Utility for Microsoft Windows" from the "Install/Uninstall" list.
4. Click on the [Add/Remove] button. When the confirmation dialog is displayed, click on [OK] if you are ready to uninstall.
5. When uninstallation is completed, click on [OK.]

#### Note

Image files that have been scanned and saved will not be deleted.

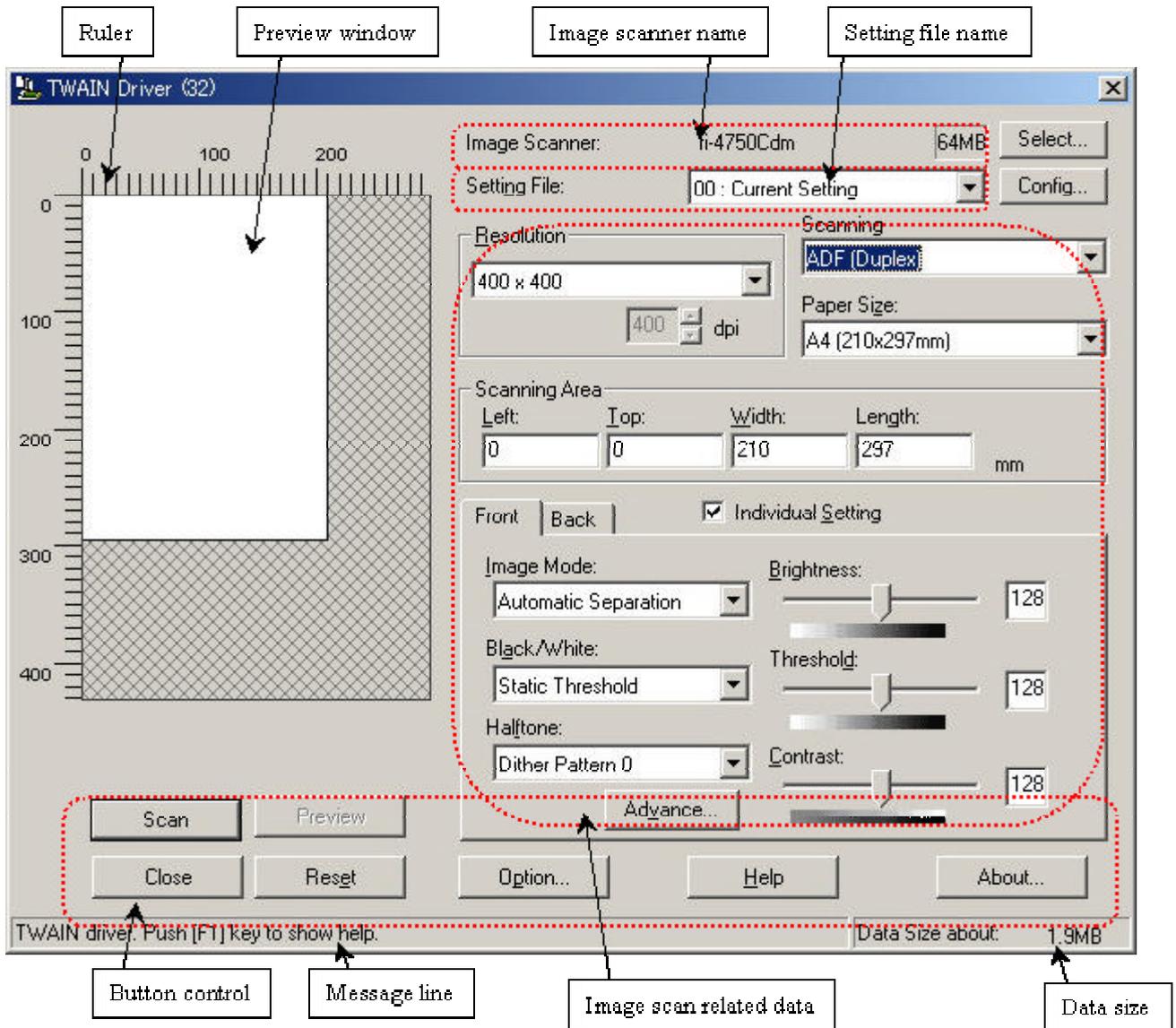
If other TWAIN-compliant applications and drivers have been installed and you are asked whether or not to delete files shared with them such as the TWAIN Manager, select [NO] to avoid deleting them.

## **4. Using the Driver**

### **4.1 Selecting the Driver**

To use this driver from the TWAIN application, select "FUJITSU TWAIN32" from the TWAIN data source (driver) selection screen. For general application, the data source selection screen is displayed by selecting the [Select Scanner] or [Acquire ...] menu. Refer to the instruction manual for the application used for details.

## 4.2 Screen Configuration



**Figure Main Dialog**

The following pages contain the explanation and operation description for each part.

### 4.3 Displaying Driver Information

- ◆ Image scanner name



The model name, option port name, and capacity of internal scanner memory (in units of megabytes) of the connected image scanner are displayed.

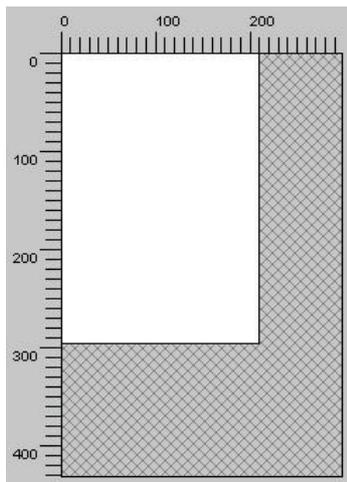
If no image scanner is connected, this field is blank.

To change the selected scanner, click the [Select ...] button to display a list of connected scanners and select a scanner from the list.

The type of IPC option board is displayed if an image-processing option board is installed in the scanner.

IPC-3/3D may not be detected normally, as it is affected by the version number of the machine type and device. In this case, "IPC2" is displayed.

- ◆ Preview window



The preview window is used to display the temporary image of read data and for setting the "Scanning Area."

For settings, see "Scanning Area" later in this manual. Also see the description of the [Preview] button later in this manual.

- ◆ Ruler

The large divisions are labeled as "Unit". The scale also varies with the selected scanner.

- ◆ Message line

The message line is the bottom line of the dialog in which a brief explanation of an input item or a setting item is displayed when the mouse cursor is moved over the item.

◆ Data size

The approximate amount of data per image when data is scanned in the present option.

Note

This value is the amount of uncompressed data. The size of the stored file will differ from this value and is usually smaller if image compression is chosen and the image is compressed.

#### 4.4 Setting Information on Image Scanning

◆ Current side



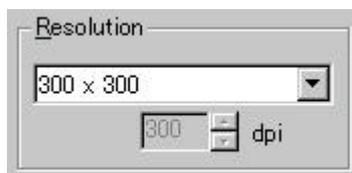
When a scanner that allows duplex scanning is used, specifies the page which sets the image scanning information.

To scan using the same settings as those for "Front side" and "Back side," clear the checks in the "Individual Setting" checkbox on the "Front" and "Back" tabs. A single "Duplex" tab will be displayed at the left so that the same image scanning information can be set for "Front side" and "Back side."

To scan using different settings for "Front side" and "Back side," check the "Individual Setting" checkbox on the "Front" and "Back" tabs. Two tabs, "Front" and "Back," will be displayed at the left. Select each tab and enter the desired settings.

This is only effective when ADF (Duplex) is selected for the method of paper feed. For scanner types which permit duplex scanning, see "Relevant Image Scanner Specification" in the Appendix.

◆ Resolution



Specifies the number of pixels (dots) per inch.

Select a fixed resolution from the list or [Custom].

High resolution requires more memory.

The supported resolution depends on the type of scanner and the options installed. See "Relevant Image Scanner Specification" in the Appendix.

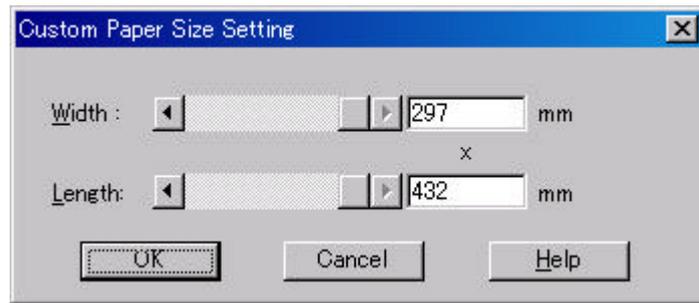
◆ Paper Size



Selects a paper size corresponding to the size of the document to be scanned.

Select a standard paper size from the list or [Custom]. If [Custom] is selected, the "Custom Paper Size Setting" dialog appears. Enter the size of the document to be scanned.

Some paper sizes may not be accepted by your device. See "Relevant Image Scanner Specification" in Appendix.



**Figure Custom paper size setting dialog**

To specify a custom paper size, use the slider or enter the paper size directly. The applicable unit here is the unit specified under [Option]-[Generic]-[Unit/Scaling].

◆ Scanning Area



Specifies the start position, width and length for the image scan. The maximum allowable size is the paper size selected previously.

In addition, the minimum size is 1.000 inch, 26 millimeters, or pixels (number of dots per inch) according to the unit that has been set.

"Left": The left end of the scan area on the scanned document (X coordinate)

"Top": The top end of the scan area on the scanned document (Y coordinate)

"Width": The width of the scan area

"Length": The length of the scan area

These values are related to one another in the following way:

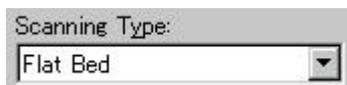
$$0 \leq \text{left end coordinate} < (\text{paper width} - \text{minimum scan area size})$$

$$0 \leq \text{top end coordinate} < (\text{paper length} - \text{minimum scan area size})$$

$$\text{Minimum value} \leq \text{width} \leq (\text{paper width} - \text{left end coordinate})$$

$$\text{Minimum value} \leq \text{length} \leq (\text{paper length} - \text{top end coordinate})$$

- ◆ Scan Type



Selects the feeding device.

The image scanner uses a document bed called the flat bed as well as an automatic document feeder (ADF) for feeding scanned document. The ADF usually enables the documents to be scanned only once. The flat bed allows scanning the same documents repeatedly.

- ◆ Flatbed

Reads a document placed on the flat bed of the device.

- ◆ ADF (Simplex)

Reads the document on the device's automatic document feeder (ADF). Here, only one side is read.

- ◆ ADF (Duplex)

To scan both the front and the back of a page, select this option.

If this option is selected, the document is scanned in the "front to back to front to back ..." order.

This option can be used only for scanner models that support duplex scanning.

The "Duplex Function" requires that the calling application supports "continuous scan." If the application does not support "continuous scan," only the data for the front side of the page is passed to the application.

Some scanner models do not support this option. See "Relevant Image Scanner Specification" in the Appendix.

- ◆ Long page (front)

To scan the entire side of a long page whose length exceeds the vertical size of an A3 sheet, select this option.

The front side and back side can be specified using the same method used for ADF.

If this option is selected, the "Paper Size Setting" dialog box opens. Specify the size of the document to be scanned.

In this mode, however, the preview window cannot be displayed and the scanning area cannot be specified.

Scanner models that do not support this option do not display the "Scan Type" selection item.

◆ Long page (front and backside)

In the same case as that for scanning the front of a long page, this option is selected in order to scan the entire side of a long page whose length exceeds the vertical size of an A3 sheet.

If this option is selected, the document is scanned in the "front to back to front to back..." order.

Paper feeding method that is to be supported varies with the type of scanner. See "Relevant Image Scanner Specification" in the Appendix.

Note

To specify duplex scanning, the number of copies designated should be based on the number of pages, not the number of paper sheets. In other words, one original with a front and back is regarded as two pages.

◆ Image Mode



Selects an image mode for scanning the image.

Select a corresponding image mode from the list.

Black & White

Scans data by using the fixed threshold binary, black-and-white. Distinguishes black from white by the setting in the "Threshold" of "Scanning Parameter." This scanning mode is suitable for scanning line drawings and text documents.

Halftone (Dither)

Scans data using the halftone processing, with dithering or error diffusion. Uses the patterns set in "Halftone" to simulate data in black-and-white. Selection of built-in dithered patterns or error diffusion (not supported by some device models) is allowed. This scanning mode is suitable for scanning images containing light and shadow such as a photograph.

Gray scale

Scans data using 256-level monochrome gray scale. Light and shade in photographs can be represented with greater fidelity. This scanning mode employs far more memory than the Black & White mode.

Some versions of the scanner do not support this scanning mode. For details contact the retail store where the device was purchased.

Color

Scans data using 24 bits color. This mode is suitable for scanning color photograph and employs far more memory than Gray scale mode.

Some versions of the scanner do not support this scanning mode. For details contact the retail store where the device was purchased.

Automatic separation

This option specifies whether to distinguish line drawing from photograph image during scanning.

If this option is selected, the line drawing part is scanned using "Black & White," and the photograph part is scanned using "halftone". This information is most suitable for documents containing both photographs, and line drawings or text.

#### SEE (Selectable edge enhancement)

Line drawing and photograph image are scanned using "halftone." Then, only line drawing part is highlighted.

This scanning mode is suitable for emphasizing only characters in the documents that consists of characters and photographs.

Depending on the model of the scanner, this function may not be supported. For details, refer to "Relevant Image Scanner Specification" in Section 9, Appendix.

#### ◆ Black & White



Specifies the processing method when "Black & White" is specified in "Image Mode".

#### Simple Slice

Executes simple binary processing based on the "Threshold" setting.

#### Auto (IPC, DTC)

To enable the auto binary function of the image scanner, specify this option.

If this option is selected, the "Threshold" setting will be disabled.

In addition, auto binary has two modes: "IPC Mode" and "DTC Mode." These modes can be set using the "Advance" dialog box.

"DTC Mode", however, is limited to the image processing options. Therefore, only scanner models that have image processing options support "DTC Mode." See "Relevant Image Scanner Specification" in the Appendix.

#### ◆ Halftone



Selects the halftone pattern for halftone scanning from the built-in pattern list.

Select the desired halftone pattern for displaying the obtained image. This setting is effective when "Halftone" or "Automatic Separation" are selected in "Image Mode".

#### Dither Pattern 0

Executes pattern processing that is suitable for scanning a dark photograph.

#### Dither Pattern 1

Executes pattern processing that is suitable for scanning a dark-colored document containing both text and photographs.

### Dither Pattern 2

Executes pattern processing that is suitable for scanning a light photograph.

### Dither Pattern 3

Executes pattern processing that is suitable for scanning a light-colored document containing both text and photographs.

### Download Pattern

Executes processing using the dithered download pattern specified in the dithered download file (described later). Some scanner models do not support this function. See "Image Scanner Specification" in Appendix.

### Error Diffusion

Error Diffusion minimizes the difference between the pixel density of the scanned image and the pixel density of the printed image to create better reproduction of a scanned photograph.

Some scanner models do not support this function. See "Relevant Image Scanner Specification" in Appendix.

## ◆ Scanning Parameters

For fine scan adjustments.

Since there is no fixed set of values, set by trial and error.

### ◆ Brightness:



Sets the brightness of the overall image.

Specify the brightness with a number in the range of 1 (bright) to 255 (dark).

To brighten the overall image, decrease the value of the setting. To darken the overall image, increase the value.

This parameter can be set if "Halftone" or "Automatic Separation" is selected for "Image Mode."

### ◆ Threshold:



Sets the threshold value by which the black and the white of black-and-white images are distinguished. Specify a number in the range of 1 (bright) to 255 (dark). This parameter can be set only if "Black & White" is specified for "Image Mode."

In addition, if "Auto Binary" is selected, the scanner will automatically use the appropriate threshold value. As a result, the set value cannot be changed.

In addition, if "Auto Binary" is selected, the scanner will automatically use the appropriate threshold value. As a result, the set value cannot be changed.

If the light color in the scanned document is read as white, increase the threshold value. To eliminate light- colored areas in the scanned document, decrease this value.

◆ Contrast:



Sets the contrast of light and shadow in a scanned image.

Specify the contrast with a number in the range of 1 (low [soft]) to 255 (high [sharp]).

