OPS112

Scanning Master 21+

USER'S MANUAL

GRAPHTEC

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NOTES

◆ While image data is being scanned using Scanning Master 21+, it is mandatory that no other scanning-in software be operated concurrently.

◆ To output data to a plotter or printer using Scanning Master 21+, you must have a plotter that supports raster printing.

◆ To output a long-length document on a plotter by using Scanning Master 21+, you must have a plotter that supports long-length printing of raster data.

When using the USB interface

◆ Requires a USB 2.0 interface.

When using the IEEE 1394 interface

◆ Requires an IEEE 1394 interface.

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1. INTRODUCTION

1.1 Preface

The Scanning Master 21+ driver software scans in image data through the scanner and displays it, allowing you to edit the scanned-in image.

1.2 Features

Improved Productivity with an Enhanced Scanner Driver

You can perform all scanning settings for the scanner through the Scanning Master 21+ scanner driver. The conditions of the drawing may vary significantly. However, it is easy to select the resolution and make fine adjustments when setting the threshold according to various document conditions (e.g., diazo copy, yellowed drawings).

Scanning Functions to Implement Sharp Input

Using the Rocker Mode, you can determine the most appropriate settings while repeatedly scanning in a specific section of the input image and reviewing the scanned-in image.

Threshold Adjustment

You can make the settings as detailed as is appropriate for the intended use (e.g., settings related to black/white inversion, halftones, brightness, and threshold).

Variety of Edit Functions

With despeckling, speckles smaller than the specified size can be erased. With deskewing, any skew in the scanning operation can be corrected horizontally. Other functions such as copy, paste, area erase and rotate are also available.

Note: Editable functions may be different, depending on the data type (grayscale, 8-bit color, 24-bit color, bilevel).

Supports a Wide Range of File Formats

Scanning Master 21+ supports a wide range of file formats:

Bilevel:	Bitmap, CAD Overlay ESP, TIFF Uncompressed, TIFF G4, TIFF Packbits, TIFF CCITT G3, TIFF G3, CALS G4, PCX, INTERGRAPH G4, Sun Raster Uncompressed, Sun Raster Encode, PDF*1
Grayscale:	Bitmap, Bitmap RLE, TIFF Uncompressed, TIFF Packbits, TIFF JPEG, PCX, Sun Raster Uncompressed, Sun Raster Encode, JPEG, PDF*1
8-bit color:	Bitmap, Bitmap RLE, TIFF Uncompressed, TIFF Packbits, PCX, Sun Raster Uncompressed, Sun Raster Encode, PDF*1
24-bit color:	Bitmap, TIFF Uncompressed, TIFF Packbits, TIFF JPEG, PCX, Sun Raster Uncompressed, JPEG, PDF*1

*1 For saving data only

1.3 Operating Environment

The minimum system requirements for operation of the scanner hardware and software are listed below:

System Requirements

- ◆ OS   : Windows 2000 Professional, Windows XP Professional/Home Edition, Windows Vista
            We do not have plan to comply with the Windows (64bit version).
            (The NTFS filesystem is necessary to preserve the file in 4G byte or more.)
- ◆ CPU   : Pentium 133 MHz or higher grade
- ◆ Memory : 32 MB or more
- ◆ Monitor : 1024 × 768, 256 colors or more
- ◆ Disk space amount that can contain the scanned-in data
- ◆ Mouse
- ◆ Network interface : 10BASE-T/100BASE-TX (to connect the scanner via the Network interface)
- ◆ USB interface (to connect the scanner via the USB interface[*1])
- ◆ IEEE 1394 card (to connect the scanner via the IEEE 1394 interface[*2])

[*1] If your scanner does not operate with the USB interface that comes with your computer, or if your computer does not have a USB 2.0 interface, please contact your sales representative or nearest Graphtec vendor for information on supported add-on cards.

[*2] Graphtec does not guarantee correct scanner operation with every IEEE 1394 computer interface or add-on card. Please contact your sales representative or nearest Graphtec vendor for information on supported add-on cards.

[*3] When using this driver software on the Windows Vista, please logon as the administrator. If you logon as the general user, some functions are limited.

Recommended Environment

For bilevel data:
- ◆ CPU   : Pentium 200 MHz or higher grade
- ◆ Memory : 64 MB or more
- ◆ Network interface : 100BASE-TX (to connect the scanner via the Network interface)
- ◆ USB 2.0 interface (to connect the scanner via the USB interface)

For grayscale:
- ◆ CPU   : Pentium III, 550 MHz or higher grade
- ◆ Memory : 256 MB or more
- ◆ Monitor : 1024 × 768. Must support High Color display.
- ◆ Network interface : 100BASE-TX (to connect the scanner via the Network interface)
- ◆ USB 2.0 interface (to connect the scanner via the USB interface)

For 8-bit/24-bit color:
- ◆ CPU   : Pentium III, 866 MHz or higher grade
- ◆ Memory : 512 MB or more
- ◆ Monitor : 1024 × 768, True Color display
- ◆ Network interface : 100BASE-TX (to connect the scanner via the Network interface)
- ◆ USB 2.0 interface (to connect the scanner via the USB interface)

Checkpoint 🖍

To satisfy the specification for the scanning speed, use hardware of the recommended grade or higher. For a monitor with 256 or fewer colors, scanned-in images may be unable to be displayed in the original colors. If you want to scan in and edit grayscale or color data larger than A1 size, 400 dpi, you may need a memory larger than the recommended size.

Depending on the document, it may not be possible to scan in the images it contains or the process may slow down even if the memory size is increased.

If you encounter such a problem, select "Tools" > "Options" > "General" tab and enable "Use Work File". In addition, enable "Specify Folder" and then specify a folder that contains sufficient available space.

Compatible Scanners

◆ The following Graphtec scanners are compatible:

CS300 Series

CS400 Series

CS500 Series

CS510 Series

CS600 Series

CS610 Series

IS200 Series

IS210 Series

SK200 Series

CSX300 Series

Checkpoint 🖍

For details, see the README.TXT file.

For details on how to connect your scanner to your computer, please refer to your scanner's User's Manual.
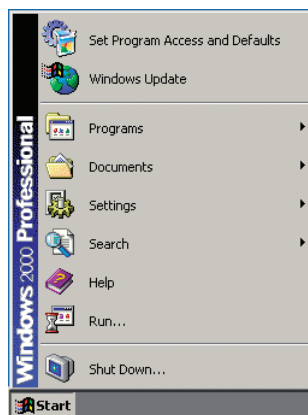
2.   SETUP

2.1   Installation

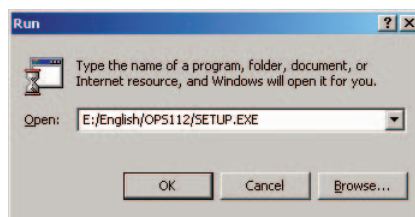The Scanning Master 21+ software is designed to scan in image data through a Graphtec scanner.

Setup Procedure

(The description below is for Windows 2000.)

(1) Start Windows.

(2) Insert your scanner's User Guide CD-ROM into the CD-ROM drive slot.

(3) In the **Start** menu, select **Run**.

(4) In the **Run** dialog box, type the CD-ROM drive letter followed by
   "**English\OPS112\SETUP.EXE**".

(5) Once you click the **OK** button, the Scanning Master 21+ setup program starts. Next, follow
     the instructions of the setup program to perform the setup.

Note: Once the setup program terminates normally, "Scanning Master 21+" is added to the
          Programs menu in the **Start** menu.

3. OPERATIONS

3.1 Setting Up the Scanner

(1) Make sure that the scanner is connected to the computer and the power to it is off. Then power on the scanner.

(2) Power on the computer.

(3) Windows starts up.

(4) Locate the Scanning Master 21+ icon. To do so, click the Start button and select Programs and the Scanning Master 21+ folder in that order. The icon is found there.

(5) Click the **Scanning Master 21+** icon.

(6) If you run Scanning Master 21+ for the first time, use the **Model Setup** in the **Scan** menu to specify the scanner currently connected to the system.
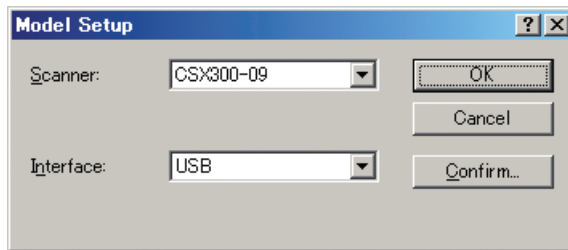
Checkpoint ✏

Although Scanning Master 21+ lets you set the same items regarding the View window regardless of scanner model, it requires you to set different items regarding the Scan window, depending on the scanner model. Be sure to select the scanner model.

Scanner .... Set the model of the scanner through which image data is scanned in.

Interface .... Select the interface used to connect the scanner to the computer.

Confirm button .... Use this button to confirm that the scanner is connected. If a scanner is connected, its name and version number are displayed.
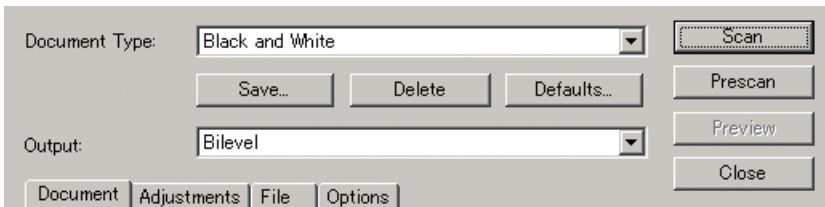
(7) Select the **Scan** command from the **Scan** menu, or click the **Scan** button in the **Scan** Tools sub-window, or click the **Scan** button on the **toolbar** to display the window for performing scanning by the scanner.

3.2 Scanning Procedure

Select the **Scan** command from the **Scan** menu, or click the **Scan** button in the **Scan** Tools sub-window, or click the **Scan** button on the **toolbar** to display the **Scan** window.

To scan the document, simply select the document type in the **Scan** window and then click the **Scan** button. For further details on the Scan window settings, please refer to **Section 3.3, "Scan Settings"**.
Scan settings are preset for each document type. You can add, modify or delete document types as required.

To add or modify a document type

(1) Select the **Scan** command from the **Scan** menu, or click the **Scan** button in the **Scan** Tools sub-window, or click the **Scan** button on the **toolbar**.

(2) Change the settings in the **Scan** window. Prescan and preview the document to set the optimum scan conditions.

(3) Click the **Save...** button to name and save the scan settings.

(4) The saved scan settings are added to the document types.

To delete a document type

(1) Select the **Scan** command from the **Scan** menu, or click the **Scan** button in the **Scan** Tools sub-window, or click the **Scan** button on the **toolbar**.


(2) In the **Scan** window, select the document type you want to delete, and then click the **Delete** button.

(3) The specified scan settings are deleted from the document types.

3.3 Scan Settings

Checkpoint

Scanning Master 21+ may not permit you to select or specify some of the Scan Settings, depending on the scanner model that you have.
For details on connecting your scanner to your computer, please see your scanner's User's Manual.
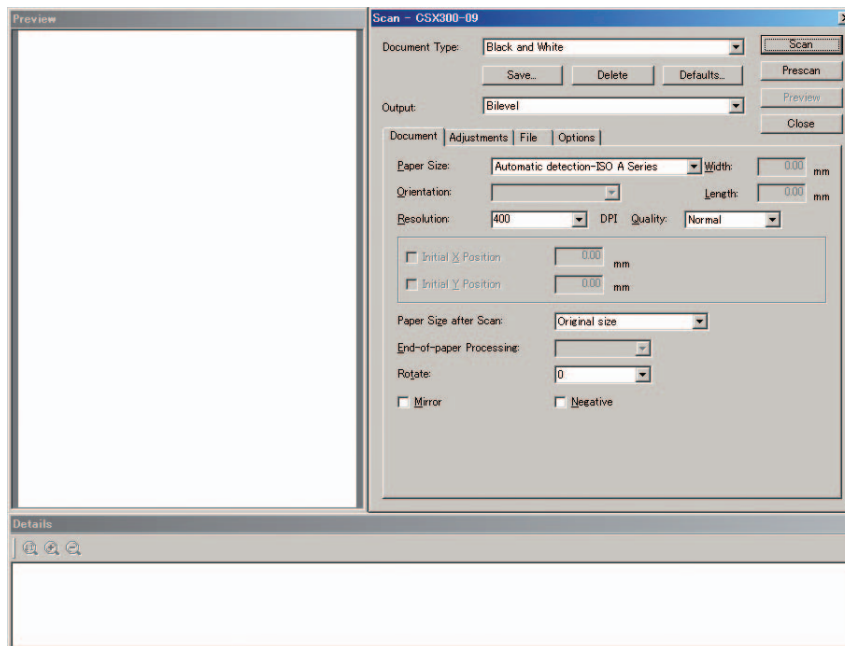
Scan Button .... Performs scanning using the specified settings.

