User Guide

Grayscale Hand-Held Scanners

GS-400

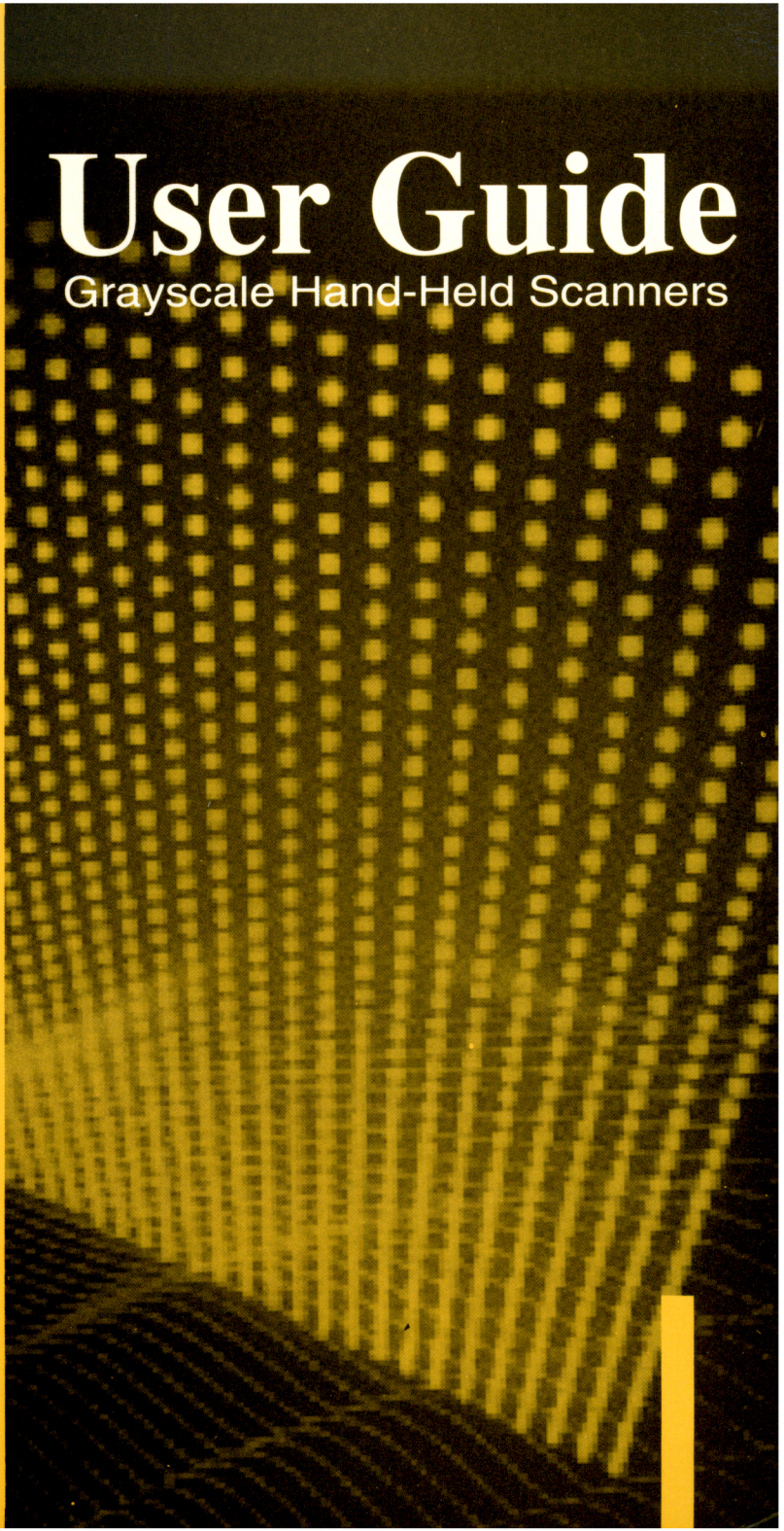
GS-400L

GRAYSCALE

HAND-HELD

SCANNERS

Mustek®



GS-400(L)

Grayscale Hand-Held Scanner

User Guide

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Copyright Information

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FCC Statement

This digital equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and if it is not installed and used according to the instruction manual, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment causes harmful interference to radio or television reception, which can be determined by turning the equipment off or on, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna
- Increase the distance between the equipment and the receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

NOTE

1. The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
2. Shielded interface cables and AC power cord, if any, must be used in order to comply with the emission limits.