The contrast can be set if "Gray Scale" is selected in "Image Mode."

If this value is increased, the dark part of the image is shown darker and the light part is shown lighter.

Some scanner models do not support this function. See "Relevant Image Scanner Specification" in Appendix.

## 4.5 Specifying Driver Operation

◆ [Preview]

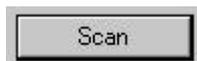


Reads in a preliminary image based on set values, and displays the image in the preview window.

Before actual scanning, the preview function can be used to display the entire document for specifying the desired scan area.

This function is available only on devices that support the use of a flat bed. Some models do not support this function. See "Relevant Image Scanner Specification".

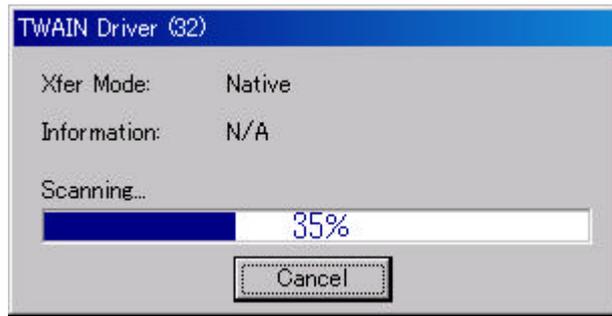
◆ [Scan]



Scans the specified scan range based on set values.

The following "progress indicator" is displayed during scanning to show the progress of the scan operation. To stop scanning, click the [Cancel] button.

The character string indicates the data transfer mode used between the driver and the application.



### Progress indicator

- ◆ [Close] / [OK]



Closes the dialog box without scanning.

If a setting is changed, the changed setting is saved in the initial value file.

- ◆ [Reset]



Restores the current setting values to the status immediately after the window is opened.

- ◆ [Help]



Displays online help. When the [F1] key is pressed, help information regarding the item on which the cursor is placed is displayed.

#### Note

Depending on the application used help information may not be displayable with the [F1] key. This is because the driver operation is controlled through the application and the [F1] key may be used differently in each application program.

Help information can be displayed by pressing the [F1] key while holding down the [Ctrl] or [Shift] key.

- ◆ [Option]



Displays the "option dialog" for setting device-specific functions. See Section 4.7, "Setting Option" described later.

- ◆ [Advance]



Displays the "advance dialog " for settings related to color variance and image processing.

- ◆ [Config]



Displays the "basic scan dialog" for managing the settings file and for setting simple scan dialog switching.

- ◆ [About]



Express the version of this driver by clicking this button.

## 4.6 Setting "Scanning Area"

Specify the scan area in the preview window as follows:

Setting:

1. Press the left mouse button to specify the origin (top left corner) of the scanning area. (The cursor appears as a "+".)
2. Drag the mouse to show the outline of the scanning area. (As the cursor moves, a range frame is shown.)
3. Release the left mouse button again to set the range (bottom right corner) of the scanning area.

Movement:

1. Move the cursor into the range frame. (The cursor appears as a hand.)
2. Press the left mouse button. (The cursor changes to a fist.)
3. Drag the mouse to move the range frame.
4. Release the left mouse button to set the current range.

Cancellation:

The range frame can be canceled by either of the following ways:

- Click the left mouse button outside the range frame (inside the scan document).
- Select other paper types.

## 4.7 Setting Options

The "option dialog" is used to set device-specific functions and the items that differ depending on whether the scanner used supports them.

The option specification is divided into "Rotation", "Job/Cache", "Generic", and "Endorser".

The supported options depend on the scanner. See "Relevant Image Scanner Specification" in the Appendix. ( is displayed for options that cannot be used.)

The option dialog in this driver is explained below.

The commonly used buttons are explained first.

- ◆ [OK]



Enables the new setting, and terminates the option dialog box.

- ◆ [Cancel]



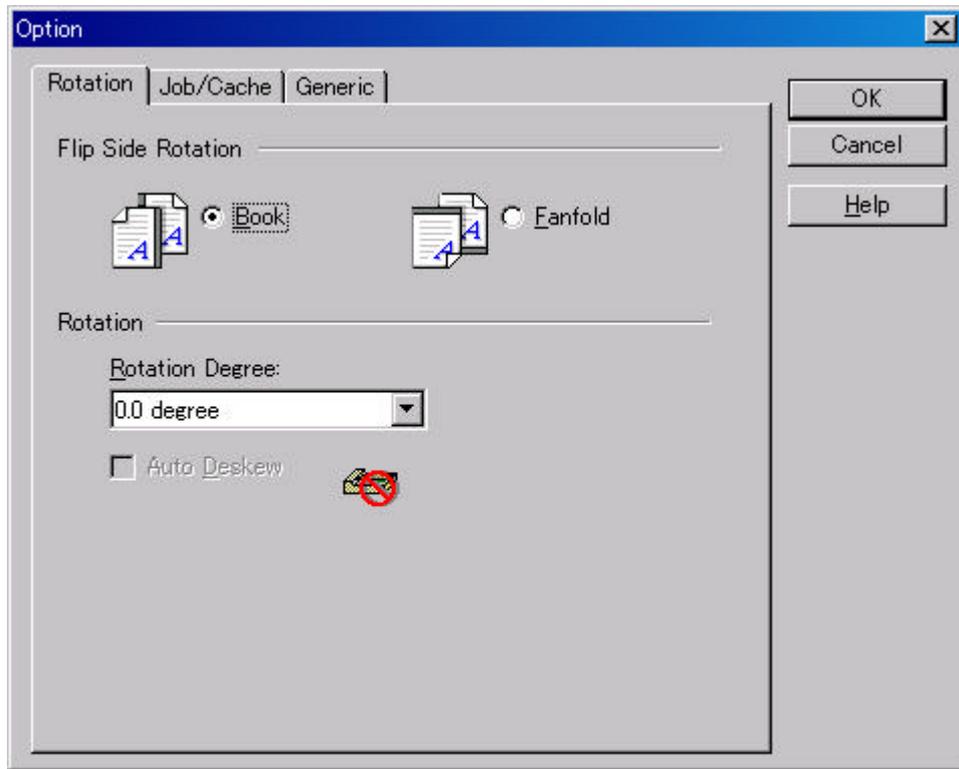
Disables the new setting, returns the setting to the previous value, and terminates the processing.

- ◆ [Help]



Displays online help.

The options are described below:



**Figure Option dialog (Rotation)**

◆ Flip Side Rotation



Specifies the binding of the document when both sides are scanned using ADF.

**Book**

Outputs the scanned image for both sides as is.

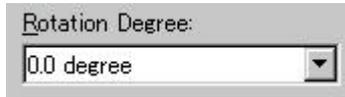
Select this option to scan documents bound on the left or right side.

**Fanfold**

Scans only the back side and outputs the scanned image rotated 180 degrees.

Select this option to scan documents bound on the top or bottom.

◆ Rotation Degree



Outputs the scanned image rotated to the right or left 90 degrees.

0.0 degree

Outputs the scanned image as is.

90.0 degree

Outputs the scanned image rotated 90 degrees to the right (clockwise).

-90.0 degree

Outputs the scanned image rotated 90 degrees to the left (counterclockwise).

180.0 degree

Outputs the scanned image rotated 180 degrees (top and bottom reversed).

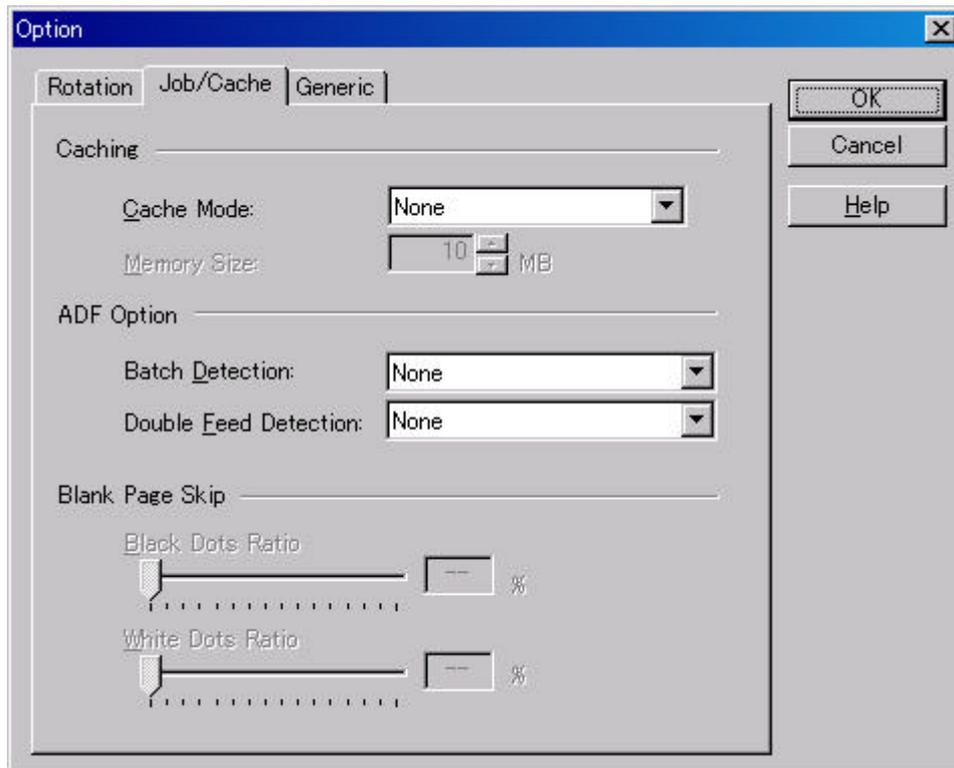
◆ Auto Deskew



When ADF is used for scanning, this option detects skew of the document being fed and automatically corrects skewing.

Check the checkbox to enable this option.

This option may not be supported for some scanners. See "Relevant Image Scanner Specification" in the Appendix.



**Figure Option dialog (Job/Cache)**

◆ Caching



Specifies whether to pre-read (cache) when a document is scanned. This option enables faster scanning.

If processing of the application being used slows down and scanning stops, this option can be used to prevent degradation of the scanning speed. (The effect, however, depends on the environment being used.)

None

Caching is not performed.

Read ahead

One document page is scanned, and the data is pre-read and stored in PC memory (main memory of the personal computer).

### Ram cache



Prereads the allowable amount based on the allocated memory size and stores the data in PC memory.

A memory size between 1 and 200 MB can be set.

### Use Memory on Scanner

Prereads using the memory installed in the scanner (displayed only if supported by the scanner).

### ◆ Batch Detection



The application can detect documents on a specific type of form (special paper). The application must support this function.

#### None

No detection. Scanning is done without change.

#### Include and Continue

After the special paper is detected, scanning continues. The data on the special paper is also valid.

#### Include and Stop

After the special paper is detected, scanning stops. The data on the special paper is also valid.

#### Exclude and Continue

After the special paper is detected, scanning continues. The data on the special paper is excluded and will not be transferred to the application.

#### Exclude and Stop

After the special paper is detected, scanning stops. The data on the special paper is excluded and will not be transferred to the application.

◆ Double Feed Detection



This option detects a double feed (occurs when two or more documents are sent) based on the set condition.

If a double feed is detected when this setting has been turned on, the device will stop and an error message output.

None

Double feed detection is not performed.

Hardware Setting

A double feed is detected based on the device setting.

Check thickness

The thickness of the transmitted document is checked by the sensor in the device. A double feed is detected by detecting changes in the thickness when more than one document is sent.

Check length

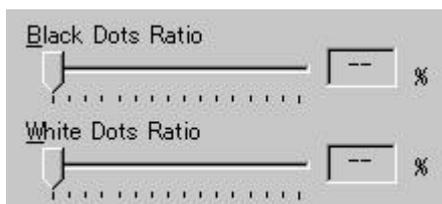
The length of the transmitted document is checked by the sensor in the device. A double feed is detected by detecting changes in the length when more than one document is sent.

Check thickness and length

The thickness and length of the transmitted document are checked.

The detection accuracy can be improved by using [Check thickness] for continuous scanning of forms that have different lengths and [Check length] for scanning of forms that have different thicknesses.

◆ Blank page skip



This option skips blank pages (blank pages or completely black pages) during ADF continuous scanning.

For blank pages, use the [White Dots Ratio] slider to set the skip condition. For black pages, use the [Black Dots Ratio] slider to set the skip condition.

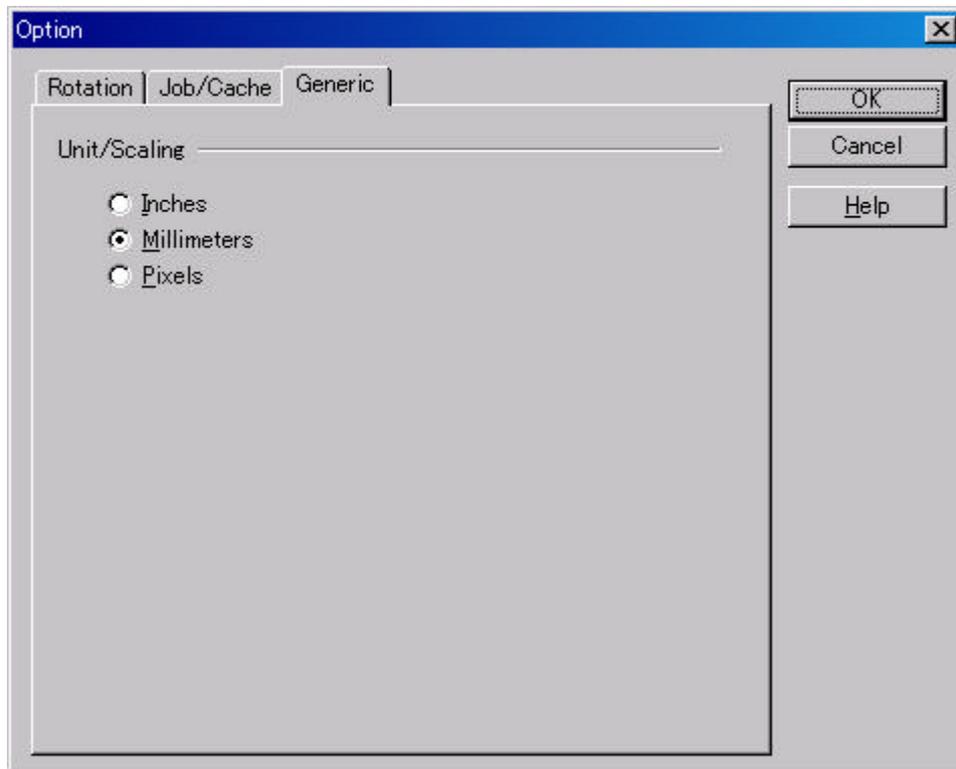
The value displayed to the right of the slider displays the garbage ratio(\*1). If a scanned document is below this value, it is recognized as a blank page. The setting range is OFF(-) and 0.2% to 3.0% (in increments of 0.2%).

<If blank page skip does not operate properly>

- If a blank page is scanned, increase the value set.
- If scanning is skipped up to the required document, decrease the value set.

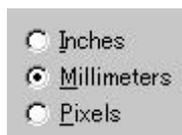
This option is valid only when the cache setting is set to [Use Memory on Scanner]. In addition, this option cannot be used unless it is supported by the scanner.