Prescan Button .... Performs a prescan operation. The Prescan mode lets you set the scanning conditions most suitable for the document while the scanner is actually in operation.

Using the **Rocker Mode**, you can change the scanning conditions while scanning in the same section repeatedly; you should set the optimal scanning conditions while reviewing the on-screen image quality. Then perform the actual scanning.

Use the following procedure for operation:

(1) Press the **Prescan** button to initiate scanning.

(2) Continue scanning up to the section for which you want to set the scanning conditions. If the image is currently displayed in the **Preview** Window, move the mouse cursor to the section for which you want to set the scanning conditions. Left-click there to move the scanning position to a previous one.

(3) Once the scanning position has been moved, turn on the **Rocker Mode** at any position to scan in data repeatedly from the same position. At this time, while reviewing the on-screen image in the **Preview** or **Details** Window, you can set the optimal conditions by changing the scanning settings.

(4) Once you have set the optimal conditions, quit the Prescan Mode and run **Scan**.

This setting cannot be specified for the SK200 model.

Preview .... Performs scanning using the specified settings, and displays the results in the **Preview** window. Left-click on any part of the **Preview** window to display that area in the **Details** window. To change the size of the display, click on the buttons in the **Preview** window. Scanning is performed at the 1:1 setting.

Output .... Specify how the scanned-in image data is to be processed.

    Bilevel .... Data is scanned in at two levels of black and white. Suitable for scanning in line drawings or characters.

    Halftones .... Data is scanned in at two levels of black and white. During scanning, one of four halftone methods is used to perform halftone processing.

    Grayscale .... Data is scanned in as an eight-bit image that contains a 256-level gray scale. Suitable for scanning in a monochrome photograph or similar document.

    8-bit color .... Data is scanned in as an eight-bit color image.

    24-bit color .... Data is scanned in as a 24-bit color image.

Document Type .... Specify the type of document. Also specify any settings that are to be saved/read.

Save… Button .... Saves the scan settings under a new file name. The saved settings can be read in **Document Type**.

Delete Button .... Deletes the currently selected Document Type from the list.

Defaults Button .... Loads the default settings for the specified **Document Type**.

Tip

Settings entered at Output and at the Document, Adjustments, File, Options, and Mail tabs are saved as scan conditions.

Document Tab

Paper Size .... Select the size of the document that contains the image data you want to scan in. If you want to supply a user-defined paper size here, type in the width and length of the document.

When automatic detection of document size is enabled

Automatic detection .... The scanner automatically detects the dimensions of the document to be scanned.
This setting cannot be specified for the CSX300 model.

Automatic detection of standard size ... The document is scanned so that its length and width proportions automatically fit within the borders of the set paper size.
This setting cannot be specified for the CSX300 model.

Automatic detection—ISO series .... This setting cannot be specified for the CSX300 model.

Automatic detection—ISO A series ...... This setting can only be specified for the CSX300 model.

Automatic detection—ISO B series ...... This setting can only be specified for the CSX300 model.

Automatic detection—ANSI series
Automatic detection—ARCH series
Automatic detection—DIN series .... The document is scanned so that its length and width proportions automatically fit within the borders of the paper size of each series.
All automatic detection cannot be specified for the SK200 model.

Orientation .... Select the orientation of the document that contains the image data you want to scan in.

Resolution .... Specify the resolution at which image data is scanned in.

Quality .... Specify the sacn quality at which image data is sanned in.
This setting cannot be specified for the CS300/400 model.

Fast Scan .... Scans and feeds documents at up to twice normal speed. The scanned image data may be somewhat coarse compared to normal scans.
This setting can only be specified for the CS300/400 model.

Initial X Position Initial Y Position

.... Let you move the start position so that you can skip over any white margins at the edge of the document.
This setting cannot be specified for the SK200 model.

Paper Size after Scan

.... After the document has been scanned, the document is enlarged or reduced to a specified paper size without altering its height to width ratio.

End-of-paper processing

.................. Specifies the processing to be performed when the scanner has detected the end of the paper during scanning.

Confirm .... Displays a window for confirming whether or not to create an image all the way up to a specified paper size.

End of paper .... Creates the image all the way up to the position at which the end of the paper was detected.

Paper size .... Creates an image all the way up to a specified paper size.

Rotate .... The image will be rotated after scanning.

Mirror .... If you enable this option, the image will be inverted on the vertical axis after scanning.

Negative .... If you enable this option, the image will be color-inverted after scanning.

Document Thickness

.... Displays the thickness of the document during scanning.
This setting can be only displayed in the CS600/610 model.

Adjustments tab

Rocker Mode .... If you enable this option, you can change the scanning conditions while scanning the same section repeatedly; you should set the optimal scanning conditions while reviewing the on-screen image quality. Then perform the actual scanning.
This setting cannot be specified for the SK200 model.

Tip
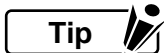
Rocker Mode is available only for prescanning.
Once the scanning position has been moved, you can turn on the Rocker Mode at any position and scan in data repeatedly from the same position.
With the image displayed in the Preview window, move the mouse cursor to the area for which you wish to make the settings for scanning, and then right-click to return the scanning position to a previous position and turn on the Rocker mode.
You can turn the Rocker mode off if you right-click in the Preview window when in Rocker mode.

When Output is Bilevel

Intensity .... Adjusts the overall brightness level. The higher the Intensity value, the whiter (fainter) the overall image appears.

Intensity Correction

.... Specify the degree of correction that applies to auto adjustment of the difference in contrast between the foreground and background.
If the value is 0 (zero), only Brightness (Intensity) is available. The larger the value, the greater the effect on documents with contrast. Note that setting an excessively large value here is likely to generate noise or speckles.

Edge Adjustment .... Setting a larger value here sharpens thin lines, characters, etc. Note that setting an excessively large value is likely to generate noise or speckles at each boundary between a black and a white area.

> **Tip** ✎
>
> **If a good image is not obtained by default when you select "Bilevel" for Output, adjust the control settings in the following order:**
> **Intensity > Intensity Correction> Edge Adjustment**

White Level .... All pixels whiter than the setting will be scanned in as white. The smaller the setting, the larger the effect. For example, this is useful to scan in the background on the image as white.

Black Level .... All pixels blacker than the setting will be scanned in as black. The smaller the setting, the larger the effect. For example, this is useful to scan in the background on the image as black.

Gray balance .... The three RGB colors are used to scan the document. The blue and yellow colors become prominent. This parameter is used for applications such as scanning the squares on graph paper.
This setting can only be specified for the CSX300 model.

Automatic Despeckling

.... If you enable this option, speckles of the specified size will be removed from the image while the document is being scanned in.

Speckle Size .... Set the size of speckles that are to be removed by automatic despeckling. (1 to 30 pixels, in 1-pixel increments)

Automatic Deskew .. If you enable this option, any skewed image will be corrected if the scanner gets scanned-in image data from a skewed document. The automatic deskew operates up to ±7.1°.
This setting cannot be specified for the SK200 model.

**When Output is Halftones**

Halftones .... If you selected **Halftones** for **Output**, select the method of halftone processing here.

    Dither 4×4 .... Halftone processing with a 4×4 dot matrix pattern.

    Dither 4×8 .... Halftone processing with a 4×8 dot matrix pattern.

    Dither 8×8 .... Halftone processing with a 8×8 dot matrix pattern.

    Error Diffusion ..... Photographs are scanned in with a more natural appearance.

Intensity .... Adjusts the overall brightness level. The higher the Intensity value, the whiter (fainter) the overall image appears.

White Level .... All pixels whiter than the setting will be scanned in as white. The smaller the setting, the larger the effect. For example, this is useful to scan in the background on the image as white.

Black Level .... All pixels blacker than the setting will be scanned in as black. The smaller the setting, the larger the effect. For example, this is useful to scan in the background on the image as black.

Gray balance .... The three RGB colors are used to scan the document. The blue and yellow colors become prominent. This parameter is used for applications such as scanning the squares on graph paper.
This setting can only be specified for the CSX300 model.

Automatic Despeckling
.... If you enable this option, speckles of the specified size will be removed from the image while the document is being scanned in.

Speckle Size .... Set the size of speckles that are to be removed by automatic despeckling. (1 to 30 pixels, in 1-pixel increments)

Automatic Deskew .. If you enable this option, any skewed image will be corrected if the scanner gets scanned-in image data from a skewed document. The automatic deskew operates up to ±7.1°.
This setting cannot be specified for the SK200 model.

When Output is Grayscale

Gamma .... Used to adjust the gamma value. If you set a large value here, intermediate-level areas will be scanned in as bright images.

Brightness .... Specifies the image brightness. Increasing the specified value results in scanning as a brighter image.

Contrast .... Used to adjust the contrast of the image. If you set a large value here, the image will be scanned in with a high contrast.

White Level .... All pixels whiter than the setting will be scanned in as white. The smaller the setting, the larger the effect. For example, this is useful to scan in the background on the image as white.

Tip
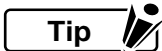
When using the Preview button to preview the scanned image, if you click the   button and then the left mouse button in the ensuing Details window, the color at the cursor position becomes the White Level setting. At this time, when you drag and then release the mouse, the darkest color in the enclosed area becomes the White Level setting.

Black Level .... All pixels blacker than the setting will be scanned in as black. The smaller the setting, the larger the effect. For example, this is useful to scan in the background on the image as black.
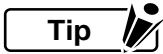
Tip

When using the Preview button to preview the scanned image, if you click the 🖉 button and then the left mouse button in the ensuing Details window, the color at the cursor position becomes the Black Level setting. At this time, when you drag and then release the mouse, the lightest color in the enclosed area becomes the Black Level setting.

Gray balance .... The three RGB colors are used to scan the document. The blue and yellow colors become prominent. This parameter is used for applications such as scanning the squares on graph paper.
This setting can only be specified for the CSX300 model.

Edge Sharpening .... To sharpen the boundary between the background and the data, enable this parameter. If you want to perform high resolution scanning or if background speckles increase, disable this parameter.

Automatic Despeckling
.... If you enable this option, speckles of the specified size will be removed from the image while the document is being scanned in.

Automatic Deskew .. If you enable this option, any skewed image will be corrected if the scanner gets scanned-in image data from a skewed document. The automatic deskew operates up to ±7.1°.
This setting cannot be specified for the SK200 model.

When Output is 8-bit Color (Standard)

Reduction Method .. Specify the method used to subject the image to eight-bit color depth reduction.

Closest Match ...... Data is scanned in as an eight-bit color image through the scanner.

Error Diffusion ..... Data is scanned in as a 24-bit color image through the scanner. The image is subjected to color depth reduction so that the color is viewed more naturally.

RGB .... Used to change Gamma, Brightness, Contrast, White Point and Black Point to RGB elements. If RGB is selected, the red, green, and blue elements change simultaneously.

Gamma .... Used to adjust the gamma value. If you set a large value here, intermediate-level areas will be scanned in as bright images.

Brightness .... Specifies the image brightness. Increasing the specified value results in scanning as a brighter image.

Contrast .... Used to adjust the contrast of the image. If you set a large value here, the image will be scanned in with a high contrast.

White Point .... The parts of the image that are closer to white than the specified value will be scanned in as white. The effect that can be expected is to make the background white. The smaller the setting, the greater the effect.

> **Tip** ✒
>
> **When using the Preview button to preview the scanned image, if you click the** 🖊 **button and then the left mouse button in the ensuing Details window, the color at the cursor position becomes the White Point setting. At this time, when you drag and then release the mouse, the darkest color in the enclosed area becomes the White Point setting.**

Black Point .... The parts of the image that are closer to black than the specified value will be scanned in as black. The effect that can be expected is to make the data black. The larger the setting, the greater the effect.

Tip

When using the Preview button to preview the scanned image, if you click the [icon] button and then the left mouse button in the ensuing Details window, the color at the cursor position becomes the Black Point setting. At this time, when you drag and then release the mouse, the lightest color in the enclosed area becomes the Black Point setting.

Moire Pattern Removal Radius

.... This specifies the size of the radius for moiré pattern removal.

If you specify 0, moiré pattern removal processing will not be performed.

Moire Pattern Removal Strength

.... This specifies the processing strength for moiré pattern removal.

If you specify a large value, processing will be performed to a large extent.