Limited Warranty

Mustek Incorporated ("Mustek") hereby warrants its Product, if properly handled under normal use and only for the purpose it is designed for, to be free of defects in workmanship and material for one year from the date of purchase from Mustek or an Authorized Mustek dealer.

If the Product is found to be defective during the applicable warranty period, Mustek will, according to the following specific procedure and at its option, either repair or replace the Product at no charge. All parts that are exchanged or replaced shall become the property of Mustek. This warranty does not include any damage to the Product resulting from but not limited to accident, disaster, misuse, abuse, or any unauthorized modification of the Product.

Limited Warranty Service Procedures

Limited warranty service may be obtained by delivering the defective Product to Mustek or to the Authorized Mustek dealer from whom the Product was purchased, during the applicable warranty period and providing proof of purchase date, and according to the following procedures:

(1) Before returning the Product, contact Mustek's Customer Service Department, call USA: (714) 453-1309 (California) EUROPE: (02131) 103-826 (Germany) ASIA: (886) (35) 783-321 (Taiwan) to obtain a RETURN MATERIALS AUTHORIZATION (RMA) number. The RMA number should be prominently displayed on the outside of the returned package and on the accompanying packing list. Mustek cannot be held responsible for any Product returned without an RMA number.

(2) Product returned to Mustek by air mail must be sent postage prepaid and packaged appropriately for safe shipment.

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All express and implied warranties of merchantability or fitness for a particular purpose and any other warranty for Products not specified are limited in duration to the applicable period as set forth in this limited warranty, and no warranties will apply after such period. If this Product is not as warranted, your sole remedy shall be repair or replacement as provided hereof. In no event shall Mustek be liable for any incidental, consequential, special or indirect damages whatsoever resulting from loss of use, data, profits, or inability to such Product, even if Mustek or an Authorized Mustek dealer has been advised of the possibility of such damages, or for any claim by any other party.

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Introduction

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Your grayscale scanner is a hand-held scanner designed to provide an easy and economical solution to your scanning needs. The scanner scans in 256 true grayscale, halftone, and line art and text modes.

This grayscale scanner is the ideal complement to many of today's powerful imaging applications in the worlds of desktop publishing (DTP), optical character recognition (OCR), image-processing, multimedia, animation, and more.

Supported Computer Systems

With the use of an appropriate interface, your scanner can be connected to an IBM PC/AT (or compatible computer) or to an Apple Macintosh computer.

Installation Info

To connect the scanner to a desktop or tower model PC, you need either an interface card, which must be inserted into one of the slots inside the computer, or a printer port adapter that connects to the printer port.

There are two ways of connecting the scanner to a laptop or notebook PC. You can use a printer port adapter that connects to the printer port, or if your computer has a PCMCIA slot, you can use a PCMCIA card to connect the scanner to the computer.

Connecting the scanner to a Macintosh computer requires an appropriate SCSI device, which must be correctly daisy-chained to the Macintosh.

Consult the installation manual included in your scanner package for detailed instructions on how to connect the scanner to your computer. For the bundled software, please refer to the separate program manuals to install the included application software.

About This Guide

This guide, divided into the following sections, is designed to help you operate your grayscale scanner:

- Introduction

  The Introduction gives an overview of the user guide. It summarizes the scanner's features and covers supported computer systems.

- Scanner Parts

  This section describes and illustrates the major parts of the scanner.