\*1: Ratio of black dots included in the scanning area (for blank pages)



**Figure Option dialog (Generic)**

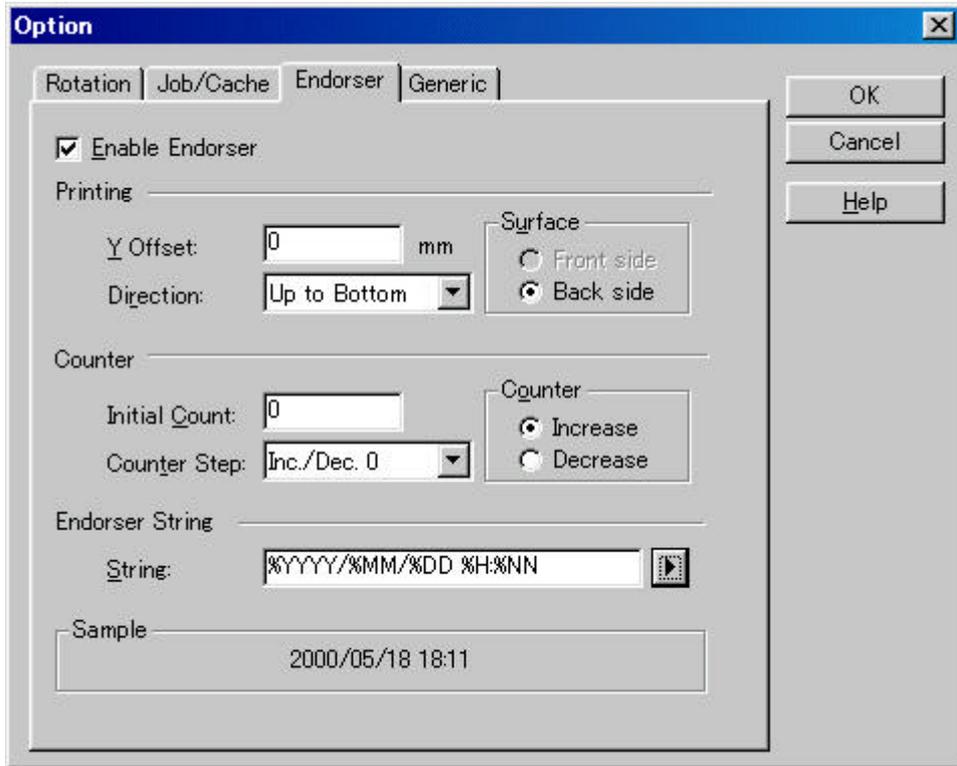
◆ Unit/Scaling



This option selects the unit for the scanning area and preview window. One inch is calculated as 25.4 millimeters. When inches are converted to millimeters, values are rounded off.

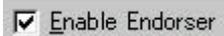
Note

The TWAIN specifications require that the data width be arranged in units of 32 bits. As a result, a difference of up to 31 dots can be included, depending on the value set.



**Figure Option dialog (Endorser)**

◆ Enable Endorser



Specifies enabling or disabling the endorsement function of the device.

When the option is selected and scanning has been completed, the scanned originals are printed or a stamp is imprinted according to the instructions below. This applies only to stamp or endorser options. Therefore, the function is supported only in devices in which the stamp or endorser option can be installed. See "Relevant Image Scanner Specification" described in the Appendix.

◆ Y Offset (Printing)



Specifies Y Offset from the edge of the original for the placement of printing. See "Relevant Image Scanner Specification" in the Appendix because the standard value specified here depends on the device.

◆ Direction (Printing)

A screenshot of a software control labeled "Direction:". To its right is a dropdown menu with a downward-pointing arrow, and the text "Up to Bottom" is visible within the menu.

Specifies the direction of endorsement strings. When the direction is perpendicular to the direction of scanning, designate "Up to bottom". Only this version of the device permits the direction to be specified.

◆ Surface (Printing)

A screenshot of a software control labeled "Surface". It contains two radio button options: "Front side" and "Back side". The "Back side" option is selected, indicated by a filled circle next to it.

Designates the side for printing or stamp imprinting. If the side is opposite the scanned surface, select "Back." Select "Front" for the scanned surface. If both sides are scanned, the side scanned first is considered to be the "Front."

See "Relevant Image Scanner Specification" in the Appendix, because the available options depend on the device.

◆ Initial Count (Counter)

A screenshot of a software control labeled "Initial Count:". To its right is a text input field containing the number "0".

Designates the initial count when the endorsement string is set, including a counter value. Programmable values range from 0 to +65535.

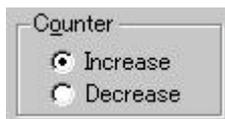
◆ Counter Step (Counter)

A screenshot of a software control labeled "Counter Step:". To its right is a dropdown menu with a downward-pointing arrow, and the text "Inc./Dec. 0" is visible within the menu.

Designates the counter increment of the set counter values. In other words, this value is added to or subtracted from the counter each time one original is scanned.

An increment of 0, 1, or 2 may be specified. Usually, 1 is designated for a single-sided original, and 2 for a double-sided original.

◆ Counter (Counter)

A screenshot of a software control labeled "Counter". It contains two radio button options: "Increase" and "Decrease". The "Increase" option is selected, indicated by a filled circle next to it.

Designates whether to increase or decrease the specified step value.

◆ Endorsement String



Specifies the endorsement string. The following definitions can be used. They may also be selected from the menu, which is displayed by clicking on ">".

%YYYY: The year is printed in four digits using the Western calendar.

%YYY: The year is printed using the two digits of the Japanese calendar (current, or Heisei era).

%YY: The year is printed in the last two digits of the Western calendar.

%MMM: An English abbreviation of the month is printed; for example, JAN for January and FEB for February.

%MM: The month is printed in two digits; for example, 01 for January and 12 for December.

%M: The month is printed using one or two digits; for example, 1 for January and 12 for December.

%DD: The day is printed using two digits; for example, 03 for the 3rd day of the month and 26 for the 26th day of the month.

%D: The day is printed using one or two digits; for example, 3 for the 3rd day of the month and 26 for the 26th day of the month.

%HH: The hour is printed using two digits of the 24-hour clock; for example, 08 for 8:00 a.m. and 14 for 2:00 p.m.

%H: The hour is printed using one or two digits of the 24-hour clock; for example, 8 for 8:00 a.m. and 14 for 2:00 p.m.

%NN: The minute is printed using two digits; for example, 02 for 8:02 a.m. and 48 for 2:48 p.m.

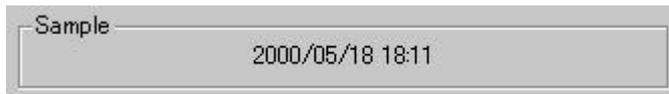
%N: The minute is printed using one or two digits; for example, 2 for 8:02 a.m. and 48 for 2:48 p.m.

%05ud: A counter value is printed which increases or decreases with each page.

The initial counter and the methods of increasing and decreasing values can be specified as explained above under the heading "Counter."

This specification is only permitted at the end of an endorsement string.

◆ Sample



Displays printed examples of the endorsement string designated above.

Note

The printed counter, date, and time do not always look like the sample because the scanning option takes precedence.

## 4.8 Setting Advance Options

The "advance dialog" is used to set items related to image processing. The settings apply to device-specific functions and items that differ according to whether the scanner used supports them.

The advance option specification is divided into "Color Variance", "Image Processing", and "Auto Binary".

The supported options depend on the scanner. See "Relevant Image Scanner Specification" in the Appendix. (  is displayed for options that cannot be used.)

The option dialog for this driver is explained below.

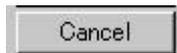
The commonly used buttons are explained first.

- ◆ [OK]



Makes the new setting valid and closes the option dialog box.

- ◆ [Cancel]



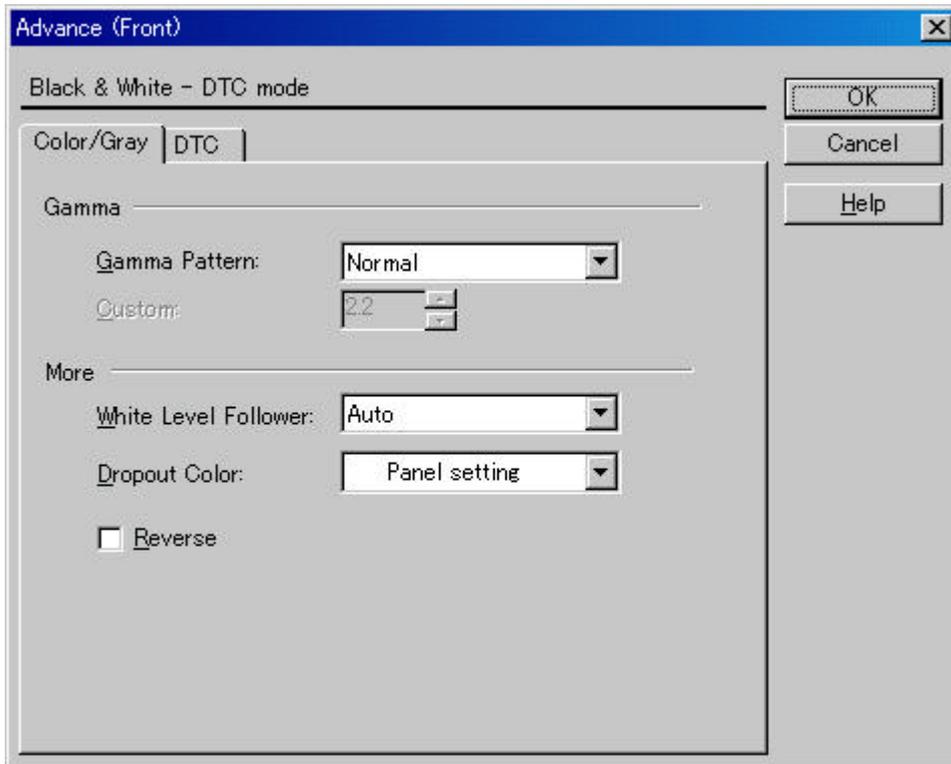
Makes the new setting invalid, returns the setting to the previous value, and terminates processing.

- ◆ [Help]



Displays online help.

The options are described below:



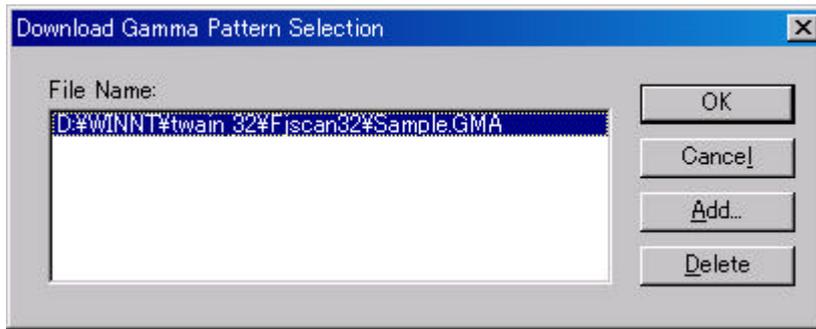
**Figure Advance dialog (density correction)**

◆ Gamma Pattern



This option corrects distortions from nonlinear image representation. Scanner sensors are generally designed to generate output linear to the density of the light reflected from the document. However, most output terminals do not produce output that has the desired linear relation to the input, and the resulting distortion must be corrected.

One of the following can be selected as a correction pattern: "Normal", "Soft", "Sharp", "Download Pattern", or "Custom".



When "Download Pattern" is selected, the above dialog box opens.

Select the gamma pattern download file to be used from the list of file names. Then, press the [OK] button. Correction will then be executed using the selected gamma pattern.

If the gamma pattern download file has not been registered in the list of file names, use the [Add] button to register the file.

See "Download Pattern File" for information about how to specify the file.



When "Custom" is selected, a custom specification can be entered.

Entering an arbitrary value between 0.1 and 10.0 enables a gamma pattern corresponding to the entered value to be specified.

◆ White Level Follower



Select this option to scan a document whose background color is not white, such as a newspaper.

Select "Auto", "Enable", or "Disable".

When "Enable" is selected, the document is scanned using background follow-up (for line drawings). When "Disable" is selected, the document is scanned using the standard basic white background (for photographs). When "Auto" is selected, the option automatically switches to the optimal setting based on the specified "Image Mode".

"White Level Follower" is used to adjust the density of the white background of a document and correct variations in the background color by compensating the pixels of scanned images individually.

For ordinary use, set "White Level Follower" to off. Use of "White Level Follower" often increases the background noise because IPC-3/3D is very sensitive.

This option is not available if "Gray Scale" is selected for "Image Mode".

In addition, some scanner models do not support this option. See "Relevant Image Scanner Specification" in the Appendix.

◆ Dropout Color



This option enables scanning excluding the selected color information of green, red, or blue (the three primary colors of light). For example, to scan black characters framed in red, selecting red for scanning will scan only the black characters.

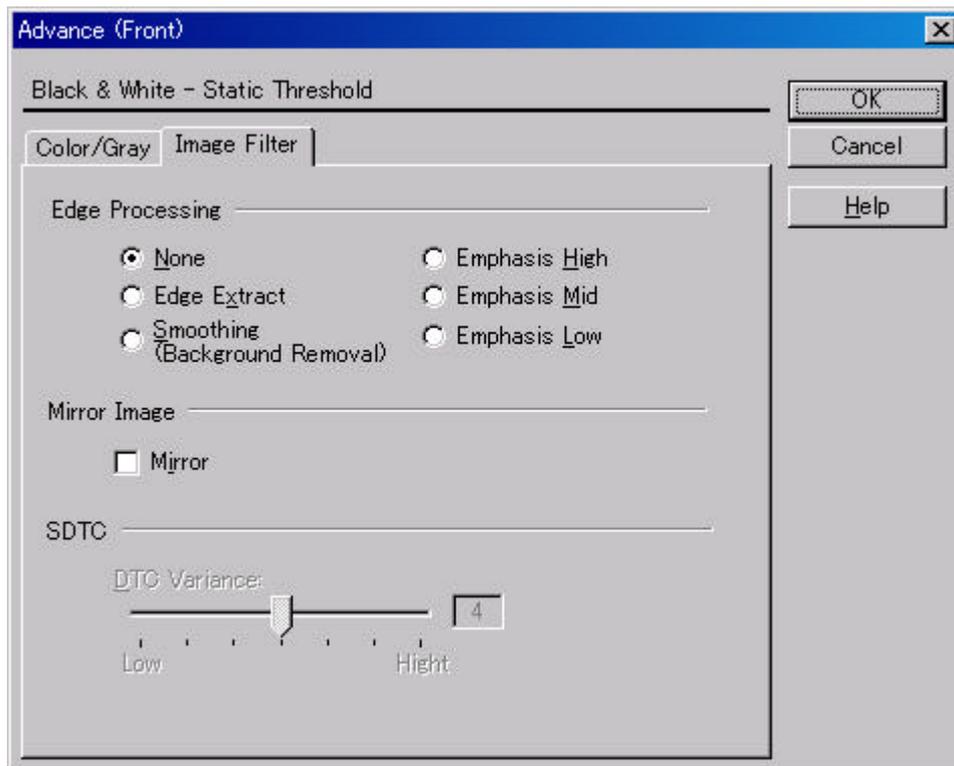
◆ Reverse



This option specifies whether to reverse the black and white of a scanned image.

If this option is selected, black and white are reversed by reversing the black and white pixels. If this option is not selected, the black and white values of the reproduced image corresponds to the original image.

Some applications do not permit normal operation. If this occurs, contact the manufacturer of the application.



**Figure Advance dialog (image processing)**

◆ Edge Processing



This option specifies the sharpness of a scanned image.

Select "None", "Edge Extract", or "Smoothing (Background Removal)".

None

Edge processing is not performed.

Edge Extract

This option outputs an image with the edge extracted.

If this option is selected, the boundary between the black part and white part in a closed area is traced and the edge extracted.

"DTC Variance" and "Edge Extract" are mutually exclusive.

Smoothing

This option smoothes the curves in an image by removing zigzag lines.

Emphasis

This option outputs an image with the edge emphasized.

"Emphasis High", "Emphasis Mid", or "Emphasis Low" can be selected.

If "Emphasis High" is selected, the image becomes sharper. If "Emphasis Low" is selected, the image appears less distinct.

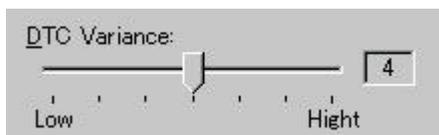
◆ Mirror



This option specifies whether to flip the scanned image over the scanning axis.

If this option is selected, a mirror image of the original image is obtained.