Checkpoint

The above settings cannot be specified if the Color Reduction Method is Closest Match.

Crease Reduction Threshold Level

.... To reduce the effects of creases on documents, specify the threshold level at which you want images to be processed for crease reduction.

Crease Reduction Intensity

.... To reduce the effects of creases on documents, specify the degree of crease reduction. The larger the specified value, the greater the crease reduction. Specifying 0 disables crease reduction.

Checkpoint

The above settings cannot be specified if the Color Reduction Method is Closest Match.

Modify Color After Scanning

.... If this setting is enabled, the **Modify Color** window is displayed after the document has been scanned and color reduction performed.

Tip

Please refer to Page 4-26 for the Modify Color window setting procedure.

Specify Color Modification Using a File

.... This specifies a file to which Modify Color settings were saved. If this setting is enabled, the Modify Color window is not displayed, and the colors are modified automatically.

Edge Sharpening .... To sharpen the boundary between the background and the data, enable this parameter. If you want to perform high resolution scanning or if background speckles increase, disable this parameter.

Checkpoint

The above setting cannot be specified if the Color Reduction Method is Closest Match.

Express .... Color processing is performed at the scanner to enable high-speed data transfer. If the image to be scanned in is a large image, the scanning speed is increased. If this setting is turned off, color processing is not performed at the scanner.
This setting cannot be specified for the CSX300 model.
For other models, it cannot be specified if the Color Reduction Method is Closest Match.

Checkpoint

The above setting cannot be specified if the Color Reduction Method is Closest Match.

Moire Reduction ..... To suppress moiré patterns, documents are read from the scanner at high resolution.

Checkpoint

The above setting cannot be specified if the Color Reduction Method is Closest Match.

Automatic Despeckling
.... If you enable this option, speckles of the specified size will be removed from the image while the document is being scanned in.

Automatic Deskew .. If you enable this option, any skewed image will be corrected if the scanner gets scanned-in image data from a skewed document. The automatic deskew operates up to ±7.1°.

When Output is 8-bit Color (Optimized)

Reduction Method .. Specify the method used to subject the image to eight-bit color depth reduction.

Closest Match ...... Data is scanned in as a 24-bit color image through the scanner.
The image is subjected to eight-bit color depth reduction so that the color is optimized for the majority of documents.

For Maps/Drawings
.... Data is scanned in as a 24-bit color image through the scanner.
The image is subjected to the color depth reduction suitable for cases where the number of colors in use is small (e.g., maps, drawings). Particularly, if 8 or a lower number is specified for the number of colors, the image will be subjected to a special process so that the necessary colors will remain.

Number of Colors ... Specify the number of colors used for color depth reduction.

Saving the Palette After Scanning

.... Saves the palette created after the document has been scanned and color reduction performed. The saved palette can be used in the 8-bit color (Palette) scan mode. However, the results will not be the same as those obtained in 8-bit color (Optimized) mode.

RGB .... When you have changed the Gamma, Brightness, Contrast, White Point or Black Point value, this function changes the red, green and blue components at the same time.

Gamma .... Used to adjust the gamma value. If you set a large value here, intermediate-level areas will be scanned in as bright images.

Brightness .... Specifies the image brightness. Increasing the specified value results in scanning as a brighter image.

Contrast .... Used to adjust the contrast of the image. If you set a large value here, the image will be scanned in with a high contrast.

White Point .... The parts of the image that are closer to white than the specified value will be scanned in as white. The effect that can be expected is to make the background white. The smaller the setting, the greater the effect.

Tip

When using the Preview button to preview the scanned image, if you click the button and then the left mouse button in the ensuing Details window, the color at the cursor position becomes the White Point setting. At this time, when you drag and then release the mouse, the darkest color in the enclosed area becomes the White Point setting.
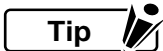
Black Point .... The parts of the image that are closer to black than the specified value will be scanned in as black. The effect that can be expected is to make the data black. The larger the setting, the greater the effect.

Tip

When using the Preview button to preview the scanned image, if you click the button and then the left mouse button in the ensuing Details window, the color at the cursor position becomes the Black Point setting. At this time, when you drag and then release the mouse, the lightest color in the enclosed area becomes the Black Point setting.

Moire Pattern Removal Radius

.... This specifies the size of the radius for moiré pattern removal.
If you specify 0, moiré pattern removal processing will not be performed.

Moire Pattern Removal Strength

.... This specifies the processing strength for moiré pattern removal.
If you specify a large value, processing will be performed to a large extent.

Crease Reduction Threshold Level

.... To reduce the effects of creases on documents, specify the threshold level at which you want images to be processed for crease reduction.

Crease Reduction Intensity

.... To reduce the effects of creases on documents, specify the degree of crease reduction. The larger the specified value, the greater the crease reduction. Specifying 0 disables crease reduction.

Modify Color After Scanning

.... If this setting is enabled, the **Modify Color** window is displayed after the document has been scanned and color reduction performed.

> **Tip** 🖊
>
> **Please refer to Page 4-26 for the Modify Color window setting procedure.**

Specify Color .... This specifies a file to which Modify Color settings were saved. If this

Modification Using a File

.... setting is enabled, the Modify Color window is not displayed, and the colors are modified automatically.

Edge Sharpening .... To sharpen the boundary between the background and the data, enable this parameter. If you want to perform high resolution scanning or if background speckles increase, disable this parameter.

Express.................... Color processing is performed at the scanner to enable high-speed data transfer. If the image to be scanned in is a large image, the scanning speed is increased. If this setting is turned off, color processing is not performed at the scanner.
This setting cannot be specified for the CSX300 model.

Moire Reduction ..... To suppress moiré patterns, documents are read from the scanner at high resolution.

Automatic Despeckling

.... If you enable this option, speckles of the specified size will be removed from the image while the document is being scanned in.

Automatic Deskew.. If you enable this option, any skewed image will be corrected if the scanner gets scanned-in image data from a skewed document. The automatic deskew operates up to ±7.1°.

When output is 8-bit Color (Palette)

Palette .... Selects the palette file for color reduction.

Edit Button .... Displays the **Edit and Save Palette** window to enable editing of the palette files.

RGB .... When you have changed the Gamma, Brightness, Contrast, White Point or Black Point value, this function changes the red, green and blue components at the same time.

Gamma .... Used to adjust the gamma value. If you set a large value here, intermediate-level areas will be scanned in as bright images.

Brightness .... Specifies the image brightness. Increasing the specified value results in scanning as a brighter image.

Contrast .... Used to adjust the contrast of the image. If you set a large value here, the image will be scanned in with a high contrast.

White Point .... The parts of the image that are closer to white than the specified value will be scanned in as white. The effect that can be expected is to make the background white. The smaller the setting, the greater the effect.

Tip

When using the Preview button to preview the scanned image, if you click the ⌨ button and then the left mouse button in the ensuing Details window, the color at the cursor position becomes the White Point setting. At this time, when you drag and then release the mouse, the darkest color in the enclosed area becomes the White Point setting.

Black Point .... The parts of the image that are closer to black than the specified value will be scanned in as black. The effect that can be expected is to make the data black. The larger the setting, the greater the effect.

Tip

When using the Preview button to preview the scanned image, if you click the ⌨ button and then the left mouse button in the ensuing Details window, the color at the cursor position becomes the Black Point setting. At this time, when you drag and then release the mouse, the lightest color in the enclosed area becomes the Black Point setting.

Moire Pattern Removal Radius
.... This specifies the size of the radius for moiré pattern removal.
If you specify 0, moiré pattern removal processing will not be performed.

Moire Pattern Removal Strength
.... This specifies the processing strength for moiré pattern removal.
If you specify a large value, processing will be performed to a large extent.

Crease Reduction Threshold Leve
.... To reduce the effects of creases on documents, specify the threshold level at which you want images to be processed for crease reduction.

Crease Reduction Intensity
.... To reduce the effects of creases on documents, specify the degree of crease reduction. The larger the specified value, the greater the crease reduction. Specifying 0 disables crease reduction.

Modify Color After Scanning
.... If this setting is enabled, the **Modify Color** window is displayed after the document has been scanned and color reduction performed.

Tip

Specify Color Modification Using a File

.... This specifies a file to which Modify Color settings were saved. If this setting is enabled, the Modify Color window is not displayed, and the colors are modified automatically.

Edge Sharpening .... To sharpen the boundary between the background and the data, enable this parameter. If you want to perform high resolution scanning or if background speckles increase, disable this parameter.

Express................... Color processing is performed at the scanner to enable high-speed data transfer. If the image to be scanned in is a large image, the scanning speed is increased. If this setting is turned off, color processing is not performed at the scanner.
This setting cannot be specified for the CSX300 model.

Moire Reduction ..... To suppress moiré patterns, documents are read from the scanner at high resolution.

Automatic Despeckling

.... If wyou enable this option, speckles of the specified size will be removed from the image while the document is being scanned in.

Automatic Deskew .. If you enable this option, any skewed image will be corrected if the scanner gets scanned-in image data from a skewed document. The automatic deskew operates up to ±7.1°.

When Output is 24-bit Color

RGB .... Used to change Gamma, Brightness, Contrast, White Point and Black Point to RGB elements. If RGB is selected, the red, green, and blue elements change simultaneously.

Gamma .... Used to adjust the gamma value. If you set a large value here, intermediate-level areas will be scanned in as bright images.

Brightness .... Specifies the image brightness. Increasing the specified value results in scanning as a brighter image.

Contrast .... Used to adjust the contrast of the image. If you set a large value here, the image will be scanned in with a high contrast.

White Point .... The parts of the image that are closer to white than the specified value will be scanned in as white. The effect that can be expected is to make the background white. The smaller the setting, the greater the effect.

Tip

When using the Preview button to preview the scanned image, if you click the button and then the left mouse button in the ensuing Details window, the color at the cursor position becomes the White Point setting. At this time, when you drag and then release the mouse, the darkest color in the enclosed area becomes the White Point setting.

Black Point .... The parts of the image that are closer to black than the specified value will be scanned in as black. The effect that can be expected is to make the data black. The larger the setting, the greater the effect.

Tip 🖊

When using the Preview button to preview the scanned image, if you click the 🖊 **button and then the left mouse button in the ensuing Details window, the color at the cursor position becomes the Black Point setting. At this time, when you drag and then release the mouse, the lightest color in the enclosed area becomes the Black Point setting.**

Moire Pattern Removal Radius

.... This specifies the size of the radius for moiré pattern removal.
If you specify 0, moiré pattern removal processing will not be performed.

Moire Pattern Removal Strength

.... This specifies the processing strength for moiré pattern removal.
If you specify a large value, processing will be performed to a large extent.

Crease Reduction Threshold Level

.... To reduce the effects of creases on documents, specify the threshold level at which you want images to be processed for crease reduction.

Crease Reduction Intensity

.... To reduce the effects of creases on documents, specify the degree of crease reduction. The larger the specified value, the greater the crease reduction. Specifying 0 disables crease reduction.

Modify Color After Scanning

.... If this setting is enabled, the **Modify Color** window is displayed after the document has been scanned and color reduction performed.

Tip 🖊

Please refer to Page 4-26 for the Modify Color window setting procedure.

Specify Color Modification Using a File

.... This specifies a file to which Modify Color settings were saved. If this setting is enabled, the Modify Color window is not displayed, and the colors are modified automatically.

Edge Sharpening .... To sharpen the boundary between the background and the data, enable this parameter. If you want to perform high resolution scanning or if background speckles increase, disable this parameter.

Express................... Color processing is performed at the scanner to enable high-speed data transfer. If the image to be scanned in is a large image, the scanning speed is increased. If this setting is turned off, color processing is not performed at the scanner.
This setting cannot be specified for the CSX300 model.

Moire Reduction ..... To suppress moiré patterns, documents are read from the scanner at high resolution.

Automatic Despeckling
.... If you enable this option, speckles of the specified size will be removed from the image while the document is being scanned in.

Automatic Deskew .. If you enable this option, any skewed image will be corrected if the scanner gets scanned-in image data from a skewed document. The automatic deskew operates up to ±7.1°.
This setting cannot be specified for the SK200 model.

File tab

File Name .... Specify the file name of the image that is to be scanned in.

File Type .... In the pull-down menu, select the type of file to save.

Auto-Assign Filename
.... The file name is automatically generated during scanning.

Direct Output to a File
.... Image data is immediately stored in the file without displaying the image.

Save as 24-bit Color
.... After the document is read, the data is automatically saved as 24-bit color data.