- Using the Scanner

  This section explains the three scan modes you can choose and how to use the scanner. Suggestions are also included to help you obtain optimal scanning results.

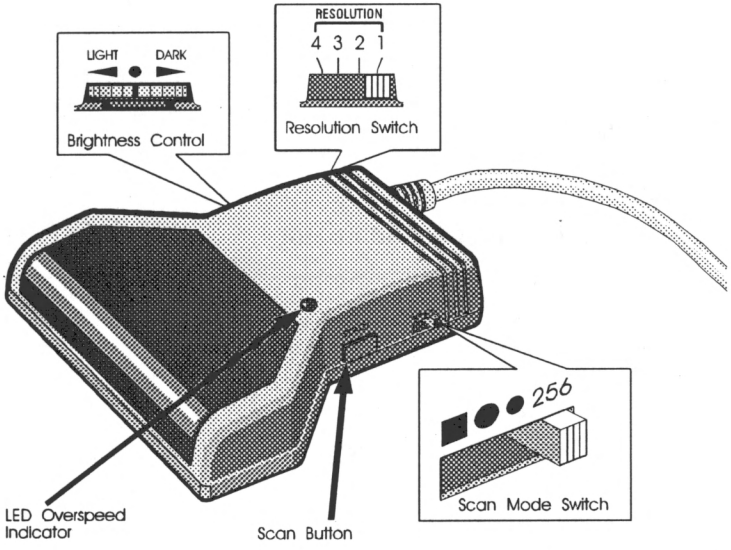
- Appendices

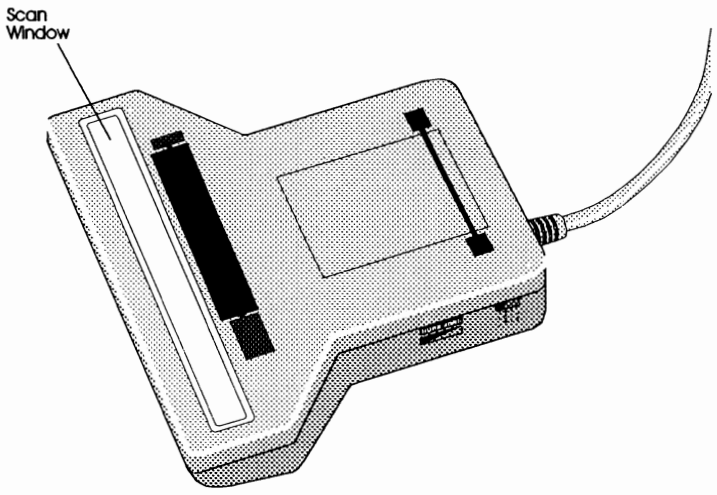
  The Appendices contains the technical specifications of your grayscale scanner, how to get product and technical support, and other useful information.

Scanner Parts

2

Once you have installed the grayscale scanner, its interface card and scanning software, you should take some time to learn about the scanner. This chapter is intended to familiarize you with your scanner features.



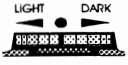


Scanner Description

LED Overspeed Indicator

Located on top of the scanner, the LED (Light-Emitting Diode) indicates when you are scanning too fast. If you roll the scanner at the proper speed, the LED light is steady. A blinking LED indicates you are approaching the maximum scanning speed. Roll the scanner too fast and the LED will turn off. If so, you probably lost some image data because the scanner could not transmit it all at that speed. It is suggested that you abort scanning by pressing any key on the keyboard and re-scan.

Brightness Control



This increases or decreases the amount of whiteness in your scanned images. If your document is very dark, rotate the thumbwheel to the left to lighten the image. If your document is very light, rotate the thumbwheel to the right to darken the image.

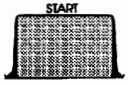
Resolution Switch

This switch controls how much image detail is captured in a scan. The image detail is measured in dots per inch (dpi). The grayscale scanner has a resolution range of 100 to 400 dpi. Select a resolution by moving the resolution switch to 1 for 100 dpi, 2 for 200 dpi, etc. You must scan slower at a higher resolution because of the scanner's transmission capacity.