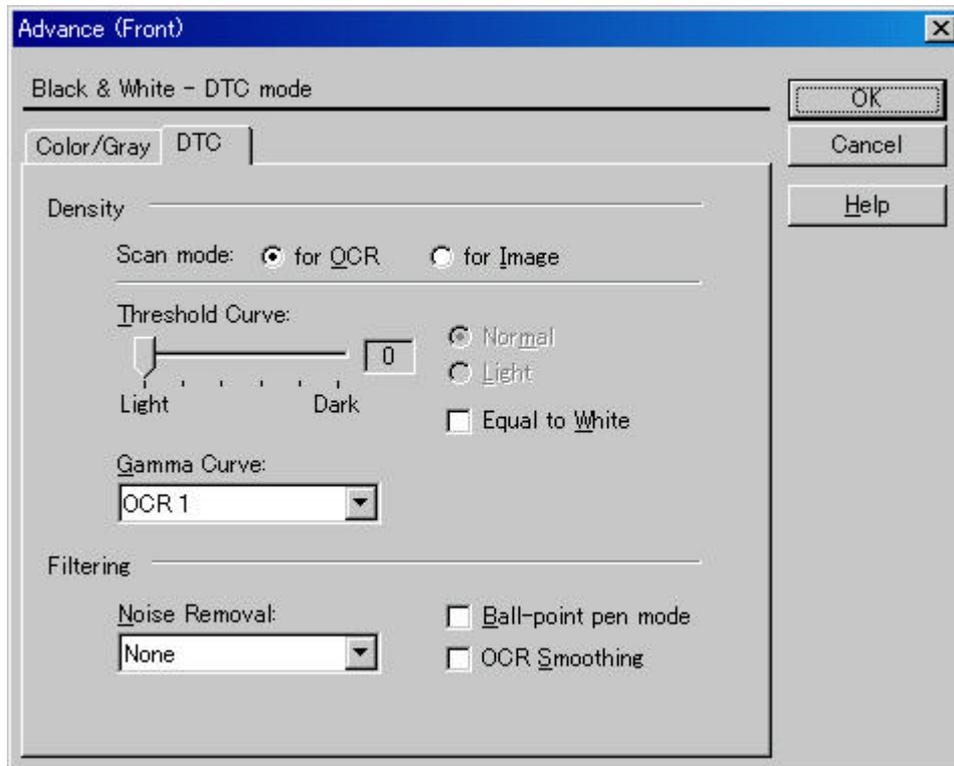
◆ Variance (Simple auto binary)



This option specifies the value for adjusting the dynamic threshold of an image based on the brightness of the image.

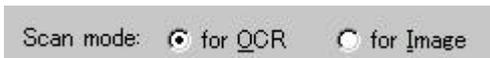
A value is specified using the slider. The smaller the value, the lower the variance becomes. The higher the value, the higher the variance becomes. To specify the value, drag the tab of the slider to the desired setting position. The current setting is displayed on the right. This option is mainly used for optical character recognition (OCR). It enables dark and bright images in a document to be scanned effectively.

This option is valid only when "Simple auto binary" is set.



**Figure Advance dialog (DTC Mode)**

◆ Scan mode



This option selects one of the following two scan modes:

[for OCR]: This mode is for text recognition applications where irregularity in the image is undesirable.

[for Image]: This mode is for image scanning applications that scan images without prior smoothing.

The specification changes the specifiable items and members for "Threshold Curve" and "Gamma Curve".

The selection screens for "for OCR" and "for Image" are not displayed if IPC-3/3D and IPC-4D are installed.

◆ Density curve



This option specifies the relationship between the threshold value and the maximum density.

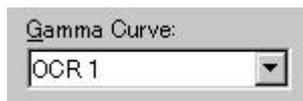
This specification method depends on the [Scan mode] setting.

In [for OCR] mode, use the slider to set the inclination and density level. To specify the value, drag the tab of the slider to the desired setting position. The current setting value is displayed on the right. (figure on the left)

In [for Image] mode, select [Normal] or [Lightest]. (figure on the right)

If IPC-3/3D and IPC-4D have been installed, there is no difference between [for OCR] and [for Image]. The slider is used to set the inclination and density level. (The figure on the right is not displayed.)

◆ Gamma Curve



This option specifies the gamma correction curve pattern.

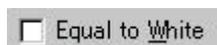
The available choices depend on the [Scan mode] setting.

In [for OCR] mode, select [OCR1] or [OCR2].

In [for Image] mode, select [Dark Image] or [Even].

For IPC-3/3D and IPC-4D, the gamma curve need not be specified because the contrast is adjusted automatically. ([Gamma Curve] is not displayed.)

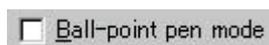
◆ Equal to White



At conversion to binary, this option specifies whether to set the data to black or white when the threshold value and the value of the scanned data are equal.

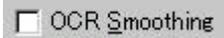
When using IPC-4D, this option cannot be selected.

◆ Ball-Point Pen Mode



When an image made with a pencil or ball-point pen is scanned, the light reflected from the pencil lead or ink is not uniform. As a result, part of the image may be missing. If the [Ball-Point Pen] checkbox is checked, filtering is applied to offset the bright area in the document and compensate for disconnected or faint lines.

◆ OCR Smoothing



This option specifies whether to enable the function that modifies the zigzag lines in the line drawing to smooth curves.

If this option is selected, the smoothing function is enabled.

For IPC-3/3D, either [Noise Removal] or [Smoothing] can be selected.

◆ Noise Removal



This option automatically removes spots that appear as black stains in a white area and spots that appear as white stains in a black area.

This option uses an algorithm that removes particles from 2 x 2 to 5 x 5 dot matrixes. The size of one dot depends on the resolution setting, and is equivalent to 1/400 inch for 400 dpi. Particles are distinguished from the text by whether they are connected to other dots within the specified number of pixels.

[Noise Removal] and [Smoothing] are valid only for IPC-3/3D.

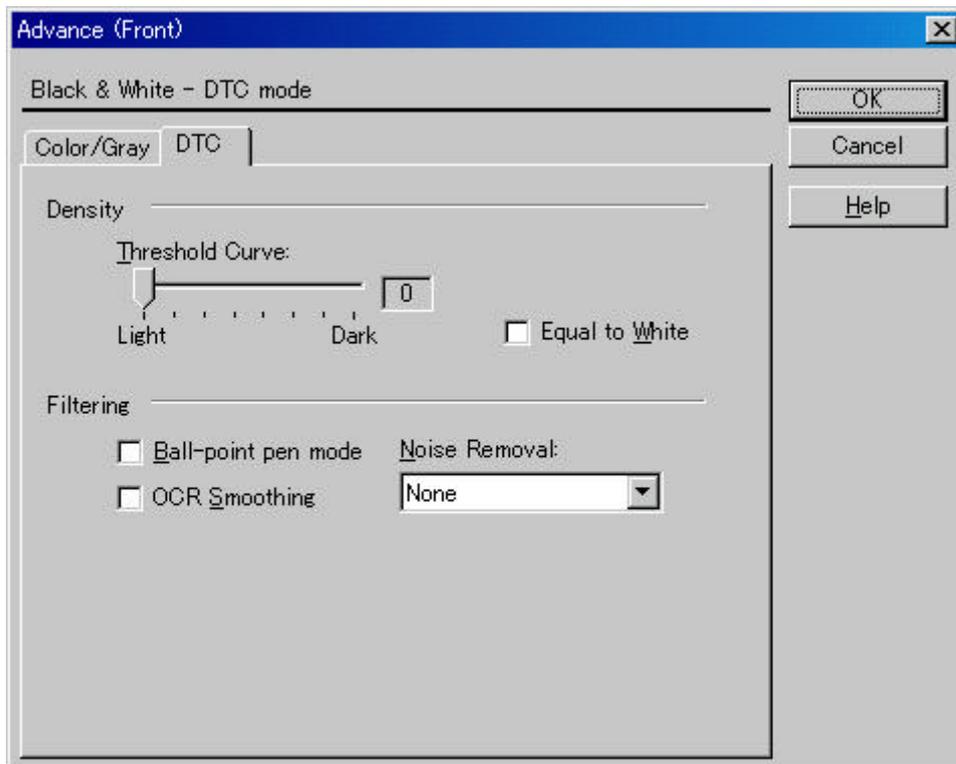
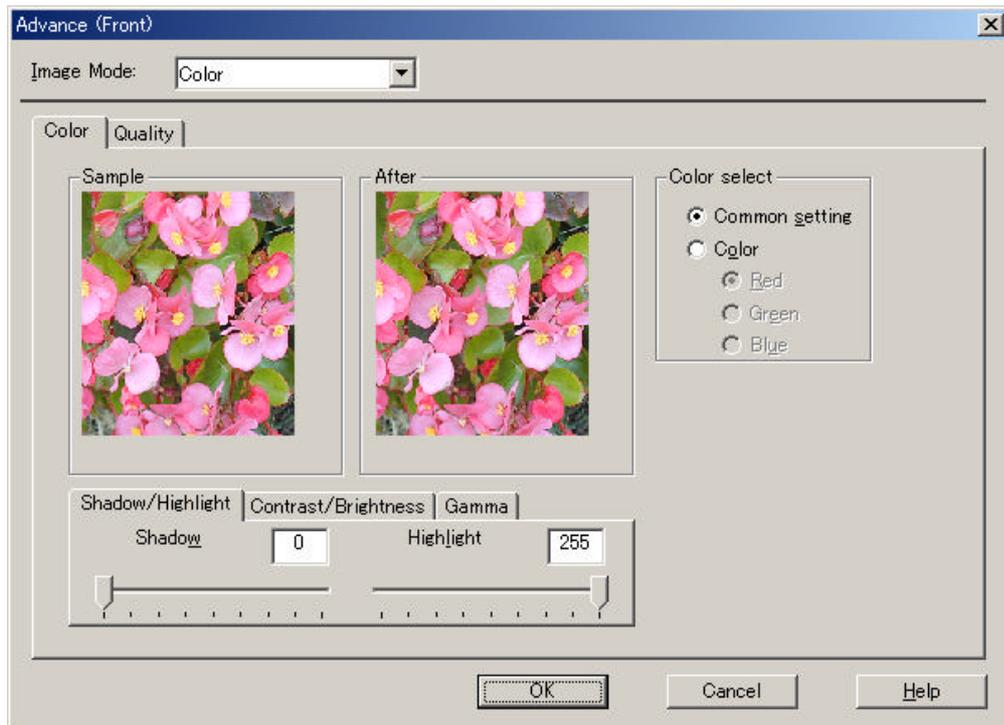


Figure Advance dialog (DTC Mode) <IPC-3/3D and IPC-4D installed>



**Figure Advance dialog (Color) <Image Mode : Color selected>**

◆ Shadow/Highlight



**Shadow** : The highlight allows the darkest part of the document to be controlled. The higher the shadow value, the darker the image.

**Highlight** : The highlight allows the brightest part of the document to be controlled. The higher the highlight value, the lighter the image.

Any levels on the document outside these settings are flooded (all 0 or 255), while the interval between the shadow and highlight settings is equally divided into 255 levels, which are used to create the output images. This means that if the shadow and highlight settings are close to each other, the contrast for that interval in the scanned document will be very strong (but with all other areas maximizing high or low).

◆ Contrast/Brightness



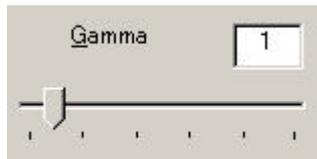
**Contrast** : Sets the contrast of light and shadow in a scanned image. Specify the contrast with a number in the range of 1 (low [soft]) to 255 (high [sharp]). If this value is

increased, the dark part of the image is shown darker and the light part is shown lighter.

Some scanner models do not support this function. See "Relevant Image Scanner Specification" in Appendix.

**Brightness :** Sets the brightness of the overall image. Specify the brightness with a number in the range of 1 (bright) to 255 (dark). To brighten the overall image, decrease the value of the setting. To darken the overall image, increase the value.

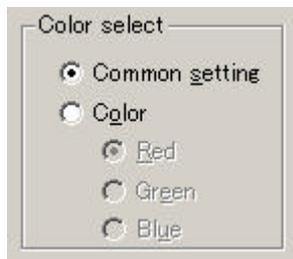
◆ Gamma



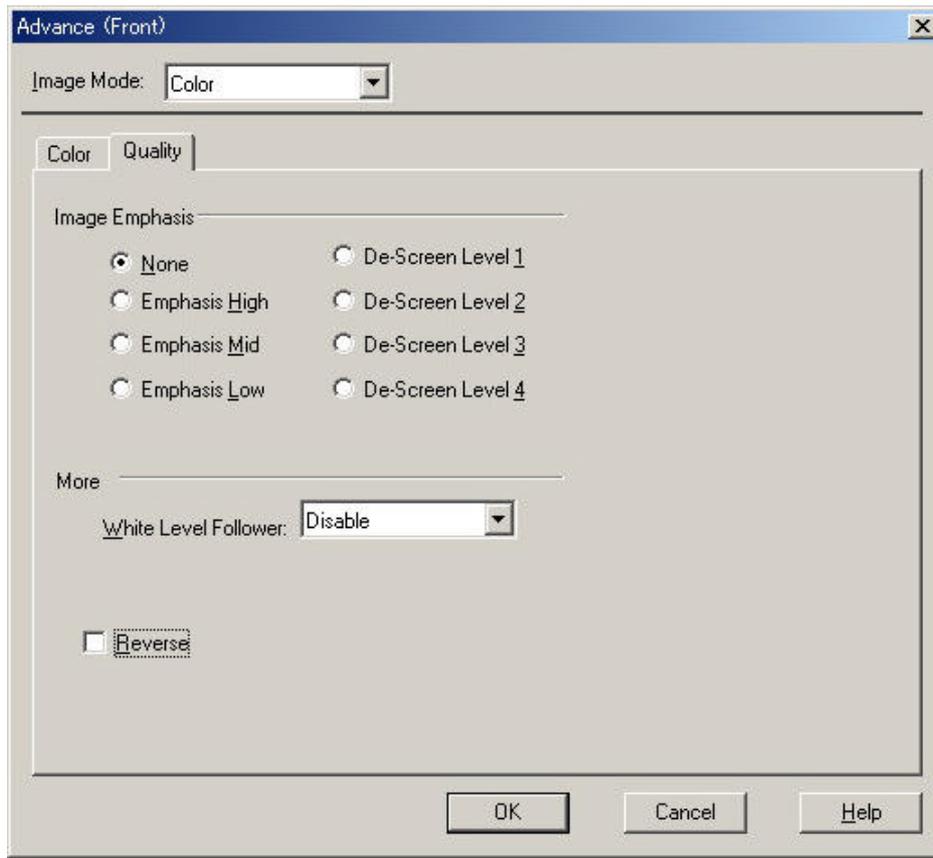
This option corrects distortions from nonlinear image representation. Scanner sensors are generally designed to generate output linear to the density of the light reflected from the document. However, most output terminals do not produce output that has the desired linear relation to the input, and the resulting distortion must be corrected.

An arbitrary range is between 0.1 and 10.0.

◆ Color select



It is possible to select independent value on each color



**Figure Advance dialog (Quality) <Image Mode : Color selected>**

◆ Image Emphasis



This option specifies the sharpness of a scanned image.

Select "None", "De-Screen" or "Emphasis".

None

Edge processing is not performed.

Emphasis

This option outputs an image with the edge emphasized.

"Emphasis High", "Emphasis Mid", or "Emphasis Low" can be selected.

If "Emphasis High" is selected, the image becomes sharper. If "Emphasis Low" is selected, the image appears less distinct.

## De-Screen

"De-Screen Level 1", "De-Screen Level 2", "De-Screen Level 3", or "De-Screen Level 4" can be selected.

This option eliminate moirés patterns. To eliminate more effectively, higher level is selected.

## ◆ White Level Follower



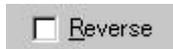
Select this option to scan a document whose background color is not white, such as a newspaper.

Select "Auto", "Enable", or "Disable".

When "Enable" is selected, the document is scanned using background follow-up (for line drawings). When "Disable" is selected, the document is scanned using the standard basic white background (for photographs). When "Auto" is selected, the option automatically switches to the optimal setting based on the specified "Image Mode".

"White Level Follower" is used to adjust the density of the white background of a document and correct variations in the background color by compensating the pixels of scanned images individually.