Tip

The file name is automatically generated when a number is appended to the right end of the file name that was saved using this setting. The automatically generated file name is the same as the previous file name except that the appended number is incremented by 1.
The number is incremented until the maximum limit is reached, and then reverts to zeroes.

Options tab

Scan Speed .... To scan a soft (limp) document or reduce the load on the document, select **Low**. (Usually set to **Standard**).

Batch Scan .... If you enable this option, document scanning will operate continuously, thereby saving time. The documents submitted to batch scanning must be uniform in image quality so that it will not be necessary to adjust the scanning settings for each document.

Tip
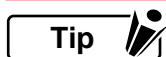
When you enable Batch Scan, enable Auto-Assign Filename in the File tab. Neither Continuous Scan nor Manual Loading is available.

Continuous Scan .... If you enable this parameter, document scanning will operate continu-ously without closing the **Scan** window.

Tip 🖉
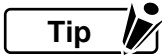
When you enable Continuous Scan, enable Auto-Assign Filename in the File tab. Batch Scan is not available.

Detecting the Front Edge of Document

.... If this parameter is enabled, the leading edge of the document is de-tected. If the detection operation is performed each time a document is scanned, the overall scanning efficiency is decreased but the leading edge of the document will be detected correctly.

If this parameter is disabled, the leading edge of the document is not detected. Eliminating the detection operation increases the overall scan-ning efficiency, but there may be a certain amount of blank space created at the leading edge of the data. Moreover, if a document that is longer than the specified Paper Size is scanned, the data will be scanned in at the longer length.

This setting cannot be specified for the CS300/400 models.

Checkpoint 🖉

This function is effective when the Batch Scan function is enabled.
If batch scanning is performed when this function is disabled, the automatic detection function specified for Paper Size may not operate correctly if the document is not inserted correctly. Furthermore, paper jams may occur more frequently. We recommend that this function always be enabled.
When scanners are IS200 and CS500/600 models, this function can be enabled or disabled if the firmware version is 1.70 or later. With earlier firmware versions, it is always enabled.

Manual Loading ...... Enable this parameter if you want to scan in thin or large documents. If you enable this parameter, documents will not be fed automatically. If you disable it, documents will be fed automatically.
This setting cannot be specified for the SK200 model.

Delay Time .... Required if document feed is initiated automatically. Set the delay time from when the document touches the sensor switch of the scanner to when the feed is actually initiated. (In 0.1-s increments). If, for example, you set "15" for the delay time, feed is initiated 1.5 seconds after the document touches the sensor switch.

Auto Eject .... This section lets you control how the document is to be moved after being scanned.

None .... The document is not ejected and stops at the position where scanning ends.

Eject to Back .... The document is ejected to the back of the scanner.

Front .... The document is fed to the front of the scanner.

Back .... The document is fed to the back of the scanner.

Only the None and Eject to Back settings can be specified for the SK200 model.

3.4 Scan and Print

Select the **Scan and Print** command from the **Scan** menu, or click the **Scan and Print** button in the **Scan** Tools sub-window, or click the **Scan and Print** button on the **toolbar** to output scanned data to a preset printer after scanning is completed.

Tip
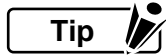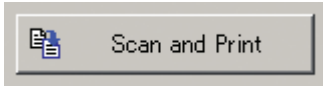
If you want to save the printed image to a file, click "Direct Output to File" on the File tab before scanning the document.

Click the printer tab to enter or modify printer settings, including printer selection.

Scan tab

Printer .... Select the printer to which you want to output scanned data.

Properties button .... Shows the properties of the selected printer. For more information on printer setup, refer to the instruction manual provided with your printer.

Paper Size .... Specify the size of paper on which to output the scanned data.

Scale .... Specify a scale between 25% and 400%.

Adjust to Paper Size

.... The scale is automatically set to match the paper size in which the scanned data is output.

Number of Copies ... Specify the number of copies you want to output. You can specify a value from 1 to 999.

Center of Paper .... The scanned data is output so that the center of the data coincides with the center of the printer print area.

Left Margin .... The scanned data is offset by the specified amount from the left margin of the paper selected for output.

Top Margin .... The scanned data is offset by the specified amount from the top of the paper selected for output.

3.5 Scanner Adjustment

You should set the adjustment features if you want to approximate the accuracy of the scanned-in drawing to that of the original. (Fine-tuning the accuracy, depending on the quality of the document.)

Usually this adjustment is unnecessary.

You can adjust the scanner **(Distance Correction, Joint Fine-adjustment**, and **Trapezoidal Correction)** by selecting the **Tools** menu > **Adjust Scanner**.

The settings that can be specified vary according to the scanner model.

Distance Correction

Corrects distances as appropriate for the type of document.

The setting may be within approximately ±1%. It is effective until the scanner is powered off.

To use the **Distance Correction** function, you must first measure a vertical line drawn on the document using the following procedure:

(1) Select a document that contains one or more drawn vertical lines. Scan it in at 600 dpi in portrait orientation.

(2) Measure the length of the vertical line on the document. Define it as x (**Distance Measured on Document**).

(3) Using the **View** menu **> Relative Measure > Distance between Specified Points**, measure the length of the corresponding vertical line in the image data. Define it as y (**Distance Measured after Scanning**).

(4) In the **Scanner Adjustments** window, click the **Distance Correction** button in **Adjustments**. The **Distance Correction** window appears.

(5) Type in the **Distance Measured on Document** x and **Distance Measured after Scanning** y values. These values must be within the range of distance correction.

(6) Click the **OK** button to calculate the corrections. Distance correction will take effect from the next document scanned.

Joint Fine-adjustment

Graphtec scanners use multiple rows of sensors.

In rare cases, there may be one or two overlapping or missing pixels in the data at a joint between the rows of sensors.

Overlapped data

Original Document   **Data overlaps**

Missing data

Original Document   **Data is missing**

In either of these cases, finely adjust the sensor-to-sensor joints using the following procedure:

(1) In the **Scanner Adjustments** window, click the **Joint Fine-adjustment** button in **Adjustments** to open the **Joint Adjustment** window.

(2) Finely adjust each of the joints.

   For overlapping pixels in the data at a joint, set a negative value. For missing pixels, set a positive value.

   Usually set 0 (0 is the factory default) for the joints.

(3) Once you have completed the settings, click the **OK** button.

Trapezoidal Correction

Corrects fine deformations, or shifts, in the direction of feed caused by the scanner feeding mechanism.

If two lines of the same original length in the left and right areas, respectively, of a drawing are scanned in as lines of different lengths, you can adjust the lengths according to the longer line.

Checkpoint ✍

This function is only effective when a document of the same document quality and of the same size as the document used for making the following settings are scanned in under the same conditions as for that document. (This function is usually set to off.) Even if it is off, image data can be scanned in with the accuracy guaranteed for the scanner. If you use the scanner after incorrect settings have been made using this function, the accuracy may be lowered.
To turn off Trapezoidal correction, select the Tools menu > Adjust Scanner and click the Trapezoidal Correction button in Adjustments. Then, in the Trapezoidal Correction window, set the Document width, Length of left side, or Length of right side to 0 (zero).

To use the **Trapezoidal Correction** function, you must first measure a rectangle drawn on a document using the following procedure:

(1) Prepare a document of the same quality and of the same size as the drawing to be scanned in. It must contain the largest possible drawn rectangle (e.g., frame around the drawing). With **Trapezoidal Correction** off, perform scanning under the same conditions.

(2) Select the **View** menu **> Relative Measure > Distance between Specified Points**, and measure the lengths of the left, right, and top sides.

(3) In the **Scanner Adjustments** window, click the **Trapezoidal Correction** button in **Adjustments**. The **Trapezoidal Correction** window appears.

(4) Type the lengths of the top, left, and right sides of the rectangle in **Document width, Length of left side**, and **Length of right side**, respectively.

(5) Click the **OK** button. The scanner is set to correct the deformations, or shifts, that are caused by its feeding mechanism.

4. IMAGE DATA MANIPULATION

This chapter describes how to display and manipulate image data and perform the basic edit functions using Scanning Master 21+.

This chapter consists of the following sections:

4.1 Window Overview

The various window functions are explained below.

Toolbar   View window

Status Bar
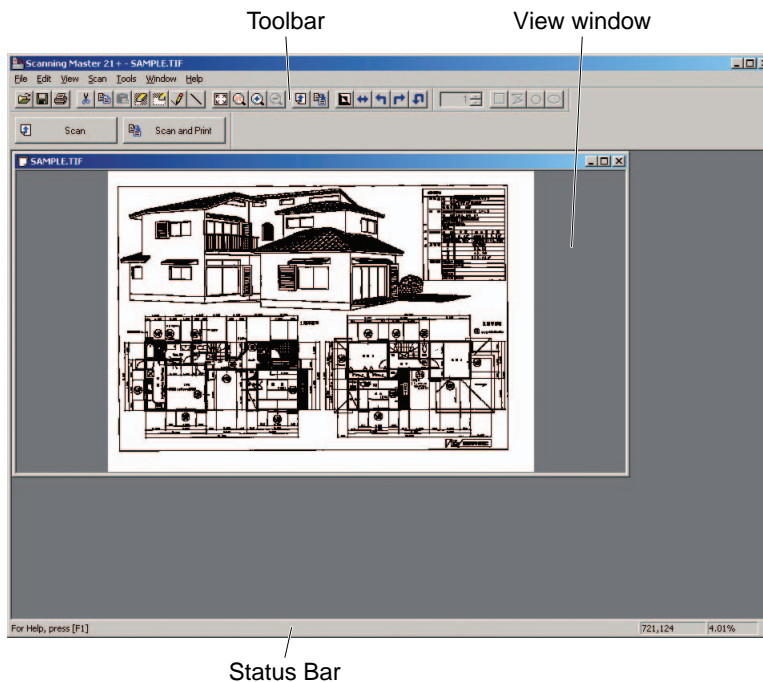
Toolbar

The toolbar is located above the application window and just under the menu bar. On the toolbar, you can operate many tools used in Scanning Master 21+ by clicking them with the mouse. To show or hide the toolbar, select the **View** menu **> Toolbar** command.

The above view of the toolbar shows the initial settings. It can be customized by selecting the **Tools** menu **> Customize** command (see Section 4.6, "Other Image Edit Functions").

For descriptions of the functions of the other buttons on the toolbar, see Chapter 5, "Description of Functions".

Scan Tools

🔼 Scan	📋 Scan and Print

The **Scan Tools** are normally displayed in the upper part of the application window, immediately below the toolbar.

To show or hide the **Scan Tools**, select the **View** menu **> Scan Tools** command.

For information on using Scan button, refer to Chapter 3.2, Scanning Procedure.

For information on using Scan and Print button, refer to Chapter 3.4, Scan and Print.

Edit Bar (Editing Function Tools)

The Editing tools are located above the application window and just under the menu bar. In Scanning Master 21+, click the icon of the tool you want to use to edit the image.

To show or hide the Editing tools, select the **View** menu **> Editing Tool** command.

Below is a brief description of the button functions:

Width
Sets the width (in pixels) that is used for erasure or modification in the Edit menu or that used for lines.

Rectangle
Used for Cut, Copy, or Erase Area in the Edit menu. Left-click two points. The area is defined by the rectangle containing them as opposite vertexes.

Polygon
Used for Cut, Copy, and Erase Area in the Edit menu. Define the vertexes of the polygon by left-clicking. Double-click on the last vertex to determine the area.

Circle
Used for Cut, Copy, or Erase Area in the Edit menu. Define the center of the circle by left-clicking. Move the mouse until a circle of the desired size is obtained. Left-click there again to determine the area.

Ellipse
Used for Cut, Copy, or Erase Area in the Edit menu. Define the center of the ellipse by left-clicking. Move the mouse until an ellipse of the desired size is obtained. Left-click there again to determine the area.

Status Bar

| Display the fit image | | 7533,415 | 3.84% | // |

The Status Bar is shown at the bottom of the Scanning Master 21+ window.

When you select a menu command or a button on the toolbar, the Status Bar displays a brief description of the command, the cursor position, and the magnification of the image data displayed.

To show or hide the Status Bar, select the **View** menu **> StatusBar** command.

4.2   Basic File Operations

Opening an Image File

(1) Select the **File** menu > **Open** or click the **Open** button on the toolbar.