Scan Mode Switch

This switch determines how the scanner reads the document into a scanned image. The right choice depends on the document, your output requirement and your system configuration. The scan modes consist of true 256 grayscale (256), "Small Dot" (•), "Big Dot" (●), and line-art/text mode (■). For more information, see the section *Scan Mode Considerations* in the next chapter.

Scan Button



This is the On switch for the grayscale scanner. Press and release the Scan button to start scanning. When you are through scanning, press any key on the keyboard to stop.

Scan Window

Located under the scanner, this is where the scanner "sees" the document. The scanner reflects a light off the document which reads the light and dark areas into digital values inside the scanner. The digitized image data is then transmitted to your computer's memory.

Using the Scanner

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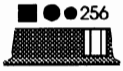
It is likely that on your first few attempts at scanning, you will have to scan an image several times before getting the desired effect. To achieve acceptable scanning results you should take some time to understand the various options that your hand scanner can offer. This chapter is divided into three parts:

- Choosing the right scan mode
- How to scan with the grayscale scanner
- Tips for better scanning results

Scan Mode Considerations

True 256 Grayscale

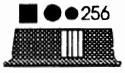


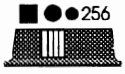
This setting provides the most image detail. In grayscale, the scanner recognizes each dot in the image as a shade of gray. Images scanned in 256 Grayscale will show up to 256 shades of gray. So scanning in grayscale is preferable when you need high quality copies of images such as photographs, or would like to enhance your images with an image-editing program. Also, if you are planning to print your images on a phototypesetter, True 256 Grayscale will give you better image quality than Halftone.

However, be sure your computer memory has enough disk space to save large images. For example, suppose you were to scan an A4-size document by merging the left and right halves together. If you scanned the image at 300 dpi, about 8 MB of disk space would be required to save the A4-size 256 grayscale image.

Halftone

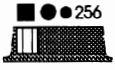
In a halftone image, the scanner recognizes each dot as either black or white. The black dots are arranged into **pattern cells** to simulate different shades of gray (**halftone levels**). The more black dots there are, the darker the image "appears" to the human eye. The fewer there are, the lighter the shade of simulated gray.





When you are concerned about disk space, yet you want simulated gray images, you can select either one of two halftone scan mode settings. "Small Dot" uses smaller dots to compose an image. "Big Dot" uses bigger dots to compose an image. Halftone images require much less disk space than 256 grayscale images. If the same A4-size 300-dpi image used in the *True 256 Grayscale* section was scanned in halftone, the image would only require about 1 MB of disk space to save compared to 8MB for the 256 Grayscale image.

Line-art/Text



This scan mode is best used for tasks where all areas of the document are a solid, distinct color with no intermediate shade detail. Applications include scanning text for conversion to word processing formats (OCR) or black and white art work. Images produced with this scan mode setting require significantly less space to save.

Using the Scanner

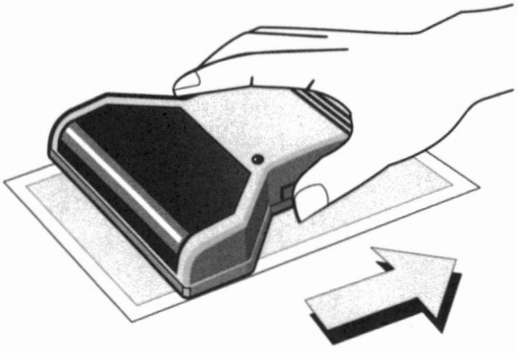
After you setup and launch your software (refer to the scanning software documentation), the steps for scanning with the grayscale scanner are:

1. Determine the type of image you would like to produce (grayscale, halftone or line-art/text) and set your scan mode switch accordingly.