## ◆ Reverse



This option specifies whether to reverse the black and white of a scanned image.

If this option is selected, color data is reversed. If this option is not selected, the color values of the reproduced image corresponds to the original image.

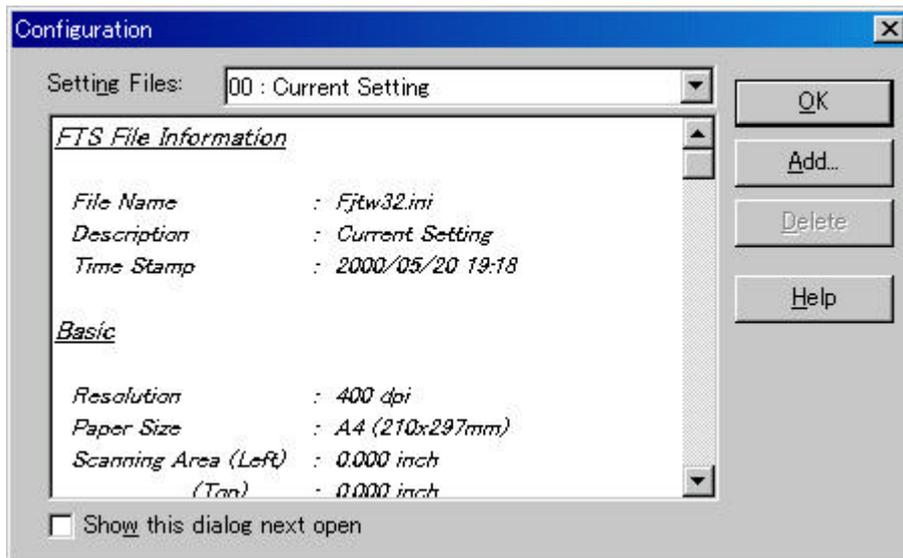
Some applications do not permit normal operation. If this occurs, contact the manufacturer of the application.

## 4.9 Setting the Configuration Options

These options are used to manage the setting files, and switch the basic scan dialog display.



Press the [Config] button of the main dialog to open the [Configuration] dialog box shown below.



**Figure Option dialog box (simplified DTC)**

### ◆ Setting Files

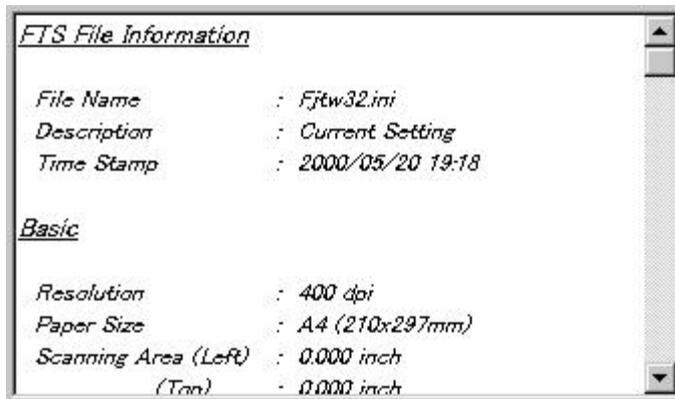


The setting information of the scan conditions can be saved in a “Setting file.”

Scan condition settings that have been set in advance in this dialog can be selected from the list of setting files. This enables selection of all settings at the same time without having to enter the scan conditions one at a time. Press the  button to open the list of setting files.

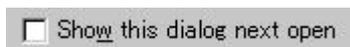
Subsequent scanning operations can be performed effectively by registering several types of scan conditions that are frequently used.

◆ FTS File Information



The information of the setting file selected in [Setting Files] is displayed.

◆ [Show this dialog next open] checkbox



If this checkbox is checked, [Basic Scan Dialog] will be activated the next time the driver is activated.

◆ [OK] button

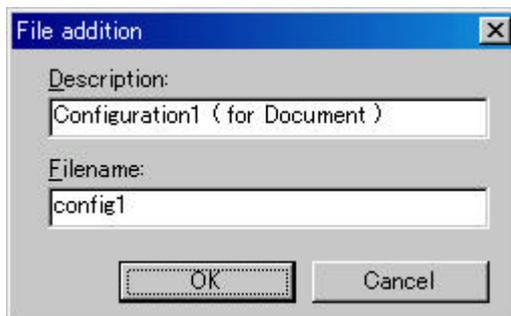


Makes the new setting valid, closes this dialog box, and returns to the main dialog.

◆ [Add] button



Adds the setting of the current driver to a setting file.



Pressing the [Add] button opens the [File addition] dialog.

Enter the [Description] and [Filename] as shown in the example above. Then, press the [OK] button to add the new setting file. To cancel, press the [Cancel] button.

Description: Enter a character string to be displayed in the selection frame of the [Setting Files].

Filename: Specify the name of the file used to save the settings.

◆ [Delete] button



Deletes unnecessary setting files.

Select the setting file to be deleted and then press the [Delete] button. A confirmation dialog will be displayed. Press the [OK] button to delete the setting file. To cancel, press the [Cancel] button.

◆ [Help] button



Displays online help.

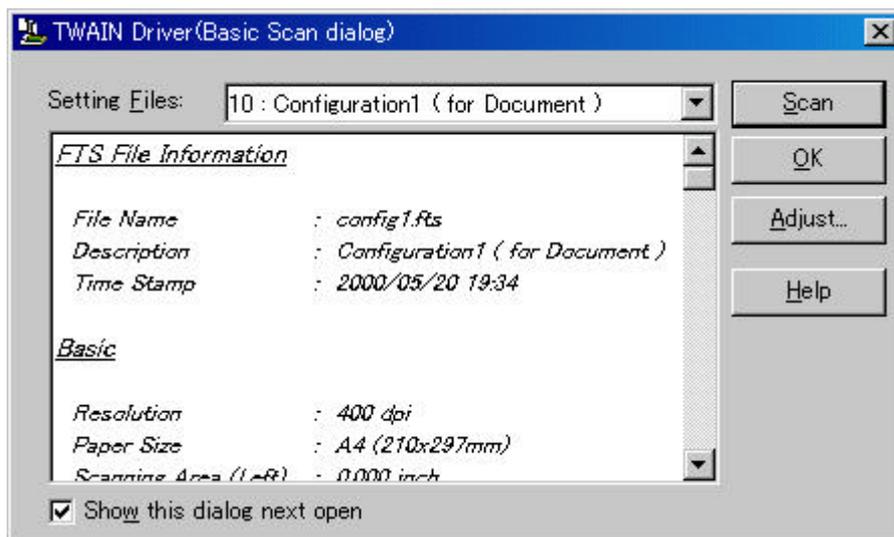
## 4.10 Basic Scan Dialog

The basic scan dialog contains only the minimum functions required for scanning. The detailed setting functions of the main dialog have been omitted.

Scanning can be easily performed by selecting a registered setting file.

The basic scan dialog is also useful for avoiding incorrect operations when standard work is performed.

By checking the [Show this dialog next open] checkbox of the [Configuration] dialog, the basic scan dialog box will be opened instead of the main dialog box at the next activation.



### <Scan Procedure>

1. Select the file to be used from the list of setting files.
2. Press the [Scan] button.

→ Scanning is performed based on the settings of the setting file information.

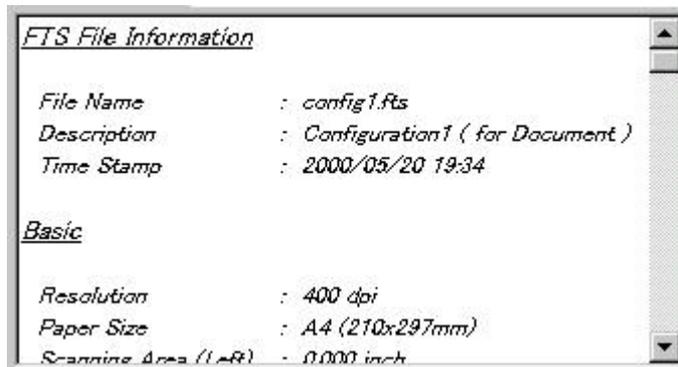
### <Configuration>

#### ◆ Setting Files



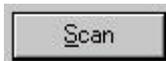
A list of setting files is displayed. When the desired file is selected, the setting information saved in the file will be read and reflected during scanning.

- ◆ FTS File Information



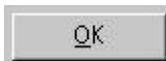
The contents of the selected file are displayed.

- ◆ [Scan] button



Executes scanning based on the contents of the setting file.

- ◆ [OK] button



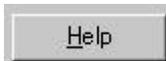
Terminates without performing the scan operation.

- ◆ [Adjust] button



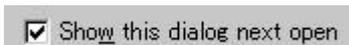
Switches from the basic scan dialog to the main dialog.

- ◆ [Help] button



Displays online help.

- ◆ [Show this dialog next open] checkbox



If this checkbox is checked, the [Basic Scan Dialog] will be opened at the next startup. If this checkbox is not checked, the main dialog will be opened at the next startup.

## 4.11 Download Pattern File

The "download pattern file" of this driver is a file that defines the patterns to be used by the scanner to execute various image processing. This file is available in the following two versions. Each version can be selected using the [Download Selection Dialog] that opens when [Download] is selected.

The file is a text file that conforms to the following rules. Use an appropriate text editing program (for example, "Note Pad" in the operating system) to edit the file.

### ◆ Dithered download pattern file

Any user defined dithered pattern can be used to scan an image by downloading the pattern from the dithered download file to the scanner. The defined pattern becomes effective when [Download Pattern] is selected for [Halftone].

Some models do not support this file. See "Relevant Image Scanner Specification" in Appendix.

Although the standard extension of the file name is ".DTH," there may be exceptions.

Coding configuration:

(n, size in the X direction),(m, size in the Y direction),  
(pattern value for the X1/Y1 coordinates),  
(pattern value for the X1/Y2 coordinates),  
(pattern value for the X1/Y2 coordinates),.....  
(pattern value for the Xn/Ym-2 coordinates),  
(pattern value for the Xn/Ym-1 coordinates),  
(pattern value for the Xn/Ym coordinates)

Meaning of each element:

(n, size in the X direction) indicates the size of the matrix in the X direction. Specify 8 for the scanner supported by this driver.

(m, size in the Y direction) indicates the size of the matrix in the Y direction. Specify 8 for the scanner supported by this driver.

(Pattern value for the Xx/Yy coordinates) contains a values in the range of 0 (bright) to 255 (dark) that specifies the brightness of the X coordinate, x, and the Y coordinate, y.

Note

Use a delimiter other than a number to delimit elements. For most cases, use a comma (,).

Example

8, 8,

128, 128, 128, 128, 128, 128, 128, 128,

255, 128, 128, 128, 128, 128, 128, 128,

255, 255, 128, 128, 128, 128, 128, 128,

255, 255, 255, 128, 128, 128, 128, 128,

255, 255, 255, 255, 128, 128, 128, 128,

255, 255, 255, 255, 255, 128, 128, 128,

255, 255, 255, 255, 255, 255, 128, 128,

255, 255, 255, 255, 255, 255, 255, 128,

◆ Gamma download pattern file

Any user defined gamma correction processing can be performed by downloading the pattern from the gamma download file to the scanner. The defined pattern becomes effective when [Download Pattern] is selected for [Gamma Pattern].

Some models do not support this file. See "Relevant Image Scanner Specification" in Appendix.

Although the standard extension of the file name is ".GMA," there may be exceptions

Creation of a gamma download pattern file can be facilitated using the following utilities for editing the gamma correction pattern:

Coding configuration:

(gray-scale in the X direction),(gray-scale in the Y direction),  
(X0 output value),(X1 output value),(X2 output value),.....  
(X253 output value),(X254 output value),(X255 output value)

Meaning of each element:

(gray-scale in the X direction) indicates the size and the gray scale of the input value.  
(In this driver, this value is fixed at 256.)

(gray-scale in the Y direction) indicates the size and the gray scale of the output value.  
(In this driver, this value is fixed at 256.)

(Xx output value) indicates the output value, in the range of 0 (bright) to 255 (dark), for an input value x.

Note

Use a delimiter other than a number to delimit elements. For most cases, use a comma (,).

Example

256, 256,  
255, 254, 253, 252, 251, 250, 249, 248, 247, 246, 245, 244, 243,  
242, 241, 240, 239, 238, 237, 236, 235, 234, 233, 232, 231, 230,  
229, 228, 227, 226, 225, 224, 223, 222, 221, 220, 219, 218, 217,  
216, 215, 214, 213, 212, 211, 210, 209, 208, 207, 206, 205, 204,  
203, 202, 201, 200, 199, 198, 197, 196, 195, 194, 193, 192, 191,  
190, 189, 188, 187, 186, 185, 184, 183, 182, 181, 180, 179, 178,  
177, 176, 175, 174, 173, 172, 171, 170, 169, 168, 167, 166, 165,  
164, 163, 162, 161, 160, 159, 158, 157, 156, 155, 154, 153, 152,  
151, 150, 149, 148, 147, 146, 145, 144, 143, 142, 141, 140, 139,  
138, 137, 136, 135, 134, 133, 132, 131, 130, 129, 128, 127, 126,  
125, 124, 123, 122, 121, 120, 119, 118, 117, 116, 115, 114, 113,  
112, 111, 110, 109, 108, 107, 106, 105, 104, 103, 102, 101, 100,  
99, 98, 97, 96, 95, 94, 93, 92, 91, 90, 89, 88, 87, 86, 85, 84,  
83, 82, 81, 80, 79, 78, 77, 76, 75, 74, 73, 72, 71, 70, 69, 68,  
67, 66, 65, 64, 63, 62, 61, 60, 59, 58, 57, 56, 55, 54, 53, 52,  
51, 50, 49, 48, 47, 46, 45, 44, 43, 42, 41, 40, 39, 38, 37, 36,  
35, 34, 33, 32, 31, 30, 29, 28, 27, 26, 25, 24, 23, 22, 21, 20,  
19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1, 0

## 5. Using the Gamma Pattern Editor

### 5.1 Start-up

Click on "Start" and select "Download Pattern Editor" from "Scanner Utility for Microsoft Windows" under "Programs." The following menu is displayed:

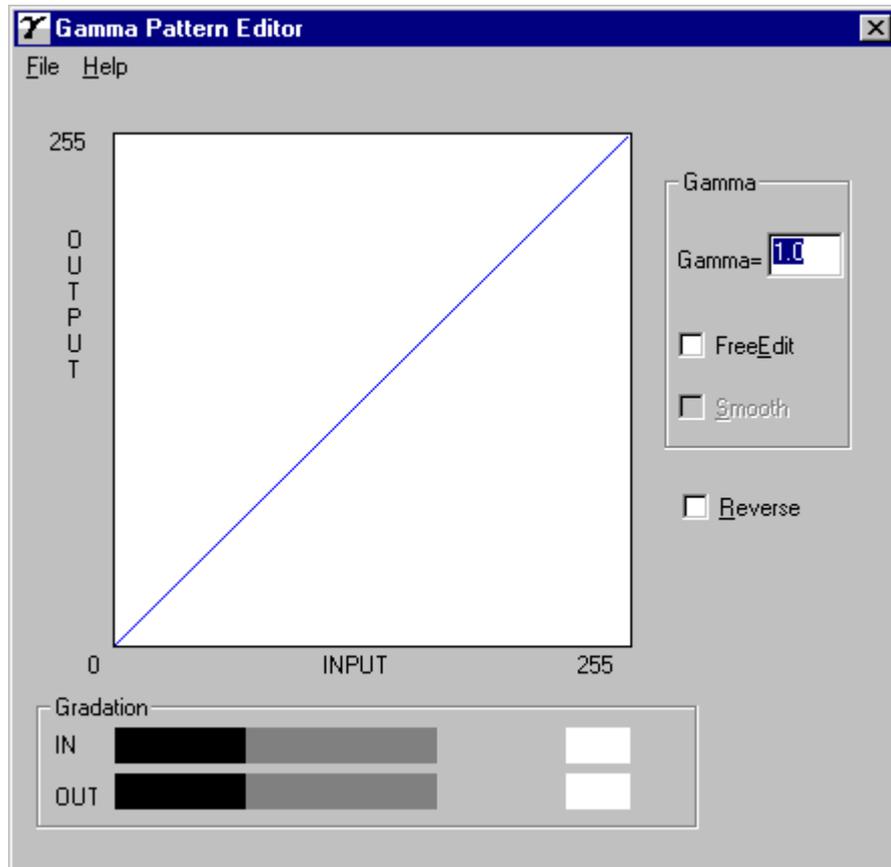
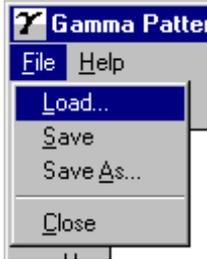


Figure Gamma Pattern Editor Tool start-up menu

## 5.2 [File] menu



- ◆ [Load]

This menu is used to read the Gamma Download file and display the graph and gradations. The name of the open file is displayed above the graph area.