The **Open** window opens.
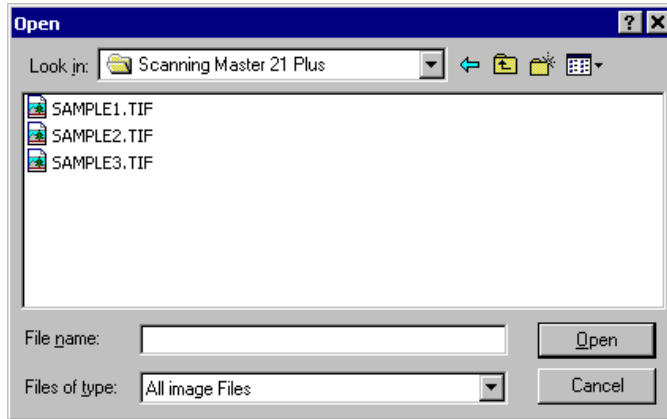
(2) Settings in the **Open** window

    (a) Specify where to open the image file.

    (b) Using the **Files of type** list, you can restrict the file types listed in the **File name** list.

        To list all types of files, select "all files" in the **Files of type** list. For raster files, the **Files of type** list only contains the files each of which has the extension you specified on the File Settings tab in Options.

(3) To open the desired file

In the **File name** list, double-click the file name. Alternatively, click the file name in the **File Name** list and click the **Open** button.

Checkpoint 📝

Any attempt to open a TIFF multipage file displays only the first page. Any attempt to save the data saves only the first page.

Saving an Image File

(1) Select the window in which the image you want to save is on-screen.

(2) Select the **File** menu > **Save** or click the **Save** button on the toolbar.

Changing the File Name, Folder, or File Format

(1) If you want to change the folder, file name, or file format before saving the file, select the window in which the image is on-screen.

(2) Select the **File** menu **> Save As**.

The **Save As** window opens.
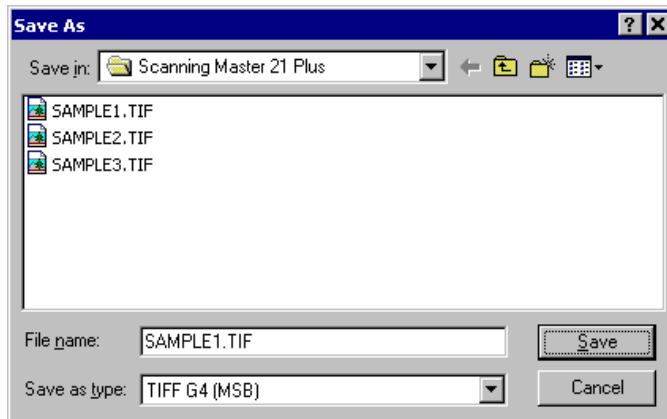
(3) Settings in the **Save As** window

(a) To save the image in a different file format, select the new format from the **Save as type** list.

The extension of the new file format will change to the default character string.

The default extension for the file format can be specified on the **Tools** menu **> Options > File Settings** tab.

(b) To save the image under a different file name, type the new name in the **File name** box. The file will be renamed.

(c) To save the image in a different folder or drive, set the **folder** and **drive** in the location where you want to save it.

(4) Click the **Save** button to save the file.

4.3   Printing Image Data

(1) Open the window that contains the preview of the image to be printed.

(2) Select the **File** menu > **Print** or click the **Print** button on the toolbar.

The **Print** window opens. Complete all the settings, and click the OK button to initiate printing.

Tip
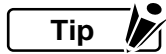
After selecting the File menu > Page Setup, you can set the document size, the print orientation, and the magnification.

You should turn on Direct Output to Plotter in the Page Setup dialog box, for example, if you want to output a long-length image on a Graphtec plotter or similar output equipment. Usually leave this check box off.

4.4   Viewing the Image

Scrolling the Image

If the image is scrollable, a scroll bar appears at both the right end and bottom. The scroll box in each scroll bar indicates the current position in the on-screen image. Using the mouse, you can scroll the image to move to the desired position in a hidden area.

Perform one of the following:

◆ Drag the horizontal or vertical scroll box.

◆ Click the scroll arrow at either end of a scroll bar.

◆ Click the scroll bar.

◆ Press the **<←>**, **<→>**, **<↑>**, or **<↓>** key on the keyboard.

Previewing the Whole Image

This function scales the on-screen image so that the whole image fits in the current window size.

Perform one of the following:

◆ Select the **View** menu > **Fit**.

◆ On the toolbar, click the **Fit** button.

◆ Press the **<F2>** key on the keyboard.

Viewing the Image at Pixel Level

This function displays the image at pixel level, associating one dot with one pixel on the screen.

All the data can be displayed precisely.

Perform one of the following:

◆ Select the **View** menu > **1:1**.

◆ On the toolbar, click the **1:1** button.

◆ Press the **<Ctrl>**+**<1>** keys on the keyboard.

Zooming in on the Image

This function zooms in on the on-screen image, by a factor of 2 or 4, relative to the one-to-one view size.

◆   Select the **View** menu > **Zoom In**.

Tip
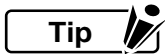
If you want to double the size of the image relative to the current one, click the Zoom In button on the toolbar once.

Zooming out the Image

This function zooms out the on-screen image, by a factor of 1/2, 1/4, 1/8, or 1/16, relative to the one-to-one view size.

◆   Select the **View** menu > **Zoom Out**.

Tip
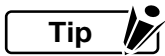
If you want to zoom the image to half its current size, click the Zoom Out button on the toolbar once.

Bird's Eye Display

You can show or hide the Bird's Eye that is used to manipulate the on-screen image (for example, zooming in on the image).

◆ Select the **View** menu > **Bird's Eye**.

◆ On the toolbar, click the **Bird's Eye** button.

◆ Press the **<F6>** key on the keyboard.

Tip

You can show the Bird's Eye button by customizing the toolbar.

How to use the Bird's Eye Function

The **Bird's Eye** shows the overview of the on-screen image and what section of the overview is currently displayed in the **View** window.

In addition, you can control display of the **View** window through the **Bird's Eye**.

(1) Moving the display position

With the left mouse button, drag the view range in the overview to the desired position to display.

(2) Setting the display position and the magnification

With the right mouse button, drag the overview. Once the desired range to display in the **View** window is obtained, release the button. To cancel setting of the view range, press the **<Esc>** key during drag.

Zoom Display

You can show or hide the Zoom function that is used to zoom the area located at the current cursor position.

◆ Select the **View** menu > **Zoom**.

◆ On the toolbar, click the **Zoom** button.

◆ Press the **<F11>** key on the keyboard.
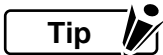
> **Tip**
>
> **You can show the Zoom button by customizing the toolbar.**

How to use Zoom

Zoom displays the detailed view of a zoomed section in the area containing the current cursor position.

Setting the magnification

Left-click **Zoom** to make it active. Next, use the **<+>** key to zoom in on the view or the **<->** key to zoom it out. For the magnification, you can select **1/16**, **1/8**, **1/4**, **1/2**, **1**, **2**, **4**, **or 8**.

Loupe Display

You can turn on or off the Loupe Mode, which enables you to zoom in on the area around the cursor.

◆ Select the **View** menu > **Loupe**.

◆ On the toolbar, click the **Loupe** button.

◆ Select the **<F12>** key on the keyboard.
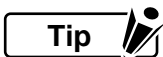
> **Tip**
>
> **You can show the Loupe button by customizing the toolbar.**

How to use Loupe

If **Loupe Mode** is on, the view is zoomed in on while you are holding down the left mouse button in the **View** window. You can change the size and magnification for Loupe by using **Display Settings** in the **Tools** menu > **Options**. In addition, you can change the magnification by pressing the **<+>** or **<->** key while the image is currently zoomed in on.

Image Info

You can display the window that lists detailed information about the on-screen image.

◆ Select the **View** menu **> Image Info**.

◆ On the toolbar, click the **Image Info** button.

Tip
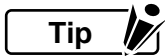
You can show the Image Info button by customizing the toolbar.

4.5   Using the Edit Functions

You can edit image data easily using the function buttons on the toolbar.

Tip
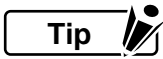
While you are editing image data, the cursor may change as appropriate for the actions of each command or function. While the cursor is in the form of a cross, the point indicated by the cursor is its intersection.

Cut

The data you selected from the on-screen image is cut and saved in memory. Once it is cut, the existing memory contents are replaced by the new cut data.

To cut a specific area from the image, take the following steps:

(1) Select the **Edit** menu > **Cut**, or click the **Cut** button on the toolbar.

(2) Next use the **Cut** tool as follows. Press the **<Esc>** key to cancel the operation.

    (a) For a **rectangle**, define any two points by left-clicking. The contents are deleted from the rectangular area that contains these points as opposite vertexes, and saved in memory.

    (b) For a **polygon**, define the positions of the vertexes of the polygon by left-clicking (every polygon is a closed form). With the left button, double-click the last vertex of the area you want to cut. The contents of the defined area are deleted and saved in memory.

    (c) For a **circle** or **ellipse**, take the following steps: Left-click the center of the area you want to cut. To define the cut area, move the mouse until a circle or ellipse of the desired size is obtained. Click with the left button again. At this time, the contents of the defined area are deleted and saved in memory.

(3) To terminate use of the **Cut** tool

    Select **Edit** > **Cut** again, or click the **Cut** button on the toolbar again.

Tip
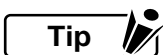
You can select the Cut tool shape (rectangle, polygon, circle, or ellipse) from the Edit Function Tools on the Edit Bar.

Checkpoint

This function is available only for bilevel data.

Copy

The data you selected from the on-screen image is copied and saved in memory. Once it is copied, the existing memory contents are replaced by the new copied data.

To copy a specific area from the image, take the following steps:

(1) Select the **Edit** menu > **Copy**, or click the **Copy** button on the toolbar.

(2) Next use the **Copy** tool as follows. Press the **<Esc>** key to cancel the operation.

    (a) For a **rectangle**, define any two points by left-clicking. The contents of the rectangular area that contains these points as opposite vertexes are saved in memory.

    (b) For a **polygon**, define the positions of the vertexes of the polygon by left-clicking (every polygon is a closed form). With the left button, double-click the last vertex of the copy area. The contents of the defined area are saved in memory.

    (c) For a **circle** or **ellipse**, take the following steps: Left-click the center of the copy area. To define the copy area, move the mouse until a circle or ellipse of the desired size is obtained. Click with the left button again. At this time, the contents of the defined area are saved in memory.

(3) To terminate use of the **Copy** tool

Select **Edit** > **Copy** again, or click the **Copy** button on the toolbar again.

Tip

You can select the Copy tool shape (rectangle, polygon, circle, or ellipse) from the Edit Function Tools on the Edit Bar.

Checkpoint

This function is available only for bilevel data.

Paste

This function pastes the memory contents to the on-screen image. If the memory contains no data, this command is not available. Scanning Master 21+ allows you to use one of three paste functions, depending on the circumstances.

New Image

An on-screen **View** window is created with the memory contents as the new image data.

The procedure is as follows.

(1) Select the **Edit** menu > **Paste** > **New Image**, or click the **New Image** button on the toolbar.

(2) A new **View** window is created.

Current Window

The memory contents are pasted to the cursor position.

The procedure is as follows.

(1) If you want to paste the area to a window other than the one where you performed Cut or Paste, open the window to which you want to paste the area.

(2) Select the **Edit** menu > **Paste** > **Current Window**, or click the **Paste to Current Window** button on the toolbar.

(3) By pressing and holding down the left mouse button, you can view the image contained in the memory or in that area. Press the **Esc** key to terminate the operation.

(4) While holding down the left mouse button, drag the mouse to the desired position.

(5) Release the mouse button to paste the contents to the image.

(6) To terminate use of the **Paste** tool

Select **Edit** > **Paste** > **Current Window** again, or click the **Paste to Current Window** button on the toolbar again

Transparent Background

The memory contents are pasted to the cursor position. Unlike the **Current Window** command, these contents are pasted in with the background in transparent color.

To paste the cut or copied area to the image, take the following steps:

(1) If you want to paste the area to a window other than the one where you performed Cut or Paste, open the window to which you want to paste the area.

(2) Select the **Edit** menu > **Paste** > **Transparent Background** or click the **Transparent Background** button on the toolbar.

(3) By pressing and holding down the left mouse button, you can view the image contained in memory or in that area. Press the **Esc** key to terminate the operation.

(4) While holding down the left mouse button, drag the mouse to the desired position.

(5) Release the mouse button to paste the memory contents to the image.

(6) To terminate use of the **Paste** tool

Select **Edit** > **Paste** > **Transparent Background** again, or click the **Transparent Background** button on the toolbar again

Checkpoint

This function is available only for bilevel data.

Rubout

The image is erased in a manner similar to rubbing out with an eraser on the document (partial erasure).