2. Choose the resolution at which you will scan the document and adjust the scanner's Resolution Switch.

3. Setup your software (refer to the scanning software documentation).

4. Press and release the Scan Button when prompted by the program to start scanning and roll the scanner in a straight line over the document using a slow, steady movement (see illustration). Make sure the LED Overspeed Indicator light is steady, indicating you are not moving the scanner too fast. As you move the scanner over the document, the image will begin appearing in the main screen of the scanning software.



5. Press any key on your keyboard to stop scanning after you have rolled the scanner over the area you wanted to capture. Note that the process will naturally stop when you run out of memory space or allow the alloted scanning time to expire.

Scanning Tips

To get good results with your grayscale scanner, you should:

- Try scanning with the scanner on various documents using different scan modes and switch settings
- Practice moving the scanner at a slow, unvarying speed in a straight line. If you have trouble keeping the scanner moving in a straight line, place a book (or similar object) alongside the document to use as a straight edge guide for the scanner
- Prevent the document from moving at all. If this is difficult to do, e.g. it is very small, place a transparency over the document to hold it in place or secure it with some adhesive tape to the surface you are scanning it on
- Make sure you have adequate RAM and hard disk space for the types and sizes of images you intend to produce. Large images require large amounts of storage space
- Make sure the scanning window on the underside of your scanner is free of smudges, lint, dust or other kinds of dirt. If the scanning window is dirty, the dirt will appear in your scanned images. Also make sure the rollers on the underside of the scanner are free of dirt. Use a soft, damp, lint-free cloth to remove any dirt from the scanning window or rollers

Appendices

A

Appendix A: Technical Specifications* of GS-400(L)

Scanning Type: Hand-held manual scanning

Scanning Width: 4.13 inches/105mm (±3%)

Scan Modes: Text or Line-Art
Two Halftone Modes
256-Gray Mode

Number of Gray Levels: 256-Gray Mode - 8 bits per pixel: true 256 gray levels

Resolution: 100/200/300/400 dots per inch (dpi)

Scanning Speed:
100 dpi - 55.1 mm/sec
200 dpi - 27.7 mm/sec
300 dpi - 18.3 mm/sec
400 dpi - 13.7 mm/sec

Scan Button: One click (toggle switch)

Light Source: LED Array

Brightness Control: Continuous adjust

** Product specifications are subject to change without prior notice.*

Power Consumption:	(For GS-400L) 250 mA(max.)/5 Vdc through interface circuit (For GS-400) 400 mA(max.)/12 Vdc through interface circuit
Interface Traffic:	Uni-directional
Dimensions:	136mm x 136mm x 35mm
Weight:	300g
Cable Length:	180 cm
Operating Temperature:	0° to 40° Centigrade (32° to 104° Fahrenheit)
Operating Humidity:	35% to 80% RH, noncondensing
Storage Temperature:	-20° to 60° Centigrade (-4° to 140°F)
Storage Humidity:	10% to 90% RH, noncondensing

Appendix B: Product and Technical Support

Product Support

For product information, please call Customer Service. They can answer any questions that you may have about new product releases and upgrades.

Technical Support

If you need help installing your scanner or the scanning software, call Technical Support. They can also answer any questions that you may have about using your scanner.

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Irvine, CA 92718, USA
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FAX: 886-35-781455

To bring you the best possible service, please have the following information ready when you call :

- Which scanner model do you have?
- Which computer model are you using?
- What version of scanning software do you have?
- What other application programs are you using?
- What other components are in your system? (For example, FAX card, sound card, SCSI card and so on.)
- What are the problems/symptoms you encounter?

Product Returns

For Product repairs or returns, please follow these steps:

1. Call the technical support department for a Return Material Authorization (RMA) number.
2. Write the RMA number clearly on the outside of the package.
3. Refer to this RMA number in all future calls.

Note:

(1) Mustek cannot be held responsible for any product returned without an RMA number.

(2) Users must return the products to their point of purchase for a refund or credit, according to the dealer's policy.

(3) Products returned to Mustek must be sent postage paid, prepared and packaged appropriately for safe shipment.