- ◆ [Save]

The gamma pattern currently being edited is saved in the file whose name is displayed above the graph area. If no filename is displayed, the pattern is named and saved in that file.

- ◆ [Save As]

The gamma pattern currently being edited is named and saved in that file. The saved filename is then displayed above the graph area.

- ◆ [Close]

Select this to exit the editing program.

### 5.3 [Help] menu



- ◆ [About]

Information related to this editor and its version number is displayed.

## 5.4 Gamma Pattern Editing

- ◆ Graph Area

The graph area is a 256-dot × 256-dot white square area bordered by black lines, where the relationship between the input values of 0 to 255 (x axis) and output values of 0 to 255 (y axis) is indicated in blue lines. Each graph dot represents one division (unit).

- ◆ Gradation

The input is displayed in black and white in 256 single-dot steps from 0 at the left border to 255 at the right border. The gamma function of the scanner is displayed. After saving it, the displayed (gray scale) gamma function is fixed and constant. The output values are displayed in single dots in relation to the input values and the brightness of the output equipment is displayed. To ensure accurate display, the display must be set for "True-Color" or greater.

- ◆ Gamma

Calculation of the output values is based on the value  $\gamma$  entered in the edit box; the graph and the gradation are then displayed. The values that can be input are integers greater than 0 or fractions.

$$\langle\langle\text{Formula}\rangle\rangle \quad \text{Output} = (\text{input} \div 255)^\gamma \times 255 \quad (\text{Input} = 0 - 255)$$

- ◆ Free Edit

Designates whether to enable editing of the graph area directly using the mouse cursor.

If this box is checked, the gamma pattern input edit box cannot be used and only editing using the mouse cursor is supported.

- ◆ Smooth

Designates whether to smooth edited curves. This setting is only valid when Free Edit is selected. In this setting, the curved lines drawn by the mouse are automatically smoothed. This is reflected in the graph and gradation display.

- ◆ Reverse

Designates whether to reverse black and white. When this box is checked, the current output values are converted to (255 - output values).

## 6. How to Use the FUJITSU Scanner Control Center

### 6.1 Outline

This software that is resident in the system continuously monitors the scanner connected and starts the target application in response to an instruction from the operation panel in the scanner. (Pressing the start button on the scanner starts the application that has been set in advance.)

For applicable models, see "Relevant Image Scanner Specification" in the Appendix.

### 6.2 How to Start the FUJITSU Scanner Control Center

Select as follows: [Start] - [Program] - [Scanner Utility for Microsoft Windows], then [FUJITSU Scanner Control Center]

If this application is started, it is stationed in the system, then an icon is displayed on the task tray.

An icon indication changes to show how the scanner is connected as follows:

1. The scanner can be used: 
2. The scanner power is turned off and not connected: 

Right-clicking the icon displays the following pop-up menu.



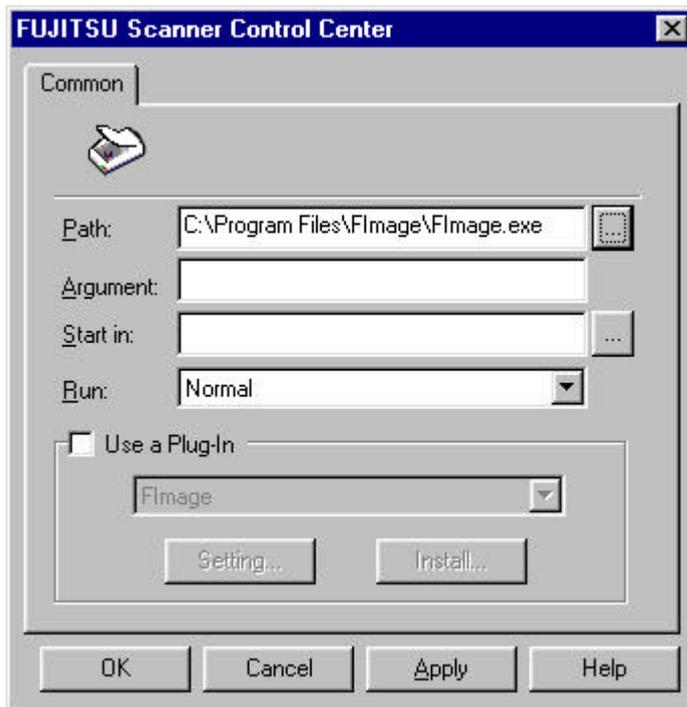
Left-clicking the icon displays the scanner being connected as shown below.

The scanner that has been monitored by this application is indicated with a check mark.



### 6.3 Pop-up Menu

- ◆ [Rescan Scanner]  
Rescans the scanner that is currently connected.  
A scanner that is not recognized by the OS cannot be found even though it is rescanned.
  
- ◆ [Option]  
Sets up the application to be started when the start button of the scanner is pressed.



- ◆ [Path]  
Specifies a file name of the application to be started with its absolute pathname.  
A file can be also selected directly by using the [...] button.
  
- ◆ [Argument]  
Specifies an argument to be passed when starting the specified application. (This item can be omitted.)
  
- ◆ [Start in]  
Specifies a default folder for starting the application.  
A default folder can be also selected by using the [...] button.  
(This parameter can be omitted.)
  
- ◆ [Run]  
Specifies the display size of the application to be started.

◆ [Use Plug-In]

Checking this check box specifies a plug-in.

(A plug-in is an additional program for adding a new function to the application.)



◆ [Setting]

Sets a plug-in in accordance with the following procedure:

- Pressing the [Setting] button after selecting a target plug-in name in the plug-in list displayed displays the plug-in setting screen.
- Pressing the [OK] button after setting each item reflects the settings for the application to be started.

◆ [Install]

A new plug-in can be installed.

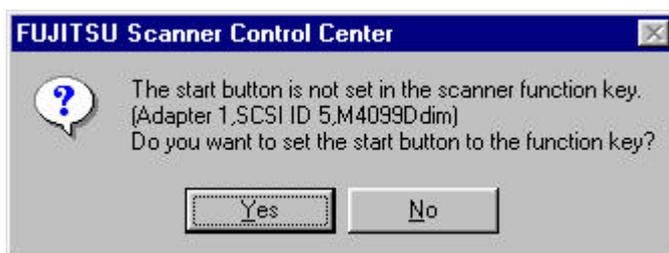
Press the [Install] button and specify a file of the plug-in to be installed. A new plug-in is registered in the list.

\* Up to 50 plug-ins can be registered.

<<Setting the Start button>>

If the scanner being monitored has function keys, it is necessary to assign a function key to the start button in advance.

If no function key has been assigned to the start button, a dialog box for determining whether to set the start button is displayed when the dialog box is displayed after selecting [Option] on the pop-up menu.



Selecting "Yes" displays a dialog box below.

(If "No" is selected, the function to start any application when the start button in this application is pressed is disabled.)



Pressing the [OK] button after selecting one of function keys from F1 to F3 enables assigning a function key to the start button. If the [Cancel] button is pressed, the function key is not assigned to the start button.

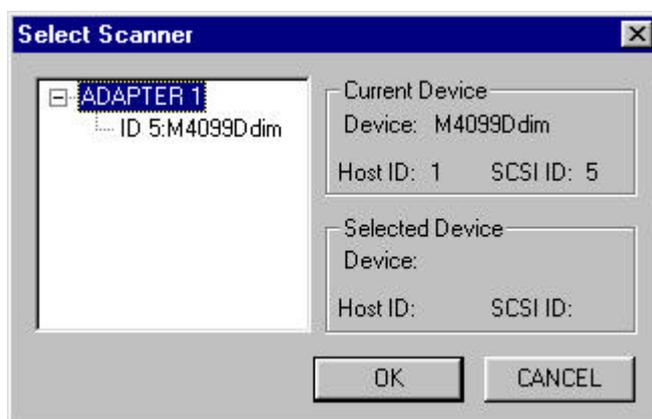
(If the [Cancel] button is pressed, the function to start any application when the start button in this application is pressed is disabled.)

◆ [Select Scanner]

When multiple scanners are connected, select a scanner to be monitored.

With this application, only one scanner can be monitored at a time. If multiple scanners are connected, scanner switching is required to monitor the individual scanners.

Select a scanner to be monitored in the list of scanners to be connected. (The list is given below.)



Left-clicking the task tray icon displays connected scanner names on the pop-up menu. It is also possible to select a scanner on this menu.

- ◆ [Help]  
Displays help information concerning to this application.
  
- ◆ [About]  
Displays version information concerning to this application.
  
- ◆ [Exit]  
Terminates this application.

## 7. Troubleshooting

### 7.1 Error Messages

#### 7.1.1 Messages from the TWAIN Driver

- The input value is outside the range.  
Cause: A value exceeding the range allowed for an input item was input.  
User response: Input a value inside the allowed range. Refer to the input item or the image scanner specification for the range.
- The input value is not acceptable.  
Cause: A value exceeding the range allowed for an input item was input.  
User response: Input a value inside the allowed range. Refer to [Help] of the item or the User's Guide for the correct range.
- This file cannot be removed because it is specified in other side.  
Cause: An attempt was made to remove a file using the dither pattern or gamma download pattern file setting dialog. However, the file is being used for the other side (front side if back side or back side if front side).  
User response: Before removing the file, change the setting of the other side and then remove.
- The initial value data file contains an invalid value. The standard value is set.  
Cause: A value outside the specified range, or invalid text was found in the initial-value data file (the specific item involved is indicated by Entry=XXXXX). If the file has been modified, the setting value for the item may be wrong. If the file has not been rewritten, the file may have been damaged.  
User response: The value is set to a standard value. Be sure to check the hard disk (chkdsk/scandisk) and check for computer viruses regularly.
- The value is higher than the maximum scanning size. Either the resolution value or the scanning area has to be reduced.  
Cause: A value exceeding the data capacity of the scanner was specified. As the resolution is increased, the amount of data to be scanned also increases.  
User response: Decrease the resolution or reduce the size of the scan area.

- The value for custom paper is higher than the maximum scan size. Width needs to equal 279 mm or less and length needs to equal 420 mm or less.
- The value for custom paper is higher than the maximum scan size. Width needs to equal 11 inch or less and length needs to equal 16.53 inch or less.
- The value for custom paper is higher than the maximum scan size. Width needs to equal xxx pixel or less and length needs to equal xxx pixel or less.
  - Cause: A value exceeding the limit applicable to the scan area of the scanner was specified.
  - User response: To specify a custom paper size, specify the value that is smaller than the value applicable to the device.
  
- The resolution must be less or equal to xxx dpi when scanning in Gray Scale.
  - Cause: A value exceeding the limit of resolution for gray-scale scan was specified.
  - User response: Specify a resolution value that is below the indicated xxx dpi.
  
- Cannot specify Gray Scale with Custom resolution.
  - Cause: Custom resolution was designated when multi-tone (gray scale) was designated.
  - User response: Designate a resolution value other than Custom.
  
- Cannot specify Individual Setting with Gray Scale.
  - Cause: Gray scale was specified in the settings for the front side or back side was set as the object to be set.
  - User response: Specify Gray Scale only when making the settings for both sides.
  
- Dither pattern file not found.
  - Cause: File download has been specified, but a file has not been selected.
  - User response: Use the [File...] button to specify a file.
  
- Gamma pattern file not found.
  - Cause: File download has been specified, but a file has not been selected.
  - User response: Use the [File...] button to specify a file.
  
- Selected file could not delete.
  - Cause: If the selected setting file is write-protected, it cannot be deleted.
  - User response: Use Explorer to delete the file later.

- Description not specified.
  - Cause: The description of the setting file has not been specified.
  - User response: Enter the description of the setting file in the description field. Then, try scanning again.
  
- Filename not specified.
  - Cause: The filename of the setting file has not been specified.
  - User response: Enter the filename of the setting file. Then, try scanning again.
  
- Specified string is too long.
  - Cause: The specified string is too long. Up to 128 en-size characters and up to 64 em-size characters can be specified.
  - User response: User response: Reduce the number of characters in the string so that they do not exceed 128 en-size characters. Then, try scanning again.
  
- Cannot specify next words for filename. \;?<>|.
  - Cause: The specified filename contains one or more of the following characters: \;?<>|.
  - User response: Enter a file name that does not contain the above characters. Then, make the settings again.
  
- The image scanner cannot be found.
  - Cause: Possible causes include the following: an image scanner that is not supported by this driver has been connected, no image scanner has been connected, or the cable is not connected.  
  
Otherwise, the initial values of the image scanner were overwritten while the driver was open.
  - User response: Check the connection of the image scanner. Also be sure to close the driver before using the initial value adjustment utility in the image scanner.
  
- The specified image scanner is being used.
  - Cause: The image scanner may be already in use by another application, or the TWAIN driver may have been started twice.
  - User response: User response: After all applications are terminated, restart the image scanner for scanning.

- An input-output error occurred in the image scanner.
  - Cause: A fault occurred during the scan operation of the image scanner. There may be a fault in the image scanner itself.
  - User response: Turn off the power of all devices, then turn on the power of the computer before turning on the scanner and retry scanning. If the error still occurs, contact the retail store where the image scanner was purchased, or the nearest service center.
  
- Paper jammed in the ADF
  - Cause: A paper jam occurred in the device.
  - User response: Turn off the power of the device, then remove the paper from inside the device. Removing the paper by using excessive force will result in device failure, so be careful.
  
- The hopper tray is open. Reinsert the document and close the tray.
  - Cause: The document tray is open.
  - User response: For double-sided scan, close the document tray.
  
- No paper in the ADF
  - Cause: Although ADF was selected as the paper feeding method, no paper is found in the document tray.
  - User response: Select another paper feeding method or set the document in the document tray.
  
- The hopper tray is open, or No paper in the ADF.
  - Cause: The hopper tray cover is open, or there is no paper in the ADF.
  - User response: Close the hopper tray cover, or load paper.
  
- Insufficient buffer memory size of scanner device for current scanning parameters. Please reduce the scanning area or the resolution, or install additional memory in the scanner.
  - Cause: A memory option has not been installed in the image scanner. Otherwise, a large area or resolution that is not supported by the image scanner has been specified.
  - User response: Reduce the scanning area or resolution. Otherwise, install the memory option. Refer to the User's Guide of the image scanner for more information.

- The current parameter(s) is (are) not allowed. Please use (an)other parameter(s) and try scanning again.
  - Cause: An incorrect value has been specified for the image scanner. The problem may be due to an illegal combination with the specification value from the application.
  - User response: Change the specification values. Then, try scanning again.
  
- The scanner is in an irregular status; fuse is broken, etc. Please check the scanner status.
  - Cause: A scanner fault such as a blown fuse or foreign matter in the scanning section has occurred.
  - User response: Check the scanner status. If a fuse has blown, replace the fuse. If there is foreign matter in the scanning section, remove the foreign matter. If the error persists, contact the retail store where the image scanner was purchased or the nearest maintenance and service center.
  
- Memory is insufficient.
  - Cause: Insufficient memory for scanning. The memory available may be insufficient because an application consuming much GDI memory is operating, too many other programs operate at the same time, or there are too many registered device drivers. The user may mistakenly think that adding more memory will solve this problem. However, in most cases, memory shortage is due to insufficient conventional memory (called the main memory within 640 kilobytes). Checking CONFIG.SYS and AUTOEXEC.BAT may be a better solution.
  - User response: Cancel the registration of device drivers that are irrelevant and make sure that only the absolutely necessary programs are operating. Use the memory optimization tool to allocate as much conventional memory as possible.
  