The procedure is as follows.

(1) Select the **Edit** menu > **Rubout** or click the **Rubout** button on the toolbar.

(2) Press and hold down the left mouse button to drag the **Rubout** tool and erase the image.

(3) To terminate use of the **Rubout** tool

Select **Edit** > **Rubout** again, or click the **Rubout** tool on the toolbar again.

Tip

You can set the width of the Rubout tool using the Editing Function Tools on the Edit Bar.

Checkpoint

This function is only available for bilevel data.

Erase Area

The specified area in the on-screen image is erased.

The procedure is as follows.

(1) Select the **Edit** menu >**Erase Area** or click the **Erase Area** button on the toolbar.

(2) Next use the **Erase Area** Tool as follows. Press the **Esc** key to terminate the operation.

(a) For a **rectangle**, left-click the two points where opposite vertexes of the rectangular area you want to erase are located.

(b) For a **polygon**, define the positions of the vertexes of the polygon by left-clicking (every polygon is a closed form). With the left mouse button, double-click the last vertex of the area you want to erase.

(c) For a **circle** or **ellipse**, take the following steps: Left-click the center of the area you want to erase. Move the mouse until a circle or ellipse of the desired size is obtained. Click with the left button again in the area you want to erase.

(3) To terminate use of the **Erase Area** tool

Select **Edit** > **Erase Area** again, or click the **Erase Area** tool on the toolbar again.

Tip 🖊

You can select the Erase Area tool shape (rectangle, polygon, circle, or ellipse) from the Editing Function Tools on the Edit Bar.

Checkpoint 🖊

This function is available only for bilevel data.

Revise

You can retouch the on-screen image in a manner similar to using a pencil on the document.

The procedure is as follows.

(1) Select the **Edit** menu >**Revise** or click the **Revise** button on the toolbar.

(2) Press and hold down the left mouse button to drag the **Revise** Tool and retouch the image.

(3) To terminate use of the **Revise** tool

Select **Edit** > **Revise** again, or click the **Revise** tool on the toolbar again.

Tip
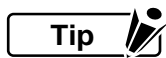
You can set the Revise tool width using the Editing Function Tools.

Checkpoint

This function is available only for bilevel data.

Line

You can draw a line on the on-screen image.

The procedure is as follows.

(1) Select the **Edit** menu >**Line** or click the **Line** button on the toolbar.

(2) Define the start position of the line by left-clicking there. Next move to the desired position, and left-click there again to define it as the end position. While holding down the **<Shift>** key, enter the second position to obtain a horizontal, vertical, or 45-degree line.

(3) To terminate use of the **Line** tool

Select **Edit** > **Line** again, or click the **Line** tool on the toolbar again.

Tip
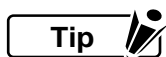
You can set the Line tool width using the Editing Function Tools.

Checkpoint

This function is available only for bilevel data.

Undo Edit Function

This function lets you undo the immediately previous action.

The procedure is as follows.

◆ Select the **Edit** menu > **Undo**.

◆ On the toolbar, click the **Undo** button.

Tip
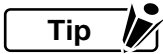
If you have saved the image or used a tool, this function cannot be used.
You can show the Undo button by customizing the toolbar.

Checkpoint

This function is available only for bilevel data.

Redo Undo Edit

This function restores the last edit you did using **Undo**.

The procedure is as follows.

◆ Select the **Edit** menu > **Redo**.

◆ On the toolbar, click the **Redo** button.
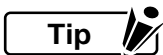
Tip

You can show the Undo button by customizing the toolbar.

Checkpoint

This function is available only for bilevel data.

4.6   Other Image Editing Functions

Various editing functions can be used from the **Tools** menu.
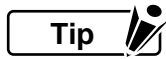
Tip

The Crop and Skew correction buttons can be displayed by customizing the toolbar.

Preview display

The following explanations are common to the Bilevel and Modify Color preview displays.
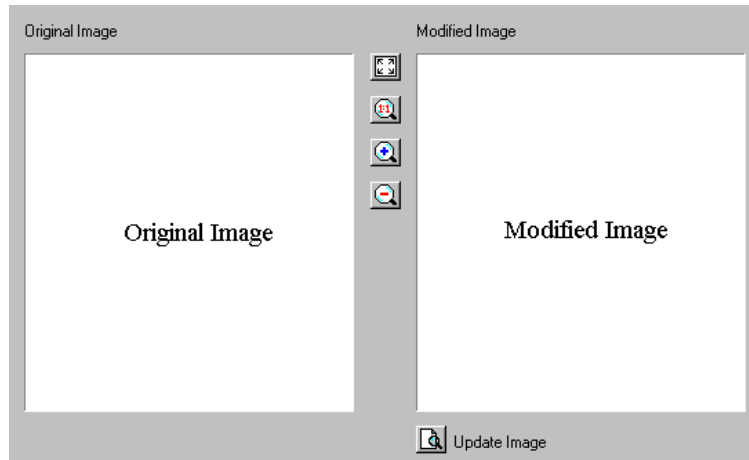
Fit button

Enlarges or reduces the image to display the entire image within the current window size.

1:1 button

Displays the image at one dot per pixel.

Zoom In button

Displays the image at twice its current size.

Zoom Out button

Displays the image at half its current size.

Update Image button

Refreshes the image to the current settings after making the specified changes.
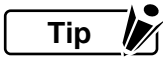
> **Tip** 📝
>
> **To display a range on the image, right-click and drag to create a rectangular area. When the mouse button is released, the image in the range specified will be displayed in the current window.**
>
> **To scroll the image, left-click and drag the Original Image box or Modified Image box with the mouse. The image scrolls in the direction in which the mouse is moved until the mouse button is released.**

Despeckling

Any remaining speckles are removed from the background of the on-screen image.

The procedure is as follows.

(1) Select the **Tools** menu > **Despeckle**, or click the **Despeckle** button on the toolbar.

(2) The **Despeckle** dialog box appears.

(3) Set the speckle size in the **Despeckle** dialog box, then click the OK button.

> **Checkpoint** 📝
>
> **This function is available only for bilevel data.**

Deskew

When the scanner has scanned in a skewed document, the skewed on-screen image can be corrected.

Deskew by setting the angle

(1) Select the **Tools** menu > **Deskew** or click the **Deskew** button on the toolbar.

(2) The **Deskew** dialog box appears.

(3) Type the new angle in the **Deskew** dialog box, then click the OK button.

Deskew by line

(1) Select the **Tools** menu > **Deskew** or click the **Deskew** button on the toolbar.

(2) The **Deskew** dialog box appears.

(3) Click the **Set Angle** button in the **Deskew** dialog box.

(4) Click in the two points that define the skewed image. (They must be on the horizontal reference line for the document.)

Skewed document   Deskewed document

2 points to click
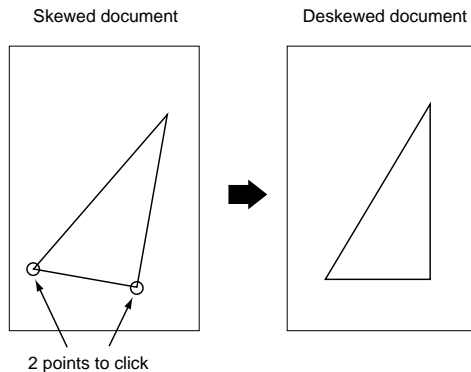
(5) The **Deskew** dialog box reappears.

(6) If the skew angle is within ±7.1 degrees, click the OK button. Otherwise the image cannot be deskewed.

Deskew by reading the angle

(1) Select the **Tools** menu > **Deskew** or click the **Deskew** button on the toolbar.

(2) The **Deskew** dialog box appears.

(3) Click the **Angle Reading** button in the **Deskew** dialog box.

(4) The skew angle is automatically read from the active window. The skew is sensed in the top to bottom direction.

(5) The skew angle is displayed in the **Deskew** dialog box.

(6) If the skew angle is within ±7.1 degrees, click the OK button. Otherwise the image cannot be deskewed.

Checkpoint

This function is available only for bilevel data.

Crop

You can easily crop any sections protruding from the defined rectangular area.

A0-Landscape to B4-Portrait

This function crops any sections outside the frame defining the specified document size.

The procedure is as follows.

(1) Select the **Tools** menu > **Crop** > **ISO A0-Landscape to DIN A4-Portrait**, or click the **ISO A0-Landscape to DIN A4-Portrait** button on the toolbar.

(2) The frame defining the document size you selected appears. This is the range for clipping the image inside the frame.

(3) Move the mouse to define the area to be clipped, and then left-click to delete the sections outside the frame.

User 1 to 4

This function crops any sections outside the frame outside the registered document size.

The procedure is as follows.

(1) Select the **Tools** menu > **Crop** > **User 1 to 4**, or click the **User 1 to 4** button on the toolbar.

(2) The dialog box for defining the size of the frame for clipping appears.

(3) Input the width and height for the document size, and then click the **OK** button.

(4) Move the mouse to define the area to be clipped, and then left-click to delete the sections outside the frame.

Set Region

This function crops any sections outside the user-specified region.

The procedure is as follows.

(1) Select the **Tools** menu > **Crop** > **Set Region**, or click the **Set Region** button on the toolbar.

(2) Left-click at the desired position to define the start position.

(3) Move the mouse to define the area to be clipped, and then left-click once again to delete the sections outside the frame.

Move

Use this function to move the on-screen image to a different position without resizing it.
The procedure is as follows.

(1) Select the **Tools** menu > **Crop** > **Move**, or click the **Crop at Current Size** button on the toolbar.

(2) The frame defining the current size appears. This is the range for clipping the image inside the frame.

(3) Move the mouse to define the area to be clipped, and then left-click to delete the sections outside the frame.

Tip

The Crop reference point can be changed within the General tab in Options in the Tools menu. Similarly, the home point can be changed in the sequence "Center" → "Upper Left" → "Lower Left" → "Lower Right" → "Upper Right" → "Center" by pressing the Home key while selected. If you want to scroll the area during setting, use the [←], [→], [↑], [↓] keys on the keyboard. Pressing the <ESC> key cancels the settings.

Resize

You can resize the on-screen image.
The procedure is as follows.

Specifying Pixel

(1) Select the **Tools** menu > **Resize**, or click the **Resize** button on the toolbar.

(2) The **Resize** dialog box is displayed.

(3) Select **Pixel** as the Specification Method.

(4) Specify the **New Width** and **New Height** as pixel units, and then click the **OK** button.

Specifying Paper Size

(1) Select the **Tools** menu > **Resize**, or click the **Resize** button on the toolbar.

(2) The **Resize** dialog box is displayed.

(3) Select **Paper Size** as the Specification Method.

(4) Select the new paper size from the options in Paper Size, and then click the **OK** button.

Tip

If you select User Size, you can specify the New Width and New Height.

(1) Select the **Tools** menu > **Resize**, or click the **Resize** button on the toolbar.

(2) The **Resize** dialog box is displayed.

(3) Select **Resolution** as the Specification Method.

(4) Specify a new resolution for either the **New Width** or the **New Height** (both settings will be the same), and then click the **OK** button.

Checkpoint

In this case, Fix the Aspect Ratio will be enabled.

Specifying Scale

(1) Select the **Tools** menu > **Resize**, or click the **Resize** button on the toolbar.

(2) The **Resize** dialog box is displayed.

(3) Select **Scale** as the Specification Method.

(4) Specify a Scale value for **New Width** and **New Height**, and then click the **OK** button.

Checkpoint

This function is available only for bilevel data.

Smoothing

Smoothes out grayscale images by averaging each pixel value with those of the surrounding pixels. The procedure is as follows.

(1) Select the **Tools** menu > **Smoothing**, or click the **Smoothing** button on the toolbar.

(2) Smoothing is performed

Checkpoint

This function is available only for grayscale data.

Reduce Colors to Bilevel

Changes grayscale or color images to bilevel images.
The procedure is as follows.

(1) Select the **Tools** menu > **Bilevel**, or click the **Bilevel** button on the toolbar.

(2) The **Bilevel** dialog box is displayed.

(3) Select the Color Depth Reduction Method

Auto .... Calculates the most suitable threshold value for each area while converting the data to bilevel format.

Manual .... Converts the data to bilevel format at one threshold value for the entire area.

Dither .... Sets conversion to bilevel using a dither pattern.

Error Diffusion .... Sets conversion to bilevel using an error diffusion method.

(4) Adjust the Threshold and Variability parameters according to the Color Depth Reduction Method selected.

Threshold .... Sets the threshold value for manual bilevel conversion.