- An error occurred in the temporary file.
  - Cause: Accessing the internal temporary file of the scanned image is causing the error. The disk space may be insufficient, the temporary file may be damaged, or other programs may be affecting disk access.
  - User response: Increase the free space of the disk. Check the hard disk (chkdsk and scandisk). Make sure that no other program is accessing the disk. If the error message persists, contact the retail store where the product was purchased or the nearest service center.
  
- Download file not found.
  - Cause: A file specified as a dither pattern or gamma pattern cannot be found.
  - User response: Check that the download file is in the specified directory. Otherwise, use the file selection dialog to specify an available file.

- Illegal format or data in download file.
  - Cause: The format of the specified download file is illegal or the data is incorrect.
  - User response: User response: Use an editor to check file format and data.
  
- ASPI manager not found.
  - Cause: The ASPI manager may not have been installed, or may have been deleted.
  - User response: Reinstall the products, including the ASPI manager attached to the SCSI board. Then reboot the PC.
  
- Scanner DLL file not found.
  - Cause: An image scanner was selected, but the DLL file of the selected image scanner has not been installed in the directory in which this driver is installed.
  - User response: Perform the setup again.
  
- A parameter error has occurred (internally)
- The calling procedure is invalid (internally).
- The area is specified incorrectly (internally).
- The calculation result exceeded the value that can be expressed (internally).
- User definition is not registered (internally).
  - Cause: This is a program error that occurs during command exchange between the driver and the image scanner.
  - User response: Try again by rebooting the machine. If the error persists, contact the retail store where the product was purchased or the nearest service center.
  
- A general fault of the MSG\_XXXXXX response (internally).
  - Cause: This is a program error that usually occurs during internal message transfer. This message involves the sub-messages described later.
  - User response: Contact the retail store where the product was purchased or the nearest service center.
  
- A general fault of the DAT\_XXXXXX response (internally).
  - Cause: This is a program error that usually occurs during internal data transfer. This message involves the sub-messages described later.

User response: Contact the retail store where the product was purchased or the nearest maintenance service center.

- A general fault of the DAT\_XXXXX, MSG\_SET, and unsupported type response. (Internally)

Cause: This is a program error that usually occurs while making the internal data settings.

User response: Contact the place of purchase or your nearest maintenance and service center.

- An undefined error occurred
- Processing cannot be continued because of insufficient memory.
- The data source cannot be found.
- The driver is connected to a maximum number of applications supported.
- An operation error occurred.
- An invalid function is specified.
- Unpermitted combination of MSG DG DAT.
- An invalid value is specified.
- An invalid procedure of DG DAT MSG is specified.

Cause: These sub-messages are added to the error messages "General MSG\_XXXXX response violation (internal)" and "General DAT\_XXXXX violation (internal)." These sub- messages indicate details about the programming errors that occur during message and data processing.

User response: Contact the retail store where the product was purchased or the nearest service center.

### 7.1.2 Error messages relating to gamma correction pattern editing

- Enter a positive decimal value.

Cause: A value other than a number has been entered as the gamma correction value.  
Alternatively, 0 or a negative value has been entered.

User response: Reenter a valid value.

- The file could not be created.

Cause: The file for saving could not be created. There is insufficient space to save the file or the disk to which the file was to be saved is corrupted. Alternatively, writing to the directory in which the file was to be saved may not be allowed or other programs relating to disk access may be affecting performance.

User response: Increase the amount of available space on the disk.  
Use a utility such as chkdsk or scandisk to check the hard disk.  
Ensure that any background programs that access the disk are not operating  
If this error message continues to be displayed, contact the place of purchase or your nearest maintenance and service center.

- The file cannot be opened.

Cause: The file could not be opened.  
The specified file name may be incorrect or the disk from which it is being read may be corrupted. Alternatively, the specified file may be a write-only file or other programs relating to disk access may be affecting performance.

User response: If the specified filename is correct, use a utility such as chkdsk or scandisk to check the hard disk. Ensure that no background programs that access the disk are operating.  
If this error message continues to be displayed, contact the place of purchase or your nearest maintenance and service center.

- There is a file formatting error.

Cause: There is an error in the format of the specified file. Either an incorrect file has been specified or the content of the specified file is incorrect.

User response: After checking the users' manual, check that the content of the specified file is correct.

### 7.1.3 Messages concerning to FUJITSU Scanner Control Center

- Failed to start-up the application. Check the setting of FUJITSU Scanner Control Center.
- The setting of the path is blank. Check the setting of FUJITSU Scanner Control Center.
- Can not find the specified file. Check if the specified path and file name is correct.
- Can not find the specified work folder. Check if the specified path is correct.

Cause: The setting of the application may be inadequate.

User response: Check setting items of [General] in [Application Dialog] and make sure settings are correct and there is no omission. If you find any incorrect setting or omission, correct it.

- The same Plug-in has been installed already. Specified Plug-in can not install.

Cause: An attempt was made to install the same plug-in that has been already installed.

User response: Two or more plug-ins assigned to the same name cannot be installed.

- The specified file is not the effective plug-in. Specified file can not install.
- Can not find the entry point of the specified plug-in. Specified file can not install.

Cause: The specified file may not be the effective plug-in.

User response: Check whether the specified file is the effective plug-in and retry.

- Exceeded the number of plug-in to be supported. Can not install the new plug-in.

Cause: The number of plug-ins to be supported was exceeded.

User response: The maximum number of plug-ins that can be supported is 50. Delete unnecessary plug-ins in the folder where FUJITSU Scanner Control Center has been installed, then install another plug-in.

- The plug-in has not been installed.

Cause: The check box "Use a Plug-In" was checked but no plug-in has been installed.

User response: To use a plug-in, install a plug-in, then check the check box "Use a Plug-In."

- Can not find the application for the Plug-in use. Can not use the specified plug-in

Cause: The application to be used for the plug-in may not have been installed.

User response: Verify that the application to be used for the plug-in has been installed. If no application is found, install it.

- Scanner could not find although it searched again. Check the connection of the scanner and retry again
  - Cause: The scanner power may not have been turned on or the cable may have been connected incorrectly. Otherwise, the OS may not recognize the scanner.
  - User response: Make sure that the scanner power has been turned on and the cable has been connected correctly, then retry rescanning. Or, check if the OS recognizes the scanner. If the OS does not recognize it, let it recognize the scanner, then retry.
  
- Can not rescan the scanner. Close the application using the driver and retry again
  - Cause: An attempt was made to rescan while the driver was in use.
  - User response: It is impossible to rescan while the driver is in use. Close the application that uses the driver and retry.
  
- Can not get the EEPROM data. The setting of the function key can not change. Check the connection of the scanner
- Can not change the setting of the function key. Check the connection of the scanner and try the operation again
  - Cause: While the scanner with function keys are being monitored, the scanner power may be turned off or the cable may be connected incorrectly.
  - User response: Make sure that the scanner power has been turned on and the cable has been connected correctly.
  
- It is not authorized to write into the folder which is installed FUJITSU Scanner Control Center. Can not change the function of the function key. Check the Access Authority of the folder which is installed FUJITSU Scanner Control Center.
  - Cause: While the scanner with function keys are being monitored, Access Authority may not have been set to the folder where the FUJITSU scanner Control Center has been installed.
  - User response: To change the setting of the function key, Access Authority of the folder where FUJITSU scanner Control Center has been installed is required. Set Access Authority to the folder where FUJITSU scanner Control Center has been installed, or execute it with Administrator Authority.
  
- Scanner is not selected. Please select a scanner
  - Cause: The OK button was pressed without selecting the scanner in the scanner select dialog.
  - User response: Press the OK button after selecting the scanner to be monitored.

## 8. Appendix

### 8.1 Relevant Image Scanner Specification

Product:	M3093GX <sup>1</sup> (device name: fi-4320S)
Type:	Desktop
Image sensor:	Reduced optical system
Operating method:	Document fixed, scanner unit moving (flat bed), Automatic Document Feeder (ADF)
Light source:	Xe discharge tube (Green)
Basic resolution:	Horizontal scanning: 400 dpi Vertical scanning:400, 300, 240, 200 dpi
Output resolution:	Standard: 400, 300, 240, 200 dpi With image processing option: 50 dpi to 800 dpi (at steps of 1 dpi)
Grayscale levels (internal):	8 bit 256 levels
Grayscale output:	Enabled (8 bits)
Halftone Patterns:	Dither matrix (can be downloaded), Error diffusion
Scanning speed:	1.6 sec or less (A4, 200 dpi)
ADF scanning speed <sup>2</sup> :	27 pages/minute (200 dpi, A4, 55 kg)
ADF stacker capacity:	Maximum 50 sheets, ream weight: 55kg, A4
Document size <sup>3</sup> :	Maximum 216 mm × 356 mm Legal size paper
Supported regular paper:	A4, A5/A5 Landscape, A6/A6 Landscape, B5, B6/B6 Landscape, Letter, Legal, US Executive
Isolation specification:	Specified (one location)
Background compensation:	Enabled
Contrast setting:	256 steps
Gamma pattern:	3 internal types (can be downloaded)
Image processing function:	Image processing circuit II required, Outline emphasis, Outline extraction, Automatic separation, Mirror image, Reverse image, Automatic binarization, Smoothing, Filtering, Noise removal
Interface:	SCSI-II
Job control:	Enabled

Use of FUJITSU Scanner Control Center: Disabled

- 
1. Use of this scanner requires that the image compression option board (CMP-2) be installed in the scanner.
  2. This speed is only specified for the scanner itself. The actual reading speed may vary depending on the system configuration.
  3. Not all sizes of paper can be used in all devices. For details, refer to the users' manual for the device. For other paper sizes, the customer settings can be used.

Product:	M3093DG (device name: fi-4320)
Type:	Desktop
Image sensor:	Reduced optical system
Operating method:	Document fixed, scanner unit moving (flat bed) Automatic Document Feeder (ADF) simultaneous double-sided reading
Light source:	Xe discharge tube (Green)
Basic resolution:	Horizontal scanning: 400 dpi Vertical-scanning: 400, 300, 240, 200 dpi
Output resolution:	Standard: 600 <sup>1</sup> , 400, 300, 240, 200, 150, 100 dpi With image processing option: 50 dpi to 800 dpi (at steps of 1 dpi)
Grayscale levels (internal):	8 bit 256 levels
Grayscale output:	Enabled (8 bits)
Halftone Patterns:	Dither matrix (can be downloaded), Error diffusion
Scanning speed <sup>2</sup> :	1.6 sec or less (A4, 200 dpi)
ADF scanning speed:	Single-sided: 27 pages per minute (200 dpi, A4, 55 kg)
Double-sided:	22.5 pages per minute (200 dpi, A4, 55 kg) (= 45 screens per minute)
ADF stacker capacity:	Maximum 50 sheets, (ream weight: 55kg, A4 [High quality paper, normal temperature and humidit])
Document size:	Maximum 216 mm × 356 mm
Supported regular paper <sup>4</sup> :	A4, A5/A5 landscape, A6/A6 landscape, B5, B6/B6 landscape, Letter, Legal, US Executive
Cutout specification:	Specified (one location)
Background compensation:	Enabled
Contrast setting:	256 steps
Gamma pattern:	3 internal types (can be downloaded)
Image processing function:	Automatic binary (simple system) With image processing option Outline emphasis, Outline extraction, Automatic separation, Mirror image, Reverse image, Automatic binarization, Smoothing, Filtering, Noise removal
Interface:	SCSI-II
Job control:	Enabled
Use of FUJITSU Scanner Control Center:	Disabled

- 
1. An eight-megabyte expanded memory option can be loaded in some models.
  2. This speed is only specified in the scanner itself. The actual reading speed may vary depending on the system configuration.
  4. Not all sizes of paper can be used in all devices. For details, refer to the users' manual for the device. For other paper sizes, the customer settings can be used.

Product:	M3096GX <sup>1</sup> (device name: fi-4620S)
Type:	Desktop
Image sensor:	Reduced optical system
Operating method:	Document fixed, scanner unit moving (flat bed), Automatic Document Feed (ADF)
Light source:	Xe discharge tube (Green)
Basic resolution:	Horizontal scanning: 400 dpi Vertical scanning:400, 300, 240, 200 dpi
Output resolution:	Standard: 400, 300, 240, 200 dpi With image processing option: 50 dpi to 800 dpi (at steps of 1)
Grayscale levels (internal):	8 bit 256 levels
Grayscale output:	Enabled (8 bits)
Halftone Patterns:	Dither matrix (can be downloaded), Error diffusion
Scanning speed:	2.0 sec or less (A4, 200 dpi)
ADF scanning speed <sup>2</sup> :	21 pages/minute (200 dpi, A4, 55 kg)
ADF stacker capacity:	Maximum 50 sheets, (ream weight: 55 kg, A4 [High quality paper, Normal temperature and humidity])
Document size:	Maximum 297 mm × 432 mm A3 or Double letter sized paper
Supported regular paper <sup>5</sup> :	A3, A4/A4 Landscape, A5/A5 Landscape, A6/A6 Landscape, B4, B5/B5 Landscape, B6/B6 Landscape, Letter, Letter Landscape, Legal, Double letter, US Executive/US Executive Landscape
Isolation specification:	Specified (one location)
Background compensation:	Enabled
Contrast setting:	256 steps
Gamma patterns:	3 internal types (can be downloaded)
Image processing function:	Auto binary (simplified method) Image processing option installed Outline emphasis, Outline extraction, Automatic separation, Mirror image, Reverse image, Automatic binarization, Smoothing, Filtering, Noise removal
Interface:	SCSI-II
Job control:	Enabled

Use of FUJITSU Scanner Control Center: Disabled

- 
1. Use of this scanner may require installation of the optional image compression option board (CMP-2) in the scanner device.
  2. This speed is only specified for the scanner itself. The actual reading speed may vary depending on the system configuration.
  - 5 Not all paper sizes can be used in all devices. For details, refer to the users' manual for the device. For other paper sizes, the customer settings can be used.

Product:	M3097G <sup>1</sup>
Type:	Desktop
Image sensor:	Reduced optical system
Operating method:	Document fixed, scanner unit moving (flat bed), Automatic Document Feed (ADF)
Light source:	Fluorescent tube (Green)
Basic resolution:	Horizontal scanning: 400 dpi Vertical scanning:400, 300, 240, 200 dpi
Output resolution:	Standard: 400, 300, 240, 200 dpi With image processing option: 50 dpi to 1,600 dpi (at steps of 1)
Grayscale levels (internal):	8 bit 256 levels
Grayscale output:	Enabled (8 bits) Some release version of scanner do not support gray-scale output format
Halftone Patterns:	Dither matrix (can be downloaded), Error diffusion
Scanning speed:	1.3 sec or less (A4, 200 dpi) 3.7 sec or less (A3, 400 dpi)
ADF scanning speed <sup>2</sup> :	36 pages/minute (200 dpi, A4, 55 kg)
ADF stacker capacity:	Maximum 100 sheets, (ream weight: 55 kg, A4 [High quality paper, Normal temperature and humidity])
Document size:	Maximum 297 mm × 432 mm
Supported regular paper <sup>6</sup> :	A3, A4/A4 Landscape, A5/A5 Landscape, A6/A6 Landscape, B4, B5/B5 Landscape, B6/B6 Landscape, Letter/Letter Landscape, Double Letter, Legal, US Executive/US Executive Landscape
Isolation specification:	Specified (one location)
Background compensation:	Enabled
Contrast setting:	256 steps
Gamma pattern:	3 internal types (can be downloaded)
Image processing function:	Auto binary (simplified method) Outline emphasis, Outline extraction, Automatic separation, Mirror image, Reverse image, Automatic binarization, Smoothing, Filtering, Noise removal
Interface:	SCSI-II
Job control:	Enabled

Use of FUJITSU Scanner Control Center: Disabled

- 
1. Use of this scanner may require installation of the optional image compression board (CMP-2).
  2. This speed is only specified for the scanner itself. The actual reading speed may vary depending on the system configuration.
  - 6 Not all paper sizes can be used in all devices. For details, refer to the users' manual for the device. For other paper sizes, the customer settings can be used.