Variability .... Specifies whether to convert to black or white for automatic bilevel conversion. To make the image blacker, reduce the value, and to make the image whiter, raise the value.

(5) Click the **Update Image** button to display the updated image.

(6) Repeat steps (3) to (5) until the desired image is obtained.

(7) Click the **OK** button to close the dialog box.
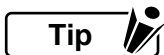
Tip

Please refer to the Preview Display on page 4-19 for details on the Original Image and Modified Image windows.

Checkpoint

This function can only be used for grayscale and color data.

Modify Color

Modifies a specified color on the image.

The procedure is as follows.

(1) Select the **Tools** menu > **Modify Color**, or click the **Modify Color** button on the toolbar.

(2) The Modify Color dialog box is displayed.

(3) Click the **New Color** button , then click on the color to be modified in the Original Image box. New colors can also be added from the palette by pressing the **Select from Palette** button .
To change colors enclosed in a specified region into a single color, left-click and drag the pointer in the Original Image box to create a region enclosing the colors to be modified. After the mouse button released, the color enclosed in the region will be added to the **Original Color** list. Up to 16 colors can be added to the list at once.

(4) To add a color to be modified, increase the allowable range or click the **Add** button and click on the colors to be added in the Original Image box. To add colors enclosed in a specified region, left-click and drag the pointer in the Original Image box to create a region enclosing the colors to be added. After the mouse button is released, the colors enclosed in the region will be added to the list. Up to 16 colors can be added to the list at once.

(5) To modify a selected color, double-click on the color to be modified to display the **Select Color** window, then modify the color.

(6) To delete a color from the list, select the color on the list and click the **Delete** button .

(7) Click the **Update Image** button . The Modified Image box will be updated.

(8) Repeat steps 3 to 7 until the desired image is obtained.

(9) Click the **OK** button to close the window. At this time, if **Display in New Window** has been selected, a new window is created separately and displayed.

Allowable Range ..... Specifies the allowable range for the color to be modified.
If the Allowable Range setting is 0, only the colors specified in **Original Color** are changed to the colors set in **Modified Color**.
If the Allowable Range setting is 20, the colors specified in **Original Color** are changed to the colors set in **Modified Color** which fall into the ± 20 range of that color's respective RGB values.
If the Allowable Range setting is 255, all colors are changed to the colors set in **Modified Color**.

Apply to All Colors .. Specifying this option applies Allowable Range changes to all the colors displayed in the **Original Color** list.

Modify Other Colors
.... If this option is specified, colors which have not been selected are all changed to the same color. If you click on an area where a color is displayed, the **Select Color Window** is displayed for setting the modified colors.

Display in New Window

.... If this option specified, displays the modified image in a new window.

Load Button .... Loads the settings from an already existing file. The **Load dialog box** is displayed for you to select the file to be loaded to the window.

Save Button .... Saves the current settings to a file. The **Save dialog box** is displayed for you to specify a suitable file name for saving.

At this time, if you save to the Color folder inside the folder in which Scanning Master Copy Color is installed, the settings can be specified when scanning in data from the scanner.

Tip

Please refer to the Preview Display on page 4-19 for details on the Original Image and Modified Image windows.

Checkpoint

This command can only be used for color data.

Select Color window

Clicking the **Select from Palette** button in the **Modify Color** dialog box displays the **Select Color** window.
The procedure is as follows.

(1) Click on the color to be selected. Multiple colors can be selected by pressing the <**Shift**> or <**Ctrl**> keys while clicking.

(2) Click the **OK** button to close the window.
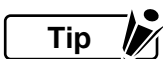
Tip

Display Order changes the color display order. Colors can be displayed in order of index, brightness, or hue.

Undo

This function undoes the previous raster action, such as despeckling, deskewing, cropping, or resizing. This operates only once for each action.
Perform one of the following.

◆ Select the **Tools** menu > **Undo.**

◆ Click the **Undo** button on the toolbar.

Making the Image Negative

This function inverts the colors of the on-screen image.
Perform one of the following:

◆ Select the **Tools** menu > **Negative**.

◆ On the toolbar, click the **Negative** button.

◆ Press the **<F8>** key on the keyboard.

Mirroring the Image

This function mirrors the image on the vertical axis.
Perform one of the following:

◆ Select the **Tools** menu > **Mirror**.

◆ On the toolbar, click the **Mirror** button.

Rotating the Image

This function rotates the on-screen image 90 degrees clockwise or counterclockwise, or 180 degrees.
Perform one of the following:

Rotating the image 90 degrees counterclockwise

◆ Select the **Tools** menu > **Rotate 90° CCW**.

◆ On the toolbar, click the **Rotate 90° CCW** button.

◆ Press the **<F9>** key on the keyboard.

Rotating the image 90 degrees clockwise

◆ Select the **Tools** menu > **Rotate 90° CW**.

◆ On the toolbar, click the **Rotate 90° CW** button.

◆ Press the **<F10>** key on the keyboard.

Rotating the image 180 degrees

◆ Select the **Tools** menu > **Rotate 180°** .

◆ On the toolbar, click the **Rotate 180°** button.

4.7　Image Measurement

This function measures a point-to-point distance based on the current resolution.
If the reference unit length is known, relative measurement is enabled based on this length.

Setting the Unit Length

Set a new interval between the two points that are used for the reference.
The procedure is as follows.

(1) Select the **View** menu > **Relative Measure** > **Unit Length**.

(2) Click the two new points you want to use for the reference.

(3) The **Measurement Reference** dialog box appears.

(4) In the **Measurement Reference** dialog box, set the length of the designated interval.

(5) Click the **OK** button to close the dialog box.

Checkpoint ✐

The scale you set in the Measurement Reference dialog box will take effect only for calculation
by the Distance between Specified Points command. It does not influence any other com-
mands.

Measure the Distance Between Specified Points

Measure the relative distance between the two points.
The procedure is as follows.

(1) Select the **View** menu **> Relative Measure > Distance between Specified Points**.

(2) Click the two points for which you want to perform relative measurement.

(3) The **Measured Results** window appears.

5. DESCRIPTIONS OF FUNCTIONS

This chapter details the Options settings, the Scanning Master 21+ menus, and the file formats.

5.1 Options Settings

Perform the Scanning Master 21+ default operations. To set the Options, select the **Tools** menu > **Options**.

File Settings tab

You can set options related to the on-screen image.
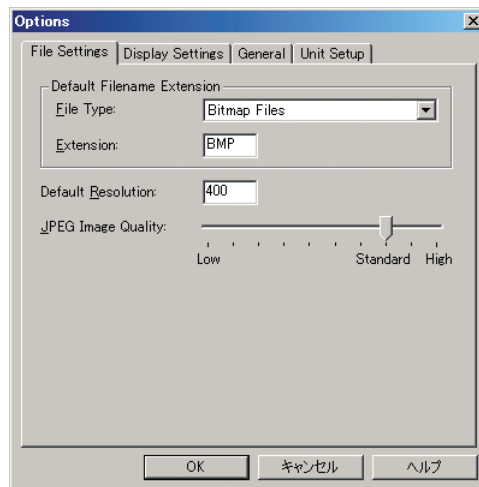
File Type .... Select the type of the files the default extensions of which are to be changed.

Extension .... Set the extension you want to use by default for the selected file type.

Default Resolution .. Set the resolution that is used if no resolution has been written for the file that is read through Open in the File menu.

JPEG Image Quality

.... Specifies the image quality when a file is saved in JPEG format. A low image quality reduces the size of the file, but renders a coarser image.

Display Settings tab

This tab lets you select the **Tools** menu **> Options > Display Settings** tab.
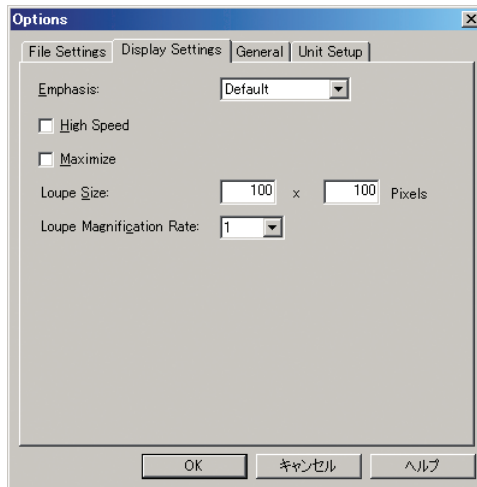
Emphasis .... Specify what pixels should be left when the image is zoomed out. This option will take effect for the file you will open next time or for the on-screen image you will scan in next time.

> **Default : For bilevel images, black pixels are emphasized. For any other images, no pixels are emphasized.**
> **None   : No pixels are emphasized.**
> **Dark   : For bilevel images, black pixels are emphasized. For any other images, pixels in dark color are emphasized.**
> **Light   : For bilevel images, white pixels are emphasized. For any other images, pixels in light color are emphasized.**
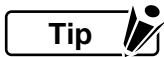
Tip

Setting "Dark" or "Light" for non-bilevel images of small size may have no effect.

High Speed .... If you turn this option on, display-related operation (e.g., scroll) will speed up for the file you will open next time or the on-screen image you scan in next time through the scanner. (If the size of available memory space is small, selecting this option may have no effect.) In addition, this option will cause Edit Paste to show only the frame without dragging the image. Note that reading from a file or scanning through the scanner may slow down, because data for display is created when the file is being opened or scanned in.

Maximize .... Maximizes the default on-screen image.

Loupe Size .... Set the loupe size in 1-pixel increments in the range from 50 to 500 pixels.

Loupe Magnification Rate

.... Set the magnification of the loupe. You can select 1, 2, 4, or 8 for the magnification. You can also change it by pressing the **<+> or <-> key** while the image is currently zoomed in on with the Loupe.

General tab

This tab lets you select the **Tools** menu **> Options > General** tab.
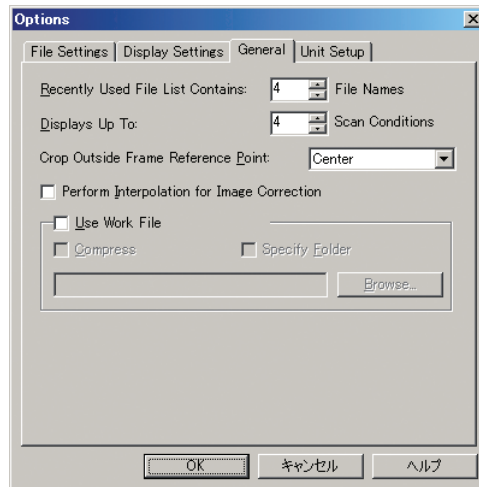
Recently Used File List

.... Set the maximum number of the files listed at the bottom of the File menu.

To enable the new setting, you must restart Scanning Master 21+.

Scan Conditions ..... Set the maximum number of the settings displayed in Save Conditions and Load Conditions in the Scan menu.

Crop Outside Frame Reference Point

.... Selects the position of the reference point when you specify Crop Outside Frame.

Perform Interpolation for Image Correction

.... If this option is specified, interpolation is performed to smooth out the data when it is grayscale or color data, and deskew or trapezoidal correction has been performed.

Use Work File .... If you turn this option on, you can save the scanned in on-screen image temporarily in the work file, thereby reducing the memory area used.

Compress .... If you turn this option on, the work file will be compressed. The disk area will be reduced although operation may slow down a little.

Specify Folder .... Turn this option on if you want to specify the folder in which the work file will be created. If you turn it off, the work file will be created in the temporary folder of the system.

Browse button .... When selecting the folder in which the work file will be created, you can click this button to display the window that lets you select it.

Unit Setup tab

This tab lets you select the **Tools** menu > **Options** > **Unit Setup** tab.
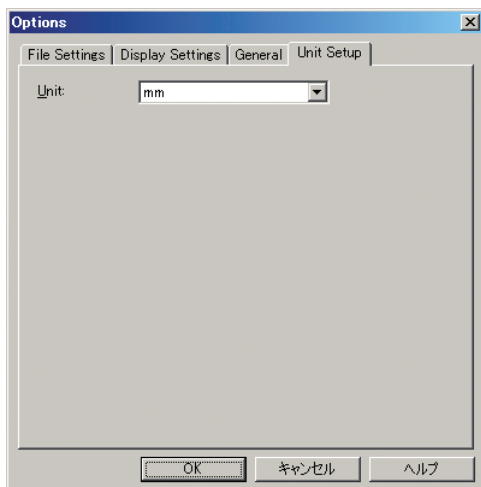
Unit .... Specifies the unit used for the Paper Size and other settings.

5.2 Menus

File Menu

File
Open...   Ctrl+O
Close
Save   Ctrl+S
Save As...

Print...   Ctrl+P
Page Setup...

1 SAMPLE1.TIF
2 SAMPLE2.TIF
3 SAMPLE3.TIF

Exit
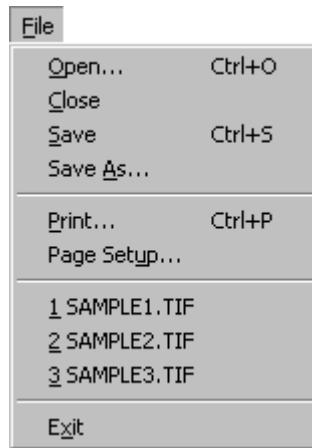
Open… .... Opens an existing on-screen image.

Close .... Closes the currently open on-screen image.

Save .... Saves the latest version of the on-screen image file, with the previous version overwritten.

Save As… .... Saves the on-screen image under a new name.

Print… .... Prints the on-screen image.

Page Setup… .... Lets you set up the page layout and selection and connection of the printer (or plotter).

File names 1, 2, 3, 4,… .. Opens a recently closed file.

Exit .... Exits Scanning Master 21+.

Edit Menu

Edit	
Undo	Ctrl+Z
Redo	Ctrl+Y
Cut	Ctrl+X
Copy	Ctrl+C
Paste	▶
Rubout	
Erase Area	
Revise	
Line	
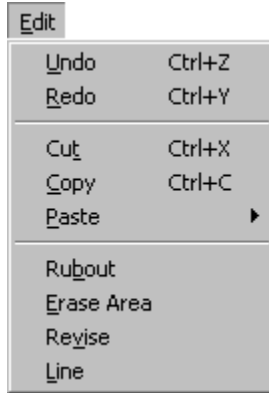
Undo .... Undoes the last action.

Redo .... Redoes the action you undid with Undo.

Cut .... Cuts and saves the selection in memory.

Copy .... Copies and saves the selection in memory.

Paste .... Pastes the memory contents to the on-screen image.

.... **New Image**
Creates an image window in which you view the data contained in memory as a new image.

.... **Paste to Current Window**
Pastes the data in memory to the cursor position.

.... **Transparent Background**
With the background in transparent color, pastes the data in memory to the cursor position.

Rubout .... Rubs out part of the on-screen image with the background color.

Erase Area .... Paints the specified area in background color.

Revise .... Retouches the on-screen image in foreground color.

Line .... Draws a line in foreground color.

Tip

Pressing the <Esc> key during an Edit action cancels that action.

Checkpoint

The Edit menu is available only for bilevel data.

View Menu

View	
Fit	F2
1:1	Ctrl+1
Zoom Out	▶
Zoom In	▶
Bird's Eye	F6
Zoom	F11
Loupe	F12
Image Info...	
Relative Measure	▶
✔ Toolbar	
✔ Status Bar	
✔ Editing Tools	
✔ Scan Tools	
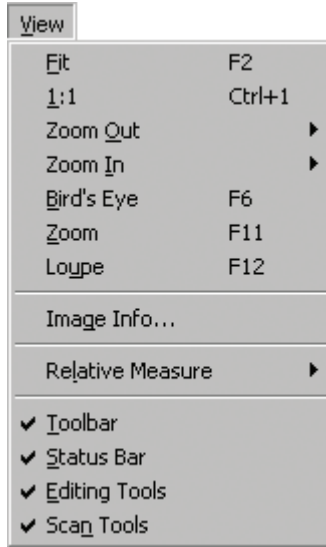
Fit .... Displays the whole on-screen image to fit it in the current window area.

1:1 .... Displays the on-screen image as Normal size, with one dot representing one pixel.

Zoom Out .... Zooms out the on-screen image.

Zoom In .... Zooms in on the on-screen image.

Bird's Eye .... Shows or hides the window containing the overview of the on-screen image.

Zoom .... Displays the detailed view of the zoomed section of the area at the current cursor position.

Loupe .... Turns on or off the Loupe Mode, which enables you to zoom in on the area around the cursor.

Image Info... .... Displays the window that lists detailed information about the on-screen image.

Relative Measure .... Measures a relative distance on the on-screen image.

Toolbar .... Shows or hides the toolbar.

StatusBar .... Shows or hides the Status Bar.

Editing Tools................. Shows or hides the Editing Tools.

Scan Tools .... Shows or hides the Scan Tools.

Tip
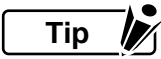
To view just one part of the image, define that area by pressing the right mouse button to display a rectangle and dragging the mouse to the desired position. Once you release the mouse button, the image in the defined area is viewed according to the current window. To cancel setting of the defined area, press the <Esc> key during drag.

Scan Menu

Scan
Model Setup...
Scan...
Scan and Print...
Save Conditions ▶
Load Conditions ▶
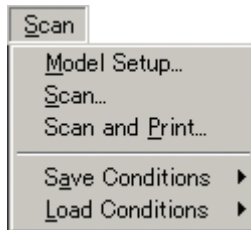
Model Setup... .... Displays the dialog box that lets you set the scanner model for scanning.

Scan............................. Displays the Scan window.

Scan and Print... .... Displays the Scan window and automatically outputs scanned data to the specified printer after scanning is completed.

Save Conditions .... Saves the current scanning settings.

Load Conditions .... Loads the existing scanning settings.

Tools Menu

Tools
- Undo
- Despeckle...
- Deskew...
- Crop ▶
- Resize...
- Smoothing

- Reduce Colors to Bilevel...
- Modify Color...

- Negative   F8
- Mirror
- Rotate 90° CCW   F9
- Rotate 90° CW   F10
- Rotate 180°

- Options...
- Customize...

- Adjust Scanner...

Undo .... Undoes the previous raster action.

Despeckle…*1 .... Removes speckles from the background.

Deskew… .... Deskews an on-screen image.

Crop .... Crops the outside of the defined area.

Resize…*1 .... Displays the dialog box that lets you resize data.

Smoothing*2 .... Smooths the on-screen image.

Reduce Colors .... Converts the image to bilevel.
to Bilevel*3

Modify Color*4 .... Modifies a specified color within the image data.

Negative .... Color-inverts the on-screen image.

Mirror .... Inverts the on-screen image.

Rotate 90° CCW .... Rotates the on-screen image 90 degrees counterclockwise.

Rotate 90° CW .... Rotates the image 90 degrees clockwise.

Rotate 180° .... Rotates the image 180 degrees.

    Options... .... Lets you set up the Scanning Master 21+ defaults.

    Customize .... Adds, deletes, or rearranges Toolbar buttons.

    Adjust Scanner... .... Adjusts the scanner.

*1   Available only for bilevel data.

*2   Available only for grayscale data.

*3   Available only for grayscale data or 8-bit color data.

*4   Available only for 8-bit color data.

Window Menu

The Window menu contains commands that control how two or more application windows are to be listed.
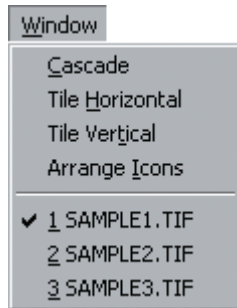
Cascade .... Cascades the windows.

Tile Horizontal .... Tiles the windows horizontally.

Tile Vertical .... Tiles the windows vertically.

Arrange Icons .... Arranges the icons at the bottom of the windows.

Window Name 1, 2, … .. Displays the window you clicked.

Help Menu
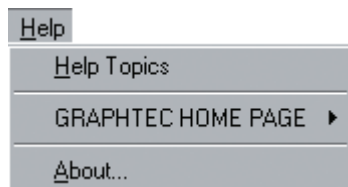
Help Topics .... Lists the Contents of the Help window.

Graphtec Home Page ... Displays the Graphtec web site.

About … .... Shows information about the application version.

5.3　File Formats

Scanning Master 21+ handles all the following file formats, but compatible formats vary according to the type of image data.

Bitmap .... Saved as Windows bitmap data. The folder extension is BMP.

Bitmap RLE .... Saved as Windows RLE compressed format bitmap data. The folder extension is BMP.

CAD Overlay ESP .... This format is for CAD Overlay ESP data. The folder extension is RLC

Checkpoint

Resolution information cannot be added to the CAD Overlay ESP data at the time it is saved. When using Scanning Master 21+ to save CAD Overlay ESP data, the image data is saved as is. To load existing CAD Overlay ESP image data from a file, or to save the data under a different file format, select the Tools menu > Options > File Settings tab and then save at the resolution specified for the Default Resolution setting.

TIFF Uncompressed MSB ...... TIFF format, Motorola Big Endian uncompressed format.
The default extension is .tif

TIFF Uncompressed LSB .... TIFF format, Intel Little Endian uncompressed format.
The default extension is .tif

TIFF G4 MSB .... TIFF format, Motorola Big Endian Group 4 MMR compressed format.
The default extension is .tif

TIFF G4 LSB .... TIFF format, Intel Little Endian Group 4 MMR compressed format.
The default extension is .tif

TIFF Packbits MSB .... TIFF format, Motorola Big Endian Packbits compressed format.
The default extension is .tif

TIFF Packbits LSB .... TIFF format, Intel Little Endian Packbits compressed format.
The default extension is .tif

TIFF CCITT G3 MSB .... TIFF format, Motorola Big Endian CCITT Group 3 compressed format.
The default extension is .tif

TIFF CCITT G3 LSB .... TIFF format, Intel Little Endian CCITT Group 3 compressed format.
The default extension is .tif

TIFF G3 MSB .... TIFF format, Motorola Big Endian Group 3 compressed format.
The default extension is .tif

TIFF G3 LSB .... TIFF format, Intel Little Endian Group 3 compressed format.
The default extension is .tif

TIFF JPEG MSB .... TIFF format, Motorola Big Endian JPEG compressed format.

The default extension is .tif

TIFF JPEG LSB .... TIFF format, Intel Little Endian JPEG compressed format.

The default extension is .tif

Checkpoint

Scanning Master 21+ cannot display TIFF multi-page format data. If a TIFF multi-page format file is read, only the first page will be displayed. Further, if a save operation is performed, only the first page is saved. All other images will be deleted.

CALS G4 .... CALS TYPE 1 , Group 4 MMR compressed format.

The default extension is .cg4

PCX .... PCX version 5 format.

The default extension is .pcx

Intergraph G4 .... Intergraph Group 4 MMR compressed format.

The default extension is .cit

Sun Raster Uncompressed .... Sun Raster uncompressed format.

The default extension is .ras

Sun Raster Encode .... Sun Raster Encode format.

The default extension is .ras

JPEG .... Joint Photographic Experts Group compressed format.

The default extension is .jpg

Checkpoint

Data cannot be saved in the CAD Overlay ESP, TIFF JPEG, PCX or JPEG formats if the width or length of the document exceeds the dimensions given below.

Resolution (dpi)	100	200	300	400	600	800	1200	1600	1800	2400	3600	4800	9600
Length (mm)	16645	8322	5548	4161	2774	2080	1387	1040	924	693	462	346	173

PDF .... PDF (1.3) format files. The default extension is PDF.

Scanning Master 21+ can save files in PDF format, but PDF files cannot be opened or edited in Scanning Master 21+.

Checkpoint

The PDF format is not selectable when specifying any paper size which uses the automatic-detection and checking the "Direct Output to a File" check box.

File format compatibility

○ ...... Data can be read and saved

× ...... Data cannot be read or saved

△ ...... Data can be saved only

Bilevel data	Grayscale data	8-bit color data	24-bit color data	File format
○	○	○	○	Bitmap
×	○	○	×	Bitmap RLE
○	×	×	×	CAD Overlay ESP
○	○	○	○	TIFF Uncompressed MSB
○	○	○	○	TIFF Uncompressed LSB
○	×	×	×	TIFF G4 • MSB
○	×	×	×	TIFF G4 • LSB
○	○	○	○	TIFF Pack Bits • MSB
○	○	○	○	TIFF Pack Bits • LSB
○	×	×	×	TIFF CCITTG3 • MSB
○	×	×	×	TIFF CCITTG3 • LSB
○	×	×	×	TIFF G3 • MSB
○	×	×	×	TIFF G3 • LSB
×	○	×	○	TIFF JPEG • MSB
×	○	×	○	TIFF JPEG • LSB
○	×	×	×	CALS G4
○	○	○	○	PCX
○	×	×	×	INTERGRAPH G4
○	○	○	○	Sun Raster Uncompressed
○	○	○	×	Sun Raster Encode
×	○	×	○	JPEG
△	△	△	△	PDF

INDEX

The specifications, etc., in this manual are
subject to change without notice.

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