Product:	M3097DG
Type:	Desktop
Image sensor:	Reduced optical system
Operating method:	Document fixed, scanner unit moving (flat bed), Automatic Document Feed (ADF) simultaneous double-sided reading
Light source:	Xe discharge tube (Green)
Basic resolution:	Horizontal scanning: 400 dpi Vertical scanning: 400, 300, 240, 200 dpi
Output resolution:	Standard: 600, 400, 300, 240, 200, 150, 100 dpi With image processing option: 50 dpi to 800 dpi (at steps of 1 dpi)
Grayscale levels (internal):	8 bit 256 levels
Grayscale output:	Enabled (8 bits)
Halftone Patterns:	Dither matrix (can be downloaded), Error diffusion
Scanning speed:	1.3 seconds or less (A4, 200 dpi)
ADF scanning speed <sup>1</sup> :	Single sided: 36 pages per minute (200 dpi, A4, 55 kg)
Double sided:	30 pages per minute (200 dpi, A4, 55 kg) (= 60 screens per minute)
ADF sacker capacity:	Maximum 100 sheets, (ream weight: 55 kg, A4 [High quality paper, Normal temperature and humidity])
Documnt size:	Maximum 297 mm × 432 mm
Suppored regular paper <sup>2</sup> :	A3, A4/A4 Landscape, A5/A5 Landscape, A6/A6 Landscape, B4, B5/B5 Landscape, Double Letter, Letter/Letter landscape, Legal, US Executive/ US Executive Landscape
Cutoutcification:	Specified (one location)
Background compensation:	Enabled
Contrast setting:	256 steps
Gamma pattern:	3 internal types (can be downloaded)
Image processing function:	Automatic binary (simple system) With image processing option Outline emphasis, Outline extraction, Automatic separation, Mirror image, Reverse image, Automatic binarization, Smoothing, Filtering, Noise removal.
Interface:	SCSI-II
Job control:	Enabled
Long page scanning:	Enabled (front side and both sides)

---

1. This speed is only specified for the scanner itself. The actual reading speed may vary depending on the system configuration.

2. Not all paper sizes can be used in all devices. For details, refer to the users' manual for the device. For other paper sizes, the customer settings can be used.

Use of FUJITSU Scanner Control Center: Disabled

Product:	M3099G, M3099GX
Type:	Desktop
Image sensor:	Reduced optical system
Operating method:	Automatic Document Feed (ADF), simultaneous double-sided reading
Light source:	Fluorescent tube (Green)
Basic resolution:	Horizontal scanning: 200 dpi Vertical scanning: 400, 300, 240, 200 dpi
Output resolution:	Standard: 400, 300, 240, 200, dpi With image processing option: 50 dpi to 400 dpi (at steps of 1 dpi)
Grayscale levels (internal):	8 bit 256 levels
Grayscale output:	Disabled
Halftone Patterns:	Dither matrix (can be downloaded), Error diffusion
ADF scanning speed <sup>1</sup> :	<M3099G> Single sided: 55 pages per minute (200 dpi, A4, 55 kg) Double sided: 50 pages per minute (200 dpi, A4, 55 kg) (= 100 screens per minute) <M3099GX> Single sided: 60 pages per minute (200 dpi, A4, 55 kg) Double sided: 50 pages per minute (200 dpi, A4, 55 kg) (= 100 screens per minute)
ADF stacker capacity:	<M3099G> Maximum 500 sheets, ream weight: 55 kg, A4 <M3099GX> Maximum 1,000 sheets, ream weight: 55 kg, A4
Document size:	Maximum 297 mm × 432 mm
Supported regular paper <sup>2</sup> :	A3, A4/A4 Landscape, A5/A5 Landscape, A6/A6 Landscape, B4, B5/B5 Landscape, B6/B6 Landscape, Double Letter, Letter/Letter Landscape, Legal, US Executive/US Executive Landscape
Cutout specification:	Specified (one location)
Background compensation:	Enabled
Contrast setting:	256 levels
Gamma pattern:	3 internal types (can be downloaded)

Use of FUJITSU Scanner Control Center: Disabled

- 
1. This speed is only specified for the scanner itself. The actual reading speed may vary depending on the system configuration.
  2. Not all paper sizes can be used in all devices. For details, refer to the users' manual for the device. For other paper sizes, the customer settings can be used.

Image processing function: Automatic binary (simple system)  
With image processing option  
Outline emphasis, Outline extraction, Automatic separation,  
Mirror image, Reverse image, Automatic binarization, Smoothing,  
Filtering, Noise removal

Endorser/stamp: With endorser option  
(Reverse side, minimum left margin printing position of 20 mm)<sup>2</sup>  
Maximum number of characters to be printed: 20 characters

Interface: SCSI-II

Job control: Enabled

Use of FUJITSU Scanner Control Center: Disabled

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2. If 0 mm is specified as the endorser print position, printing will begin 20 mm from the edge of the page.

Product:	M3099GH
Type:	Desktop
Image sensor:	Reduced optical system
Operating method:	Automatic Document Feed (ADF), simultaneous double-sided reading
Light source:	Fluorescent tube (Green)
Basic resolution:	Horizontal scanning: 200 dpi Vertical scanning: 400, 300, 240, 200 dpi
Output resolution:	Standard: 400, 300, 240, 200, dpi with image processing option: 50 dpi to 400 dpi (at steps of 1 dpi)
Grayscale levels (internal):	8 bit 256 levels
Grayscale output:	Disabled
Halftone Patterns:	Dither matrix (can be downloaded), Error diffusion
ADF scanning speed <sup>1</sup> :	Single sided: 80 pages per minute (200 dpi, A4, 55 kg)
Double sided:	60 pages per minute (200 dpi, A4, 55 kg) (= 120 screens per minute)
ADF stacker capacity:	Maximum 1,000 sheets, (ream weight: 55 kg, A4 [High quality paper, Normal temperature and humidity])
Document size:	Maximum 216 mm × 356 mm
Supported regular paper <sup>2</sup> :	A4/A4 Landscape, A5/A5 Landscape, B5, B6/B6 Landscape, Letter, Legal, US Executive
Cutout specification:	Specified (one location)
White level follower:	Enabled
Contrast setting:	256 steps
Gamma pattern:	3 internal types (can be downloaded)
Image processing function:	Automatic binary (simple system) With image processing option Outline emphasis, Outline extraction, Automatic separation, Mirror image, Reverse image, Automatic binarization, Smoothing, Filtering, Noise removal

---

1. This speed is only specified for the scanner itself. The actual reading speed may vary depending on the system configuration.

2. Not all paper sizes can be used in all devices. For details, refer to the users' manual for the device. For other paper sizes, the customer settings can be used.

Endorser/stamp: With endorser option  
(Reverse side, minimum left margin printing position of 20 mm)<sup>2</sup>  
Maximum number of characters to be printed: 20 characters

Interface: SCSI-II

Job control: Enabled

Use of FUJITSU Scanner Control Center: Disabled

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2 If 0 mm is specified as the endorser print position, printing will begin 20 mm from the edge of the page.

Product:	M4097D (device name: fi-4750)
Type:	Desktop
Image sensor:	Reduced optical system
Operating method:	Document fixed Flat bed, Automatic Document Feed(ADF), simultaneous double-sided reading Long page scanning (297mm x 1387mm)
Light source:	Xe discharge tube(Green)
Basic resolution:	Horizontal scanning: 400 dpi Vertical scanning: 800,700,600,500, 400, 300, 240, 200, 150, 100 dpi
Output resolution:	Standard: 800,700,600, 500,400, 300, 240, 200,150,100 dpi With image processing option: 50 dpi to 800 dpi (at steps of 1dpi)
Grayscale levels (internal):	10 bit 1024 levels
Grayscale output:	Enabled (8 bits)
Halftone Patterns:	Dither matrix (can be downloaded), Error diffusion
Scanning speed:	0.9 sec or less
ADF scanning speed <sup>1</sup> :	Single sided: 50 pages per minute (200 dpi, A4, 55 kg) Double sided: 45 pages per minute (200 dpi, A4, 55kg) (=90 screens per minute)
ADF stacker capacity:	Maximum 100 sheets, ream weight: 55 kg, A4 [High quality paper, normal temperature and humidity]
Document size:	Maximum 297 mm × 432 mm
Supported regular paper <sup>2</sup> :	A3, A4/A4 Landscape, A5/A5 Landscape, A6/A6 Landscape, B4, B5/B5 Landscape, B6/B6 Landscape, Letter/Letter Landscape, Double Letter, Legal, US Executive/US Executive Landscape
Isolation specification:	Specified (one location)
Background compensation:	Enabled
Contrast setting:	256 steps
Gamma pattern:	3 internal types (can be downloaded)
Image processing function:	Automatic binary(simple system) With image processing option Outline emphasis, Outline extraction, SEE(Selectable Edge Enhancement), Reverse image, Automatic binarization, Smoothing, Filtering, Noise removal

---

1 This speed is only specified for the scanner itself. The actual reading speed may vary depending on the system configuration.

2 Not all paper sizes can be used in all devices. For details, refer to the users' manual for the device. For other paper sizes, the customer settings can be used.

Interface:	SCSI-II
Job control:	Enabled
Double feed detection:	Enabled
Long page scanning:	Enabled (front side and both sides)

Use of FUJITSU Scanner Control Center: Enabled

Product:	fi-4750C
Type:	Desktop
Image sensor:	LED(RGB) + Reduced optical system
Operating method:	Document fixed Flat bed, Automatic Document Feed(ADF), simultaneous double-sided reading Long page scanning (297mm×1387mm)
Light source:	LED (R, G, B)
Basic resolution:	Horizontal scanning: 400 dpi Vertical scanning: 800,700,600,500, 400, 300, 240, 200, 150, 100 dpi
Output resolution:	Standard: 800,700,600, 500,400, 300, 240, 200,150,100 dpi With image processing option: 50 dpi to 800 dpi (at steps of 1dpi)
Grayscale levels (internal):	10 bit 1024 levels
Grayscale output:	Enabled (8 bits)
Halftone Patterns:	Dither matrix (can be downloaded), Error diffusion
Color	24bit
Scanning speed:	B/W : 0.9 sec or less Color : 3.1 sec or less
ADF scanning speed <sup>1</sup> :	B/W Single sided: 50 pages per minute (200 dpi, A4, 55 kg) Double sided: 45 pages per minute (200 dpi, A4, 55kg) (=90 screens per minute) Color Single sided: 12 pages per minute (200 dpi, A4, 55 kg) Double sided: 11.5 pages per minute (200 dpi, A4, 55kg) (=23 screens per minute)
ADF stacker capacity:	Maximum 100 sheets, ream weight: 55 kg, A4 [High quality paper, normal temperature and humidity])
Document size:	Maximum 297 mm × 432 mm
Supported regular paper <sup>2</sup> :	A3, A4/A4 Landscape, A5/A5 Landscape, A6/A6 Landscape, B4, B5/B5 Landscape, B6/B6 Landscape, Letter/Letter Landscape, Double Letter, Legal, US Executive/US Executive Landscape
Isolation specification:	Specified (one location)
Background compensation:	Enabled
Contrast setting:	256 steps
Gamma pattern:	3 internal types (can be downloaded)

1 This speed is only specified for the scanner itself. The actual reading speed may vary depending on the system configuration.

2 Not all paper sizes can be used in all devices. For details, refer to the users' manual for the device. For other paper sizes, the customer settings can be used.

Image processing function: Automatic binary(simple system), Outline emphasis,  
Outline extraction, SEE(Selectable Edge Enhancement),  
De-Screen, Reverse image,  
With image processing option  
Automatic binarization, Smoothing, Filtering, Noise removal

Interface: SCSI-II

Job control: Enabled

Double feed detection: Enabled

Long page scanning: Enabled (front side and both sides)

Use of FUJITSU Scanner Control Center: Enabled

Product: M4099D (device name: fi-4990)

Type:	Desktop
Image sensor:	Reduced optical system
Operating method:	Automatic Document Feed (ADF), simultaneous double-sided reading Long page scanning (297mm×878mm)
Light source:	Fluorescent tube (White)
Basic resolution:	Horizontal scanning: 400 dpi Vertical scanning: 400, 300, 240, 200 dpi
Output resolution:	Standard: 400, 300, 240, 200, dpi With image processing option: 50 dpi to 400 dpi (at steps of 1 dpi)
Grayscale levels (internal):	10 bit 1024 levels
Gray scale (8 bits) output:	Enabled (200 dpi only)
Halftone Patterns:	Dither matrix (can be downloaded), Error diffusion
ADF scanning speed <sup>1</sup> :	<Asynchronous Scanning> Single sided: 90 pages per minute (200 dpi, A4, 55 kg) Double sided: 90 pages per minute (200 dpi, A4, 55 kg) (= 180 screens per minute) < Synchronous Scanning > Single sided: 80 pages per minute (200 dpi, A4, 55 kg) Double sided: 60 pages per minute (200 dpi, A4, 55 kg) (= 120 screens per minute)
ADF stacker capacity:	Maximum 1,000 sheets, (ream weight: 55 kg, A4 [High quality paper, Normal temperature and humidity])
Document size:	Maximum 297 mm × 432 mm
Supported regular paper <sup>2</sup> :	A3, A4/A4 Landscape, A5/A5 Landscape, A6/A6 Landscape, B4, B5/B5 Landscape, B6/B6 Landscape, Double Letter, Letter/Letter Landscape, Legal, US Executive/US Executive Landscape
Cutout specification:	Specified (one location)
Background compensation:	Enabled
Contrast setting:	256 levels
Gamma pattern:	3 internal types (can be downloaded)
Image processing function:	Automatic binary (simple system) With image processing option Outline emphasis, Outline extraction, Automatic separation, Mirror image, Reverse image, Automatic binarization, Smoothing, Filtering, Noise removal

---

1. This speed is only specified for the scanner itself. The actual reading speed may vary depending on the system configuration.

2. Not all paper sizes can be used in all devices. For details, refer to the users' manual for the device. For other paper sizes, the customer settings can be used.

Endorser/stamp: With endorser option  
(Reverse side, minimum left margin printing position of  
20 mm)<sup>2</sup>  
Maximum number of characters to be printed: 30 characters

Interface: SCSI-II

Online offset adjustment: Enabled

Job control: Enabled

Automatic skew compensation: Enabled

Drop out: Enabled

Double feed detection: Enabled

Buffer scan (cache using scanner memory) function: Enabled

Blank page skip: Enabled (only when scanner memory is used)

Use of FUJITSU Scanner Control Center: Enabled

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<sup>2</sup> If 0 mm is specified as the endorser print position, printing will begin 20 mm from the edge of the page.

## 8.2 Maintenance Service

This section explains briefly how you can help us to provide you with high-quality maintenance service.

Since it is practically impossible for the Fujitsu service staff to be aware of every detail of your daily scanning operation, please understand that our staff may sometimes be unable to answer your question immediately. To help us in our effort to provide you with the best maintenance service possible, we ask you to kindly write down the following items (as many as possible):

- Serial number, version, and date, etc., of this product
- Name and product number of the image scanner being used
- The options installed on the image scanner being used
- Manufacturer, product name, and type number of the computer being used
- Manufacturer and version of the Windows OS (whether Windows has been updated)
- Manufacturer and version of MS-DOS (Whether MS-DOS has been updated)
- Name and version of the display driver
- Name and version of the printer driver
- Resolution ( $1024 \times 768$ ), number of colors, and number of dots (or points) of the screen
- Product name of the SCSI adapter, and name and version of the SCSI driver
- Error occurrence processing (the simpler the processing, the easier it is to determine the cause.)

Also, we would appreciate it very much if you could kindly verify the following items prior to receiving our maintenance service;

- Is the power turned on?
- Is the cable connected correctly?
- Is the correct image scanner driver selected?

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TWAIN Scanner/Driver Utility  
“Scanner Utility for Microsoft® Windows®”  
Users Guide  
32 bit version  
First Edition September 2000

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